

# **Sharing and dissemination of environmental information**

## **Country maturity report: Republic of Moldova**

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## *Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*

### **Legal notice**

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This report was produced by PricewaterhouseCoopers as part of the project 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. The report was built in 2018 and updated throughout 2019, including a review in March 2019 after the first regional meeting in Kiev, and the second review after the roundtable in November 2019. The report was commented by the local authorities in Moldova in January 2020.

This report contains information obtained or derived from a variety of publicly available sources described within the report in more detail and does not intend 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.



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## List of acronyms

Acronym	Description
<b>AGMR</b>	Agency of Geology and Mineral Resources
<b>ANRANR</b>	Agency for Regulation of Nuclear and Radiological Activities
<b>CIEMIM</b>	Centre on Integrated Data Monitoring and Informational Management
<b>EaP</b>	Eastern Partnership
<b>EEA</b>	European Environment Agency
<b>eGA</b>	E-Governance Agency
<b>EGDI</b>	E-Government Development Index
<b>ENI</b>	European Neighbour Instrument
<b>ENP</b>	European Neighbourhood Policy
<b>EPI</b>	Environmental Performance Index
<b>GeT</b>	Governance e-Transformation Project
<b>HCI</b>	Human Capital Index
<b>ICT</b>	Information Communication Technologies
<b>IEG</b>	Institute of Ecology and Geography
<b>INGEOCAD</b>	Institute of Geodesy, Engineering Surveys and Cadastre “INGEOCAD”
<b>MARDE</b>	Ministry of Agriculture, Regional Development and Environment
<b>M-Cloud</b>	Government Cloud Computing Infrastructure
<b>MEA</b>	Multinational environmental agreement
<b>NBS</b>	National Bureau of Statistics
<b>NFP</b>	National Focal Point
<b>NGO</b>	Non-governmental Organisation
<b>ODIN</b>	Open Data Inventory
<b>OSI</b>	Online Service Index
<b>PRTR</b>	Pollutant Release and Transfer Registers
<b>SEIS</b>	Shared Environmental Information System
<b>SEPI</b>	State Environmental Protection Inspectorate
<b>SHS</b>	State Hydrometeorological Service
<b>SIAMD</b>	Waste Management Informational System
<b>TII</b>	Telecommunication Infrastructure Index
<b>UNECE</b>	United Nations Economic Commission for Europe



# 1 Methodological approach and policy context

The methodology followed to prepare the present report is based on the 2018 and 2019 European Union reports on open data maturity in Europe, with some adjustments made to accommodate the specific situation of Eastern Partnership countries as well as the focus on environmental information.

This report was produced by PricewaterhouseCoopers as part of the European Environment Agency (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 EU-funded ENI SEIS II East project 2016-2020, which targets Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and, Ukraine – the Eastern Partnership countries (EaP).

In all countries of the Eastern Partnership, e-governance and open data initiatives are recognised as mainstream for making data and information easily accessible to the policymakers, public and other stakeholders. Sharing environmental information through national e-governance and open data frameworks based on the Shared Environmental Information System (SEIS) principles<sup>1</sup> has seen an important development in recent years. Nonetheless, it could be further underpinned with a clearly developed vision and comprehensive roadmap for this specific area. The benefits of sharing, disseminating and promoting the use and reuse of environmental information can support the governmental policies and actions in environment and related areas, the transition towards a green economy, innovation compliance with various reporting obligations as well as support to the implementation of various Sustainable Development Goals (SDGs). Furthermore, it can streamline efforts and reduce the reporting burden for the national bodies by working together in a more structured and connected way.

The present project aims to facilitate such exchanges and helping the EaP countries advance in developing an open data policy for the environment. The project is strongly embedded in the context of several international commitments and strategic documents related to the collection, update, sharing, dissemination and use of environmental information as follows:

- Article 5 of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) and decision VI/1 of the Meeting of the Parties to the Aarhus Convention on promoting effective access to information<sup>2</sup>;
- The Protocol on Pollutant Release and Transfer Registers (Protocol on PRTRs)<sup>3</sup>;
- The Batumi Declaration “Greener, cleaner, smarter!”<sup>4</sup> adopted by Ministers of the UNECE region calling to have SEIS in place in support to regular assessment in countries of UNECE region by 2021;

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<sup>1</sup> <https://www.eea.europa.eu/about-us/what/shared-environmental-information-system-1/shared-environmental-information-system>

<sup>2</sup> <https://www.unece.org/env/pp/treatytext.html>

<sup>3</sup> <https://www.unece.org/env/pp/prtr/docs/prtrtext.html>

<sup>4</sup> <https://www.unece.org/fileadmin/DAM/env/documents/2016/ece/ece.batumi.conf.2016.2.add.1.e.pdf>



- The Declaration on Cooperation on Environment and Climate Change in Eastern Partnership<sup>5</sup> (Luxembourg 2016);
- The 2030 Agenda for Sustainable Development<sup>6</sup>;
- The European Green Deal (2019)<sup>7</sup>;
- ‘Eastern Partnership policy beyond 2020’ Communication<sup>8</sup> adopted on 18 March 2020;



*Figure 1. One of the five objectives of Eastern Partnership policy initiative (2020, Factsheet: The Eastern Partnership beyond 2020: Reinforcing Resilience – a partnership that delivers for all<sup>9</sup>)*

- UN Secretary-General's Roadmap for Digital Cooperation, June 2020<sup>10</sup>;
- Eastern Partnership leaders' video conference, 18 June 2020<sup>11</sup>.

SEIS is also an integral part of the Good Environmental Governance flagship initiative of the EU. EEA is currently supporting this process in both the European Neighbourhood countries<sup>12</sup> East<sup>13</sup> and South<sup>14</sup> in the context of dedicated projects currently running until mid-2020.

As part of this project, the “Country maturity report on sharing and dissemination of environmental information” of the Republic of Moldova has been prepared. The report reflects on the national e-government and maturity level of open data. The report identifies synergies for fostering environmental information sharing and dissemination to support the

<sup>5</sup>

[https://ec.europa.eu/environment/international\\_issues/pdf/declaration\\_on\\_cooperation\\_eastern\\_partnership.pdf](https://ec.europa.eu/environment/international_issues/pdf/declaration_on_cooperation_eastern_partnership.pdf)

<sup>6</sup> <https://sustainabledevelopment.un.org/post2015/transformingourworld>

<sup>7</sup> [https://ec.europa.eu/info/sites/info/files/european-green-deal-communication\\_en.pdf](https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf)

<sup>8</sup> <https://data.consilium.europa.eu/doc/document/ST-6930-2020-ADD-1-REV-1/en/pdf>

<sup>9</sup> [https://eeas.europa.eu/sites/eeas/files/eap\\_joint\\_communication\\_factsheet\\_18.03.en\\_.pdf](https://eeas.europa.eu/sites/eeas/files/eap_joint_communication_factsheet_18.03.en_.pdf)

<sup>10</sup> <https://www.un.org/en/content/digital-cooperation-roadmap/>

<sup>11</sup> <https://www.consilium.europa.eu/en/meetings/international-summit/2020/06/18/>

<sup>12</sup> <https://euneighbours.eu/en>

<sup>13</sup> EU Neighbours East: Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, and Ukraine

<sup>14</sup> EU Neighbours South: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, and Tunisia



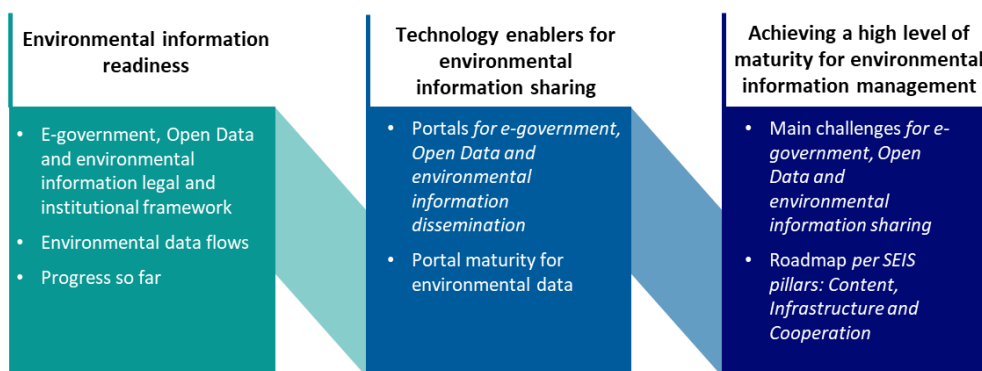


implementation, among others, of the SEIS principles, of the UNECE Aarhus Convention and Protocol on PRTRs. As such, the project is aiming to 1) gradually expand the open data maturity approach to the European Neighbourhood East countries and to the specific topic of environment, 2) assess the EaP countries' status of development in e-governance and open data for the environment, and 3) develop with and for each EaP country a roadmap for fostering the process and gradually align it to similar developments taking place in the European Union and other more advanced countries.

The report highlights the main challenges existing in the Republic of Moldova in this area. The report serves as a tool to initiate the discussion about the strategic development and potential initiatives at the national level, bringing stakeholders from e-government, open data, and the environment together. It can serve both as a tool for further implementation and as a possible replicable prototype for other countries.

The SEIS approach consists of three pillars: Content, Infrastructure and Cooperation<sup>15</sup>, and this approach was followed for structuring the report and for gathering the necessary information. The report also leverages the work done in the European Union for measuring the maturity level of open data in the Member States. Consequently, the report adopts a similar structure as the "Open Data Maturity in Europe 2019"<sup>16</sup> published on the European Open Data Portal but adapted to the specificity of EaP countries and is focusing on the connection between e-government, open data and environmental information. As such, the report is built around three major blocks, namely 1) the assessment of environmental information readiness; 2) the assessment of technological enablers; and 3) the key challenges and their translation into a proposed roadmap. The structure of the report is similar for all EaP countries. This approach makes the analysis comparable across EaP countries and serves as a baseline for developing and exchanging initiatives across the region.

In this regard, all country reports are complemented by the Good Practices Report which supports the implementation of the proposed roadmaps offering possible solutions and alternatives based on the example of other countries and international organisations.



<sup>15</sup> <https://eni-seis.eionet.europa.eu/east/governance/what-is-seis>

<sup>16</sup> The report structure was prepared according to Open Data Maturity in Europe 2018 and updated according to Open Data Maturity in Europe 2019  
<https://www.europeandataportal.eu/en/dashboard#2019>



*Figure 2. The country maturity report structure*

The report was prepared in close cooperation with EEA project team, the National Focal Points (NFPs) for the ENI SEIS project, the Aarhus Convention and the Protocol on PRTRs and the UNECE secretariat for these treaties respectively, and, the ENI SEIS national assistants. Furthermore, a broad consultation with national experts across a wide range of topics was ensured, ranging from environment, statistics, sectoral policies up to e-government and IT infrastructure.

The following sources of information were analysed to prepare the report:

- Legislation:
  - Legal acts related to public information;
  - Legal acts related to open data;
  - Legal acts related to e-government;
  - Legal acts related to environmental information.
- Environmental reporting:
  - Aarhus Convention national implementation reports<sup>17</sup>;
  - Protocol on PRTRs national implementation reports, where available;
  - UNECE Environmental Performance Review, where available;
  - EU Analytical Report 7: Open Data in the European Union Neighbourhood<sup>18</sup>;
  - UNECE Progress in the production and sharing of core environmental indicators;
  - Interim report on Implementation of the Action Plan for Introduction of Open Government Partnership Initiative;
  - EEA – the Republic of Moldova country report under ENPI-SEIS<sup>19</sup>;
  - County Factsheets on the state of SEIS implementation in 2018<sup>20</sup>;
  - World Bank Country Environmental Analysis, where available;
  - Country presentations made during the 4th ENI SEIS II East Project Steering Committee Meeting<sup>21</sup>, 12 November 2019 in Copenhagen;
  - Other country-specific reports.
- Portals:
  - EU Open Data Portal and national open data portals;
  - E-government services portal;
  - Environmental portals;
  - Statistical office website.

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<sup>17</sup> 2017 National implementation reports by Parties :  
[https://www.unece.org/env/pp/reports\\_trc\\_implementation\\_2017.html](https://www.unece.org/env/pp/reports_trc_implementation_2017.html)

<sup>18</sup> European Open Data Portal, Analytical Report 7, Open Data in the European Union Neighbourhood, June 2017, Capgemini, funded by the European Commission.  
[https://www.europeandataportal.eu/sites/default/files/edp\\_analytical\\_report\\_n7.pdf](https://www.europeandataportal.eu/sites/default/files/edp_analytical_report_n7.pdf)

<sup>19</sup> ENPI-SEIS East Region Synthesis Report by the European Environment Agency, 2010-2014  
<https://www.eea.europa.eu/publications/enpi-seis-east-region-synthesis-report>

<sup>20</sup> <http://www.unece.org/environmental-policy/environmental-monitoring-and-assessment/areas-of-work/shared-environmental-information-system.html>

<sup>21</sup> Presentations are available here: <https://eni-seis.eionet.europa.eu/east/areas-of-work/communication/events/project-related-events/4th-eni-seis-ii-east-project-steering-committee-meeting>



- Other sources:
  - Country-specific reports and/or analysis prepared by national and international bodies.

The challenges identified in each country, the related good practices, and the initiatives stemming from the roadmap were discussed initially during the regional event in Kiev on 4-6 March 2019. Furthermore, the country maturity report was updated based on the discussions and presentations made at the national event in Chisinau and was further discussed in the national roundtable, with a focus on the roadmap (way forward). The roundtable gathered over 30 stakeholders from various sectors, including e-government, open data and environmental information providers and users (including NFPs from the ENI SEIS project and the Aarhus Convention, few representatives from non-governmental organisations and Aarhus Centre). Comments, presentations and conclusions from the national discussions were integrated into the report.



*Figure 3. Picture from the first regional meeting in Kiev – Credit: Nelli Baghdasaryan*

The conclusions and recommendations from the roadmap were finally presented at the second regional UNECE-EEA workshop “Open Data for the Environment” that took place in Geneva, on 2 October 2019 back-to-back with the Aarhus Convention Task Force on Access to Information. Furthermore, the final draft version of the report was shared with the ENI countries, and the last consultation was organised in December 2019 before releasing the final version of the report.

All materials, including the summary of the discussions taking place in the events organised in the context of the project, are available at the links below:



- 1st Regional workshop on Open Data and e-Government for the Environment (Kiev, 4-6 March 2019)
- National roundtable on open data and e-government for the environment in Armenia
- National roundtable on open data and e-government for the environment in Azerbaijan
- National roundtable on open data and e-government for the environment in Belarus
- National roundtable on open data and e-government for the environment in Georgia
- National roundtable on open data and e-government for the environment in the Republic of Moldova
- National roundtable on open data and e-government for the environment in Ukraine
- Joint UNECE-EEA Workshop on Open Data for the Environment (Geneva, 2<sup>nd</sup> October 2019)



## 2 Executive summary

The methodology followed to prepare the present report is based on the 2018 and 2019 European Union reports on open data maturity in Europe. Some adjustments were made to accommodate the specific situation of Eastern Partnership countries as well as the focus on environmental information.

The report was prepared and updated between 2018 and 2020 as part of the EU funded project implemented by EEA – ‘Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)’. National input in the preparation of the report was ensured through broad dialogue and consultation with various public authorities and other stakeholders in the Republic of Moldova, in particular those related to the environment and statistics. In addition, experts across various policy domains, including IT and e-government, have been involved through participation in national and regional events. These activities allowed an exchange of views on the future of e-government and open data in the cross-cutting domain of the environment. As a result, the document presents an overview of the national e-government framework, the maturity level of open data and dissemination of environmental information in the Republic of Moldova. The analysis included the following:

- the policy framework was reviewed to identify existing strategic directions and available tools for the dissemination of environmental information by using open data and e-government solutions;
- the legal framework was analysed to determine the existing requirements related to e-government, open data and dissemination of environmental data and information;
- the technological solutions were assessed to determine the existing technical capabilities and improvements and/or adjustments needed in the future.

Based on the above, the document proposes a roadmap that includes measures focusing on the development of e-government and open data frameworks, which would greatly support the environmental domain and even beyond. The road map is designed to be a living document throughout the implementation process and to serve as a benchmark in assessing the progress at various stages of development.

### **E-government**

In the past decade, the Republic of Moldova has been working to improve its governance framework, public administration efficiency, public service efficiency and the use of ICT in public authorities. The first step was made in 2011, when the Strategic Modernisation Programme for Technology of Governance (e-Transformation) was adopted, establishing the main objectives and measures for e-government transformation up to 2020. As the strategic objectives were planned up to 2020, there is a need to evaluate the progress achieved in the area of e-government and, based on the results swiftly adopt a new strategic programme for the coming decade.



One of the key strategic objectives set-up in the Strategic Modernisation Programme for Technology of Governance was the development of the interoperability system<sup>22</sup>. The main principles of interoperability framework were defined in the 2018 Law on Data Exchange and Interoperability. The law also defines the approach for cooperation between public and private sector in this area without addressing specific aspects such as interoperability standards and procedures.

To promote the data access and exchange between public authorities and the public, the country has developed the software solution. In 2014, the Interoperability Governmental Platform MConnect was launched to facilitate the exchange of data between the authorities and to increase the efficiency and delivery quality of public services. Currently, there are up to 50 public authorities that are using the MConnect, but data exchange with the public is still to be developed.

### **Open data**

The Republic of Moldova has a strong policy and legislative framework related to the open data. In 2014, the country has adopted the Policy Concept on the Principles of Open Government Data that defines open data principles and aims to simplify the data identification procedure and standardise the publication of public government data according to a minimum set of requirements.

The main legal acts defining open data principles in the Republic of Moldova are the Law on Access to Information and the Law on Public Information Reuse. These legal acts identify the obligation for the public authorities to publish their data and regulates the main principles for reusing data and information of public authorities or other legal entities for both commercial and non-commercial purposes.

The Republic of Moldova has launched an Open Data Portal in 2011 to provide a single point of access to the open data. Most of the published datasets are in machine-readable format. In spite of this technological advancement, the population of the portal remains modest and uneven across domains. There is no significant progress in publishing new open data as the public authorities are not actively involved in the open data initiative. The number of datasets published remains comparably low (currently around 1120 datasets are available) and should be enhanced with new data including from the environment domain.

### **Environmental information sharing and dissemination**

The existing environmental legislation promotes the access and dissemination of environmental information held by the public authorities. In particular, under Provision on Public Access to Environmental Information that was adopted by the government in 2016, environmental information shall be disseminated progressively and made available to the public by the usage of the national Open Data Portal in order to maximise, as far as possible, wide and systematic access and dissemination of this information. However, practical arrangements implementing environmental data management and dissemination procedures based on open data principles should further be defined in secondary legislation.

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<sup>22</sup> <http://lex.justice.md/viewdoc.php?action=view&view=doc&id=340301&lang=2>, section 4.8 inf the Strategic Modernisation Programme for Technology of Governance





The Republic of Moldova remains one of the leading EaP countries in regularly producing and disseminating UNECE environmental indicators. Currently, the country is producing and disseminating all the indicators related to areas such as air pollution, climate change, land and soil, but additional effort needs to be invested in other thematic areas such as biodiversity and energy.

In the recent years, Moldova developed multiple portals for environmental information management and dissemination. The most advanced information system to access the environmental statistics in the country is “Statistical Databank” which is managed by the National Bureau of Statistics.

To streamline the development and implementation of the environmental information concept, the Integrated Environmental Information System (SIIM) framework has been in development since December 2019. The framework includes key goals and tasks, the basic characteristics, the functional aspects and the conceptual architecture of the integrated environmental information system.

### **Suggested recommendations**

Following the analysis of the current situation, the proposed roadmap outlines key areas for future development in the field of e-government, open data and dissemination of environmental information, and provides concrete measures for improvement. Additionally, to facilitate the implementation of the roadmap, a number of examples and practical recommendations are provided in the report “Open data and e-government good practices for fostering environmental information sharing and dissemination”.

The success and rapid advancement of the country in this challenging domain remain strongly dependent on clear priority-setting, multi-disciplinary teamwork and regular monitoring of progress. Furthermore, once progress is made in one or several areas proposed for consideration, readjustments and amendments of the roadmap will be needed to keep it relevant and focused on the key priorities for the country.

The measures recommended for the Republic of Moldova in the context of the roadmap have been grouped into the following categories: policy-related, legal and technical measures. They cover, in particular, the following issues:

- Policy measures: focusing, among others, to the update of an e-government strategy, enhancement of open data awareness in public authorities and supporting practical arrangements for open data collection, updating, quality control and dissemination.
- Legal measures: setting out, among others the responsibilities of the subordinate institutions under the Ministry of Agriculture, Regional Development and Environment in managing the integrated environmental information system (SIIM), and adoption of international standards for interoperability and metadata description;
- Technical measures: developing, among others, an integrated environmental information system and a single web access point for environmental information, updating licensing terms and conditions, preparation of metadata description and enhancing the multilingual aspect of web portals and websites in the area of the environment.



All of the measures need to be seen as strongly interacting with and interdependent of each other and the impact of their gradual implementation closely monitored, as it may bring systemic changes across the whole data and information chain.

It is also strongly recommended that a multidisciplinary team should be set up to address and oversee the implementation of all the above-presented measures. The Republic of Moldova has a good experience and practice in setting up cross-sectoral teams operating horizontally at a high level of decision. This experience should be continued and applied also in the field of open data and environmental information.

A specific recommendation for the Republic of Moldova is to increase the awareness about open data framework and ensure interoperability between statistical, environmental and open data information systems in legal, technical and institutional dimensions. In practice this recommendation could be achieved by implementing relevant actions set out in the roadmap and summarised below:

- Specific policy measures, which could cover setting a clear direction to promote publishing and using of open data in strategic documents as well as detailed methodological guidelines for open data preparation cycles;
- Specific legal measures, which could define dedicated roles and responsibilities in public authorities for open data management processes;
- Specific technical measures, which could target capacity building and awareness raising activities to improve the understanding of public authorities on how to technically prepare and maintain open data as well as what the benefits of the open data are.

The present report depicts the current status of e-government, open data and environmental information management and dissemination in the Republic of Moldova. Given the exponential development of this area and its recognition as a top policy priority for the near future, a regular update and analysis of the situation is strongly recommended.





## 3 Readiness of environmental information

### 3.1 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.

#### 3.1.1 National policy and legal framework

##### 3.1.1.1 E-government

This section presents the main legislation and policies shaping the e-government landscape in the Republic of Moldova.

##### **Law on Computerisation and State Information Resources<sup>23</sup>**

This law lays down the basic rules, functions and responsibilities for public authorities in the area of information and communication technologies (ICT). It also regulates the development and maintenance processes of state information resources, information systems and networks. This law defines the obligation to make publicly available all state information resources, except for those that are restricted by law.

##### **Law on Data Exchange and Interoperability<sup>24</sup>**

This law focuses on the facilitation (and improvement) of data exchange and interoperability between public and private sector actors. It provides basic definitions of concepts for the introduction of an interoperability framework and data exchange mechanism. This law is applicable for all institutions but does not provide any detail on the exchange of environmental data.

Article 7 of the Law on Data Exchange and Interoperability contradicts to some extent Article 4 of the Law on Access to Information regarding the fee for disclosing public information. Indeed, Article 7 allows asking for a payment from private entities who request public information, while Article 4 requires making all public information available for free.

##### **Government Decision No. 562 of 22 May 2006 on the development of automated state information systems and resources<sup>25</sup>**

This government decision establishes the main principles for public authorities on how to develop and maintain government information systems following national legislation and standards in the field.

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<sup>23</sup> [https://www.legis.md/cautare/getResults?doc\\_id=107550&lang=ro](https://www.legis.md/cautare/getResults?doc_id=107550&lang=ro)

<sup>24</sup> <http://egov.md/en/content/Law-no-142-july-19-2018-data-exchange-and-interoperability>

<sup>25</sup> [https://www.legis.md/cautare/getResults?doc\\_id=114036&lang=ro](https://www.legis.md/cautare/getResults?doc_id=114036&lang=ro)



**Government Decision No. 710 of 20 September 2011 on the approval of the Strategic modernisation programme for technology of governance (e-transformation)<sup>26</sup>**

In 2010, the Government of the Republic of Moldova launched the e-Government Transformation process. This strategic programme sets out the objectives of this process and provides a unified vision for modernising public services and streamlining governance. The overall objective of the strategic programme stated that by 2020, the government would become more transparent, efficient and responsive, as a result of smart IT investments and their wide-spread use in the public sector.

The measures to achieve the objectives included:

- promotion of the principles of open government;
- digitisation of public services;
- reengineering of public services and operational processes;
- ensuring up-to-date access points to public services;
- development and use of common e-government platform;
- strengthening of data centres;
- implementation of national e-government architecture framework, covering principles of infrastructure such as services, platform as a service and software as a service;
- implementation of the interoperability framework;
- ensuring information security;
- use and application of innovative technologies;
- development of IT capacity in the public sector;
- making smart investments in IT;
- building a favourable regulatory framework.

For monitoring and evaluating the effectiveness of the implementation of this strategic programme, a series of performance indicators for each measure were set up and are monitored annually.

**Government Decision No. 656 of 5 September 2012 on the approval of the “Interoperability Framework Program”<sup>27</sup>**

The overall objective of this program is to implement the Interoperability Framework to increase government performance due to efficient data exchange within the public sector, as well as between the public and private sector. The programme lists the key principles for the interoperability framework such as data reuse, openness, security and privacy, technological neutrality and adaptability, building blocks of public services, the loose-coupling principle and technical solution simplicity.

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<sup>26</sup> <http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=340301>

<sup>27</sup> [https://www.legis.md/cautare/getResults?doc\\_id=103190&lang=ro](https://www.legis.md/cautare/getResults?doc_id=103190&lang=ro)



### **Strategy on the Public Administration Reform for 2016–2020<sup>28</sup>**

This strategy aims to establish a general framework for the public administration reform for 2016–2020. The general objective of this reform is to establish modern and professional public administrations, which provide high-quality public services.

This strategy serves as a reference document for developing and updating the policy papers that contribute to this reform, in particular, the Public Service Modernisation Action Plan<sup>29</sup> and the Action Plan for Open Government.

The strategy is based on six components, e-governance being a cross-cutting domain. One of the components – accountability of the public administration – aims to ensure a mechanism for monitoring, accountability and transparency of the activity of public authorities.

Another component is dedicated to the modernisation of public services. Its objective is to develop an information system for public administrative services delivery at a central and local level, by 1) improving access to public administrative services and their efficiency, 2) reducing unnecessary administrative burdens and minimising the cost of services for both beneficiaries and service provider, and 3) improving the effectiveness of services according to the needs and requirements of the beneficiaries.

To achieve the objective of public services modernisation, the government also adopted the Action Plan for Public Services Modernisation Reform for 2017–2021<sup>30</sup>.

### **Government Decision No. 966 of 18 October 2016 on the approval of the “Action Plan for Public Services Modernisation Reform for 2017-2021”<sup>31</sup>**

The Action Plan for Public Services Modernisation Reform for 2017–2021 is based on three objectives:

- 1) development and implementation of the necessary framework for the modernisation of public services, according to the best European and international practices in the field;
- 2) strengthening institutional and human capacity to modernise public services;
- 3) increasing the quality and accessibility of public services.

#### **3.1.1.2 Open data**

This section presents the main legislation and policies shaping the open data landscape in the Republic of Moldova.

Open data recently became an important topic in the Republic of Moldova. The reforms introduced between 2012 and 2019 enabled the country to bridge the gaps in its legal framework and establish the foundations of public information dissemination. In that sense, multiple documents and legal texts define the boundaries of public information and the main rules for their dissemination. The next challenge will be to align and synchronise all the

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<sup>28</sup> <https://cancelaria.gov.md/en/apc/public-administration-reform>

<sup>29</sup> [https://cancelaria.gov.md/sites/default/files/plan\\_de\\_actiuni\\_12.pdf](https://cancelaria.gov.md/sites/default/files/plan_de_actiuni_12.pdf)

<sup>30</sup> <http://egov.md/en/communication/news/approved-action-plan-modernization-public-services-reform-2017-2021>

<sup>31</sup> [https://www.legis.md/cautare/getResults?doc\\_id=110574&lang=ro](https://www.legis.md/cautare/getResults?doc_id=110574&lang=ro)



respective legal and technical rules (laws, decisions, methodologies and norms) in order to avoid overlapping and/or duplication of rules and definitions, which could lead to some confusion.

#### **Law on Access to Information<sup>32</sup>**

The Law on Access to Information requires public authorities to disclose all public information with the exceptions set out in Article 3 in the law: a) “respecting other people's rights and reputation”, and b) “protecting national security or public order, as well as public health or morals”. It restricts public access to state secrets, to confidential business information and personal data. Article 5 of the law stipulates that the direct subjects of this law are both central and local public administration authorities. According to the law, public information must be disclosed free of charge in the national language. Specific requests can be made verbally or in writing.

The law also stipulates the obligation to disclose public information upon request, and where the restriction is to be applied, to remove all restricted data.

According to the Freedom House report from 2016<sup>33</sup>, compliance with the Law on Access to Information remains weak, as no state body has the full authority to enforce its implementation. The People's Advocate (Ombudsman) has the authority to oversee the implementation of the law, however, this office lacks the capacity and the resources to exercise control.

#### **Law on Public Sector Information Reuse<sup>34</sup>**

The content of this law is consistent with EU Directive 2003/98/EC on the Reuse of Public Sector Information, as well as with the amendments reflected in Directive 2013/37/EU.

To enforce this law, the Ministry of Information Technology and Communications developed methodological norms. These set out the terms and conditions for accessing and reusing public sector information. The Ministry also developed an open data licence for the Republic of Moldova's public data. In practice, though, the licensing of public information made available remains unclear and varies from portal to portal.

The norms provide a list of formats in which public information should be presented. The norms offer a methodology for calculating the marginal cost associated with the dissemination of public sector information. This law is aligned with best international practices in terms of public sector information reuse and allows the public to access and reuse public data in a machine-readable format for any purpose.

In addition, in this context, the Republic of Moldova approved a national open data policy to concretise the principle of “open data by default” within the government. This policy brings clarity to the data dissemination process, provides recommendations for machine-readable formats to be used for the dissemination of data and defines standards on data collection, archiving and publishing. Each ministry and government agency is to embed an open data action plan into their sectoral e-transformation action plan<sup>35</sup>.

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<sup>32</sup> <https://www.legislationline.org/documents/id/6394>

<sup>33</sup> <https://freedomhouse.org/report/freedom-world/2018/moldova>

<sup>34</sup> [https://www.legis.md/cautare/getResults?doc\\_id=106313&lang=ro](https://www.legis.md/cautare/getResults?doc_id=106313&lang=ro)

<sup>35</sup> Republic of Moldova – Handbook of Transparency and Citizen Participation, Council of Europe 2016



**Government Decision No. 700 of 26 December 2014 on the “Policy concept on the principles of open government data”<sup>36</sup>**

The purpose of this decision was to establish a policy framework in line with adhesion to the Open Data Initiative, to which the Republic of Moldova became a member in 2011. The following principles have been established:

- opening data implicitly and proactively;
- protecting sensitive data;
- opening source data, with the minimum number of changes;
- publishing data online (i.e. on the Open Data Portal [www.date.gov.md](http://www.date.gov.md) or public authority web pages);
- publishing timely data (i.e. up-to-date and updated regularly);
- publishing data in open and machine-readable formats (e.g. json, csv, xml, ods, xls, xlsx and the geospatial data formats);
- bulk access – provides a simple but effective means of publishing datasets;
- data description – data will be described using full metadata;
- data reuse (i.e. data should be reusable and published online);
- prioritisation of data to make sure that the most useful data for the public will be published first.

These principles are compliant with international engagements made in the context of the Open Government Partnership. In practice, the Republic of Moldova still needs to 1) publish more data on the Open Data Portal – and be more proactive, 2) keep data up to date on the portal – through frequent updating, 3) provide a public API to access these data in order to leverage the economic benefits.

**Government Decision No. 701 of 29 August 2014 on the approval of the “Methodology for publishing open government data”<sup>37</sup>**

According to this decision, the ministries and other central administrative authorities subordinated to the government shall apply the rules of this methodology when publishing open government data. The methodology establishes the following rules:

- the operating mode of [www.date.gov.md](http://www.date.gov.md) portal;
- the type of information to be opened and published;
- access rights to the open government data portal;
- portal access management by public authorities.

The methodology does not specify how the organisation should inventory, prepare, clean (e.g. anonymisation and enrichment), publish and maintain open data.

### **3.1.1.3 Environmental information**

This section presents the main legislation and policies shaping the environmental information landscape in the Republic of Moldova.

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<sup>36</sup> [https://www.legis.md/cautare/getResults?doc\\_id=18535&lang=ro](https://www.legis.md/cautare/getResults?doc_id=18535&lang=ro)

<sup>37</sup> [https://www.legis.md/cautare/getResults?doc\\_id=118577&lang=ro](https://www.legis.md/cautare/getResults?doc_id=118577&lang=ro)



Since 2005, few environment-related laws have been adopted in the Republic of Moldova. The environmental legislation adopted before 2005 did not change substantially apart from a few amendments.

### **Law on Environmental Protection<sup>38</sup>**

According to this law, environmental protection is the national priority wherever it directly concerns 1) living conditions and health of the population, 2) realisation of economic, public and humanistic<sup>39</sup> interests, and 3) opportunities for sustainable development.

The law sets the foundation for environmental protection and basic rights for citizens. It does not elaborate on environmental information monitoring nor sharing/dissemination. Nonetheless, Article 3 sets out the principles for carrying out an environmental assessment and refers to the Law on Environmental Impact Assessment. The Environmental Impact Assessment must be performed based on the following principles:

- a) principle of preventive actions;
- b) principle of reliability and completeness of information;
- c) principle of transparency and availability;
- d) principle of participation.

These principles are aligned with the legal framework built in the context of public information. The last version of the environmental protection law was approved on 21 September 2017.

### **Law on the National Environmental Network (NEN)<sup>40</sup>**

The Law on the National Environmental Network (NEN) establishes the legal framework for the establishment, development, management and protection of the network, as part of the Pan-European Ecological Network and of local ecological networks.

### **Law on Official Statistics<sup>41</sup>**

To reform the national statistics according to EU requirements and to modernise the official statistics production processes, on 26 May 2017 the Republic of Moldova adopted the Law on Official Statistics.

This law also covers the quality assurance requirements for environmental information published by the National Bureau of Statistics of the Republic of Moldova. According to Article 19 of the law, producers of official statistics shall take all regulatory, administrative, technical and organisational measures to protect confidential data and prevent their disclosure<sup>42</sup>.

### **Legislation regarding geospatial information**

The Republic of Moldova has made significant developments regarding geospatial information, with the transposition of the INSPIRE Directive in the legal framework. In particular, the following laws were approved:

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<sup>38</sup> <http://cis-legislation.com/document.fwx?rgn=3317>

<sup>39</sup> This term is translated from Romanian. The Law is not clear on what this term refers to.

<sup>40</sup> [https://www.legis.md/cautare/getResults?doc\\_id=107337&lang=ro](https://www.legis.md/cautare/getResults?doc_id=107337&lang=ro)

<sup>41</sup> <http://www.statistica.md/libview.php?l=en&idc=223&id=5810>

<sup>42</sup> Governmental Decision nr 1467/2016 on Public Access to Environmental Information



- Law on National Spatial Data Infrastructure of the Republic of Moldova (with EU INSPIRE Directive 43 transposed in this law)<sup>44</sup>;
- Government Decision No. 737 of 15 September 2017 on the approval of the “Rules for setting up network services and the deadline for their implementation”<sup>45</sup>;
- Government Decision No. 738 of 15 September 2017 on the approval of the “Rules for the development and updating of metadata for spatial datasets and services”<sup>46</sup>;
- Government Decision No. 458 of 24 July 2015 on the approval of the “Responsibilities of public entities for spatial datasets”<sup>47</sup>;
- Government Decision No. 459 of 22 April 2017 on the approval of the “Organisation and functioning of the national spatial infrastructure data council, as well as its composition”;
- Government Decision No. 254 of 27 March 2018 on the approval of the “Rules for the sharing of spatial datasets and related services between public entities and third parties”<sup>48</sup>;
- Government Decision No. 683 of 18 June 2004 on the approval of the “Implementing rules laying down the technical modalities for the interoperability and harmonisation of spatial datasets and services and the implementation deadline”<sup>49</sup>.

**Government Decision No. 1467 of 30 December 2016 on the approval of the “Provision on public access to environmental information”<sup>50</sup>**

This decision transposes Directive No. 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on Public Access to Environmental Information and the repeal of Council Directive No. 90/313/EEC published in the Official Journal of the European Union (OJ) No. L 41 dated 14 February 2000.

The regulations provide the right to access of environmental information held by public authorities, and defines terms, basic conditions and procedure for exercising this right. Under this government decision, environmental information shall be disseminated progressively and made available to the public by the usage of the national Open Data Portal in order to maximise, as far as possible, wide and systematic access and dissemination of this information. To achieve this goal, the use of information technologies and electronic communications is being promoted.

**Other legislation related to the environment**

Other legislation which shapes the landscape of environmental protection and monitoring in the Republic of Moldova are presented in the table below.

*Table 1. Environmental protection and monitoring laws in the Republic of Moldova*

<sup>43</sup> Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

<sup>44</sup> <https://cis-legislation.com/document.fwx?rgn=106008>

<sup>45</sup> <https://cis-legislation.com/document.fwx?rgn=106012>

<sup>46</sup> <https://cis-legislation.com/document.fwx?rgn=106015>

<sup>47</sup> <https://cis-legislation.com/document.fwx?rgn=78810>

<sup>48</sup> <https://cis-legislation.com/document.fwx?rgn=106008>

<sup>49</sup> [http://www.codices.coe.int/NXT/gateway.dll/CODICES/precis/eng/eur/mda/mda-2007-2-006?f=templates\\$fn=document-frameset.htm\\$q=%5Bfield,IDEcross%3A%5Bborderedprox,0%3Aconst-eng-mda-a-102%5D%5D%20\\$x=server\\$3.0#LPHit1](http://www.codices.coe.int/NXT/gateway.dll/CODICES/precis/eng/eur/mda/mda-2007-2-006?f=templates$fn=document-frameset.htm$q=%5Bfield,IDEcross%3A%5Bborderedprox,0%3Aconst-eng-mda-a-102%5D%5D%20$x=server$3.0#LPHit1)

<sup>50</sup> <http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=369027>





	Title of the document	Year of approval
1.	Law on Ecological Expertise	1996
2.	Law on Forest Code	1996
3.	Law on Natural Resources	1997
4.	Law on Hydrometeorological Activity	1998
5.	Law on Biological Security	2001
6.	Law on Renewable Energy	2007
7.	Law on the Vegetal Kingdom	2007
8.	Law on Code on Subsoil	2009
9.	Law on Water <sup>51</sup>	2011
10.	Law on Waste	2016
11.	Government Decision No. 935 of 11 October 1999 on the approval of regulations of the use of hydrometeorological information in the economic activity of economic agents	1999
12.	Government Decision No. 418 of 17 April 2007 on the approval of the regulation on the manner of presenting reports by subsoil users	2007
13.	Government Decision No. 388 of 26 June 2009 on the approval of the regulation regarding the management of radioactive waste	2009
14.	Government Decision No. 1131 of 12 October 2016 on the approval of the regulation on reporting requirements on the movement of reserves of useful mineral substances	2016

The extensive list of the legislation related to the environment is provided in Appendix A.

#### **Environmental Strategy for the years 2014–2023 and the Action Plan for its Implementation**

This strategy was established by Government Decision No. 301 of 24 April 2014 on the approval of the “Environmental Strategy for the years 2014-2023 and the Action Plan for its Implementation”<sup>52</sup>.

The vision of the environmental strategy is oriented towards extensive environmental protection sector reform. It includes the development of a new institutional, administrative and environmental management system, which shall be adjusted to EU requirements to ensure environmental sustainability and improve the quality of environmental protection.

The general objective of the strategy is the development of an efficient environmental management framework, which would contribute to improving the quality of environmental factors and guarantee the right of the population to a clean, healthy and sustainable environment.

The actions of the strategy cover such areas:

- institutional and managerial system in the field of environmental protection;

<sup>51</sup> Includes provisions on river basin districts, the establishment of administrative arrangements for international waters, analysis of river basin district characteristics, undertaking of preliminary flood assessment, preparation of flood hazard maps, etc. For its implementation, the Law on Water requires the development of some 20 subsequent regulations.

<sup>52</sup> <http://green.gov.md/pageview.php?l=en&idc=41&t=/Regulatory-framework>





- sustainable development and green economy development;
- environmental education and access to environmental information;
- regulatory framework for activities with an impact on the environment;
- monitoring and environmental quality control system;
- protection and conservation of natural resources;
- ambient air quality;
- waste and chemicals management.

The environmental strategy is explicit on these priorities and objectives; however, it does not focus on environmental information. Even though the strategy acknowledges the lack of an integrated information system for managing environmental information, there are no specific actions to address this aspect.

As such, the strategy concerning environmental information is relatively poor and lacks alignment with the Law on Data Exchange and Interoperability and the reform of public administrations<sup>53</sup>. This point can be strengthened considering the period covered (2014–2023).

#### **Development of waste management institutional and legal framework**

The Law on Waste<sup>54</sup>, introduced in 2016, redefined the responsibility and legal framework in terms of waste management. It delegates the responsibility of waste management to the Ministry of Agriculture, Regional Development and Environment. It also transposes Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008.

In this context, the Ministry of Agriculture, Regional Development and Environment adopted the National Waste Management Strategy 2013–2027. Based on this strategy, the government undertakes to develop a new legal and institutional framework on waste management following the EU legislation. The implementation of the initiative is evaluated periodically.

#### **Development of a water management institutional and legal framework**

The government adopted new strategies, which address strategic actions for water management. They are reflected in the National Development Strategy “Moldova 2020”, the New Environmental Strategy for 2014–2023 (April 2014), the Strategy for “Promoting Sustainable Development and Green Economy” and the New Water Supply and Sanitation (WSS) Strategy for 2014–2028<sup>55</sup>.

The strategy sets specific objectives and targets to be achieved by 2028<sup>56</sup>. More specifically, the short-term goals to be reached by 2018 are to extend the network of water supply (+1,400 km), connect 62,000 new users, rehabilitate and put into operation 42 wastewater treatment plants,

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<sup>53</sup> In particular, the strategy states: “discrepancy between institutional framework and the existing requirements and challenges. Attributions of environmental policies elaboration, implementation and legislation compliance control are not clearly divided between environmental institutions. There are no agencies to deal with environmental policies implementation in all respective areas. There is a series of confusions and overlapping of responsibilities and competences in the fields of environmental protection with those of other, non-environmental institutions (forest fund protection, soil protection).”

<sup>54</sup> <http://lex.justice.md/md/368030/>

<sup>55</sup> Law on Water Supply and Sanitation

<sup>56</sup> [http://www.iwa-network.org/filemanager-uploads/WQ\\_Compendium/Database/Complementary\\_docs/Tronza\\_Strategy2014\\_EN.pdf](http://www.iwa-network.org/filemanager-uploads/WQ_Compendium/Database/Complementary_docs/Tronza_Strategy2014_EN.pdf)



extend the sanitation network (+511 km), connect 101,000 new users, rehabilitate and put into operation 49 wastewater treatment plants.

### 3.1.2 Main international policies and agreements

The Republic of Moldova is involved in several international open data processes, which include environmental information sharing. The main policies and legal arrangements are presented below.

#### 3.1.2.1 *Multilateral environmental agreements setting out 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)<sup>57</sup>**

The Republic of Moldova ratified the Aarhus Convention on 9 August 1999. 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 progress of its implementation by the Republic of Moldova is reflected in national implementation reports for the convention.<sup>58</sup>

##### **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)<sup>59</sup>**

The Republic of Moldova ratified the Protocol on PRTRs on 23 December 2013. The Protocol sets out obligations to establish pollutant release and transfer registers, namely a national database or inventory of potentially hazardous chemical substances released into the air, water and soil and off-site transfers. As such, the inventory allows public authorities to track each release and transfer of a hazardous chemical substance consistently over time. The progress of its implementation and establishing a pollutant release and transfer register by the Republic of Moldova is reflected in national implementation reports for the protocol.<sup>60</sup> The PRTR of the Republic of Moldova has been recently launched at <https://retp.gov.md/#/>.

##### **Other multilateral environmental agreements**

Moldova is a party to 19 global international treaties and 14 protocols in the fields of the environment, natural resources and climate change, with all rights and obligations deriving therefrom (the full list of conventions and protocols is provided in Appendix B). Consequently, the country has obligations to fulfil and report to these conventions and agreements.

This section analyses selected multilateral environmental agreements (MEAs) in terms of public access to information, reporting and monitoring requirements. The MEAs that are presented in the table below were chosen as examples to reflect on whether the country should carry out relevant monitoring, report data in thematic areas of water, air, biodiversity, climate change and

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<sup>57</sup> <http://www.unece.org/env/pp/welcome.html>

<sup>58</sup> <https://aarhusclearinghouse.unece.org/national-reports>

<sup>59</sup> <https://www.unece.org/env/pp/prtr.html>

<sup>60</sup> <https://aarhusclearinghouse.unece.org/national-reports>



the ozone layer and provide effective public access to information. For this report, the analysis focuses on the following:

- **public access to information.** In this respect, a review of official Moldovan public authorities' portals was performed. The analysis shows the extent to which publicly available information covers the requirements of the MEA presented in the table below.
- **reporting.** In this case, a review of MEA related databases was performed to determine if the official national reports are provided by the Moldovan public authorities. The analysis indicates whether the national report related to each specific MEA was submitted on time as required by the MEA presented in the table below.
- **monitoring activities.** For this aspect, a review of the monitoring activities as defined by the respective MEA and available in the official portals, as well as reports provided by public authorities, was performed. The analysis shows if the monitoring activity was performed on time as required by the MEA presented in the table below.

The table below presents the examples of the MEAs analysed in this section.

*Table 2. Analysis of selected MEAs, in terms of public access to information, reporting, and monitoring requirements (as of May 2020)*

MEA	Public access to information	Reporting	Monitoring
UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)	Yes <sup>61</sup>	Yes <sup>62</sup>	Yes <sup>63</sup>
UNECE Convention on Long-range Transboundary Air Pollution	Yes <sup>64</sup>	Yes <sup>65</sup>	Yes <sup>66</sup>
UNECE Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent	Not a party		
UNECE Protocol to the 1979 Convention on Long-range Transboundary Air Pollution Concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes	Not a party		

<sup>61</sup>

[https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/10%20Mediul%20inconjurator\\_\\_MED020/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774](https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/10%20Mediul%20inconjurator__MED020/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774)

<sup>62</sup>

[https://www.unece.org/fileadmin/DAM/env/water/activities/Reporting\\_convention/Parties/MOLDOVA\\_Reporting\\_Convention\\_6\\_5\\_2\\_Parties\\_14.02.2019.pdf](https://www.unece.org/fileadmin/DAM/env/water/activities/Reporting_convention/Parties/MOLDOVA_Reporting_Convention_6_5_2_Parties_14.02.2019.pdf)

<sup>63</sup>

[https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/10%20Mediul%20inconjurator\\_\\_MED020/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774](https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/10%20Mediul%20inconjurator__MED020/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774)

<sup>64</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>65</sup> [https://www.ceip.at/ms/ceip\\_home1/ceip\\_home/status\\_reporting/2020\\_submissions/](https://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2020_submissions/)

<sup>66</sup> [http://www.unece.org/fileadmin/DAM/env/documents/2019/AIR/EB/ECE\\_EB.AIR\\_2019\\_3-1916516E.pdf](http://www.unece.org/fileadmin/DAM/env/documents/2019/AIR/EB/ECE_EB.AIR_2019_3-1916516E.pdf)



MEA	Public access to information	Reporting	Monitoring
<b>UNECE Protocol to the 1979 Convention on Long-range Transboundary Air Pollution to Abate Acidification, Eutrophication and Ground-level Ozone</b>	Yes <sup>67</sup>	Yes <sup>68</sup>	Yes <sup>69</sup>
<b>UN Convention on Biological Diversity</b>	No <sup>70</sup>	Yes <sup>71</sup>	Yes <sup>72</sup>
<b>UN Framework Convention on Climate Change</b>	Yes <sup>73</sup>	Yes <sup>74</sup>	Yes <sup>75</sup>
<b>UN Vienna Convention for the Protection of the Ozone Layer</b>	Yes <sup>76</sup>	Yes <sup>77</sup>	Yes <sup>78</sup>
<b>UN Montreal Protocol on Substances that Deplete the Ozone Layer</b>	Yes <sup>79</sup>	Yes <sup>80</sup>	Yes <sup>81</sup>

\* Explanation of the markings in the table:

- Yes – the country provides publicly available information on the official portals or the official reports related to MEAs;
- No – the country does not provide information on the official portals or the official reports;
- Not a party – the country has not acceded to MEA.

### 3.1.2.2 Other international fora promoting sharing and accessibility of environmental information

This section presents other international fora which promote sharing and accessibility of information.

#### “Environment for Europe” process

<sup>67</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>68</sup> [https://www.ceip.at/ms/ceip\\_home1/ceip\\_home/status\\_reporting/2020\\_submissions/](https://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2020_submissions/)

<sup>69</sup> [http://www.unece.org/fileadmin/DAM/env/documents/2019/AIR/EB/ECE\\_EB.AIR\\_2019\\_3-1916516E.pdf](http://www.unece.org/fileadmin/DAM/env/documents/2019/AIR/EB/ECE_EB.AIR_2019_3-1916516E.pdf)

<sup>70</sup> No public information available to evaluate this aspect.

<sup>71</sup> <https://www.cbd.int/doc/world/md/md-nbsap-v2-en.doc>

<sup>72</sup> <https://www.cbd.int/doc/world/md/md-nbsap-v2-en.doc>

<sup>73</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>74</sup> [https://unfccc.int/sites/default/files/resource/Moldova\\_CN4\\_En\\_web\\_070218.pdf](https://unfccc.int/sites/default/files/resource/Moldova_CN4_En_web_070218.pdf)

<sup>75</sup> [https://unfccc.int/sites/default/files/resource/Moldova\\_CN4\\_En\\_web\\_070218.pdf](https://unfccc.int/sites/default/files/resource/Moldova_CN4_En_web_070218.pdf)

<sup>76</sup>

[https://ozone.unep.org/countries/data?report\\_type=0&party%5B0%5D=141&period\\_start=1986&period\\_end=2019&output\\_type=odp-CO2e-tonnes](https://ozone.unep.org/countries/data?report_type=0&party%5B0%5D=141&period_start=1986&period_end=2019&output_type=odp-CO2e-tonnes)

<sup>77</sup> <https://ozone.unep.org/countries/profile/mda>

<sup>78</sup>

[https://ozone.unep.org/countries/data?report\\_type=0&party%5B0%5D=141&period\\_start=1986&period\\_end=2019&output\\_type=odp-CO2e-tonnes](https://ozone.unep.org/countries/data?report_type=0&party%5B0%5D=141&period_start=1986&period_end=2019&output_type=odp-CO2e-tonnes)

<sup>79</sup> <https://ozone.unep.org/countries/profile/mda>

<sup>80</sup>

[https://ozone.unep.org/countries/data?report\\_type=0&party%5B0%5D=141&period\\_start=1986&period\\_end=2019&output\\_type=odp-CO2e-tonnes](https://ozone.unep.org/countries/data?report_type=0&party%5B0%5D=141&period_start=1986&period_end=2019&output_type=odp-CO2e-tonnes)

<sup>81</sup>

[https://ozone.unep.org/countries/data?report\\_type=0&party%5B0%5D=141&period\\_start=1986&period\\_end=2019&output\\_type=odp-CO2e-tonnes](https://ozone.unep.org/countries/data?report_type=0&party%5B0%5D=141&period_start=1986&period_end=2019&output_type=odp-CO2e-tonnes)



The first “Environment for Europe” ministerial conference took place in 1991 at Dobris Castle in the former Czechoslovakia. A set of basic guidelines for a pan-European cooperation strategy was laid down. The Shared Environmental Information System (SEIS) in the pan-European region was launched at the “Environment for Europe” ministerial conference in 2011.

In 2016, the eighth “Environment for Europe” ministerial conference took place in Batumi, Georgia. The ministers also signed the ministerial declaration “Greener, cleaner and smarter!” calling for the continuation of efforts and the further development of national information systems to have SEIS in place in the countries of Europe and Central Asia by 2021.

The next “Environment for Europe” ministerial conference will review progress in the area of environment and celebrate 30 years of the “Environment for Europe” process.

### **Open Government Partnership Initiative<sup>82</sup>**

The Open Government Partnership (OGP) is a platform for national reformers, aiming to make governments more responsive to the needs of their citizens. The Government of the Republic of Moldova joined the OGP in 2011 to complement the already ongoing governance e-transformation agenda on specific issues such as transparency, access to public sector information, accountability, citizen engagement, fighting corruption and providing high-quality public services. The Republic of Moldova committed itself to providing access to the information<sup>83</sup>.

As part of the OGP initiative, the Republic of Moldova published several National Action Plans (the latest being 2016–2018<sup>84</sup> and 2018–2020<sup>85</sup>). Currently, the Republic of Moldova is implementing the third National Action Plan on Open Government and adopted the new action plan for 2019–2020<sup>86</sup>. The evaluation of the Action Plan in 2017 showed that 15 out of 21 sub-actions were finished<sup>87</sup>.

The Action Plan 2018–2020 focuses on these actions:

- increasing the transparency of public spending;
- ensuring access to information and promoting the use of open data by citizens;
- improving government processes<sup>88</sup> (public service efficiency);
- strengthening public integrity by ensuring a participative decision-making process for citizens and increasing transparency in the governance process;
- developing the usage of information and communication technology (ICT) solutions in public administrations.

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<sup>82</sup> <https://www.opengovpartnership.org/countries/moldova>

<sup>83</sup> The Special Accountability Report Action Plan 2014 states that all information is covered. This includes environmental information by definition, even though nothing specific has been written.

<sup>84</sup> <https://www.opengovpartnership.org/documents/moldova-national-action-plan-2016-2018>

<sup>85</sup> <https://www.opengovpartnership.org/members/moldova/#documents>

<sup>86</sup> <http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=378313>

<sup>87</sup> <https://www.opengovpartnership.org/documents/moldova-end-of-term-self-assessment-report-2016-2018/>

<sup>88</sup> The Republic of Moldova is currently undertaking an inventory of all public services, with the aim of 1) describing them according to the European Union Core Public Service standard, and 2) re-engineering these services where possible in order to make them available on the public service portal.



Moreover, the independent evaluation reports from the OGP highlight the need for a broader effort to implement the principles of open government<sup>89</sup>, such as the proactive involvement of beneficiaries, public participation in decision-making, including the adoption of more legal requirements for public policy document consultations, publishing valuable and useful data to users. At the same time, following the implementation of the OGP action plans, the need to frame the application of open governance principles not only as part of an isolated action plan, but in a wider context as part of anti-corruption, public finances, health, education, social protection, environment and other priority areas was highlighted.<sup>90</sup>

### 3.1.2.3 Cooperation with the EU

This section provides an overview of the main agreements with the EU.

#### **Declaration on Cooperation on Environment and Climate Change in the Eastern Partnership<sup>91</sup>**

In 2016, the European Union (EU) and the countries of the Eastern Partnership (EaP) adopted the declaration on Cooperation on Environment and Climate Change (Luxembourg Declaration). The declaration aims to strengthen regional cooperation on environmental and climate action, and sustainable development in the Eastern Partnership region by implementing relevant international commitments such as the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change. It seeks to raise awareness among and enhance cooperate between relevant stakeholders, support the involvement of civil society in the decision-making process, strategic planning and implementation, and monitor the results of implementation of environmental policies, programmes and plans, and other commitments.

The second Eastern Partnership (EaP) ministerial meeting on the environment and climate change took place on 9 November 2018 in Luxembourg, co-organised by the European Commission and Austrian Presidency. The progress achieved by the countries was discussed and assessed in view of further strengthening that cooperation<sup>92</sup>. The third Eastern Partnership high-level meeting is scheduled now for early 2021 (while only a virtual summit will take place on 18 June 2020 due to coronavirus restrictions).

#### **Moldova-European Union Association Agreement<sup>93</sup>**

In the framework of the National Action Plan for the implementation of the “Moldova-European Union Association Agreement”, in the chapter “Environment, Climate Action”, the Republic of Moldova has agreed to progressively comply with the European Union legal framework. In that context, the Republic of Moldova has translated multiple environmental directives into its national laws, for instance, in the areas of water<sup>94</sup> and waste management<sup>95</sup>.

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<sup>89</sup> <https://www.opengovpartnership.org/report/moldova-mid-term-report-2016-2018-year-1>

<sup>90</sup> Strategy on the reform of public administration for the years 2016–2020, approved by Government Decision No. 911 of 25 July 2016

<sup>91</sup> <https://library.euneighbours.eu/content/declaration-cooperation-environment-and-climate-change-eastern-partnership>

<sup>92</sup> Georgia progress factsheet: [https://eeas.europa.eu/sites/eeas/files/eap\\_factsheet\\_georgia\\_en\\_web.pdf](https://eeas.europa.eu/sites/eeas/files/eap_factsheet_georgia_en_web.pdf)

<sup>93</sup> [https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:22014A0830\(01\)](https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:22014A0830(01))

<sup>94</sup> Law on water No. 272 of 23 December 2011

<sup>95</sup> Law on waste No 205 of 26 July 2016



According to the implementation report<sup>96</sup>, new regulations have been introduced on the waste management, the Environment Agency and Environmental Protection Inspectorate were established, and international commitments for climate change have been integrated into national legal and strategic frameworks in the past year in relation to the Association Agreement.

#### **EU4Environment<sup>97</sup> (2019–2022)**

The Republic of Moldova is a beneficiary of the EU4Environment initiative, which integrates a single strategic framework activity carried out through several projects. These projects help to deliver policy and legislative changes, making planning and investment more environmentally friendly, stimulating the uptake of innovative technologies, adopting new business models and creating jobs in the area of the environment. In particular, the initiative provides support to reform the legislative frameworks for building implementation capacities for the strategic environmental assessment (SEA) and transboundary Environmental Impact Assessment (EIA) that fully comply with international requirements.

#### **EU4Climate<sup>98</sup> (2019–2022)**

The goal of this project is to contribute to the mitigation and adaptation to climate change and development towards a low-emission and climate-resilient economy in line with the 2015 Paris Agreement on Climate Change in all six EU EaP countries.

The Republic of Moldova intends to integrate the low-emission and climate resilience objectives into development policies and plans, as well as to promote to a larger extent economic diversification and green growth, thus accelerating structural transformations through more effective governance systems.

#### **EaP Connect Project<sup>99</sup>**

The EaP Connect Project was launched in July 2015. It aims to link the National Research and Education Networks in the partner countries to the pan-European research and education network GÉANT. It connects more than two million scientists, academics and students from 700 institutions across the region. The joint initiative of EU, Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine is an example of joint efforts undertaken to foster the creation of digital economies and promote open data in the EaP countries<sup>100</sup>.

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<sup>96</sup> [https://eeas.europa.eu/headquarters/headquarters-homepage/67202/association-implementation-report-moldova\\_en](https://eeas.europa.eu/headquarters/headquarters-homepage/67202/association-implementation-report-moldova_en)

<sup>97</sup> <https://www.euneighbours.eu/en/east/stay-informed/projects/eu4environment>

<sup>98</sup> <https://www.md.undp.org/content/moldova/en/home/projects/eu-4-climate.html>

<sup>99</sup> <https://www.eapconnect.eu>

<sup>100</sup> EDP Analytical Report, Open Data in the European Union Neighbourhood, p. 9





### 3.1.3 National standards, interoperability and quality control

#### 3.1.3.1 Metadata standards

There is no publicly known standard for the description of metadata established for the dissemination of environmental information at the national level. Metadata standards are necessary to allow data users to find and reuse data easily.

The following table presents a list of the metadata standards available in the Republic of Moldova.

Table 3. Metadata standards per portal (as of May 2020)

Component	Metadata standards
<b>Open data</b>	The description of datasets on the Open Data Portal is done through a non-disclosed standard. This information is provided when describing a dataset: <ul style="list-style-type: none"> <li>the person responsible for the dataset maintenance;</li> <li>whether the dataset has been updated;</li> <li>update frequency;</li> <li>the institution or department responsible for publishing data.</li> </ul>
<b>Spatial</b>	Standards regarding interoperability and quality control are described in the Law on National Infrastructure of Spatial Data <sup>101</sup> and correspond to the INSPIRE Directive.
<b>Environmental data</b>	There is no specific metadata standard for environmental data.
<b>Statistical</b>	The National Bureau of Statistics of the Republic of Moldova provides standardised metadata description usually in PDF format <sup>102</sup> . There are metadata descriptions for reference metadata, concepts and definitions, classifications and nomenclatures, Special Data Dissemination Standard (SDDS) metadata and metadata for Millennium Development Goals (MDG) indicators. On the other hand, there is no metadata description for open datasets in the statistical databank. <sup>103</sup>

#### 3.1.3.2 Interoperability

Interoperability in the Republic of Moldova is a new topic. As such, Law No. 142 of 19 July 2018 on Data Exchange and Interoperability<sup>104</sup> sets up the rules for interoperability.

The Interoperability Governmental Platform MConnect<sup>105</sup> facilitates the exchange of data between authorities to increase the efficiency and quality of the delivery of public services. Throughout the interoperability platform, public authorities exchange data in real-time without requesting it from citizens and the business environment in the form of certificates and reports, etc. Currently there are up to 50 public authorities using the MConnect.

In this context, the Republic of Moldova will build a Semantic Catalogue. This catalogue will lead to more accurate and coherent use of the data exchange and improved interoperability of the

<sup>101</sup> <http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=367941>

<sup>102</sup> <https://statistica.gov.md/pageview.php?l=en&idc=430&#idc=429&>

<sup>103</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>104</sup> <http://www.egov.md/en/legislation/Law-no-142-july-19-2018-data-exchange-and-interoperability>

<sup>105</sup> Extract taken from: <http://www.egov.md/en/projects/mconnect>





Government Platform MConnect. The Semantic Catalogue will describe the definitions of data structures and will represent a source of semantic assets used exclusively for electronic data exchange and the harmonisation of electronic data formats for future adjustments or the development of information systems in the public area.

The Semantic Catalogue<sup>106</sup> will be a part of the MConnect data exchange and interoperability government platform administered by the E-Government Centre. The data structures, elements and definitions included in the Semantic Catalogue will be linked to a semantic inventory, officially called Semantic Assets, which will be applied and shared by all the producers or consumers of data via MConnect.

### 3.1.3.3 Quality control of environmental data

The Republic of Moldova does not have a central organisation responsible for setting information quality standards. As such, three main organisations are involved in establishing quality standards:

- the National Bureau of Statistics;
- the Accreditation Centre;
- the Quality Management Department of the Environment Agency.

The process for managing data quality falls under the responsibility of the organisation collecting the data (monitoring). If an organisation processes data before sharing it with the reporting organisation (usually the Ministry of Agriculture, Regional Development and Environment), the responsibility for providing quality analyses falls on the data processing organisation.

In addition, the Quality Management Department of the Environment Agency is responsible for the development of the Quality Management System, which covers quality management activities of the Environment Agency. Nonetheless, other institutions oversee the development of their own environmental monitoring system. As such, there is no guarantee that quality standards are either implemented or supported by equivalent processes and technologies/systems.

#### **National statistics**

The reference metadata documents published on the website of the National Bureau of Statistics of the Republic of Moldova contain a dedicated section related to quality control. However, the website only publishes such documentation for “Statistics of emissions of pollutants in atmospheric air, formation and use (neutralisation) of production and consumption waste (including toxic)”. As such, it does not address other environmental data, for instance, related to soil, water or radiation, etc.

The quality of statistical data is assured by the fundamental principles of the official statistics approved by the UN Economic Commission for Europe in 1992, as well as by the Law on Official Statistics.

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<sup>106</sup> The introduction of the Semantic Catalogue is part of a larger project conducted jointly by the UNDP and eGA (“Enhancing democracy in Moldova through inclusive and transparent elections” – EDMITE Project). <http://www.undp.md/jobs/jobdetails/1622/>



The quality control process is briefly described and seems<sup>107</sup> to be applicable for other environmental data.

- 1) The first stage of data validation is carried out by specialists of the State Ecological Inspectorate.
- 2) The second stage of validation is carried out by specialists of the territorial statistical bodies.

Quality checks are performed, in particular on temporal coherence (with data from previous periods) and validation on data coherence (e.g. with other sources, across tables and paragraphs, etc.).

#### **Environmental quality monitoring in the Environment Agency**

The Environmental Quality Monitoring Department is responsible for the implementation, maintenance and documentation of the quality management system within the scope of its activity. Its effectiveness is set in accordance with the international standard SM SR EN ISO/CEI 17025:2006, as established by the requirements of the National Accreditation Centre.

In particular, the following measures are undertaken to ensure quality:

- development of a quality policy<sup>108</sup>;
- motivation and continuous improvement of the professional practice level of the staff;
- knowledge and compliance with normative and legislative documents;
- provision of sampling, measuring and testing equipment in good conditions;
- management of feedback provided by user and stakeholders;
- performing a periodic review of the quality management system in order to improve it;
- accreditation of testing laboratories in compliance with the National Accreditation Centre;
- Quality management system overview of effective documentation, procedures, quality records and guides.

There is no mention of whether the quality management system can be used by other institutions or organisations.

#### **3.1.4 Institutional framework for environmental information management and stakeholder involvement**

The institutional framework of the Republic of Moldova in the environmental domain is undergoing substantial changes.

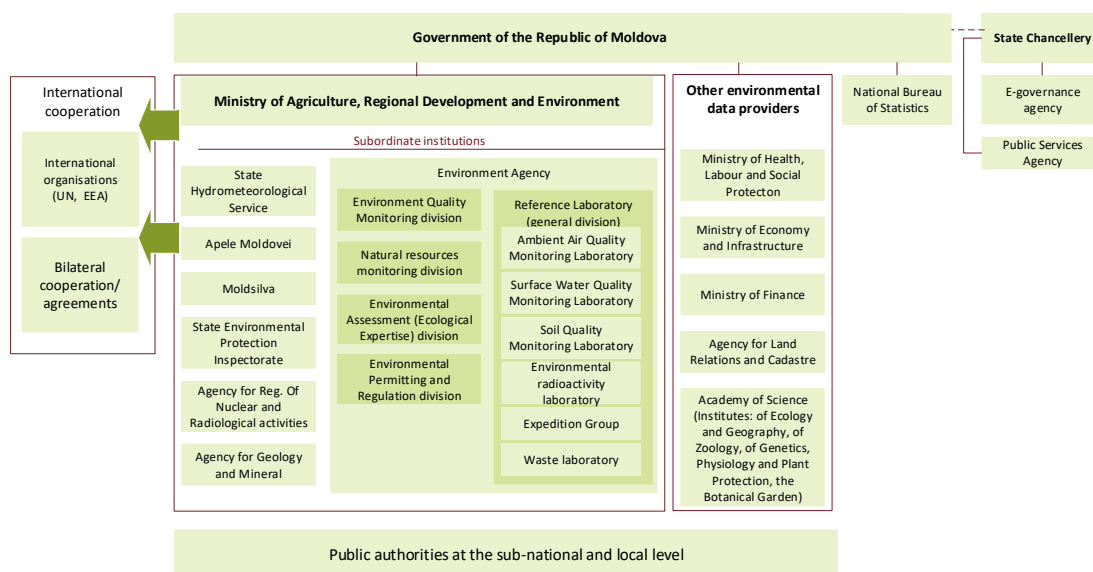
The following diagram illustrates the main public authorities responsible for environmental information as well as open data and e-governance.

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<sup>107</sup> There is no formal indication of this, but the fact that a department is responsible for quality control indicates the quality control mechanism can be applied uniformly by the department.

<sup>108</sup> These are not made publicly available.





*Figure 4. Environmental and e-government stakeholders of the Republic of Moldova (as of May 2020, developed by the report's authors)*

The following section describes the main stakeholders that are presented in the figure.

### **Ministry of Agriculture, Regional Development and Environment (MARDE)**

The Ministry of Agriculture, Regional Development and Environment develops and promotes the Republic of Moldova's state policy on environmental protection and rational use of natural resources. MARDE cooperates with many agencies and institutions that directly report to it<sup>109</sup>.

The significant changes brought to the Republic of Moldova in recent years are the reorganisation of the Ministry of Environment into the Ministry of Agriculture, Regional Development and Environment, and the changes of the legal and organisational framework around waste management. These changes are leading to challenges from an environmental information reporting perspective:

- after the reform, the Ministry of Agriculture, Regional Development and Environment does not have a division for Environmental Information;
- the Ecological Inspectorate was subject to the reorganisation;
- the Environment Agency was established with monitoring, reporting and access to information functions.

Overall, responsibilities are well established at the level of the former Ministry of Environment (newly established MARDE). Yet, at the level of subordinated institutions, it is acknowledged that the legal and institutional framework is less clear. In some cases, responsibilities can easily be understood as overlapping, at least for the public<sup>110</sup>.

<sup>109</sup> The complete list can be found here: <http://madr.gov.md/ro/content/organiza%C8%9Bile-din-sfera-%C8%99tiin%C8%9Bei-%C8%99i-inov%C4%83rii>

<sup>110</sup> For instance, the Agency for Geology and Mineral and Soil Quality Monitoring Centre are both collecting data on soil.



To implement its functions, MARDE cooperates with the:

- State Environmental Protection Inspectorate (SEPI);
- Environment Agency;
- Water Agency (Apele Moldovei);
- Forestry Agency (Moldsilva);
- Hydrometeorological Service (HydroMet);
- National Agency for Regulation of Nuclear and Radiological Activities (ANRANR);
- Public Health Agency;
- Food Safety Agency (ANSA);
- Academy of Sciences of Moldova – Institute of Ecology and Geography, “N.Dimo” Institute of Pedology, Agrochemistry and Soil Protection;
- Unit for the Implementation of Environmental Projects.

### **Environment Agency**

The Environment Agency is the administrative authority subordinated to MARDE, responsible for the implementation of state policy in the field of environmental protection.

The Environment Agency has four missions to ensure to the population of the Republic of Moldova a healthier, better and more sustainable environment, and is assigned with the following functions:

- conducting environmental assessments (EIA, SEA and environmental expert review);
- issuing environmental permits (integrated permits, single-media permits and registration);
- monitoring the state of the environment (air, water, soil, biodiversity and waste);
- management of environmental information and reporting (state of environmental reports and reporting to conventions, etc.).

The agency provides the public with online information in the form of “Monthly environmental quality bulletins on the territory of the Republic of Moldova” and “Daily bulletins and maps on atmospheric air quality”<sup>111</sup>. The Agency also started to publish on their website the evaluation of environmental indicators according to the UNECE guidelines<sup>112</sup> and information with regard to air pollution.

### **State Environmental Protection Inspectorate**

The State Environmental Protection Inspectorate (SEPI) is subordinated to MARDE. It controls the issuance of special water use permits and pollutant emission in the atmosphere permits. It also performs ecological control regarding compliance with environmental legislation. The inspectorate is divided into territorial units (four ecological agencies in Chisinau, Balti, Cahul and the Autonomous Territorial Unit of Gagauzia, and 31 ecological inspectorates across the districts). The inspectorate publishes environmental information in its yearbook which is also available on its website.

SEPI covers these environment areas:

- waste and chemical management;

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<sup>111</sup> <http://www.mediu.gov.md/ro/content/rapoarte-starea-mediului>

<sup>112</sup> <http://www.mediu.gov.md/ro/content/indicatori-de-mediu>



- protection of atmospheric air;
- management of water resources;
- soil protection;
- protection of forests;
- protection of green spaces in urban and rural areas;
- protection of fish;
- protection of hunting resources.

#### **State Agency MOLDSILVA**

The MOLDSILVA state agency is subordinated to MARDE. MOLDSILVA is the central public administrative body on state policy in forestry and hunting. The general task of the agency is to implement the constitutional and internationally ratified obligations in the policy area of forestry and hunting.

In the context of this document it is important to note that MOLDSILVA is responsible for:

- modernisation of existing information resources and development of a Forest Information System as part of the National Information System (improvement of the information system and integration of spatial data/GIS implementation, etc.);
- conducting studies to combat disease and forest pests through biological and integrated methods.

#### **Apele Moldovei State Agency**

The Apele Moldovei State Agency is subordinated to MARDE. It is the administrative authority in charge of the implementation of state policy on water resource management, improvement of water infrastructure and water supply and sanitation. The agency's responsibilities include:

- managing the water cadastre (State Water Cadastre and data bank in the field of water supply);
- collecting and analysing environmental information on the state of the managed area;
- sharing collected and analysed statistics with hierarchically superior public authorities;
- presenting proposals on the adhesion of the Republic of Moldova to international treaties, projects of bilateral or multilateral agreements in the field of water management, water supply and sewerage.

The agency has subordinated structures which report on their activities. The system and/or platform for exchanging information with other institutions is neither stated in the Law nor on the official website.

#### **State Hydrometeorological Service (SHS)**

The State Hydrometeorological Service is an institution subordinated to MARDE. Its main tasks include monitoring of hydrometeorological conditions and variability and environmental quality for protection of the population and the national economy from dangerous hydrometeorological phenomena and high levels of environmental pollution, warning about dangerous hydrometeorological disasters and high levels of environmental pollution, and dissemination of hydrometeorological data on environmental quality to national public and local authorities, and economic agents.

#### **Agency of Geology and Mineral Resources (AGMR)**



The Agency of Geology and Mineral Resources is the central administrative authority under MARDE, specialising in researching, recording, regulating and controlling the use of mineral resources. It aims to implement state policy in the field of geological research, and rational use and protection of subsoil in the Republic of Moldova. In the context of this report, the key functions of the agency are:

- the development and maintenance of records of subsoil use;
- the maintenance of the State Geological Register<sup>113</sup>;
- the examination of geological information and reserves of mineral resources<sup>114</sup>;
- the development and maintenance of the system for recording geological information and reserve of mineral resources;
- the maintenance of the State Cadastre of mineral deposits and mineral deposits;
- the maintenance of the State Cadastre of the sub-sectors, for purposes not related to the extraction of useful mineral substances.

#### **Agency for Regulation of Nuclear and Radiological Activities (ANRANR)**

The agency is an administrative authority set up by the government subordinated to MARDE. In the context of this project, the agency is particularly responsible for:

- the elaboration and realisation of state policy in the nuclear and radiological fields;
- monitoring the implementation and enforcement of international treaties;
- management of the National Register of radiation sources and authorised natural and legal persons;
- compilation and reporting of national reports to international bodies responsible for international treaties to which the Republic of Moldova is a party in this area.

#### **Other environmental data providers**

- **Ministry of Health, Labour and Social Protection**

The Ministry of Health, Labour and Social Protection is the central body of public administration that ensures the implementation of governmental policies in the fields of health, labour, social protection and demography. The ministry is responsible for monitoring data and information related to health in regards to air, water and soil quality.

- **Ministry of Economy and Infrastructure**

The Ministry of Economy and Infrastructure is the central body promoting state policy in the field of economy and coordinating the economic development of the country. The ministry applies the strategy and government programme in the field of economy and public finances. One of the ministry's areas of responsibility is to develop information and communications, the tech industry, the digital economy, cybersecurity and internet governance by promoting policies directed towards ensuring the sustainable growth of the ICT sector.

- **Ministry of Finance**

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<sup>113</sup> Government Decision No. 1003 of 23 October 2010 regarding the approval of the Technical Concept of the Automated Information System "State Geological Register".

<sup>114</sup> Reporting defined by Government Decision No. 1131 of 12 October 2016.



The Ministry of Finance is the specialised central public administration body in charge of developing and promoting state public finance policy. As the main public finance supervisor, the Ministry of Finance ensures the regulation and implementation of public finance management policies. The ministry also allocates funding for activities related to the environment and environmental monitoring.

- **Agency for Land Reclamation and Cadastre of Moldova (ALRC)**

The Agency for Land Relations and Cadastre of Moldova (ALRC) is a public authority carrying out execution, control, supervision and other functions in the field of land relations, geodesy, mapping, cadastre and GIS activities, and building up the National Spatial Data Infrastructure (NSDI).

The ALRC is a founder of four state enterprises: i) CADASTRU; ii) the Institute of Geodesy, Engineering Research and Cadastre (INGEOCAD); iii) the Project Institute for Land Management (IPOT) and iv) Soil Protection and Land Development.

The ALRC is the national contact point for National Spatial Data Infrastructure (NSDI) implementation and it is responsible for the establishment, maintenance and management of the NSDI national geoportal, as well as monitoring and reporting spatial data infrastructure at all levels. It is important to note that the Republic of Moldova adopted the INSPIRE Directive into its legal framework and as such is developing a geoportal based on European standards.

- **Academy of Sciences**

The Academy of Sciences of Moldova, through its institutes (the Ecology and Geography Institute, Institute of Zoology, the Institute of Genetics, Physiology and Plant Protection and the Botanical Garden Institute) presents all of the data on the animal and plant kingdom, GMOs, data on plant collections and animals from wild flora and fauna and data on the quality of surface waters at the sampling points.

The Institute of Ecology and Geography (IEG) of the Academy of Sciences of the Republic of Moldova was founded by unifying the National Institute of Ecology of the Ministry of Ecology and Natural Resources and the Institute of Geography of the Academy of Sciences of the Republic of Moldova<sup>115</sup>.

In the context of this document, it is important to mention that this institute is responsible for:

- implementation of the Geographical Information System for environmental and natural resources;
- studying the dynamics and tendencies of modifications (geo)ecosystem components under the influence of natural and anthropogenic factors;
- development of a database for integrated monitoring.

The institute provides information from the Cadastre of Protected areas on its website<sup>116</sup>, however, it is not updated or maintained due to the lack of personnel. In addition, the

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<sup>115</sup> In accordance with the Republic of Moldova Government Decision No. 1326 of 14 December 2005 "On the measures for optimisation the infrastructure of the science and innovation sphere"

<sup>116</sup> [http://www.ieg.asm.md/ro/cadastrul\\_arilor\\_protejate](http://www.ieg.asm.md/ro/cadastrul_arilor_protejate)





Institute of Ecology and Geography hosts the National Focal Points INFOTERRA – United Nations Environment Program (NFP INFOTERRA – UNEP), which contributes to the evaluation and modernisation of the environmental information system in the Republic of Moldova.

### **National Bureau of Statistics**

The National Bureau of Statistics is an administrative authority established under the Government for leading and coordinating activity in the area of statistics.

The National Bureau of Statistics publishes 10 sets of environmental data in accordance with guidelines for the application of environmental indicators in Eastern Europe, the Caucasus and Central Asian countries: atmospheric air protection, climate change, water use, biodiversity, land and forest fund, urban infrastructure and sanitation activities, generation and use of waste, agriculture, energy, and transport. Currently, statistical data are collected from companies and public authorities. The National Bureau of Statistics collaborates with MARDE to gather environmental statistics.

### **E-government and open data**

The E-Governance Agency is the central e-government organisation. The State Chancellery is the founder of the organisation and appoints the board members. The agency has the following basic functions:

- strategic planning, project management and implementation of information and communication systems for the government;
- preparation of the roadmap for ICT development in the Republic of Moldova, design of the basic infrastructure, development of a qualified workforce and promotion of technological progress;
- promotion of e-transformation and increased use of ICT by citizens;
- designing e-government architecture;
- participation in the development of technical standards and regulations on e-government and their implementation;
- assisting in the implementation of public e-services projects;
- development and management of the e-government portal, the unified system of e-document flow, email system and the public keys authentication centre for public administration authorities, in line with the relevant regulation and frameworks;
- ensuring technical and technological maintenance of official websites of the public administration authorities;
- developing, designing and managing ICT solutions aimed at enhancing the efficiency, transparency and quality of public authorities' processes;
- designing, implementing and managing the unified e-government ICT infrastructure.

The agency does not have any specific activities related to the area of environmental information sharing.

### **Public Service Agency**

The Public Service Agency under the State Chancellery is responsible for the development, maintenance and registration of state information resources, state information systems as well as the development of real estate cadastres.





### **Non-governmental Organisations (NGOs)**

There are multiple non-governmental organisations in the Republic of Moldova, but it is difficult to assess their actual number due to the absence of an official portal or a catalogue for NGOs.

#### **Aarhus Centre**

The Aarhus Centre operates in Chisinau and Bender since 2013 and focuses primarily on supporting access to environmental information for the public. The Aarhus Centre is hosted by the NGO EcoContact Association.

The Aarhus Centre assists the government in implementing the Aarhus Convention and helps citizens to understand and exercise the rights that the convention offers. To achieve sustainable results in the field of environmental protection, the Aarhus Centre, in addition to EcoContact, aims to achieve the following strategic objectives:

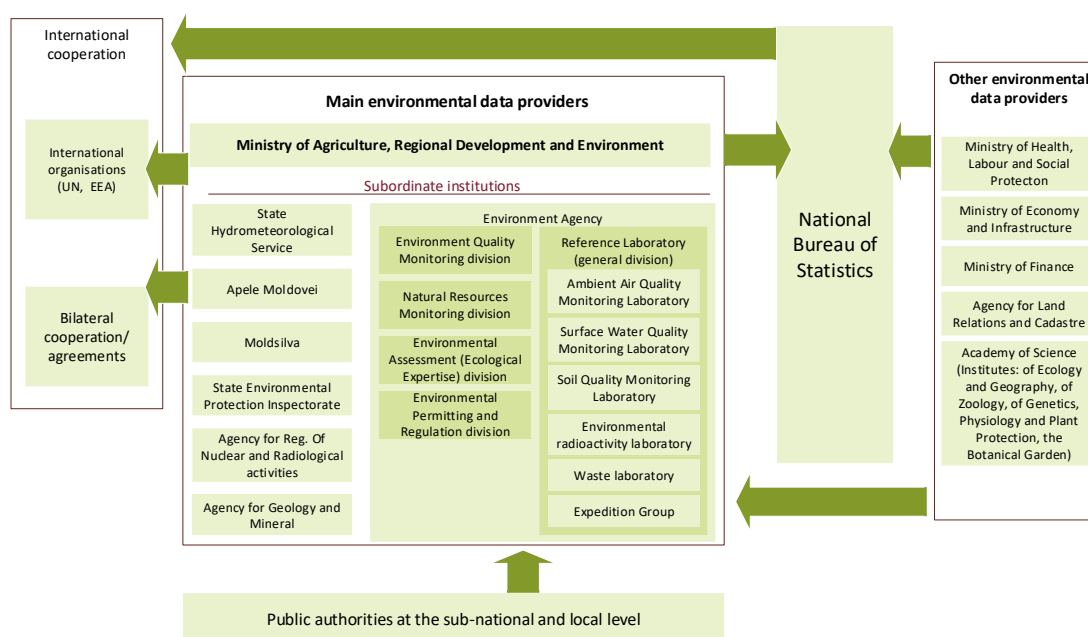
- promote the implementation of the Aarhus Convention through active dialogue between the government, NGOs and the general public;
- promote access to environmental information and increasing public participation in decision-making;
- promote implementation at the national level of the Protocol on Strategic Environmental Assessment (SEA) of the Convention on Environmental Impact Assessment in a Transboundary Context.

## **3.2 Environmental data flows**

This section describes the main state actors of environmental data sharing and the information flow between them.



*Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*



*Figure 5. High-level environmental data flows, the Republic of Moldova (as of March 2020, developed by the report's authors)*

Environmental information is mostly centralised under the Ministry of Agriculture's Regional Development and Environment (MARDE). In general, the Environment Agency hosts the central environmental monitoring departments. Each department/subdivision is responsible for collecting, analysing and sharing environmental information at their level.

There is no central system for environmental data storage and exchange, institutions have a responsibility to develop and maintain specific systems (e.g. water monitoring and air monitoring). The Environment Agency has been given the responsibility of building an Integrated Environmental Information System. MARDE and the State Hydrometeorological Service share information with the National Bureau of Statistics which produces a statistical report and provides access to the Statistical Databank of the Republic of Moldova. Data related to health, transport, energy (outside of radiation) and environment financing are managed separately. These data are nonetheless exchanged with the National Bureau of Statistics.

Regarding geospatial data, 22 public entities from six ministries and five other central and local institutions share geospatial data through network services. Some of that data is also shared with the National Office of Statistics and published on the Open Data Portal.

MARDE and a few other institutions share environmental information with other countries or international organisations. MARDE is experiencing difficulties in collecting and processing environmental data and generating sound environmental reports due to the lack of a system.

In this context, it is recommended that an integrated environmental information system be gradually developed that would enable the connection of existent databases, the digitalisation



of databases stored on paper; the sharing of information between databases of different institutions, and collection and exchange of data electronically/digitally.

### 3.2.1 Available environmental assessment reports, indicators and statistics

#### 3.2.1.1 Environmental assessment reports

Since 2005, cooperation between the National Bureau of Statistics and MARDE has been substantially strengthened and formalised through several joint agreements. This progress was reflected in the work carried out on environmental statistics and indicators and in the increased use of environmental statistics in the policy development process.

Public access to statistical data, including environment-related data, has improved considerably – statistical data are available free of charge on the National Bureau of Statistics website ([www.statistica.md](http://www.statistica.md)). Furthermore, since 2010, a publication containing environment-related statistics for the country, “Natural resources and the environment”, has been prepared annually by the National Bureau of Statistics and is available online.

The following table presents the environmental reports available in the Republic of Moldova. The environmental reports are published by MARDE, the National Bureau of Statistics for the UN and other international obligations.

Table 4. Environmental assessment reports (as of May 2020, based on the ENI SEIS II East website)<sup>117</sup>

Type of report	Report description
<b>National environmental report (State of Environment Report)</b>	National state of the environment report Data source: <a href="http://www.mediu.gov.md/ro/node/217">http://www.mediu.gov.md/ro/node/217</a> Prepared by: MARDE Last year published: 2017 Frequency: every four years Remarks: <i>The report covering 2015–2018 is currently in the elaboration process by the Environment Agency, expected to be published in June 2020.</i>
<b>Thematic reports – climate (national communications to UNFCCC)</b>	National communication of the Republic of Moldova under the United Nations Framework Convention on Climate Change Data source: <a href="https://unfccc.int/sites/default/files/resource/Moldova_CN4_En_web_070218.pdf">https://unfccc.int/sites/default/files/resource/Moldova_CN4_En_web_070218.pdf</a> Prepared by: MARDE Last year published: 2018 Frequency: every four years
<b>Thematic reports – land</b>	Qualitative characteristics of agricultural lands from the land cadastre of the Republic of Moldova Data source: <a href="http://arfc.gov.md/files/Caracteristica_calitat_teren(1).pdf">http://arfc.gov.md/files/Caracteristica_calitat_teren(1).pdf</a> Prepared by: the Public Property Agency of the Republic of Moldova Last year published: 2019 Frequency: annual

<sup>117</sup> <https://eni-seis.eionet.europa.eu/east/countries/moldova>



Type of report	Report description
<b>Thematic reports – air</b>	Monthly bulletins regarding the quality of the environment on the territory of the Republic of Moldova Daily bulletins and maps on atmospheric air quality Data source: <a href="http://www.mediu.gov.md/ro/content/rapoarte-starea-mediului">http://www.mediu.gov.md/ro/content/rapoarte-starea-mediului</a> Prepared by: the Environment Agency Last year published: 2020 Frequency: monthly
<b>Thematic reports – water</b>	Journal of Waters Data source: <a href="http://www.apelemoldovei.gov.md/lib.php?l=ro&amp;idc=162">http://www.apelemoldovei.gov.md/lib.php?l=ro&amp;idc=162</a> Prepared by: Apele Moldovei Last year published: 2017 Frequency: monthly
<b>Thematic reports – biodiversity</b>	National report under the Convention on Biological Diversity Data source: <a href="https://chm.cbd.int/database/record?documentID=241350">https://chm.cbd.int/database/record?documentID=241350</a> Prepared by: MARDE Last year published: 2018 Frequency: every four years
<b>Thematic reports – waste</b>	No reports available.
<b>Indicator-based reports</b>	National Report based on the OECD set of Green Growth Indicators Data source: <a href="http://www.green-economies-eap.org/resources/Report_EN.pdf">http://www.green-economies-eap.org/resources/Report_EN.pdf</a> Prepared by: MARDE Last year published: 2017 Frequency: irregular
<b>National Statistical Yearbook</b>	Statistical Yearbook of the Republic of Moldova Data source: <a href="https://statistica.gov.md/newsview.php?l=en&amp;idc=30&amp;id=6553&amp;parent=0">https://statistica.gov.md/newsview.php?l=en&amp;idc=30&amp;id=6553&amp;parent=0</a> Prepared by: the National Bureau of Statistics Last year published: 2019 Frequency: annual
<b>National Statistical Yearbook on environment</b>	Natural resources and the environment in the Republic of Moldova report Data source: <a href="https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf">https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf</a> Prepared by: the National Bureau of Statistics Last year published: 2019 Frequency: annual
<b>Territorial statistics</b>	Publication “Territorial statistics” Data source: <a href="https://statistica.gov.md/pageview.php?l=en&amp;id=4290&amp;idc=350">https://statistica.gov.md/pageview.php?l=en&amp;id=4290&amp;idc=350</a> Prepared by: the National Bureau of Statistics Last year published: 2019 Frequency: annual
<b>Report on sustainable development</b>	Interim evaluation report of the national development strategy “Moldova 2020” Prepared by: the State Chancellery of Republic of Moldova Data source:



Type of report	Report description
	<a href="https://cancelaria.gov.md/sites/default/files/raport_evaluate_md2020_ro_m.pdf">https://cancelaria.gov.md/sites/default/files/raport_evaluate_md2020_ro_m.pdf</a> Last year published: 2017 Frequency: irregular

### 3.2.1.2 UNECE environmental indicators produced by the Republic of Moldova

The Environment Agency publishes information about the indicators on its website<sup>118</sup>. The following table provides information about the monitored indicators for the main areas related to environmental protection.

Table 5. List of UNECE environmental indicators produced regularly in the Republic of Moldova (as of May 2020, <http://www.mediu.gov.md/ro/content/indicatori-de-mediu>)

Thematic area	UNECE indicator	Status
<b>A. Air pollution and ozone depletion</b>	A1. Emissions of pollutants into atmospheric air	Publicly available <sup>119</sup> Frequency: Annual
	A2. Ambient air quality in urban areas	Publicly available <sup>120</sup> Frequency: Monthly
	A3. Consumption of ozone-depleting substances	Publicly available <sup>121</sup> Frequency: Annual
<b>B. Climate change</b>	B1. Air temperature	Publicly available <sup>122</sup> Frequency: Annual
	B2. Atmospheric precipitation	Publicly available <sup>123</sup> Frequency: Annual
	B3. Greenhouse gas emissions	Publicly available <sup>124</sup> Frequency: Annual
<b>C. Water</b>	C1. Renewable freshwater resources	Not publicly available
	C2. Freshwater abstraction	Publicly available <sup>125</sup> Frequency: Annual
	C3. Total water use	Publicly available <sup>126</sup> Frequency: Annual
	C4. Household water use per capita	Not publicly available

<sup>118</sup> <http://www.mediu.gov.md/ro/content/indicatori-de-mediu>

<sup>119</sup> <http://www.mediu.gov.md/ro/node/416>

<sup>120</sup> <http://www.mediu.gov.md/ro/node/216>

<sup>121</sup> <https://date.gov.md/ckan/ro/dataset/11693-consumption-of-ozon-depleting-substances-ods>

<sup>122</sup> <http://mediu.gov.md/ro/content/b1-temperatura-aerului>

[https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>123</sup> <http://mediu.gov.md/ro/node/420>

[https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>124</sup> <http://www.mediu.gov.md/ro/node/421>

<sup>125</sup> <http://www.mediu.gov.md/ro/node/358>

[https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>126</sup> <http://www.mediu.gov.md/ro/node/360>

[https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)



Thematic area	UNECE indicator	Status
	C5. Water supply industry and population connected to the water supply industry and C6. Connection of population to public water supply	Publicly available <sup>127</sup> Frequency: Annual
	C7. Water losses	Publicly available <sup>128</sup> Frequency: Annual
	C8. Reuse and recycling of freshwater	Publicly available <sup>129</sup> Frequency: Annual
	C9. Drinking water quality	Not publicly available
	C10. BOD and concentration of ammonium in rivers	Publicly available <sup>130</sup> Frequency: Annual
	C11. Nutrients in freshwater	Publicly available <sup>131</sup> Frequency: Annual
	C12. Nutrients in coastal seawaters	Not publicly available
	C13. Concentrations of pollutants in coastal seawater and sediments (except nutrients)	Not publicly available
	C14. Population connected to wastewater treatment	Publicly available <sup>132</sup> Frequency: Annual
	C15. Wastewater treatment facilities	Publicly available <sup>133</sup> Frequency: Annual
	C16. Polluted (non-treated) wastewaters	Publicly available <sup>134</sup> Frequency: Annual
<b>D. Biodiversity</b>	D1. Protected areas	Publicly available <sup>135</sup> Frequency: Annual
	D2. Biosphere reserves and wetlands of international importance	Publicly available <sup>136</sup> Frequency: Annual
	D3. Forests and other wooded land	Publicly available <sup>137</sup> Frequency: Annual
	D4. Threatened and protected species	Publicly available <sup>138</sup> Frequency: Annual
	D5. Trends in the number and distribution of selected species	Not publicly available
	D6. Invasive alien species	Not publicly available
<b>E. Land and soil</b>	E1. Land uptake	Publicly available <sup>139</sup>

<sup>127</sup> <https://statistica.gov.md/newsview.php?l=ro&idc=168&id=6375>

<sup>128</sup> [https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>129</sup> [https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>130</sup> <http://www.mediu.gov.md/ro/node/450>

<sup>131</sup> <http://www.mediu.gov.md/ro/node/451>

<sup>132</sup> <https://statistica.gov.md/newsview.php?l=ro&idc=168&id=6375>

<sup>133</sup> [https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>134</sup> [https://statbank.statistica.md/pxweb/pxweb/ro/30%20Statistica%20sociala/30%20Statistica%20sociala\\_\\_06%20LOC020/LOC020300reg.px/?rxid=1c32544a-3ab7-4187-a3b8-c34b5922aa86](https://statbank.statistica.md/pxweb/pxweb/ro/30%20Statistica%20sociala/30%20Statistica%20sociala__06%20LOC020/LOC020300reg.px/?rxid=1c32544a-3ab7-4187-a3b8-c34b5922aa86)

<sup>135</sup> [https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>136</sup> <http://www.mediu.gov.md/ro/node/424>

<sup>137</sup> <http://www.moldsilva.gov.md/pageview.php?l=ro&idc=214&t=Viata-padurii/Ariile-protejate>

<sup>138</sup> <http://www.mediu.gov.md/ro/node/425>

<sup>139</sup> [https://statistica.gov.md/public/files/publicatii\\_electronice/Mediu/Resurse\\_naturale\\_2019.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Mediu/Resurse_naturale_2019.pdf)

<sup>139</sup> <http://www.mediu.gov.md/ro/node/429>



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Thematic area	UNECE indicator	Status
<b>F. Agriculture</b>	E2. Area affected by soil erosion	Frequency: Annual Publicly available <sup>140</sup> Frequency: Annual
	F1. Irrigation	Publicly not available
	F2. Fertiliser consumption	Publicly available <sup>141</sup> Frequency: Annual
	F3. Gross nitrogen balance	Not publicly available
	F4. Pesticide consumption	Publicly available <sup>142</sup> Frequency: Annual
<b>G. Energy</b>	G1. Final energy consumption	Publicly available <sup>143</sup> Frequency: Annual
	G2. Total primary energy supply	Publicly available <sup>144</sup> Frequency: Annual
	G3. Energy intensity	Publicly available <sup>145</sup> Frequency: Annual
	G4. Renewable energy consumption	Publicly available <sup>146</sup> Frequency: Annual
	G5. Final electricity consumption	Not publicly available
	G6. Gross electricity production	Not publicly available
<b>H. Transport</b>	H1. Passenger transport demand	Publicly available <sup>147</sup> Frequency: Annual
	H2. Freight transport demand	Publicly available <sup>148</sup> Frequency: Annual
	H3. Composition of road motor vehicle fleet by fuel type	Publicly available <sup>149</sup> Frequency: Annual
	H4. Age of road motor vehicle fleet	Publicly available <sup>150</sup> Frequency: Annual
<b>I. Waste</b>	I1. Waste generation	Publicly available <sup>151</sup> Frequency: Annual
	I2. Management of hazardous waste	Publicly available <sup>152</sup> Frequency: Annual
	I3. Waste reuse and recycling	Publicly available <sup>153</sup>

<sup>140</sup> <http://www.mediugov.md/ro/node/430>

<sup>141</sup> <http://www.mediugov.md/ro/node/431>

<sup>142</sup> <http://www.mediugov.md/ro/node/432>

<sup>143</sup> <http://www.mediugov.md/ro/node/433>

<sup>144</sup> <http://www.mediugov.md/ro/node/434>

<sup>145</sup> <http://www.mediugov.md/ro/node/435>

<sup>146</sup> <http://www.mediugov.md/ro/node/436>

<sup>147</sup> <https://statbank.statistica.md/pxweb/pxweb/ro/40%20Statistica%20economica/?rxid=1c32544a-3ab7-4187-a3b8-c34b5922aa86>

<sup>148</sup> <https://statbank.statistica.md/pxweb/pxweb/ro/40%20Statistica%20economica/?rxid=1c32544a-3ab7-4187-a3b8-c34b5922aa86>

<sup>149</sup> <http://www.mediugov.md/ro/node/439>

<sup>150</sup> <http://www.mediugov.md/ro/node/440>

<sup>151</sup> <http://www.mediugov.md/ro/content/de%C8%99euri>

<sup>152</sup> <http://www.mediugov.md/ro/node/442>

<sup>153</sup> <http://www.mediugov.md/ro/node/443>





Thematic area	UNECE indicator	Status
		Frequency: Annual
	I4. Final waste	Publicly available <sup>154</sup> Frequency: Annual
<b>J. Environmental financing</b>	J1. Environmental protection expenditure	Publicly available <sup>155</sup> Frequency: Annual

The website of the ENI SEIS II East provides an assessment of environmental information available as well as links to national environmental indicators reports. The Republic of Moldova is one of the leading EaP countries in producing UNECE environmental indicators. The overall assessment is provided in the table below.

Table 6. Assessment of performance in producing UNECE indicators (as of May 2020, ENI SEIS II East website)

Thematic areas	Moldova
<b>A. Air pollution and ozone depletion</b>	
<b>B. Climate change</b>	
<b>C. Water</b>	
<b>D. Biodiversity</b>	
<b>E. Land and soil</b>	
<b>F. Agriculture</b>	
<b>G. Energy</b>	
<b>H. Transport</b>	
<b>I. Waste</b>	
<b>J. Environmental financing</b>	
<b>Total</b>	



### 3.2.1.3 Environmental statistics published

Additionally, the country collects and publishes environmental statistics. The table below lists the datasets and publicly available information on the National Bureau of Statistics website and other environmental data platforms.

Table 7. Environmental statistics published on the main platforms (as of May 2020, developed by the report's authors)

Thematic area	Institution	Environmental statistics published
<b>A. Air pollution and ozone depletion</b>	National Bureau of Statistics <sup>156</sup>	<ul style="list-style-type: none"> <li>Emission of pollutants in atmospheric air by stationary sources of economic agents by ingredients</li> </ul>

<sup>154</sup> <http://www.medi.gov.md/ro/node/444>

<sup>155</sup> [https://statistica.gov.md/public/files/publicatii\\_electronice/Anuar\\_Statistic/2019/1\\_AS.pdf](https://statistica.gov.md/public/files/publicatii_electronice/Anuar_Statistic/2019/1_AS.pdf)

<http://www.madrm.gov.md/ro/content/fondul-ecologic-national>

<sup>156</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediu%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>



Thematic area	Institution	Environmental statistics published
		<ul style="list-style-type: none"> <li>Emission of specific polluting substances in atmospheric air by stationary sources of economic agents</li> <li>Capture (neutralisation) by purification plants of polluting substances in emissions by stationary sources of atmospheric air pollution of economic agents</li> <li>Polluting substances emitted into the atmospheric air by road transport (by substance)</li> <li>Emission of pollutants into the atmospheric air by stationary sources of economic agents, by territory</li> <li>Emission of pollutants into the atmospheric air by stationary sources of economic agents by ingredients, by territories</li> </ul>
	Environment Agency <sup>157</sup>	<ul style="list-style-type: none"> <li>National pollutant release and transfer register by: <ul style="list-style-type: none"> <li>Economic operator</li> <li>Industrial activity</li> <li>Region</li> <li>Pollutant releases</li> <li>Pollutant transfer</li> <li>Waste transfer</li> </ul> </li> </ul>
<b>B. Climate change</b>	National Bureau of Statistics <sup>158</sup>	<ul style="list-style-type: none"> <li>Average monthly air temperature</li> <li>Monthly quantity of precipitation</li> <li>Average monthly wind speed</li> </ul>
	Climate Change Office <sup>159</sup>	<ul style="list-style-type: none"> <li>Greenhouse gas emissions (GHG)</li> </ul>
<b>C. Water</b>	National Bureau of Statistics <sup>160</sup>	<ul style="list-style-type: none"> <li>Discharge of sewage, mine and phreatic drainage waters in natural water basins</li> <li>Discharges of some pollutants with residual water in surface aquatic basins</li> <li>Number of samples investigated by sanitary-chemical indicators</li> <li>Water abstraction, by territory</li> <li>Water use (without repeated and circulating water), by territories</li> <li>Water abstraction from natural basins</li> <li>Water abstraction from underground sources</li> <li>Water use (without repeated and circulating water): <ul style="list-style-type: none"> <li>for production needs</li> <li>drinking water</li> <li>for agricultural needs</li> <li>for domestic needs</li> </ul> </li> <li>Losses during transportation</li> </ul>

<sup>157</sup> <https://retg.gov.md/#/>

<sup>158</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>159</sup> <http://www.clima.md/libview.php?l=ro&idc=264&id=3628>

<sup>160</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>



*Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*

Thematic area	Institution	Environmental statistics published
	Apele Moldovei State Agency <sup>161</sup>	<ul style="list-style-type: none"> <li>Quantity of repeated and circulating water</li> <li>The boundaries of river basins and sub-basins and the special maps in which they are determined;</li> <li>Surface water bodies, areas and protection strips managed by the administrative authority for water management;</li> <li>Hydro-technical constructions managed by the administrative authority for water management;</li> <li>State of the hydro-technical constructions of storage lakes;</li> <li>Irrigation Systems in the Republic of Moldova;</li> </ul>
	Agency for Geology and Mineral Resources <sup>162</sup>	<ul style="list-style-type: none"> <li>Groundwater level</li> </ul>
<b>E. Land and soil</b>	National Bureau of Statistics <sup>163</sup>	<ul style="list-style-type: none"> <li>Land fund</li> <li>Conduction of foresting works</li> <li>Forest cutting</li> </ul>
	Agency for Geology and Mineral Resources <sup>164</sup> Agency for Land Relations and Cadastre <sup>165</sup>	<ul style="list-style-type: none"> <li>Register of deposits of useful solid mineral substances;</li> <li>Register of Mining Perimeters;</li> <li>The State Balance of Reserves of Useful Mineral Substances;</li> <li>Land cover and use.</li> </ul>
<b>F. Agriculture</b>	National Bureau of Statistics <sup>166</sup>	<ul style="list-style-type: none"> <li>Animal husbandry (livestock)</li> <li>Agricultural production</li> <li>Plant production and yielding areas</li> <li>Total area, yielding area, average yield and gross harvest of permanent crops in farms, by territories</li> </ul>
<b>G. Energy</b>	National Bureau of Statistics <sup>167</sup>	<ul style="list-style-type: none"> <li>Energy balance, annual</li> <li>Stocks, inputs and electricity consumption, monthly</li> <li>Stocks, inputs and consumer of coal by indicators, monthly</li> <li>Stocks, inputs and consumption of petroleum products, monthly</li> </ul>

<sup>161</sup> <http://www.apelamoldovei.gov.md/>

<sup>162</sup> [https://translate.google.com/translate?hl=&sl=ro&tl=en&u=http%3A%2F%2Fwww.agrm.gov.md%2Fimages%2FTransparenta%2FPlan\\_2019\\_AGRM.pdf](https://translate.google.com/translate?hl=&sl=ro&tl=en&u=http%3A%2F%2Fwww.agrm.gov.md%2Fimages%2FTransparenta%2FPlan_2019_AGRM.pdf)

<sup>163</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>164</sup> [http://www.agrm.gov.md/images/Transparenta/Plan\\_2019\\_AGRM.pdf](http://www.agrm.gov.md/images/Transparenta/Plan_2019_AGRM.pdf)

<sup>165</sup> <http://geoportal.md/ro/default/map#lat=204865.500000&lon=201581.000000&zoom=0>

<sup>166</sup> <https://statbank.statistica.md/pxweb/pxweb/en/40%20Statistica%20economica/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>167</sup> <https://statbank.statistica.md/pxweb/pxweb/en/40%20Statistica%20economica/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>



Thematic area	Institution	Environmental statistics published
		<ul style="list-style-type: none"> <li>Stocks, inputs and natural gas consumption, monthly</li> </ul>
<b>H. Transport</b>	National Bureau of Statistics <sup>168</sup>	<ul style="list-style-type: none"> <li>Length of communication lines</li> <li>Transport means inventory</li> <li>Transport of goods and passengers</li> </ul>
<b>I. Waste</b>	National Bureau of Statistics <sup>169,170</sup>	<ul style="list-style-type: none"> <li>Generation and use of waste in enterprise by type of waste</li> <li>Toxic waste by movement of waste</li> <li>Domestic waste</li> <li>Generation of production and consumption waste, by territories</li> <li>Existence of toxic waste (end of the year), by territories</li> <li>Development of urban streets in a territorial aspect</li> <li>Green spaces by territories</li> <li>Municipal waste by territories</li> </ul>

### 3.2.2 Environmental data sharing arrangements/agreements

This section describes the arrangements of the main providers in environmental data sharing and the flow of environmental information between them. Most institutions are subordinated to MARDE, hence the data-sharing arrangements are set by MARDE itself.

Table 8. Environmental data-sharing arrangements (as of May 2020, developed by the report's authors)

Institution	Thematic areas	Inter-institutional cooperation for data exchange
<b>Ministry of Agriculture, Regional Development and Environment (MARDE)</b>	B. Climate change C. Water D. Biodiversity E. Soil and land F. Agriculture I. Waste	MARDE coordinates the activity of seven offices and three units for monitoring different areas of the environment (e.g. Carbon Finance Office and Climate Change Office). Furthermore, MARDE cooperates with many agencies and institutions that are directly subordinated (e.g. the Apele Moldovei State Agency and State Hydrometeorological Service).
<b>Apele Moldovei State Agency</b>	C. Water	The agency is subordinate to MARDE.
<b>Environmental Protection Inspectorate</b>	A. Air pollution and ozone depletion C. Water	The institution is subordinated to MARDE; it performs state ecological expertise and state control regarding compliance with environmental legislation on behalf of MARDE.
<b>Environment Agency</b>	A. Air pollution and ozone depletion	The Environment Agency is subordinated to MARDE. It is responsible for providing public,

<sup>168</sup> <https://statbank.statistica.md/pxweb/pxweb/en/40%20Statistica%20economica/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>169</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>

<sup>170</sup> <https://statbank.statistica.md/pxweb/pxweb/en/10%20Mediul%20inconjurator/?rxid=b2ff27d7-0b96-43c9-934b-42e1a2a9a774>



Institution	Thematic areas	Inter-institutional cooperation for data exchange
	C. Water D. Biodiversity E. Soil and land	central and local public administration bodies, and economic agents with information on environmental quality. Starting from December 2019, the agency and State Hydrometeorological Service share information based on an agreement on collaboration and exchange of information between the State Hydrometeorological Service and the Environment Agency <sup>171</sup> .
<b>Institute of Ecology and Geography (IEG)</b>	B. Climate change G. Energy	IEG works under MARDE.
<b>Agency of Geology and Mineral Resources (AGMR)</b>	E. Soil and land	The AGMR is subordinated to MARDE. The agency is responsible for the development and maintenance of unique records on the use of subsoil and maintenance of the “State Geological Register”.
<b>Agency for Regulation of Nuclear and Radiological Activities (ANRANR)</b>	G. Energy	The agency is subordinated to MARDE. The ANRANR is responsible for the development and maintenance of the National Register of Radiation Sources.
<b>State Hydrological Service (SHS)</b>	A. Air pollution and ozone depletion C. Water	The institution is subordinated to MARDE. It is responsible for the preparation of Early Warning Bulletins and distributing accordingly with the Environment Agency. The organisation provides information on the quality of environmental components, which is distributed according to formal collaboration agreements with different institutions at a national level <sup>172</sup> .
<b>National Bureau of Statistics</b>	A. Air pollution and ozone depletion C. Water D. Biodiversity E. Soil and land F. Agriculture I. Waste	The National Bureau of Statistics publishes the statistical yearbook of the Republic of Moldova, which covers the state of the environment. This publication is prepared based on the data exchanged from economic agents and public administrations, in particular: <ul style="list-style-type: none"> <li>• MARDE;</li> <li>• the State Environment Protection Inspectorate;</li> <li>• the State Hydrometeorological Service;</li> <li>• the Moldsilva State Agency;</li> <li>• Ministry of Health, Labour and Social Protection;</li> </ul>

<sup>171</sup> <http://www.mediu.gov.md/ro/node/393>

<sup>172</sup> Information is shared with the World Meteorological Organisation and with each EaP country. Source: <http://www.meteo.md/index.php/cooperare/instituii-naionale-i-internaionale-de-profil/>



Institution	Thematic areas	Inter-institutional cooperation for data exchange
		<ul style="list-style-type: none"> <li>Institute of Ecology and Geography (Department of Cadastre).</li> </ul>
<b>Moldsilva State Agency</b>	E. Soil and land	The Moldsilva State Agency provides land, soil, forestry and hunting-related data to the National Bureau of Statistics.

In general, there is still weak coordination at the institutional level (both national and local) and the non-systematic data exchange between them. Currently, there is no centralised system for the storage and exchange of data.

Nevertheless, there are good examples of long-term cooperation between environmental institutions, such as the procedure for the development of the State Water Cadastre. Three institutions share this responsibility: the Apele Moldovei State Agency (Water Basin Management Department), the State Hydrological Service and the Agency of Geology and Mineral Resources. Each institution, for its domain, creates and maintains the electronic data fund as input to the elaboration of the Water Cadastre. It is foreseen that the e-governance programme will facilitate data exchange and sharing among these bodies while preparing the Water Cadastre.

In addition, the issuing of permits for water use is another example of current efforts to improve information exchange among institutions, by making use of modern technology (e-governance). In particular, this procedure requires approvals from several public authorities such as the Environmental Protection Inspectorate, the Apele Moldovei State Agency, the Agency of Geology and Mineral Resources and the National Centre of Public Health.

### 3.2.3 Licensing norms

The following table describes the licences available on the main environmental portals.

Table 9. Licensing norms per portal (as of May 2020)

Portal	Licensing
<b>Ministry of Agriculture, Regional Development and Environment (MARDE)</b> <a href="http://www.madrm.gov.md">http://www.madrm.gov.md</a>	The content of the website is protected, and all rights are reserved.
<b>Environment Agency</b> <a href="http://www.mediu.gov.md">http://www.mediu.gov.md</a>	The content of the website is protected, and all rights are reserved.
<b>Open Data Portal</b> <a href="http://date.gov.md">date.gov.md</a>	There are no official licences mentioned, nor a reference to an internationally recognised licence such as the Creative Commons (CC) licence. However, the conditions for use and reuse of information are available on the Open Data Portal <sup>173</sup> .
<b>National Bureau of Statistics</b> <a href="https://statbank.statistica.md/">https://statbank.statistica.md/</a>	Reusing the content of the website, completely or partly, in original or modified, as well as its storage in a retrieval system, or transmitted, in any form and by any means, unless otherwise stated, can be made under the licence Creative Commons Attribution 4.0 International License.

<sup>173</sup> <http://date.gov.md/en/terms-and-conditions>



### 3.3 Progress so far

#### 3.3.1 Main initiatives

The main initiatives related to e-government, open data and environmental information in the Republic of Moldova are presented below.

##### **Governance-Transformation Project (GeT)<sup>174</sup>**

The Governance-Transformation Project objective was to transform the delivery of selected public services by using ICT. The project ran up to 2014. The project consisted of two components:

- **E-Leadership Capacity and Enabling Environment:** this provided support to the E-Governance Agency. The first project component supports the E-Governance Agency through e-leadership training and capacity-building for civil servants, strategic communications and partnerships, development of policy, technical, legal and regulatory frameworks, and project management.
- **Shared Infrastructure and e-Services Development:** establishment of the M-Cloud (Government Cloud Computing Infrastructure), and development of a selected number of e-Government services and shared applications to be delivered through multiple channels, including government portals and mobile phones.

Both solutions are still used today – 53.7% of the central government agencies migrated one or more of their services/applications to M-Cloud. The M-Cloud platform brought the Republic of Moldova the international award for the “Best Cloud Project in Central & Eastern Europe”.

##### **Open Government Data Initiative**

The Open Government Data initiative in the Republic of Moldova is part of a larger governance e-transformation effort, launched in 2010. The E-Government Centre, in collaboration with USAID, prepared a report on open data and launched the open data initiative with the Open Data Portal in April 2011. The Republic of Moldova was the first country in the region to launch the Open Data Portal. In September 2011, the Open Data Initiative became the key element in the promotion of open government within the broader Governance e-Transformation Strategy, which is implemented by the E-Government Centre with the support of the World Bank.

Nowadays, programmes to increase awareness of open data use and reuse are carried out by organising trainings and educational events<sup>175</sup>.

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<sup>174</sup><http://documents.worldbank.org/curated/en/672011507844559743/Moldova-MOLDOVA-eTRANSFORMATION>

<sup>175</sup> <http://www.egov.md/en/communication/news/more-800-young-people-were-informed-importance-and-value-open-data>  
<http://www.egov.md/en/communication/news/campaign-open-data-continues-long-term-impact-opening-data-among-central>





### **Concept framework of the Integrated Environmental Information System (SIIM)<sup>176</sup>**

Since December 2019, the concept of developing the framework of the SIIM is in progress. This framework represents an overview of the development and implementation of the environmental information concept, which includes the key goals and tasks, principles, basic characteristics, functional aspects and conceptual architecture of the system.

SIIM aims to integrate information flows from more than 20 registers and 10 institutions under the MARDE and provide the following functionalities:

- control of the quality of the environment;
- the rational use of natural resources, mineral resources and their protection;
- management of waste and chemical substances;
- a record of emissions and the transfers of pollutants;
- adaptation to climatic changes;
- conservation of biodiversity and biosecurity;
- monitoring and management of water resources, managing water supply and sanitation;
- regulation of nuclear and radiological activities;
- issuance of permits, control over compliance with ecological legislation, organisation of checks in the procedure for issuing permits;
- organisation of ecological expertise.

### **3.3.2 International rankings**

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

#### **E-Government Development Index (EGDI)<sup>177</sup>**

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 the Online Service Index (OSI), Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI).

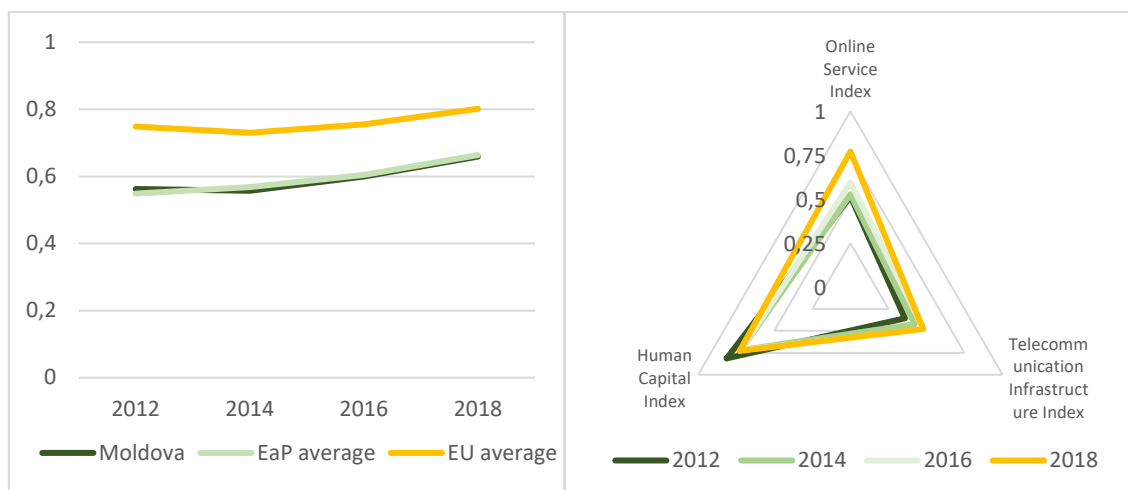
In 2018, the Republic of Moldova scored 0.659 and was ranked #69 out of 193 countries. The figure below shows the change in EGDI.

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<sup>176</sup> <https://cancelaria.gov.md/ro/content/privind-aprobarea-conceptiei-cadru-cu-privire-la-sistemul-informatiional-integrat-de-mediul>

<sup>177</sup> <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/139-Republic-of-Moldova>





*Figure 6. EGD indicator for the Republic of Moldova 2012 – 2018 (developed based on EGD data by the report's authors)*

The figure above shows the change in value of EGD components between 2012 and 2018. The values indicated in the graph show the highest value of a given indicator between 2012–2018. The OSI has increased significantly in the last two years to the level of 0.7708 (29.7% increase). The HCI saw a significant decrease between 2012 and 2014 and has remained stable at around 0.72 since then. The TII has the lowest score out of these three categories, but it has been experiencing steady growth in recent years and is currently at the level of 0.4787.

The increase in e-governance is largely due to the e-Transformation Program implemented by the Republic of Moldova. In particular:

- the M-Cloud which was implemented as a shared computing infrastructure. More than 115 systems within 36 ministries were hosted on the M-Cloud at project closure. In total, 53.7% of central government agencies migrated one or more of their services/applications to M-Cloud, above the targeted 25%<sup>178</sup>;
- more than 1,100 datasets became available on the Open Government Data website, above the targeted 600<sup>179</sup>;
- a total of 1.3 million unique users accessed public services via the government portal and mobile phones, above the targeted 300,000<sup>180</sup>;
- more than half of the users were satisfied with the quality of services. In particular, the overall quality of service delivery on the e-services portal [servicii.gov.md](http://servicii.gov.md) was evaluated as positive by 66% of users, slightly above the targeted 60%.

<sup>178</sup> Based on 2016 information provided on <http://documents.worldbank.org/curated/en/672011507844559743/pdf/ICRR-Disclosable-P121231-10-12-2017-1507844546788.pdf>

<sup>179</sup> Based on 2019 information provided on <https://data.gov.md/>

<sup>180</sup> Based on 2019 information provided on <http://egov.md/en/resources/infographics/use-public-services-portal>



### Global Open Data Index <sup>181</sup>

The Global Open Data Index is the annual global benchmark for the publication of open government data, run by the Open Knowledge Network. The survey is designed to assess the openness of specific government datasets according to the Open Definition in 16 different areas including government budget, spending and procurement, access to information on land ownership, election results at all levels and national statistics.

No data are available for the Republic of Moldova.

### Open Data Inventory (ODIN) score <sup>182</sup>

The Open Data Inventory (ODIN) assesses data provided by national statistical offices through their principal websites for topical coverage and openness. The results are tabulated to allow comparisons across different datasets within a country and between countries. ODIN's unique methodology has so far been applied to 180 countries.

In 2018, the Republic of Moldova had 56 points (out of 100) in terms of data coverage and 83 points (out of 100) with respect to data openness. This translates into a combined result of 70 points (out of 100) in ODIN score (#19 in the world).

Table 10. ODIN Score for the Republic of Moldova between 2015–2018 (developed based on ODIN data)

ODIN scores	2015	2016	2017	2018
Coverage	62	44	54	56
Openness	70	70	80	83
All elements	66	59	67	70

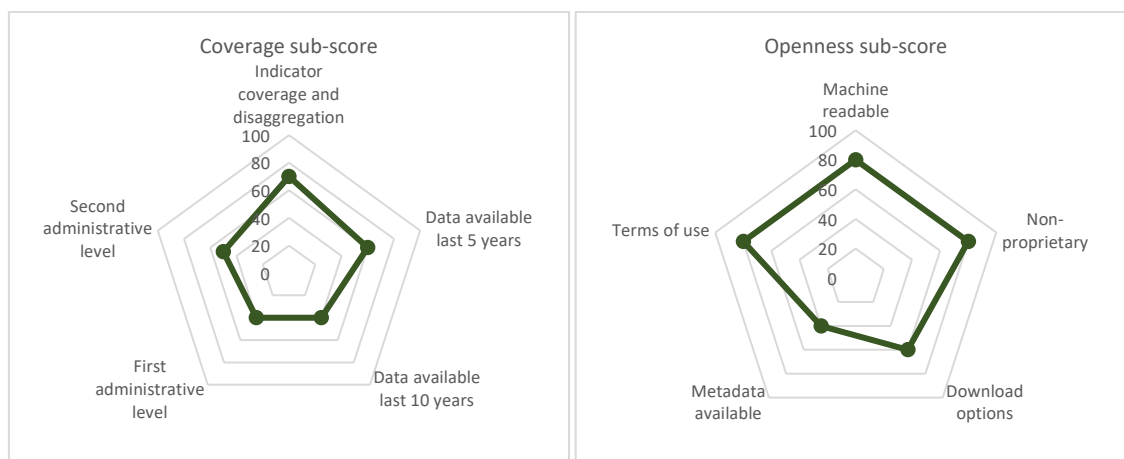
Compared to other EaP countries the Republic of Moldova exceeds average scores in all categories. In particular, the Republic of Moldova scores 64% in the social category where the Eastern Europe average is at 52%, 75% in economic category where the EaP average is 73% and 65% in the environmental category where the EaP average is 60%.

The coverage sub-score and openness sub-score of environment statistics are presented in the figures below.

<sup>181</sup><http://2015.index.okfn.org/place/moldova/>

<sup>182</sup><http://odin.opendatawatch.com/Report/countryProfile/MDA?appConfigId=4>





*Figure 7. Coverage sub-score and openness sub-score of environment statistics in 2018 (developed based on ODIN data by the report's authors)*

### Open Data Barometer<sup>183</sup>

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.

The fourth edition of the Open Data Barometer was published in May 2017<sup>184</sup> and covers the period between July 2015 and June 2016. This is the first edition of the report where data on the Republic of Moldova are available. Covering 114 countries, the fourth edition of the report ranks governments on:

- readiness for open data initiatives (average 54 out of 100 points);
- implementation of open data programmes (average 44 out of 100 points);
- impact that open data is having on business, politics and civil society (average 14 out of 100 points).

Based on the latest statistical available (2016) the Republic of Moldova ranked 44<sup>th</sup> place on the Open Data Barometer list. The following table provides more details about the Open Data Barometer assessment in terms of environmental data (or related).

*Table 11. Open Data Barometer evaluation (status as of 2017 and progress evaluation based on 2020 findings. Developed based on Open Data Barometer data by the report's authors)*

	Environmental data		Cartography	
	2017	2020	2017	2020
Data exists	●	●	●	●
Online availability	●	●	●	●
Machine-readable	●	●	●	●

<sup>183</sup>[https://opendatabarometer.org/4thedition/detail-country/?\\_year=2016&indicator=ODB&detail=MDA](https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=MDA)

<sup>184</sup> There has been no updated open data barometer research since 2017



	Environmental data		Cartography	
	2017	2020	2017	2020
Reusable data	●	↑	●	↑
Free of charge	●	↑	●	↑
Open licence	●	●	●	●
Data validity	●	↑	●	↑
Data update	●	↑	●	↑
Data discovery rating	●	↑	●	↑
Metadata	●	●	●	●

Note: During the period of preparation of the report updated information about the open data was captured, which showed progress in specific areas. Therefore, the columns in the table above represent:

- 2017 – Open Data Barometer environmental evaluation;
- 2020 – the progress evaluation based on the report findings for open data and spatial data initiatives;

Legend: ● – Yes, ● – No, ↑ – improvement in the area, ● – no significant changes in the area.

### Environmental Performance Index (EPI)<sup>185</sup>

The EPI ranks 180 countries on 24 performance indicators across 10 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, the Republic of Moldova ranked 112 out of 180 countries with the score 52. The EU average for the same indicator is 74 and the average for the EaP region is 58. The figure below shows the main sub-indicators of EPI, with light green colours indicating a rating for the entire category.

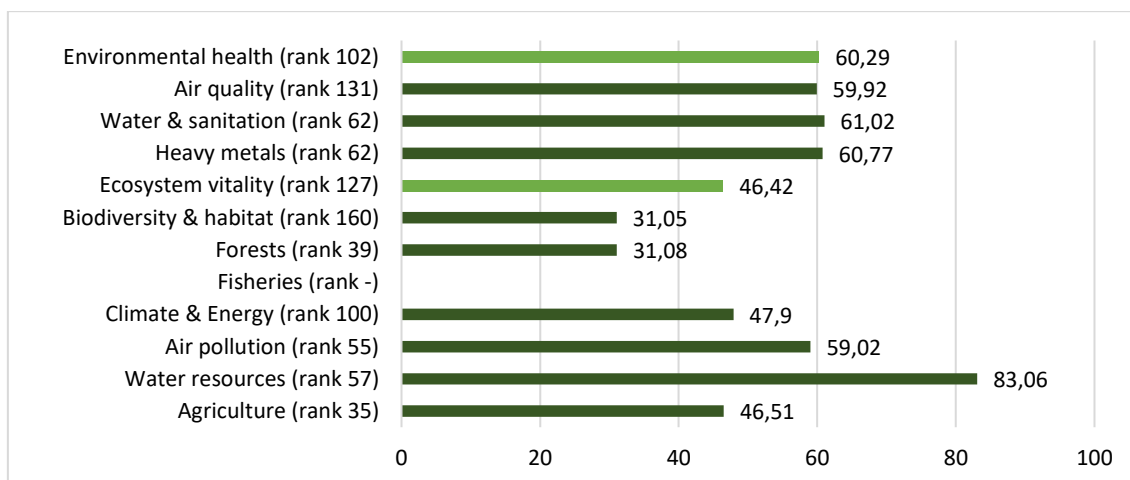


Figure 8. Indicators of EPI for the Republic of Moldova in 2018 (developed based on EPI data)

### 3.3.3 ICT-related statistics

According to the International Telecommunication Union<sup>186</sup>, Moldova had at the end of 2018:

<sup>185</sup><https://epi.envirocenter.yale.edu/epi-country-report/MDA>

<sup>186</sup> Link to country profile with the latest data: <https://www.itu.int/net4/itu-d/icteye/CountryProfile.aspx>



- Fixed-telephone subscriptions per 100 inhabitants: 27
- Mobile-cellular subscriptions per 100 inhabitants: 88
- Fixed (wired)-broadband subscriptions per 100 inhabitants: 15
- Mobile-broadband subscriptions per 100 inhabitants: 73
- Households with a computer (%): 51
- Households with internet access at home (%): 51
- Individuals using the internet (%): 76



## 4 Technology enablers for environmental information sharing

### 4.1 Portals

This section provides insights into the platforms available for the publication of environmental information at the national and international levels.

#### 4.1.1 Open Data Portal<sup>187</sup>

The Open Data Portal represents one of the key pillars of the Governance e-Transformation agenda and is aimed at facilitating public access to data of the central public administration authorities.

In 2011, the portal was launched by the E-Governance Agency with the support of the World Bank. Currently, the ownership of this portal is being transferred to the State Chancellery.

In 2019, the Government Data Portal was launched by modernising the Open Data Portal. The modernised portal aims at substantial diversification of data categories offered to users for viewing and reuse, the range of users, data view mode and the processing of available data, as well as the types of access to data held by public authorities<sup>188</sup>.

The portal provides access to more than 1,000 datasets as well as useful information, news and videos on open data. The portal is available in Romanian, Russian and English. Nonetheless, it needs an additional translation to English as there are only a few datasets with an English metadata description available.



Figure 9. Screenshot of the Open Data Portal (as of May 2020, date.gov.md)

#### 4.1.2 E-government portal

The online one-stop-shop of Public Services to Citizens and Businesses<sup>189</sup> was launched on 10 May 2012. The development of v2.0 of the website was included in the Public Service Modernisation Action Plan. The portal provides exhaustive information (service passports) on

<sup>187</sup> <https://date.gov.md/>

<sup>188</sup> <http://www.egov.md/en/communication/news/government-data-portal-dategovmd-innovative-3-1-solution-access-public-sector>

<sup>189</sup> [servicii.gov.md](http://servicii.gov.md)





652 public services<sup>190</sup> on its informative interface, and access to 176 public e-services on its interactive interface. Since May 2012 (official launching) until 30 June 2019, there have been reported:

- total number of unique visitors: 1.3 million;
- total number of visits: 2.25 million;
- average number of visits per month 34,000.

Currently, the Republic of Moldova is aligning its service passport to the Core Public Service Vocabulary standard of the European Union. During this process, the country is also taking the opportunity to assess the reengineering possibilities of public services.

Now, the Public Service Portal enables accessing all public services related to the environment, but no category for “environment public services” is available.



Figure 10. Public Service Portal (as of May 2020, servicii.gov.md)

### 4.1.3 Environmental portals

In general, in the Republic of Moldova, there is a large number of portals where environmental data and information is published. However, these portals are not well integrated with each other and interoperability remains low. The following table presents the different portals available in the Republic of Moldova.

Table 12. National authority platforms (as of May 2020)

Institution	Description
<b>Ministry of Agriculture, Regional Development and Environment (MARDE)</b> <a href="http://www.mardm.gov.md">http://www.mardm.gov.md</a>	The website is administered by MARDE. This website contains three basic sections, namely Agriculture, Regional Development and Environment. Even though the website is trilingual (Romanian, Russian and English), the content is not translated either into English or Russian. There is different information presented depending on the language you choose. In addition, environmental reports are available only in pdf format. Information and reports can be freely downloaded, however, all material provided on the website is protected.
<b>Waste Management Informational System (SIAMD)</b> <a href="https://siamd.gov.md/portal/index.html">https://siamd.gov.md/portal/index.html</a>	The system is managed by MARDE (currently negotiations are ongoing between the ministry and agency, to be transferred for management to the agency). The general objective of SIAMD consists of building the waste information system in the country in order to implement the

<sup>190</sup> The number of services is changing due to reforms in public sector administrations and the reorganisation of responsibilities in the public services area.



Institution	Description
	European Classification on the Waste List, including hazardous waste. The system is available only in Romanian and Russian.
<b>Environment Agency</b> <a href="http://www.mediu.gov.md">www.mediu.gov.md</a>	The website is administered by the Environment Agency. The website provides information about the activity of the agency and environmental indicators. Even though the website is trilingual (Romanian, Russian and English), the content is not translated either into English or Russian. There is different information presented depending on the chosen language. The environment reports are available in pdf format. Information and reports can be freely downloaded. However, all material is protected by copyrights unless stated otherwise.
<b>National Bureau of Statistics</b> <a href="https://statistica.gov.md/">https://statistica.gov.md/</a> and <a href="http://statbank.statistica.md">http://statbank.statistica.md</a>	The website of the National Bureau of Statistics is available in the Romanian, English and Russian languages. The data related to the following areas of the environment can be found on the site: <ul style="list-style-type: none"> <li>• atmospheric air protection;</li> <li>• urban infrastructure and sanitation activities;</li> <li>• generation and use of waste;</li> <li>• land and forest fund;</li> <li>• meteorology;</li> <li>• water use.</li> </ul> The website <a href="http://statbank.statistica.md">http://statbank.statistica.md</a> provides a very good interface to select and visualise environmental information. Furthermore, the portal enables downloading the data in machine-readable format.
<b>National PRTR system</b> <a href="https://retp.gov.md/#/">https://retp.gov.md/#/</a>	The system is managed by the Environment Agency and provides information on environmental pollution, emissions to air, water, soil, diffuse sources and the transfer of waste and pollutants. The system facilitates access to information by policymakers, public authorities, economic agents and the general public. It is currently under development. All material provided on the website is protected by copyright.
<b>Institute of Ecology and Geography</b> <a href="http://www.ieg.asm.md">www.ieg.asm.md</a>	The website contains reports and other research products carried out as part of the activities of the institute. Information is available on projects in which the institute is currently involved, both nationally and internationally. The website is available in the Romanian, Russian and English languages. All material provided on the website is protected by copyright.
<b>Climate Change Office</b> <a href="http://www.clima.md">www.clima.md</a>	The website provides links to reports on climate change, and national information regarding the implementation of the climate change strategy. The website also describes the international framework for action on climate change that the Republic of Moldova is a member of. The website is available in Romanian, Russian and English. All material provided on the website is protected by copyright.
<b>State Hydrometeorological Service (SHS)</b> <a href="http://www.meteo.md/">http://www.meteo.md/</a>	The SHS website is available in the Romanian, Russian and English languages. On the SHS website, the user can find the weather forecast and the hydrological and environmental situation. There are warning bulletins published as well as long-term climate forecasts. The information is presented on the portal in HTML; there are also pdf files in Romanian, which can be downloaded.



Institution	Description
	All material provided on the website is protected by copyright.
<b>National geospatial data fund – State Cartographical and Geodetic Fund</b> <a href="http://geoportal.md">http://geoportal.md</a>	The portal has been established to centralise topographical, geodetic and other mapping documents which have been created. It is also storing the respective materials for the whole territory of the country. The website hosts topographical, geodetic and mapping materials and data for the use of public authorities, for the private sector on demand, where sign-in is required. Open data in the form of maps are available for the public through a GIS browser.  The portal could benefit from a refactoring of the user interface and has very few information about its role or objective. The portal is available in Romanian, English and Russian. It has a section available to the public and another section restricted to registered users.
<b>Moldova map</b> <a href="http://moldova-map.md">http://moldova-map.md</a>	The portal is maintained by the Institute of Geodesy, Engineering Surveys and Cadastre (INGEOCAD). It provides an orthographic view of agriculture, relief, cadastre, forests and land. The website is user-friendly and provides easy access to the maps/data. It is only available in Romanian.
<b>Geoportal INDS</b> <a href="http://www.geoportalinds.gov.md">http://www.geoportalinds.gov.md</a>	The Geoportal of the Republic of Moldova is built on GeoNetwork technology and operated by the Land Relations and Cadastre Agency. It is a catalogue application to manage spatially referenced resources. It provides metadata editing and search functions as well as an interactive web map viewer. It is currently used in numerous Spatial Data Infrastructure initiatives at a national and international level.  The portal has 59 datasets and is user-friendly. The portal is translated into English, and a few other European languages but the metadata are only available in Romanian.

## 4.2 Environment open data availability and reuse

This section provides an overview of what statistical data and open data are available in the area of environment. It is compared in terms of the amount of data available and the capacity to reuse the data.

Table 13. Comparison of the Open Data Portal and the website of the National Bureau of Statistics (as of May 2020)

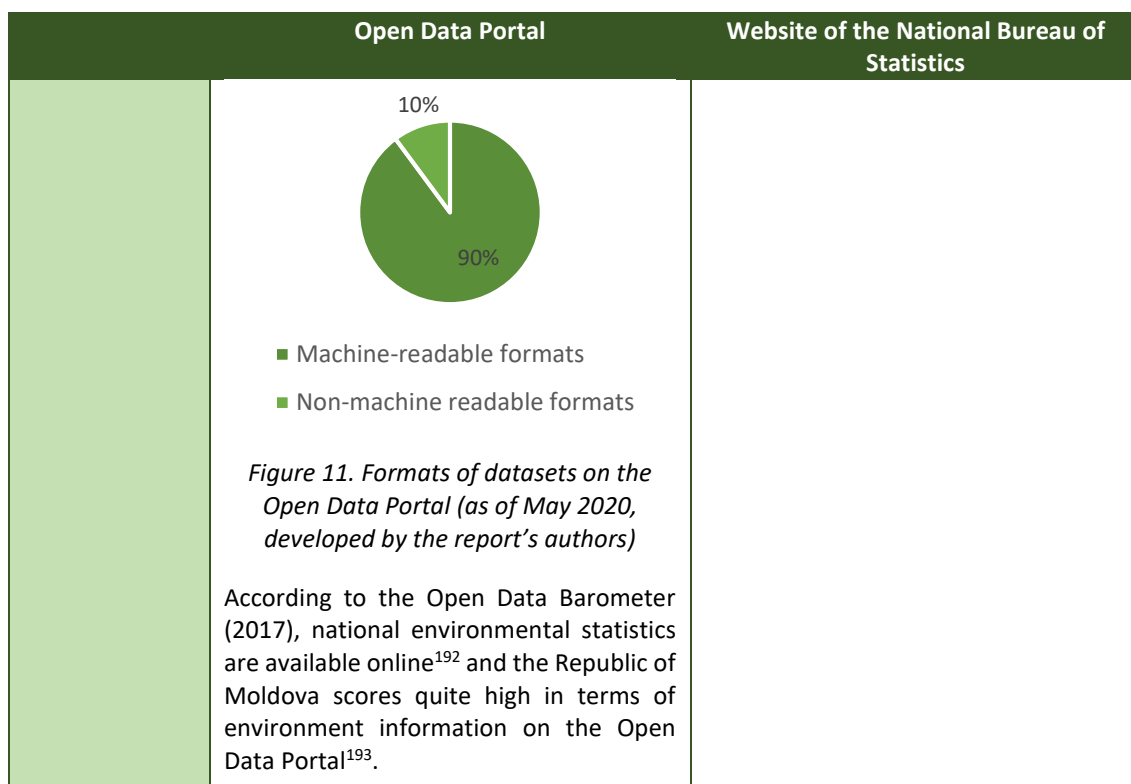
	Open Data Portal	Website of the National Bureau of Statistics
<b>Statistics referring to the availability of environmental data online</b>	The Open Data Portal has grown significantly over the past years. Nonetheless, it still holds a small number of datasets compared to some other EaP countries (e.g. Ukraine has 30,000 datasets on its open data portal). Statistics regarding the usage of the Open Data Portal are as follows (May 2020):	The website publishes numerous environmental data in the field of atmospheric air pollution, urban infrastructure and sanitation, generation and reuse of waste, land and forest fund, meteorology and water use. For each category, it is possible to select the criteria and the year.



Open Data Portal		Website of the National Bureau of Statistics
	<ul style="list-style-type: none"> <li>• numbers of datasets to date: about 1,000 datasets and more than 9,000 resources;</li> <li>• publishing institutions: 48 central public administration entities;</li> <li>• the most active entities: the Ministry of Health, Ministry of Interior, National Statistics Bureau, Ministry of Economy and Ministry of Education;</li> <li>• number of downloads: more than 3 million<sup>191</sup>.</li> </ul> <p>As such, much work remains to be done to fulfil the promise of open data. It is necessary to raise awareness among public authorities for publishing more data on the portal.</p> <p>In total, only a few datasets related to the environment are published in the Open Data Portal. Under the sections of "land" and "ecology," there are only 20 datasets. This is because the Environment Agency is not yet registered as a user on the Open Data Portal.</p>	
<b>Reusability of data</b>	<p>Overall, data provided on the Open Data Portal are machine-readable. Only 10% of the data published are non-machine readable (i.e. pdf, zip, etc.). The following diagram provides statistics over the machine-readable format available on the Open Data Portal.</p> <p>Datasets are mostly available in Romanian or Russian and can usually be downloaded in xls or xlsx format. Additionally, datasets are available in csv, pdf, docx, doc and zip formats. Usually, annual data are provided in separate files, so the comparison between yearly data can be difficult.</p>	<p>The National Bureau of Statistics publishes statistical yearbooks, including one on the environment. Yearbooks can be downloaded in pdf and xlsx formats. Information in the yearbook is provided in Romanian, Russian and some in English. In addition, data can be downloaded in a machine-readable format.</p>

<sup>191</sup><http://www.egov.md/en/transparency/reports/moldova-governance-e-transformation-project-implementation-completion-report>





The Republic of Moldova is moving in the right direction as the majority of published datasets are available in machine-readable formats. However, the maturity level of the open data could be enhanced, and additional datasets could be published including those of the environmental domain. Integration with the website of the National Bureau of Statistics could be beneficial to providing more datasets on the Open Data Portal.

<sup>192</sup> [https://opendatabarometer.org/4thedition/detail-country/?\\_year=2016&indicator=ODB&detail=MDA](https://opendatabarometer.org/4thedition/detail-country/?_year=2016&indicator=ODB&detail=MDA)

<sup>193</sup> The Open Data Barometer does not provide information about the quality of environmental data published.



## 5 Achieving a high level of maturity for environmental information management

### 5.1 Main challenges

#### 5.1.1 E-government

The major challenges related to the implementation and maintenance of e-governance initiatives in the Republic of Moldova are structured according to the SEIS pillars and are presented in the table below.

Table 14. Major challenges related to e-governance

<b>Content</b> 	<ul style="list-style-type: none"> <li>• <b>Development of e-services.</b> At the moment, a number of e-services is available. However, further development of e-services to increase their effectiveness is still needed. The country needs to provide more e-services to the public and find innovative solutions to engage the public into the decision-making process and simplify public service delivery process.</li> <li>• <b>Lack of digitalisation of public administration.</b> Despite the programme on e-transformation, public administration in the Republic of Moldova still uses a lot of paper documents. In many cases, records are only available on paper.</li> </ul>
<b>Infrastructure</b> 	<ul style="list-style-type: none"> <li>• <b>Poor multilingual support.</b> The absence of (good) translation on most government websites undermines international collaboration and effective use and reuse of available information.</li> <li>• <b>Development and promotion of interoperability standards.</b> There is an existing interoperability platform used for data exchange. However, there is no single interoperability standard that limits effective data exchange at the national level.</li> <li>• <b>Lack of integration between national environmental, health, statistical and geospatial information systems.</b> Currently, there is limited integration between different systems that store environmental information. This leads to limited and ineffective data exchange between the institutions.</li> </ul>
<b>Cooperation</b> 	<ul style="list-style-type: none"> <li>• <b>Lack of e-governance coordination among public authorities.</b> This leads to scattered efforts to develop electronic tools and processes as every institution is responsible for its own unique system development, thus affecting the data exchange between systems. It is necessary to improve the collaboration of other national and local public authorities with the e-Government Agency and establish a dedicated group on the environment.</li> </ul>



### 5.1.2 Open data<sup>194</sup>

The major challenges related to open data are structured according to SEIS pillars and are presented in the table below.

Table 15. Major challenges related to open data

<p><b>Content</b></p> 	<ul style="list-style-type: none"> <li>• <b>Lack of available datasets.</b> At the moment, the growth of the number of datasets is minimal, evaluating the period since 2011. It is necessary to raise awareness in institutions to increase the supply of open data. Besides, there are no measures foreseen for not sharing public information.</li> <li>• Public authorities often publish aggregated data and then <b>charge for more disaggregated data</b>. To some extent, this practice can be considered as part of the business model of multiple public state companies and/or subordinate to ministries but contradicts the open data principles and principles of access to information.</li> <li>• <b>Limited evaluation of open data impact.</b> Currently, it is difficult to assess the impact of open data due to the lack of a systematic approach.</li> </ul>
<p><b>Infrastructure</b></p> 	<ul style="list-style-type: none"> <li>• <b>Poor multilingual support.</b> The absence of good translation on the Open Data Portal, and on most governmental websites undermines international collaboration and reuse of information.</li> <li>• The government <b>information infrastructure is fragmented</b> and not all the information is collected and stored in information systems. This leads to discrepancies in information structure, multiple data formats and inconsistencies in document formats.</li> <li>• <b>Lack of a common classifiers.</b> This limits the standardisation of public information stored in information systems and databases.</li> <li>• <b>Unclear application program interface (API) for retrieving public information.</b> The lack of API well described on the Open Data Portal might undermine the expected economic potential of open data. Indeed, entrepreneurs can have difficulties creating applications if they cannot access the public data.</li> <li>• Several government applications <b>allow data visualisation but limit reuse</b> by not offering data for bulk download. As such, they might undermine the creation of opportunities such as the development of better applications or services by civil society or the private sector.</li> </ul>
<p><b>Cooperation</b></p> 	<ul style="list-style-type: none"> <li>• <b>Lack of efficient communication between public authorities, the public and economic agents.</b> The lack of communication leads to fragmented and prevents need-based development of initiatives and publishing of data.</li> </ul>

<sup>194</sup>[https://www.europeandataportal.eu/sites/default/files/2014\\_moldova\\_open\\_data\\_initiative\\_in\\_moldova.pdf](https://www.europeandataportal.eu/sites/default/files/2014_moldova_open_data_initiative_in_moldova.pdf)





- **Lack of initiative for reuse of open data.** It is necessary to raise awareness among the public and businesses by creating an open data “economy” and setting up tools for monitoring the reuse of data.

### 5.1.3 Environmental information sharing<sup>195</sup>

The main challenges related to environmental information management are structured according to SEIS pillars and are presented in the table below.

Table 16. Major challenges related to environmental information management

<b>Content</b> 	<ul style="list-style-type: none"> <li>• <b>Lack of harmonisation of environmental information standards with international ones.</b> This limits the international exchange of data and interoperability throughout the area.</li> <li>• <b>The licensing scheme used currently is not harmonised.</b> For instance, the Open Data Portal uses the Creative Commons licence, while the MARDE does not specify any licence or use full copyright licence on certain information resources. On the other hand, the National Bureau of Statistics uses the CC-BY 4.0 licence unless stated otherwise. It is necessary to harmonise the licensing of public data across institutions to avoid the risk of duplication that some data might be published on two portals with different licences.</li> <li>• <b>Lack of a unified approach to quality control.</b> While both the Environment Agency and National Bureau of Statistics have established quality data policy and requirements, it is not clear how it is implemented in other institutions that are involved in the environmental data flows. This may lead to a different approach to data quality and inaccuracies.</li> </ul>
<b>Infrastructure</b> 	<ul style="list-style-type: none"> <li>• <b>Lack of an integrated, comprehensive and efficient environmental information system</b> that would connect all environment and related data, ensure strengthening of cooperation and information exchange between different institutional actors.</li> <li>• <b>Low digitalisation of public authorities with competences related to the environment.</b> At the moment, many environmental data are still available only in paper format, thus limiting the exchange and access to data. It is necessary to set up objectives to digitalise processes and information as much as possible.</li> <li>• <b>The number of portals on which environmental information is published is high.</b> Currently, environmental information is spread across multiple websites. It is not clear which portal has the latest information.</li> </ul>
<b>Cooperation</b>	<ul style="list-style-type: none"> <li>• Although there are a lot of institutions dealing with <b>environmental information, cooperation and data exchange between them is still</b></li> </ul>

<sup>195</sup> Republic of Moldova Decision No. 301 on the Approval of the Environmental Strategy for the years 2014–2023 and of the Action Plan for its implementation, pp. 20, 24, 30.





**weak.** It is necessary to put in place practical arrangements and procedures to improve collaboration.

## 5.2 Roadmap<sup>196</sup>

In general, it is recommended that the Republic of Moldova should focus on the following main elements for ensuring coherent and effective open data and environmental information management and for addressing the common challenges presented above. In brief, the focus should be on the following:

- **Policy measures:**
  - *Long-term digital action plan:* an action plan for e-government and open data should be in place. It should ensure scoping, management and funding of the national e-government and open data portals, as well as digital awareness-raising activities for both public authorities and the public. In doing so, all available results acquired from previous activities and projects across the whole economy spectrum should be assessed and put in motion.
  - *General interoperability framework:* the country should have in place an interoperability framework or at least its foundation. This is especially required to further develop the MConnect system and ensure sustainable integration of other information resources including environmental information systems.
  - *Roadmap in the field of open data and environmental information:* this roadmap should contain key objectives for fostering sharing and dissemination of environmental information. During the implementation of ENI SEIS II East project the roadmap, introduced in the following section, was developed; it can serve as a basis or inspiration to practically implement suggested measures, create new ones and enhance open data and environmental information sharing initiatives.
- **Legal measures:**
  - *Enforcement mechanisms* for the regular collection, sharing and dissemination of environmental information and for the implementation.
- **Technical measures:**
  - *E-government, open data and geo-portals:* the country should have effective e-government, open data, environmental portals on which environmental data and information can be shared/disseminated with spatial attributes, and where services can be built.
  - *Implementation of international standards:* standards developed by EU, the International Organization for Standardisation (ISO), the World Meteorological Organisation, the Open Geospatial Consortium, the World Wide Web Consortium, the National Institute of Standards and Technology and other international organisations which are responsible for standards development could be adjusted

<sup>196</sup> The proposed roadmap has been updated taking into consideration the presentation made during the 4th ENI SEIS II East Project Steering Committee Meeting on 12 November 2019 in Copenhagen. Presentations are available here: <https://eni-seis.eionet.europa.eu/east/areas-of-work/communication/events/project-related-events/4th-eni-seis-ii-east-project-steering-committee-meeting>



and introduced in the areas of designing an information system, metadata standards, and interoperability standards.

Some of these elements are already in place in the Republic of Moldova (e.g. the Open Data Portal) and other portals containing environmental data and information. Nonetheless, it is advised to look at these elements from an integrated perspective of environmental information sharing and dissemination and to update them where appropriate. These elements are under continuous development and hence a periodical review is necessary.

#### **Guidance for the implementation of the roadmap**

The roadmap provided in the following section outlines key areas for further development in the field of open data and environmental information. It also provides recommendations and suggested actions for improvement that are organised according to the following SEIS pillars: content, infrastructure, and cooperation.

The success and rapid advancement of the country in this challenging domain is strongly dependent on clear prioritisation, multi-disciplinary teamwork and regular monitoring and adjustment of results. Furthermore, as progress is gradually made in one or several areas proposed for consideration, improvements, readjustments or amendments to the roadmap will be needed to keep it relevant and focused on the key priorities of the country.

To support the implementation process of the proposed measures at the national level, it is recommended that to start, an interdisciplinary team should be established that would be responsible for driving and overseeing the overall process. The measures should be prioritised and implemented to support and enhance the e-government, open data and environment strategies of the country. Furthermore, this process should not be carried out in isolation. On the contrary, it should also be undertaken by taking into account the extensive experience already gained in this area by other countries and organisations and in the context of broad regional exchange and international collaboration.

The proposed measures are to be implemented by specific bodies at various levels of decision-making and across disciplines. In this respect, the measures are grouped in three major categories, namely: policy, legal and technical measures. These categories are indicated by the colour scheme (provided in the table below). They aim to signal the leading expertise or decision-making level required for the implementation of each measure, while being considered in an interdisciplinary setting.

*Table 17. Legend for the colour scheme of the roadmap measures*

Colour	Type of measure	Description
	<b>Policy</b>	The measures in this category cover the development of specific strategies and policies and their integration into the overall policy framework at the national level. They include establishing clear and measurable targets as well as monitoring the implementation of the strategies and policies. Furthermore, they imply supervision, coordination and other practical arrangements in terms of interdisciplinary work on open data and e-governance across various areas, including the environment.
	<b>Legal</b>	The measures in this category cover the development and adoption of new or revision of existing legislation followed by the development of secondary legislation, guidelines and methodologies in the area of open data and e-



Colour	Type of measure	Description
		governance across various domains, including the environment. Legal measures include governance set-up, ensuring clear division of responsibilities and proposing enforcement mechanisms for obligations provided in the legislation.
	<b>Technical</b>	The measures in this category cover the adoption or development of technical tools, methodologies and procedures, as well as the introduction and adoption of international technology standards at a national level. These measures also embrace developing new competences and training specialists to ensure the successful implementation and sustainability of technology initiatives.

It is recommended for the Republic of Moldova to implement measures proposed in the roadmap after consideration of the latest policy, legal and technology changes happening in the country. The table below suggests a recommended timeframe to implement measures with different priorities assigned.

Table 18. The recommended timeframe for measures implementation

Priority	Recommended timeframe for the measure implementation
<b>High</b>	In the next 1-3 years
<b>Medium</b>	In the next 3-5 years
<b>Low</b>	Over the next 5 years

Priorities proposed in this roadmap were based on information received and aggregated from 2018 to 2020. Depending on the measure implementation, changes in the policy, legislation or technology the suggested priorities might change. To ensure effective implementation of proposed measures and their relevance regular measure monitoring is essential.

#### **“Open data and e-government good practices for fostering environmental information sharing and dissemination” report**

The implementation of the proposed measures in the roadmap is assisted by a Good Practices Report “Open data and e-government good practices for fostering environmental information sharing and dissemination” (the Good Practices Report). This report is an integral part of the present project and presents relevant examples from other countries and organisations on the practical implementation of the roadmap measures.

The Good Practices Report is organised in two sections – e-government and open data – each part following the SEIS pillars “content”, “infrastructure”, and “cooperation (network)”. In addition to this, the following resources can also be used to support the implementation of the measures proposed in this roadmap:

- Report on the “Promotion of good practices for national environmental information systems and tools for data harvesting at EU level”;
- Streamlining Environmental Reporting – Action Plan;
- Open Data Maturity in Europe 2019<sup>197198</sup>;

<sup>197</sup> [https://www.europeandataportal.eu/sites/default/files/open\\_data\\_maturity\\_report\\_2019.pdf](https://www.europeandataportal.eu/sites/default/files/open_data_maturity_report_2019.pdf)

<sup>198</sup> [https://www.europeandataportal.eu/sites/default/files/european\\_data\\_portal\\_-\\_open\\_data\\_goldbook.pdf](https://www.europeandataportal.eu/sites/default/files/european_data_portal_-_open_data_goldbook.pdf)



- Development of an assessment framework on environmental governance in the EU Member States<sup>199</sup>.

### 5.2.1 Roadmap measures: Content

The measures proposed to the Republic of Moldova in the SEIS pillar Content are presented in the table below.

*Table 19. Measures related to SEIS pillar: Content*

Measure	Priority	Description
1. Revision of the legal framework to promote and regulate the online accessibility and reuse of public sector information (PSI)	High	<p>Adopt or amend as needed, the legal acts referring to data management and accessibility related to environmental domain (monitoring, assessment and reporting, management and control of natural resources, ecosystems and pollution), in accordance with the Aarhus Convention and the Protocol on PRTs (as appropriate) and national legislation related to open data and e-governance. This can include:</p> <ul style="list-style-type: none"> <li>• Improving environmental information system by defining themes, sources (lists, registers, databases, funds, etc.), formats, metadata, licensing and interoperability requirements;</li> <li>• Improving procedures for environmental data collection in machine-readable formats and its accessibility as open data;</li> <li>• Improving procedures for managing environmental data flows and regular updating, quality assurance and control, reporting, inter-institutional sharing and exchange, online dissemination and other means of dissemination;</li> <li>• Setting up the public participation procedures for involving the public at large in the design, use and update of the environmental information system(s); considering ways to take on board citizen science and public engagement initiatives;</li> <li>• Streamlining the responsibilities of public authorities at all levels and across sectors to ensure clear competences and coordination;</li> <li>• Review periodically the application of the exceptions in the disclosure of environmental information;</li> <li>• Monitoring the legitimate application of these exceptions and the disclosure of information on emissions in accordance with the Aarhus Convention (in particular clarify the practical rules to separate</li> </ul>

<sup>199</sup> “Development of an assessment framework on environmental governance in the EU Member States” under the contract No 07.0203/2017/764990/SER/ENV.E.4 funded by the European Commission, final report May 2019.



*Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*

Measure	Priority	Description
		<p>non-confidential information of public importance for its further disclosure).</p> <p><i>For guidance, consult the section “Designing an open data legal framework and provision of enforcement mechanism” of the Good Practice Report.</i></p> <p><i>This measure is closely linked with “Establish a collaborative institutional framework for the implementation of open data” in the Cooperation (network) section.</i></p>
2. Adopt guidelines defining the practical arrangements for environmental information management, sharing and dissemination		<p>Adopt technical guidelines setting out the practical arrangements for environmental information management, sharing and dissemination, specifying:</p> <ul style="list-style-type: none"> <li>• The scope of environmental information system(s) with metadata description and registry;</li> <li>• The environmental data management structure (including data architecture, data stewardship, system administration, data privacy, data security and data quality);</li> <li>• Decision-making procedures for sharing non-confidential information and datasets and publishing them online on the relevant portals (e.g. websites of public authorities, environmental portals (single web-access point for environmental information, geospatial portals, statistical, open data and other portals));</li> <li>• Separation of non-confidential information as appropriate;</li> <li>• Gradually amendment of the data quality assurance procedures in line with EU rules.</li> <li>• Stakeholder communication, including public participation procedure in the design, use and update of the environmental information system(s).</li> </ul>
3. Develop and adopt an environmental data policy	High	<p>Adoption of an environmental data policy by the authorities in charge of environmental protection to include:</p> <ul style="list-style-type: none"> <li>• List of varied environmental information available and the scope thereof;</li> <li>• Basic terms of availability and accessibility, including open access and data-sharing aspects;</li> <li>• Data holder support for availability and accessibility by third parties;</li> <li>• Rights and obligations of data and information holders/providers in terms of maintenance, update, quality assurance and reliability of data and information about their responsibility;</li> <li>• Licensing terms and conditions;</li> </ul>



*Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*

Measure	Priority	Description
		<ul style="list-style-type: none"> <li>Contact point for access to environmental information.</li> </ul> <p><i>Although it is stated that Moldova has had Open Data Policy since 2011, it could be further developed and improved in order to facilitate the accessibility of open data.</i></p> <p><i>For an example of data policy, consult the European Environment Agency's website: <a href="https://www.eea.europa.eu/legal/eea-data-policy/data-policy">https://www.eea.europa.eu/legal/eea-data-policy/data-policy</a></i></p>
4. Develop/update licensing terms and conditions to promote open data access, use and reuse of environmental information using an open licence	Low	<p>This measure will involve defining the licensing terms and conditions used on the different portals for publishing and accessing environment data.</p> <p><i>At present, there are no official and clear licensing mechanisms for reuse of the data available by public authorities.</i></p> <p><i>According to the PSI Directive, it is recommended to use open licences as they are available online and provide clear licensing conditions<sup>200</sup>.</i></p> <p><i>More information about licensing are available in the Good Practice Report in the section "Develop/update licensing terms and conditions to promote open data access, use and reuse of environmental information using an open licence".</i></p>
5. Regular collection and timely reporting of environmental data and information in accordance with national and international obligations	High	<p>This measure will:</p> <ul style="list-style-type: none"> <li>Ensure the effective implementation of the Aarhus Convention and its decisions and recommendations from the Meeting of the Parties on promoting effective access to information and electronic information tools.</li> <li>Identify practical arrangements for establishing the Pollutant Release and Transfer Register within the integrated environmental information system(s) by using good international working practices.</li> <li>Ensure traceability of assessments and indicators by linking them with the available data sources used.</li> <li>Consider becoming a Party to other UNECE MEAs (e.g. Protocols related to the Convention on Long-range Transboundary Air Pollution).</li> </ul>

<sup>200</sup> Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the reuse of public sector information <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L1024&from=EN>





*Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*

Measure	Priority	Description
		<ul style="list-style-type: none"> <li>Ensure the implementation of other international commitments related to the regular provision of environmental data and information.</li> </ul>
6. Define/adopt and publish metadata description standards for all environmental data and information in accordance with the international standards using a one-stop access point.	High	<p>This measure will aim to define metadata standards to facilitate the dissemination /exchange of environmental data and information (including dissemination of the available environmental reports). As a result, it will be easier for institutions to manage and exchange environmental data, while also making it easier for the public to find the needed information.</p> <p><i>It is recommended that international standards be adopted, as the standard development requires both technical expertise and resources. The adaptation of the standard to the EU standard DCAT-AP would require capturing additional metadata, which would also enable integration with other open data portals in Europe.</i></p> <p><i>Refer to the Good Practices Report to get more information about metadata standards for open data.</i></p> <p><i>This measure is closely linked with the measure “Enhance interoperability of geospatial, statistical, health and environmental information systems” in the Infrastructure section.</i></p>
7. Improve and make publicly available the quality assurance/quality control mechanisms behind the published environmental data and information	Medium	<p>This measure will:</p> <ul style="list-style-type: none"> <li>Assess the current quality control mechanisms from the collection of environmental data, to aggregation, manipulation, processing and publication across the whole MDIAR chain<sup>201</sup>;</li> <li>Publish the current procedures in place and set minimum standards to respect all stages of the data flow (data collection, data preparation and control, aggregation and data dissemination);</li> <li>Complement/amend the legal framework by adding provisions setting up obligations at different levels, regarding the quality control of environmental data, including penalties for non-compliance;</li> <li>Fully implement the quality control mechanisms/procedures and set up an annual reporting process for the evaluation of the quality of environmental data provided.</li> </ul> <p><i>At present, quality control is the responsibility of the institution that collects data, however, there are no</i></p>

<sup>201</sup> The monitoring/data/information/assessment/reporting (MDIAR) chain is the flow of data and information from national monitoring to European reporting.



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Measure		Priority	Description
			<p><i>common quality control processes that would ensure uniform quality control procedures<sup>202</sup> (see Section 3.1.3.3 Quality control).</i></p> <p><i>An example of criteria for assessing quality control mechanisms are depicted in the document “Promotion of good practices for national environmental information systems and tools for data harvesting at EU level” page 165.</i></p> <p><i>Examples of standards, mechanisms and measures for quality control are also presented in the Good Practice Report, in the section “Develop and publish quality control mechanisms for environmental data”.</i></p>
8.	Expand collection, prepare and publish environmental data in a machine-readable format	Medium	<p>The Republic of Moldova currently publishes most of its data in a machine-readable format. Nonetheless, many data are kept in public authorities and it is important to ensure the publication of datasets in machine-readable formats so that they can be used.</p> <p>This measure aims to ensure the publication of environmental data in machine-readable format. Such a measure can be driven by the establishment of the open data legal framework, setting up the obligation to publish, as a rule, all datasets in machine-readable formats, unless data are not available in such a format and requires processing beforehand.</p> <p><i>The Good Practice Report provides more details about machine-readable formats in “Transformation of data published to machine-readable format” section.</i></p> <p><i>This measure is closely linked with “Define/adopt and publish metadata description standards for all environmental data and information in accordance with international standards using a one-stop access point” measures outlined in the Content section.</i></p>
9.	Inventory, reengineering and publication of public services as e-services	Medium	<p>This measure will define metadata standards and ensure that environmental services are described and accessible through the electronic service portal, in accordance with national standards.</p> <p>For the description of public services, it is recommended that the European Core Vocabularies, such as Core Public Service, Core Person, Core Location and Core Public Organisation, be adapted. This would allow a coherent and standardised description of e-services and improved interoperability to be ensured.</p>

<sup>202</sup> As discussed in the national roundtable.



Measure	Priority	Description
		<i>For an example of implementation, consult the Good Practices Report's "Publishing e-services on a dedicated e-service portal" section.</i>
10. Perform an open data impact analysis for the use/reuse of environment data	Low	<p>This measure will support raising awareness through regular assessment on the impact of the use/reuse of environmental data and information, as part of the open data impact assessment framework and consequently drive further developments. For instance, the performance could be evaluated against the following criteria:</p> <ul style="list-style-type: none"> <li>• Number of environmental datasets downloaded and reused;</li> <li>• User feedback received/collected;</li> <li>• Number of applications developed using environmental data and having an impact on the environment (including reuse of environmental data by other sectors, such as transport).</li> </ul> <p><i>More information about the general open data impact assessment can be found in the Good Practices Report in the "European Data Portal Impact maturity" section. The section provides an example of the European Open Data Portal relevant for this area.</i></p>

In order to facilitate the implementation of the provided measures, the Good Practices Report provides the following examples and recommendations:

- Building a digital strategy which includes the environment (example from Lithuania);
- Building e-services and public information systems according to national and international standards (examples from Estonia and the EU);
- Publishing e-services on a dedicated e-service portal (examples from the Lithuania, Romania and the UK);
- Develop a national strategy for open data and a measure plan to implement it for specific types of information (example from Ireland);
- Adopt an action plan based on the open data strategy and the digital strategy (example from the OGP);
- Adopt an open data policy, and extend it to environmental data (example from the EU);
- Designing an open data legal framework and provision of enforcement mechanisms (example from the EU);
- Definition of metadata description standard for all environmental information (examples from the EU and the UK);
- Transformation of data published to machine-readable format;
- Develop and publish quality control mechanisms for environmental data (example from the European Open Data Portal);
- Adopt/update licensing terms and conditions of environmental data to promote its public use and reuse (example from the European Open Data Portal);



- Evaluate the impact of open data (examples from the European Open Data Portal);
- Improve accessibility and use of available environmental data and information by improving the multilingual aspect of portals (example from the EEA).

## 5.2.2 Roadmap measures: Infrastructure

The measures proposed to the Republic of Moldova to support SEIS pillar Infrastructure are presented in the table below.

*Table 20. Measures related to SEIS pillar: Infrastructure*

Measure	Priority	Description
11. 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 point 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 Republic of Moldova is currently developing the concept for Integrated Environmental Information System (SIIM). For its development, the country could follow these recommendations for the development of the environmental portal (single access point for environmental information):</p> <ul style="list-style-type: none"> <li>• Design main technological solutions, which will be used as a single and user-friendly web-access point for environment information – technological solution should be based on the technological platform;</li> <li>• Agree upon a single access point by integrating various data sources of environmental information (e.g. a single access point should provide access to environmental datasets, indicators, links to environmental reports and various applications);</li> <li>• Provide web services and commonly agreed external application programming interfaces (APIs) to existing portals so institutions can easily share their (structured) data and have the possibility to download datasets (e.g. EEA public map services<sup>203</sup>, provisions of the INSPIRE Directive);</li> <li>• Implement a tool for checking the quality of metadata provided by data providers;</li> <li>• Publish environmental information and data in accordance with the rules described by international metadata standards, such as DCAT-AP metadata vocabulary (this measure will also provide automatic synchronisation with other EU open data portals);</li> <li>• Develop search functionality to allow the user to apply multiple field search and filter options (e.g. file</li> </ul>

<sup>203</sup> <https://www.eea.europa.eu/code/gis>



Measure	Priority	Description
		<p>format) to refine a search; combining keywords with classifiers;</p> <ul style="list-style-type: none"> <li>• Maintain and enhance the portal by including feedback gathering as well as from the public through public consultations launched by ministries and governmental bodies.</li> </ul> <p><i>The current initiative in the Republic of Moldova, on the development of the Semantic Catalogue, should be coordinated with the development of a single access point for environmental information.</i></p> <p><i>More information about single access point can be found in the Good Practice Report in the section “Establish a single and user-friendly web-access point for environmental information” (examples from EU, EEA and Ireland).</i></p> <p><i>The design of the environmental information system is also widely described in the document “Promotion of good practices for national environmental information systems and tools for data harvesting at EU level”.</i></p> <p><i>This measure is closely linked with the measure “Revision of the legal framework to promote and regulate the online accessibility and reuse of public sector information (PSI)”, in the Content section, and measure “Establish a collaborative institutional framework for the implementation of open data”, in the Cooperation (network) section.</i></p>
12. Enhance interoperability of geospatial, statistical, health and environmental information systems	High	<p>This measure will facilitate the implementation of the interoperability standards defined for environmental and other thematic data. This measure will:</p> <ul style="list-style-type: none"> <li>• Assess the existing compatibility of various information systems with defined interoperability standards, in particular with the geoportal;</li> <li>• Adopt/update and implement standards for metadata and data interoperability in accordance with international standards and good practices;</li> <li>• Develop APIs for external users;</li> <li>• Provide automated mechanisms for sharing time-series data.</li> </ul> <p>These actions can also be included in the national interoperability framework.</p> <p><i>The Republic of Moldova has developed the Interoperability Governmental Platform MConnect to improve data exchange for the provision of e-services.</i></p>



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Measure	Priority	Description
		<p><i>Nonetheless, interoperability between information systems and data still requires further development<sup>204</sup>.</i></p> <p><i>Refer to the Good Practices Report for more details about the development of interoperability in Lithuania and the EU in the “Establishing an interoperability framework” section.</i></p> <p><i>This measure is linked with the measure “Develop and/or continue to enhance an integrated system for the management of environmental information in accordance with the Aarhus Convention and the Protocol on PRTRs” from the present roadmap.</i></p>
13. Establish an electronic registry of public environmental information	High	<p>This measure will aim to establish a registry of environmental information and data available in each institution and system (i.e. the metadata management system), as well as data that is publishable taking into consideration the legal framework in place. The registry will be used by public servants to support the continuous development of environmental information systems and the dissemination of environmental information. Particularly, the registry will map the systems, databases, institutions, datasets and reports published.</p> <p>This measure could be coupled with the standardisation of metadata for environmental information, and with the development of a single web-access point for environmental information which would be automatically refreshed based on the registry of environmental information.</p> <p><i>The inventory of environmental information systems is widely described in the document “Promotion of good practices for national environmental information systems and tools for data harvesting at EU level”, in the section “Inventory of the environmental information system”, page 25.</i></p>
14. Improve accessibility and usability of available environmental data and information by improving the multilingual aspect	Medium	<p>This measure will provide a full translation into Romanian/English of public authorities’ websites, yearly reports and environmental information metadata.</p> <p><i>An example of the multilingual portal is the EEA GEMET<sup>205</sup>, which provides a thesaurus translated into 37 languages of environmental terms.</i></p>

<sup>204</sup> As discussed during the national roundtable.

<sup>205</sup> <https://www.eionet.europa.eu/gemet/en/concept/4438>



Measure	Priority	Description
15. Develop e-services for the environment	Medium	<p>This initiative will aim to develop environmental e-services according to the national standards (service passports), and according to service interoperability standards (e.g. e-signature, e-payment).</p> <p><i>More information about the description of public services can be found in the best practices report in the section “Building e-services and public information systems according to national and international standards”.</i></p> <p><i>This measure is connected to the measure “Inventory, reengineering and publication of public services as e-services” from the present roadmap.</i></p>
16. Strengthen the technical capability for environmental monitoring	Medium	<p>This measure aims to strengthen the technical capability for environmental monitoring to other thematic areas such as water.</p> <p>The gradual provision of modernised monitoring equipment should be planned and gradually ensured. To do so, the following is recommended:</p> <ul style="list-style-type: none"> <li>• Define monitoring parameters at national and local level for each thematic area. These objectives should include: <ul style="list-style-type: none"> <li>○ Frequency of observations (e.g. hourly, daily, monthly, or yearly);</li> <li>○ Granularity of data gathered (accuracy);</li> <li>○ Space coverage (taking into consideration the spatial requirements – urban vs rural areas, industrial areas);</li> <li>○ Quality of data;</li> <li>○ Compatibility with existing equipment and information systems and, where possible, compliance with EU requirements as part of the approximation process.</li> </ul> </li> <li>• Assess the current monitoring infrastructure for selected thematic areas (e.g. water as a start). This can be achieved through the establishment of a cross-sectional team of experts that could reflect on the existing equipment and provide a complete assessment of needs aligned with the objectives defined above.</li> <li>• Develop an implementation plan to acquire and install new monitoring equipment, taking into consideration all financial possibilities and options.</li> <li>• Develop an implementation plan to gradually integrate the new equipment with existing, taking into consideration financial possibilities. This point is crucial as a lack of integration of the monitoring process in information systems: 1) renders the exchange of data cumbersome, 2) increases the</li> </ul>





Measure	Priority	Description
		<p>need for human resources and 3) undermines the quality and availability of data.</p> <ul style="list-style-type: none"> <li>Identify potential environmental areas where to gradually complement the traditional environmental monitoring system with additional information coming from other sources (e.g. citizen science, earth observation). The acquisition of monitoring equipment requires consequent investments and should be well prioritised taking into consideration the local and national needs, and also with a long-time perspective and the approximation of the respective EU legislation in mind.</li> </ul> <p><i>This measure is linked with the measures “Develop and/or continue to enhance an integrated system for the management of environmental information in accordance with the Aarhus Convention and the Protocol on PRTRs” from the present roadmap.</i></p>
17. 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>This measure recommends the development of an integrated environmental management system, which will ensure the coordinated management and exchange of environmental data and information. To do so, this measure recommends:</p> <ul style="list-style-type: none"> <li>Make an inventory of all the systems used for the management of environmental information at the national level;</li> <li>Define requirements for an integrated system for environmental information management. In particular, the system will provide functionalities such as: <ul style="list-style-type: none"> <li>Workflow (e.g. quality management);</li> <li>Environmental data collection;</li> <li>Automatic dissemination and update of open data;</li> <li>Document management;</li> <li>Integration with external systems (statistical, health, open data, transport, energy cadastral, etc. as needed);</li> <li>Advanced visualisation tools and capabilities for integration with business intelligence tools.</li> </ul> </li> <li>Gradually implement the system;</li> <li>Train the potential users and institutions on how to operate the system, benefits and functionalities;</li> <li>Assess regularly the performance and update the system when needed.</li> </ul> <p>This measure will foresee the development of an efficient system for integrating various types of environmental data</p>



Measure	Priority	Description
		<p>and information at different levels (sub-national, national) by connecting various information systems.</p> <p>Note: the system should provide a standard API and a possibility to upload data manually so that compatibility with legacy and external systems can be maintained.</p> <p><i>The document “Promotion of good practices for national environmental information systems and tools for data harvesting at EU level” presents guidelines for the development of environmental information systems.</i></p> <p><i>This measure is linked to the measures “Enhance interoperability of geospatial, statistical, health and environmental information systems” from the present roadmap.</i></p>
18. Develop applications to engage the public in environmental monitoring and protection activities	Low	<p>This measure will aim to develop a series of software applications (e.g. mobile apps) that will expand the potential for e-government to create “environmental data ecosystem” and enable the public to access, consult and interact with environmental data.</p> <p>For instance, through the apps the public can:</p> <ul style="list-style-type: none"> <li>• access and consult environmental information in real-time according to their location;</li> <li>• report poaching, and mark and signal polluted areas, etc.;</li> <li>• participate in environmentally friendly events in their neighbourhood;</li> <li>• integrate environmental data they have collected with government apps, where possible.</li> </ul> <p><i>This measure is linked with the measures proposed in the Cooperation (network) section in the present roadmap.</i></p>

In order to facilitate the implementation of the provided measures, the Good Practices Report provides the following examples and recommendations:

- Establishing an interoperability framework (examples from the EU and Lithuania);
- Building an integrated environmental monitoring system at national level (example from Ukraine);
- Building an Open Data Portal and foster publication of public sector information (examples from Ireland, the Netherlands and Spain);
- Establishing a single and user-friendly web-access point for environmental information (examples from Ireland and the EEA);
- Developing infrastructure on the most advanced platforms based on geospatial data and GIS technologies (examples from the EU and Lithuania);
- Providing technological support for sharing environmental data at the regional level.



### 5.2.3 Roadmap measures: Cooperation (Network)

The measures proposed to the Republic of Moldova for the SEIS pillar Cooperation are presented in the table below.

Table 21. Measures related to the SEIS pillar: Cooperation

Measure	Priority	Description
19. Establish a collaborative institutional framework for the implementation of open data	High	<p>This measure will strengthen the necessary institutional framework for managing open data, especially taking into consideration the environmental component.</p> <p>This measure will focus on the need to create a strong cooperation between institutions in order to ensure the sharing, exchange, use, reuse and publication of public sector information (PSI).</p> <p>An example of an approach to establishing a collaborative institutional framework for open data involves:</p> <ul style="list-style-type: none"> <li>• Amendments/completion of the existing legal framework to include the responsibilities of the various actors, and ensure the proper division of responsibilities of open data at national and thematic level (e.g. there should be general rules for governing the open data framework and specific rules for individual environmental data providers on how to organise open data publishing process internally);</li> <li>• Supporting institutions by providing guidelines to establish the responsibilities for open data governance inside each institution;</li> <li>• Establishment of a cross-sectoral working group which will assist/support and facilitate in the establishment of the operational mechanisms of collaboration (i.e. processes, procedures and good practices);</li> <li>• Organisation of events/fora/regular dialogues to foster collaboration between national stakeholders and various data users.</li> </ul> <p><i>The Good Practice Report provides examples of initiatives undertaken in the EU to foster inter-institutional and international cooperation in the field of open data. In addition, the open data maturity report 2019 provides criteria to assess the maturity of the institutional framework in a country. The document "Development of an assessment framework on environmental governance in the EU Member States" also provides good practices to establish an institutional framework for environmental governance.</i></p>



Measure	Priority	Description
		<i>This measure is linked with the recommendations presented in the Content section of the present roadmap and the targeting of the revision of the legal framework.</i>
20. Develop and ensure increased capacity for handling environment and open data	Medium	<p>Components of this measure cover:</p> <ul style="list-style-type: none"> <li>• Assessment of the capacities needed (human resources and tools) for managing and making available environmental data and information at national and local levels;</li> <li>• Recruitment of specialised staff and acquisition of necessary tools;</li> <li>• Development and integration of procedures and processes for preparing and disseminating environmental data and information;</li> <li>• Professional development/training plan for civil servants and/or data stewards or data officers working with data. In this regard, it is possible to foresee official training programmes (mandatory) for staff in charge of data management and to recognise these trainings through certificates.</li> </ul> <p><i>The document “Development of an assessment framework on environmental governance in the EU Member States” provides multiple examples of initiatives undertaken to build capacity in this area. The section “2. Administrative capacity (environmental inspectorates, police, customs, prosecution services and audit bodies)” focuses strongly on the example of capacity-building in the EU.</i></p> <p><i>This measure is linked with the measures “Strengthen the technical capability for environmental monitoring” and “Develop and/or continue to enhance an integrated system for the management of environmental information in accordance with the Aarhus Convention and the Protocol on PRTRs” of the present roadmap.</i></p>
21. Promote international and regional cooperation to facilitate the implementation of the roadmap	Medium	<p>This measure aims to support the Republic of Moldova with international expertise and good practices to assist in the implementation of the present roadmap. To do so, it is recommended that:</p> <ul style="list-style-type: none"> <li>• Fora and other platforms where experience can be shared be identified;</li> <li>• Contacts with key stakeholders at the regional and international level be established to share experience and good practices;</li> <li>• An inventory of international and regional initiatives be built, and their potential assessed.</li> </ul>



Measure	Priority	Description
		<i>The Good Practices Report provides examples of initiatives that can be undertaken to implement this measure, in the section “Increasing public administration, public and business awareness over open data and environmental data”.</i>
22. Raise awareness about open government and open data for the environment among citizens and economic operators	Continuous	<p>This measure will increase the demand for open government and open data by raising awareness and conducting other promotion campaigns at national and local levels.</p> <p>This measure will focus on raising public awareness of the role and impact of environmental information, its accessibility, usability and other related aspects, by pursuing ongoing activities and strengthening and expanding them where and when appropriate.</p> <p>Additionally, a series of activities for promoting the use/reuse and sharing of environmental information could be undertaken, such as:</p> <ul style="list-style-type: none"> <li>• Hackathons;</li> <li>• Fora;</li> <li>• Promotion campaigns;</li> <li>• Development of incubators;</li> <li>• Development of public-private partnerships;</li> <li>• Facilitating dialogue and cooperation between national bodies, NGOs and the academic community.</li> </ul> <p><i>The Republic of Moldova should focus on raising awareness in public authorities because currently the participation of data owners is one of the key reasons for slow open data development on the Open Data Portal.</i></p> <p><i>The Good Practices Report provides examples of initiatives that can be undertaken to implement this measure, in the section “Increasing public administration, citizens and business awareness over open data and environmental data”.</i></p>

In order to facilitate the implementation of the provided measures, the Good Practices Report provides examples and recommendations on the following topics:

- Increasing awareness and motivation among public institutions over e-government and digital solutions (example from the EU);
- Increasing awareness of e-government among the public and businesses (example from the EU);
- Coordinating open data initiative(s) (example from Ireland);
- Establishing processes and procedures for managing open data (example from Lithuania);



- Increasing public administration, public and business awareness of open data and environmental data (example from Belgium, Cyprus, the EU, Italy and Luxembourg);
- Promoting open data to organisations;
- Collecting user feedback and providing new means of communication between open data providers and users (example from Spain).



## Appendix A – a list of legislation related to the environment

A list of legislation related to the environment.

Title of the document		Year of approval
1.	Law on the approval 2017 – 2026 National Strategy on Radioactive Waste Management and Action Plan for the Implementation of the provisions of the 2017 – 2026 National Strategy on the Radioactive Waste Management.	2017
2.	Government Decision No. 618 of 2017 on the approval of the List of indicators of sustainable forest management.	2017
3.	Government Decision No. 934 of 15 August 2007 on the approval of the establishment of the automated information system “State Register of Natural Mineral Waters, Drinking and Bottled Non-Alcoholic Beverages”.	2007
4.	Law on the Carrying out safe Conduct of Nuclear and Radiological Activities.	2012
5.	Government Decision No. 1003 of 23 October 2010 on the approval of the technical concept of the automated information system “State Geological Register”.	2010
6.	Law on Energy Efficiency which provides, among others, for the establishment of an Energy Efficiency Agency.	2010
7.	Government Decision No. 218-XVI of 24 October 2008 on approval of the code of offences.	2008
8.	Government Decision No. 10-XVI of 3 February 2009 on the approval of the state supervision of public health.	2009
9.	Government Decision No. 163 of 27 October 1999 on the approval of the methodology of elaboration of the norms of water consumption in the water supply and sewerage enterprises of the Republic of Moldova.	1999
10.	Law on the Zones and Strips for the Protection of the Waters of Rivers and Water Basins.	1995
11.	Law on the Regime of Harmful Products and Substances.	1997
12.	Law on the Fund of Natural Areas Protected by the State.	1998
13.	Law on the Improvement by Afforestation of Degraded Lands.	2000
14.	Law on the Commercial Regime and the Regulation of the Use of Halogenated Hydrocarbons that Destroy the Ozone Layer.	2002
15.	Law on the Red Book of the Republic of Moldova.	2005
16.	Law on the Fishing Fund, Fisheries and Fish Farming.	2006
17.	Law on the Irrigation Water Users Associations.	2010
18.	Government Decision No. 747 of 3 November 1995 on the elaboration and approval of the schemes for use in complex and water protection.	1995
19.	Government Decision No. 1007 of 30 October 1997 on the state record of the Forest Fund.	1997
20.	Government Decision No. 414 of 2 May 2000 on the approval of the regulations of the Cadastre of Objects and Complexes from the Fund of Natural Areas Protected by the State.	2000





	Title of the document	Year of approval
21.	Government Decision No. 782 of 3 August 2000 on the approval of the framework regulations of the national parks, nature monuments, resource reserves and biosphere reserves.	2000
22.	Government Decision No. 784 of 3 August 2000 on the approval of the framework regulation on areas with multifunctional management, the framework regulation on natural reserves, the framework regulation on landscape reservations and the framework regulation on landscape architectural monuments.	2000
23.	Government Decision No. 785 of 3 August 2000 for the approval of the framework regulation on botanical gardens, the framework regulation on dendrological gardens, the framework regulation on zoos and the framework regulation on scientific reservations.	2000
24.	Government Decision No. 1009 of 5 October 2000 on the approval of the regulation regarding the natural and built protected areas.	1995
25.	Government Decision No. 1030 of 13 October 2000 on the approval of the scheme for the protection of the localities of the Republic of Moldova against floods.	2000
26.	Government Decision No. 27 of 19 January 2004 on the regulation on the authorisation of logging in the forest and forest vegetation outside the forest.	2004
27.	Government Decision No. 961 of 21 August 2006 on the approval of the regulation of the national network for laboratory observation and control of contamination (pollution) of the environment with radioactive, poisonous, highly toxic substances and biological agents.	2006
28.	Government Decision No. 618 of 4 June 2007 on the approval of the list of indicators for each criterion of sustainable forest management.	2007
29.	Government Decision No. 187 of 20 February 2008 on the approval of the regulation regarding the allocation of use of the lands from the forest fund for hunting and/or recreational management purposes.	2008
30.	Government Decision No. 1017 of 1 September 2008 on the National Register of Ionising Radiation Sources and of Natural Persons and Authorised Legal Entities.	2008
31.	Government Decision No. 751 of 5 October 2011 on the approval of the Programme for the Development of Water Management and Hydro-Improvement in the Republic of Moldova for 2011–2020.	2011
32.	Government Decision No. 433 of 18 June 2012 on the approval of the regulation regarding the flood protection dams.	2012
33.	Government Decision No. 763 of 23 September 2013 on the regulation of the State Cadastre of Waters.	2013
34.	Government Decision No. 807 of 16 October 2013 on the approval of the regulation regarding the use of the water from water accumulations for the needs of the community, irrigation and fish farming.	2013
35.	Government Decision No. 890 of 12 November 2013 on the approval of the regulation regarding the environmental quality requirements for surface waters.	2013
36.	Government Decision No. 199 of 20 March 2014 on the approval of the Water Supply and Sanitation Strategy (2014–2028).	2014
37.	Government Decision No. 239 of 1 April 2014 on the approval of the regulation regarding the regulation of livestock of wild animals in natural areas protected by the state from the State Forest Fund.	2014
38.	Government Decision No. 728 of 8 September 2014 on approval of the list of bodies of surface water protection zones and strips and the list of hydraulic structures managed by the administrative authority for water management.	2014



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Title of the document		Year of approval
39.	Government Decision No. 274 of 18 May 2015 on the approval of the Strategy on Biological Diversity of the Republic of Moldova for the years 2015–2020 and of the Action Plan for its Implementation.	2015
40.	Government Decision No. 434 of 16 July 2015 on the approval of the regulation regarding the safe transport of radioactive materials.	2015



## Appendix B – the list of conventions and protocols

The list of the conventions and protocols that the Republic of Moldova is a part of.

Multilateral environmental agreements	Date of becoming a party
UN Framework Convention on Climate Change	12.06.1995
Paris Agreement	04.05.2017
Kyoto Protocol	13.02.2003
Convention for the Protection of the Ozone Layer	27.07.1996
Montreal Protocol on Ozone Depleting Substances	24.10.1996
Convention on Biological Diversity	18.01.1996
The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Distribution of Benefits Resulting from their Use	06.12.2011
Cartagena Protocol	04.03.2003
Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Damage Repair	07.06.2018
United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa	10.03.1999
Convention on POPs (Stockholm Convention)	19.02.2004
Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	10.03.1998
Protocol on liability for compensation for damage caused by the result of transboundary transport of hazardous waste	02.07.1998
Convention on Wetlands of International Importance (Ramsar Convention)	14.07.1999
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	27.06.2001
Convention on the Conservation of Migratory Species of Wild Animals	01.04.2001
Agreement on Bat Conservation in Europe	04.03.2001
Agreement on the Conservation of African-Eurasian Waterbirds	01.04.2001
Convention on Long-Range Transboundary Air Pollution	09.06.1995
Protocol on Persistent Organic Pollutants	25.04.2002
Protocol on Heavy Metals	25.04.2002
Protocol on the Long-Term Financing of the Cooperation Program for the Monitoring and Evaluation of Long-Distance Transport of Atmospheric Pollutants in Europe	03.12.2015
Protocol on Combating Acidification, Eutrophication and Ozone at Ground Level	23.05.2000
Convention on the Protection and Use of Transboundary Water and International Lakes	06.10.1996
Protocol on Water and Health	29.07.2005
Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters	07.04.1999
Protocol on Pollutant Emission and Transfer Registers	26.04.2013
Convention on Environmental Impact Assessment in a Transboundary Context	20.07.1999
Protocol on Strategic Environmental Assessment	26.07.2018
Convention on the Conservation of European Wildlife and Natural Habitats	01.09.1994
Convention on Cooperation for the Protection and Sustainable Use of the Danube River	29.08.1999



*Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (ENI SEIS II East)*

Multilateral environmental agreements	Date of becoming a party
Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	25.11.2004
Minamata Convention on Mercury	30.03.2017
Convention on the Transboundary Effects of Industrial Accidents	19.04.2000
Protocol on Civil Liability and Compensation for Damage Caused to Transboundary Waters by the Transboundary Impact of Industrial Accidents at the Convention on the Protection and Use of Transboundary Watercourses and International Lakes	23.05.2003
European Landscape Convention	01.05.2017

