Regulatory Impact Assessment (RIA) of the Draft Law of Georgia on Biodiversity

FINAL REPORT

Pilot RIA exercise in cooperation with the Ministry of Environmental Protection and Agriculture of Georgia funded by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

February, 2018

ACRONYMS

AA	Appropriateness Assessment
ACCOBAMS	The Agreement on Conservation of Cetaceans of Black Sea, Mediterranean Sea and Contiguous Atlantic Area
AEWA	The African - Eurasian Migratory Water Bird Agreement
APA	Agency of Protected Areas
BC	Bern Convention
BD	Birds Directive
BIOFIN	The Biodiversity Finance Initiative
CBD	Convention of Biological Diversity
CENN	Caucasus Environmental NGO Network
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on Conservation of Migratory Species of Wild Animals
CSO	Civil Society Organizations
DES	Department of Supervision at MoENRP
EAIA	Emerald Area Impact Assessment
EIA	Environmental Impact Assessment
EU	European Union
EUROBATS	The Agreement on the Conservation of Populations of European Bats
Geostat	National Statistics Office of Georgia
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
HD	Habitats Directive
MoE	Ministry of Energy
MoES	Ministry of Education and Science
MoESD	Ministry of Economy and Sustainable Development
MoENRP	Ministry of Environment and Natural Resource Protection
NACRES	Centre for Biodiversity Research & Conservation
NBSAP	National Biodiversity Strategy and Action Plan
NEA	National Environment Agency
NEEAP	National Energy Efficiency Action Plan
NGO	Non-governmental Organization
OECD	Organization for Economic Co-operation and Development
PA	Protected Area
RIA	Regulatory Impact Assessment
Sakpatenti	The National Intellectual Property Center of Georgia
SDG	Sustainable Development Goal
TEEB	The Economics of Ecosystems and Biodiversity
UN	United Nations
UNDP	United Nations Development Programme

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1. EXECUTIVE SUMMARY

In the present era of environmental and industrial change, maintaining biodiversity is essential. Doing so not only protects species and habitats, but also brings benefits for society in the form of resulting ecosystem services. In order to conserve biodiversity and fulfill the obligations defined by various international conventions and the Association Agreement (AA), the Georgian Ministry of Environment and Natural Resource Protection (MoENRP) initiated the Law on Biodiversity in 2015. The preparation process for that law first started in 2013.

After the draft version of the Law on Biodiversity became available in June 2017, the MoENRP initiated a Regulatory Impact Assessment (RIA) in order to analyze the major positive and negative impacts the new legislation might have in relation to its objectives. In undertaking this effort, the MoENRP was supported by the German Cooperation (GIZ). The results of this RIA are presented in this report.

The draft law is related to a large number of stakeholders, each of whom have been grouped into four categories based on their interest in the law and their ability to influence the process. The first group is the high influence/high interest group that includes the MoENRP and its departments, NACRES, the international community (GIZ, UNDP) and other experts. Stakeholders in this group are interested in biodiversity conservation and have the power to affect the law-making process. The second group – the low influence/high interest group – is interested in biodiversity issues either because it benefits from them or cares about conservation, but this group has low power to influence the process. This group includes the Caucasus Environmental NGO Network (CENN), Green Alternative, individual farmers, cooperatives and private sector representatives. The third group is the high influence/low interest group that includes stakeholders with a high capacity to affect the law-making process, but who are not interested in biodiversity conservation. This group contains the Ministry of Energy (MoE) and the Ministry of Economy and Sustainable Development (MoESD). The last group is the low influence/low interest group that contains stakeholders with relatively little connection to the law, but who are not completely unrelated to the topic of biodiversity. This group includes the Ministry of Education and Science (MoES), Civil Society Organizations (CSOs), and the National Intellectual Property Center of Georgia (Sakpatenti).

All of the stakeholders mentioned above were consulted during the RIA and each provided their views on the potential impacts of the draft law.

The stakeholders emphasized that, in spite of the evident environmental, social and economic value that it can bring, biodiversity remains threatened. The research has identified the following major causes of biodiversity loss in Georgia:

- Intensification of agriculture
- Infrastructure development projects
- Overexploitation of resources
- Climate change
- Underdeveloped waste management systems
- Low levels of awareness among the public and decision makers
- Lack of human and financial resources
- Insufficient law enforcement

Given that biodiversity has the characteristics of public and common goods, government intervention is needed to overcome the free-rider problem and ensure the sustainable use of natural resources. It is vital to consider that due to the multi-dimensional nature of biodiversity, the conservation of biodiversity can help to achieve the 17 Sustainable Development Goals (SDGs) defined by Agenda 2030 and adopted by the 193 member states of the United Nations (UN). Although at first glance biodiversity may appear to be unrelated to many SDGs, more careful analysis shows links to many of them.

Figure 1.1 Biodiversity and SDGs

The overall objective of the draft law is to ensure biodiversity conservation through the protection of species and habitats, while the more specific objectives can be formulated as follows:

1. Reduce direct pressure on biodiversity and ensure the sustainable use of natural resources.
2. Establish protected areas of international importance and the Emerald Network.
3. Fairly distribute the benefits received from access to and utilization of Georgian genetic resources and traditional knowledge among local community members and the holders of traditional knowledge.
4. Ensure that international trade in wild flora and fauna species does not endanger such species or their habitats.

The Regulatory Impact Assessment (RIA) assesses the qualitative and quantitative impacts of the draft law on various stakeholders (the public sector, private sector and community). We employed a holistic approach during the analysis. However, the cost-benefit analysis is mostly focused on the incremental costs (qualitative and quantitative) and benefits (only qualitative) associated with the establishment of the Emerald Network.

The major characteristics of the model used to assess those impacts include:
- The features of Emerald sites (their number, area covered, type of area (forest, protected area, and private land), etc.).
- Establishment of management units for Emerald sites.
- Development of management plans for Emerald sites.
- Introduction of a new type of Environmental Impact Assessment (EIA) – the Emerald Area Impact Assessment (EAIA).
- Capacity building for the managing bodies of Emerald sites.

This RIA compares two policy options to a baseline scenario in order to assess the incremental benefits and costs of establishing the Emerald Network. The options are as follows:
- Baseline scenario – No policy change
- Option 1 – Decentralized management of Emerald sites
- Option 2 – Centralized management of Emerald sites by the APA

A Multi-Criteria Analysis (MCA) was conducted to identify the preferred option. The results of this are summarized in Table 1.1 below.

Table 1.2 Comparison of options using MCA

EVALUATION CRITERIA	OPTION 0	OPTION 1	OPTION 2
Incremental costs for private sector (PV, mln. GEL)	N/A	292	290
Incremental costs for community sector (PV, mln. GEL)	N/A	4	N/A
Incremental costs for public sector (PV, mln. GEL)	N/A	84	85
Effectiveness 1 – Sustainable management of natural resources	+	++	+++
Effectiveness 2 – Establishment of Emerald Network	-	+++	+++
Effectiveness 3 – Fair distribution of benefits from traditional knowledge	-	0[1]	0
Effectiveness 4 – Safe international trade in species	-	0	0
Feasibility / Ease of realization	+++	++	+
Mitigated conflict of interests	+++	++	+
Systemic efficiency	0	+	+++
Impact on business opportunities	+	-	--
Impact on development opportunities	-	+	++
Contribution to achieving SDGs	+	++	++
Minimization of risks	+	++	+++

Option 2 is less costly than Option 1. Additionally, when assessed against other criteria (equally weighted), Option 2 outperforms Option 1 because it better satisfies the criteria related to the sustainable management of natural resources, systemic efficiency and risk minimization. However Option 2 is more difficult to implement than Option1.

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[1] The option does not have an impact on the objective.

2. INTRODUCTION

RIA is a tool for evaluating various alternatives (options) for solving particular policy issues. It is applied when a new regulation has been drafted and there is a need to assess its potential impact on stakeholders. RIAs aim at improving the policy-making process through utilization of approaches such as openness, public involvement and accountability.

The focus of an RIA depends on the stage of the law-making process and is directed at improving the quality of governance by increasing the transparency and legitimacy of the regulatory process (Taoiseach of Ireland, 2009).

Nowadays, many countries use RIAs to support their decision-making processes. The RIAs produced vary in terms of content, structure and impact on policy. The United States and Australia were the earliest adopters of RIAs. The U.S. introduced them in 1978, while Australia followed in 1985. Since then, the RIA framework has been intensively adopted across OECD countries. Currently, virtually all OECD countries use RIAs (Reyes, Romano & Sottilotta, 2015). The European Union (EU) introduced an impact assessment system in 2002 and this is constantly updated to ensure that the economic, social and environmental dimensions of regulations are sufficiently covered in the analysis (Ruddy & Hilty, 2007).

Developing countries are also encouraged to use RIAs, and Georgia is no exception. The process of RIA institutionalization started in Georgia a couple of years ago and was actively supported by international donors and the Government of Georgia. Given the relatively low quality of normative acts and in light of the need to approximate Georgian regulations with EU regulations, the Government of Georgia developed the Policy Planning System Reform Strategy 2015-2017, which was approved in 2015.[2] The goal of the strategy was to improve policymaking and the legislative drafting process by requiring that RIAs become mandatory by 2017. Although the latter requirement has not yet been met, more and more regulations in Georgia now undergo this process.

The MoENRP initiated this RIA in order to improve the process of drafting the Law on Biodiversity. It was implemented with the ISET Policy Institute and with financial support from GIZ. The current RIA also included capacity building for the Ministry through conducting training on RIA methodology that would enable the Ministry to conduct this type of assessment independently in the future.

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[2]Working Meeting on Regulatory Impact Assessment (RIA) System Institutionalization in Georgia. Retrieved from http://www.bec.ge/about-us/news/328-samushao-shekhvedra-saqarthveloshi-regulaciebis-gavlenis-shefasebis-ria-sistemis-institucionalizaciis-thaobaze.html

3. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

3.1 ORGANIZATION AND TIMING

The Regulatory Impact Assessment (RIA) on the Draft Law of Georgia on Biodiversity was implemented during the period July and December 2017.

In July, the RIA team started checking the available data, reviewing relevant literature, and organizing interviews and meetings with the main stakeholders.

The first meeting with a representative of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) was held on 17 July. The main goal of the meeting was to discuss the timeline of the RIA implementation process and to prepare for a kick-off meeting with the Ministry of Environment and Natural Resource Protection (MoENRP).

On 18 July, the first kick-off meeting with GIZ and the RIA team, consisting of representatives from ISET and the Ministry of Environment and Natural Resource Protection (MoENRP), took place at the Ministry. The aim of the meeting was to acquire the necessary information to start the RIA process and explore the potential objectives of the RIA, discuss the timeline and distribute tasks among the members of the RIA team. The ISET team presented the RIA methodology, while representatives of the MoENRP shared their expectations regarding the RIA and discussed the current status of the draft Law on Biodiversity.

On 20 July, another meeting was held at the MoENRP with representatives of the Ministry and GIZ. Ministry staff from the Biodiversity and Forest Policy Department, the Legal Department and the Agency of Protected Areas (APA) were present. The goal of the meeting was to explore the importance of adopting the Law on Biodiversity and to schedule capacity development training for the Ministry's staff.

On 27 July, the RIA team attended a GIZ-organized workshop on the RIA regarding Agenda 2030. The goal of the meeting was to discuss possible ways of integrating Agenda 2030 requirements into the RIA process.

On 14-16 September the RIA team – consisting of ISET consultants together with MoENRP representatives and the legal team drafting the law – attended a retreat organized by GIZ. The goal of this was to coordinate two complementary and mutually informing processes – the RIA and the drafting of the law – in order to identify possible synergies. The RIA team presented the preliminary results of the research and received feedback from participants.

On 29 September, the RIA team attended a second RIA backstopping workshop organized by GIZ. During the workshop, the research team presented their approach towards integrating Agenda 2030 requirements into the RIA process and developed it further.

In addition to the activities mentioned above, on 3 August the ISET consultants provided the first session of capacity development training on RIA best practices for representatives of the MoENRP. The second and third sessions took place on 28 September and 18 October, respectively. The fourth and final training session was conducted on 15 November. The topics of the capacity development training sessions covered the Agenda 2030 requirements in RIA.

On 17 November, an internal presentation was held for the MoENRP. The RIA team presented the results from the first draft of the final report. The aim of the presentation was to jointly evaluate the state of the draft with the MoENRP and representatives from GIZ.

On 29 November, another meeting was held at the GIZ office. The meeting was dedicated to a detailed discussion about the options to be analyzed in the RIA. Together with GIZ experts, the RIA team developed additional RIA options.

On 22 December, the RIA team held a joint meeting with the Biodiversity and Forest Policy Department (of the MoENRP), the Agency of Protected Areas (APA) and the Legal Department to discuss the strengths and weaknesses of the suggested policy options.

On 22 January, ISET presented the RIA results to stakeholders during a public discussion held at ISET.

3.2 CONSULTATION AND EXPERTISE

Consultations with stakeholders started on 1 August and finished on 27 October 2017. The first step was to identify and categorize the main stakeholders in an influence-interest matrix format (see Table 2). The matrix was updated whenever new stakeholders were identified and/or more precise information about their interest and/or influence was collected.

In order to develop a comprehensive overview of the current situation on biodiversity conservation policy in Georgia, the existing problems, and possible impacts of the proposed regulations, the RIA team opted for an array of research methods, including, but not limited to, a literature review of existing reports, assessments by experts, requests for official data, telephone interviews, and in-depth, face-to-face interviews with identified stakeholders. The RIA team conducted both formal and informal interviews with stakeholders during the research.

Consultations and information gathering were split into two main phases. The goal of the first phase of consultations was to identify the major stakeholders related to biodiversity conservation issues, define problems, identify the major objectives of the proposed regulation, and come up with policy options. The second phase focused on the further elaboration of options, the calculation of costs associated with them, the evaluation of potential benefits and risks, multi-criteria analysis and the development of a monitoring and evaluation plan.

Table 1. Data and information collected during the research

DATA AND INFORMATION	SOURCE
The list of candidate Emerald sites and their characteristics	MoENRP; European Environment Agency
Information on Emerald Network management costs	International expert on Biodiversity; MoENRP
Data on Protected Areas	National Statistics Office of Georgia, MoENRP
Data on Air pollution	National Statistics Office of Georgia
Data on illegal timber cut and forest fires	National Statistics Office of Georgia
Data on population connected to wastewater treatment	National Statistics Office of Georgia
Data on renewable energy and energy use in general	National Statistics Office of Georgia
Data on the number of private companies by region	National Statistics Office of Georgia
Data on the sectorial division of private companies	National Statistics Office of Georgia
Data on the number of Environmental Impact Assessments conducted by economic agents	MoENRP

The reform is going to affect a large number of stakeholders, who are grouped into four categories presented in Table 2 below.

Table 2. Interest-Influence Matrix

Interest/Influence	Low Influence	High Influence
Low Interest	1. Ministry of Education and Science (MoES) 2. Civil Society Organizations (CSO) 3. The National Intellectual Property Center of Georgia (Sakpatenti)	1. Ministry of Energy (MoE) 2. Ministry of Economy and Sustainable Development (MoESD)
High Interest	1. Caucasus Environmental NGO Network (CENN) 2. Green Alternative 3. Individual farmers 4. Cooperatives 5. Private sector representatives (Gamma Consulting Ltd.)	1. Biodiversity and Forest Policy Department (MoENRP) 2. Agency of Protected Areas (APA) (MoENRP) 3. National Environment Agency (NEA) (MoENRP) 4. Supervision Department (MoENRP) 5. Legal Department (MoENRP) 6. Centre for Biodiversity Research & Conservation (NACRES) 7. International community (GIZ, UNDP, etc.) 8. Experts

A structured questionnaire was developed for interviews with stakeholders. The questionnaire included the following sections:

- The importance of preserving biodiversity
- The main threats to biodiversity
- The reasons for biodiversity degradation in Georgia
- The social, economic and environmental benefits of biodiversity
- Obligations under the European Union (EU) Association Agreement (AA) and international conventions related to biodiversity
- The main sectors affected by and having conflicts of interest with the biodiversity law
- Additional requirements imposed by the draft law

A separate section of the questionnaire was devoted to the identification of links between biodiversity conservation and the Sustainable Development Goals (SDGs). It featured the following aspects:

- How each SDG is related to biodiversity management (synergies and tradeoffs)
- Identification of the goals that are closely related to the topic of biodiversity
- Selection of five major goals in the context of biodiversity conservation
- Discussion of possible tradeoffs and synergies

The opinion of each stakeholder was carefully taken into account during the development of this report. The following interviews were conducted:

Table 3. Brief summary of stakeholder consultations

STAKEHOLDER/ STAKEHOLDER GROUP	DATE AND METHOD OF CONSULTATION	SUMMARY OF RESPONSES
	Interviews: Aug. 1, 2017 Aug. 8, 2017 Aug. 11, 2017 Oct. 18, 2017 Dec. 15, 2017 Dec. 19, 2017 Dec. 22, 2017	Several meetings were held with the MoENRP. The first was held with legal experts from the MoENRP and GIZ representatives. Discussion was devoted to the general and specific objectives of the law, its novelties and linkages to existing regulations. During the meeting, experts discussed the importance of adopting the law: 1. The draft law presents a framework for adopting two EU Directives – the Birds Directive (BD) and the Habitats Directive (HD); 2. Different resolutions are spread in different documents; the biodiversity law will integrate all these regulations into one legal framework. Other meetings at the MoENRP were held with representatives of the Biodiversity and Forest Policy Department, the APA, the NEA, and the legal and biodiversity supervision departments. According to the head of Biodiversity and Forest Policy Department, the major goal of the regulation is to protect the biodiversity of Georgia and create a general legal framework for regulating biodiversity conservation. In his view, further details on how the law should be executed have to be defined by by-laws. The head of the Biodiversity and Forest Policy Department emphasized the importance of Georgia's obligations with regard to international agreements. He also mentioned the poor enforcement of the law, due to the fact that many people who are fined for overexploitation of natural resources are ultimately excused from payment in court because of their poor socio-economic conditions. The Legal Department discussed legal gaps with the draft law and its relationship to other laws, such as the Forest Code and Liability Law. According to the department, certain problems exist. For example, the rules of compensation for overexploitation of resources are not clearly described in either the draft law or in other legal acts. Representatives from the Biodiversity Supervision Department discussed the importance of having clear guidelines on the types of species and habitats that should be monitored after the EU directives are enforced. More research should be done on new species and habitats, and both monitoring officers and rangers should be provided with information on those species and habitats (information on appearance, geographical location, basic features, etc.). Stakeholders also discussed the involvement of the respective departments in the preparation of the draft law and indicated the main stakeholders engaged in this process. During these meetings, stakeholders emphasized the complexity of the law and discussed the additional resources the departments will need to enhance
MoENRP and its subsidiaries		

biodiversity protection. Regarding law enforcement and biodiversity management, the major challenges discussed were:

- Lack of resources and qualifications in the department.
- Lack of management plans and guidelines for executing the law on Emerald sites.
- Poor social conditions that prevent execution of the law.

The head of the Biodiversity and Forest Policy Department claimed that their responsibilities will increase and that there will thus be a need for additional specialists. The RIA team also discussed the possible effect on businesses, on the department (in terms of additional resources required), on infrastructure needs, staffing needs, financing needs, and possible ways to create additional sources of funding for the department.

Another meeting was held with the Biodiversity and Forest Policy Department to discuss and confirm the costs related to enforcement of the law. The following costs were discussed during the meeting: costs of establishing a management unit for managing Emerald sites, costs of developing management plans and costs associated with additional human resources, on both the central and municipal levels, as part of the costs for the creation of management units.

The interviews at the Ministry showed that at the current stage there is no internal consensus among departments on either on the content of the law, or on the resources needed to effectively implement the law.

State Regulators and Sectorial Ministries	Interviews: Aug. 22, 2017 – Meeting with Ministry of Energy (MoE) Aug. 23, 2017 – Meeting with Sakpatenti Aug. 24, 2017 – Meeting with Ministry of Energy (MoE) Sep. 1, 2017 – Meeting with Ministry of Education and Science (MoES)	Two meetings were held with the MoE. During the meeting, representatives focused on conflicts of interest and on its role in establishing Emerald sites. Concern was expressed that potential Emerald sites might coincide with strategic locations for the energy sector. In addition, the interviews discussed the National Energy Efficiency Action Plan (NEEAP), the use of energy-efficient stoves and increased costs related to the Environmental Area Impact Assessment (EAIA). During the interviews, the representatives highlighted the importance of coordination between the MoE and MoENRP in the execution of the biodiversity law. During the interview with Sakpatenti, the respondent mentioned potential problems with regulating the distribution of benefits from the usage of some endemic varieties for commercial purposes. In addition, it was mentioned that there are issues with terminology in the draft law that need to be clarified and explained. The RIA team conducted one interview at the MoES to discuss the Ministry's plans regarding developing a new curriculum for schools. The MoES is piloting a curriculum that includes the subjects of biodiversity and natural resources. They hope that this will contribute to raising awareness regarding biodiversity and its importance for ecosystem services.
The local community and private sector	Interviews: Sep. 6, 2017 – Meeting with cooperatives Oct. 19, 2017 – Meeting with individual farmers Oct. 11, 2017 – Meeting with Gamma Consulting Ltd.	In order to gain insights into non-timber products and their commercial use, the RIA team held meetings with cooperatives and individual farmers involved in the collection of some non-timber products (rosehip, raspberries and sea buckthorn). Respondents highlighted that they use non-timber products for commercial purposes and that is the main source of their income. It turned out that neither cooperative members nor individual farmers are aware of the fact that the use of non-timber products is regulated by the Ministry. For most of the respondents, non-timber products are associated with products which can be used for free and without limit. During the meeting with Gamma Consulting Ltd., Mr. Zurab Mgaloblishvili discussed the costs related to conducting an Emerald Area Impact Assessment (EAIA). The costs of such assessments vary depending on the study area, the number and type of species and habitats present as well as the nature and scale of the proposed activity. Given the wide variety of potential activities, it was hard for respondents to come up with estimations.
Research organizations, civil society, the international community and experts	Interviews: Aug. 8, 2017 – Meeting with CENN	One of the first meetings that the RIA team had was with CENN. During the meeting, the major topics discussed were the reasons for biodiversity loss in Georgia, as well as its main challenges and problems. Mr. Revaz Getiashvili raised the issues of the trade-off between consumption and conservation, waste management, pasture management, and climate change. He also highlighted the role of the

	biodiversity law and discussed the main measures necessary to harmonize the existing legislation with international conventions and obligations.
Aug. 9, 2017 – Meeting with NACRES Oct. 9, 2017 – Meeting with NACRES	Two meetings were held with NACRES. During the first meeting, Mr. Kakha Artsivadze paid attention to the social and economic conditions in Georgia that affect the country's environmental policy. He also highlighted that the economic benefits from biodiversity conservation are undervalued. During the second meeting, the RIA team discussed the costs related to the law, the establishment of the Emerald Network and the drafting of their management plan.
Aug. 11, 2017 – Meeting with GIZ	In the meeting with the GIZ expert, Mr. Christian Goenner, the RIA team discussed the dimensions of biodiversity. The expert emphasized the importance of synergies between economic development and preserving biodiversity. He discussed the possibility of developing the country's economy and preserving biodiversity at the same time by considering alternatives during the project planning phase.
Aug. 17 – Meeting with Green Alternative	During the meeting with Green Alternative, the main emphasis was on legal gaps. Mr. Irakli Macharashvili discussed the different regulations and the lack of coordination between them. During the interview, he provided insights into the problems associated with conducting an Environmental Impact Assessment (EIA).
Aug. 25 – Meeting with BIOFIN project manager (UNDP)	One meeting was held with the project coordinator of the UNDP project BIOFIN (the Biodiversity Finance Initiative). Mr. Tornike Phulariani highlighted the role of the project in terms of evaluating the costs related to the loss of biodiversity. He stated that the environmental and social costs associated with biodiversity loss are neglected in most assessments. Furthermore, he claimed that there is a lack of coordination between stakeholders and a lack of human and financial resources.
Oct. 18, 2017 – Meeting with Civil Society Organizations (CSOs)	A meeting was held with CSOs where they discussed the importance of ecosystem services for the rural population and the lack of knowledge about the sustainable management of natural resources.
Dec. 18, 2017 – Skype call with expert Ana Rukhadze	A skype call was held with biodiversity expert Ana Rukhadze, who discussed the pros and cons of various alternatives for managing Emerald sites.

The consultation process revealed difficulties in conducting biodiversity conservation policy due to conflicting interests among stakeholders. Apart from this, consultation process revealed that for majority of stakeholders current draft law is associated mainly with establishment of Emerald Network.

4. PROBLEM DEFINITION

4.1. VALUE AND IMPORTANCE OF BIODIVERSITY

Biodiversity, as defined by the Convention of Biological Diversity (CDB), means *"the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems"* (CDB). Generally, it refers to the diversity of ecosystems and the variety of life on Earth.

In the present era of environmental and industrial change, maintaining biodiversity is essential. Doing so not only protects species and habitats, but also brings benefits for society in the form of resulting ecosystem services. Preserving biodiversity contributes to the diversity of species, habitats and genes, which positively affect all living beings.

Although the inherent worth of living beings other than humans is a somewhat debated topic, their usefulness to humans is undeniable. The utility received from biodiversity is a result of ecosystem services[3] that can be classified into four categories: **provisioning** services, focusing on the production of food; **regulating** services, related to the control of climate and disease; **supporting** services, such as pollination; and **cultural** services, such as aesthetic, spiritual and recreational benefits.[4] Through these ecosystem services, biodiversity has various environmental, social[5] and economic impacts.

Figure 2. The environmental, economic and social impacts of biodiversity
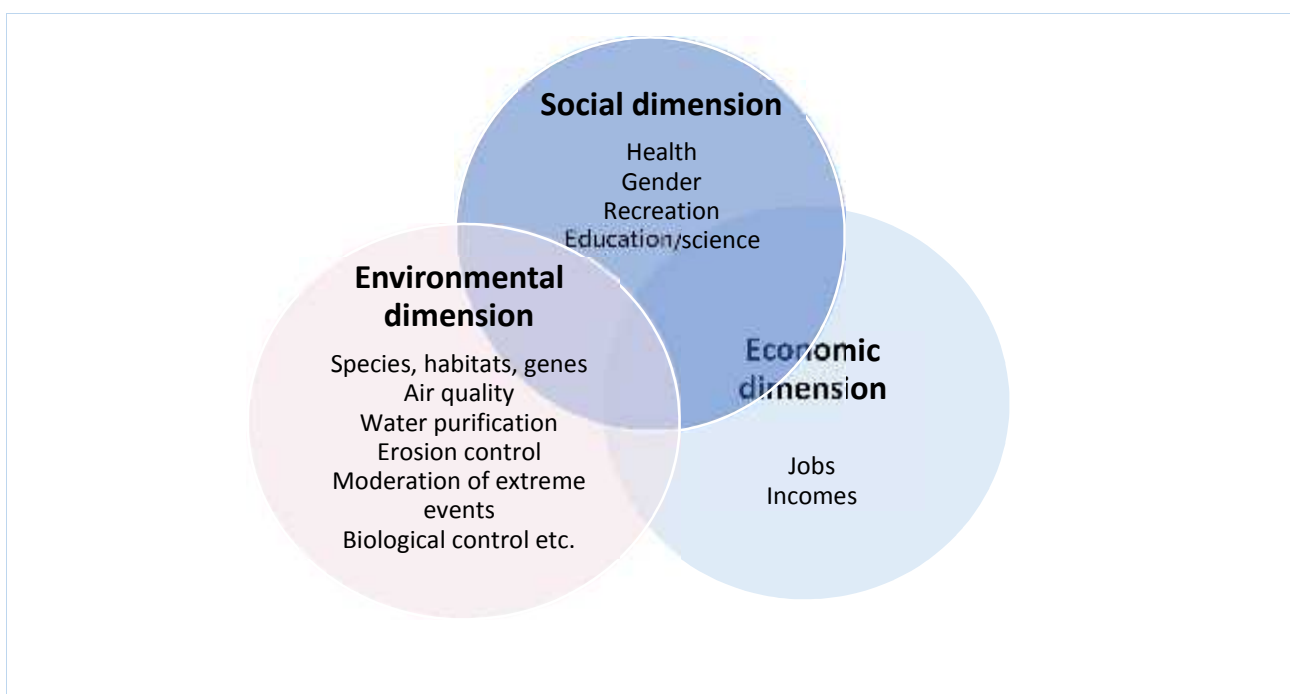
The *environmental dimension* of biodiversity is reflected in regulating ecosystem services.[6] Ecosystems influence the local climate and air quality. They also store greenhouse gases and help fight the consequences

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[3] Harrison P.A., Berry P.M., Simpson G., Haslett J.R, Blicharska M., Bucur M., Dunford R., Egoh B., Garcia-Llorente M., Geam n N., Geertsema W., Lommelen E., Meiresonne L., Turkelboom F. (2014) Linkages between biodiversity attributes and ecosystem services: A systematic review. *Ecosystem Services, Volume 9,191-203, DOI: 10.1016/j.ecoser.2014.05.006*

[4] Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Biodiversity Synthesis. World Resources Institute, Washington, DC.

[5] Sandifera P.A., Sutton-Grier A.E., Wardc B.P. (2015), Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation, *Ecosystem Services,Volume 12, 1-15, DOI: 10.1016/j.ecoser.2014.12.007*

[6] FAO (2018), retrieved from http://www.fao.org/ecosystem-services-biodiversity/background/regulating-services/en/

of natural disasters such as floods, storms, tsunamis, avalanches, landslides and droughts. Waste-water treatment is yet another service provided by biodiversity. Preventing erosion; maintaining soil fertility through nitrogen fixation; ensuring pollination essential for the development of fruits, vegetables and seeds; the biological control of pests for prevention of diseases; and the regulation of water flow provided by land cover are all examples of the ecosystem services affecting our environment.

The *social dimension* is mostly reflected in provisioning ecosystem services that create a basis for food production. The rural poor depend on biodiversity for food and raw materials and the majority of rural households are employed in agriculture, which depends on the existence of live animals and plants. Thus, biodiversity affects the employment and incomes[7] of the most marginalized groups (rural poor) in society. Adopting the Emerald Network is a social concern, affecting the livelihood of farmers, foresters, fishermen and others who live in or near these areas. Apart from the effects on employment and income, biodiversity also has a significant impact on human health (see later sections for more detail).

With regard to the *economic dimension[8]* of biodiversity, according to The Economics of Ecosystems and Biodiversity (TEEB Synthesis, 2010), healthy ecosystems are particularly important for the functioning of the following economic sectors: the **hydropower** sector, which depends on the supply of water; the **tourism** sector, which generates income from ecotourism; the **agricultural** sector, which benefits from increased production and incomes due to the availability of raw materials; the **forestry** sector, which is directly dependent on the availability of forests; and the **mining** sector, which generates incomes through the commercial use of minerals.

The TEEB graphic below shows the meaning of biodiversity for the economy, society and the environment.

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[7] Nunes, P.A.L.D., Ding, H., Boteler, B., ten Brink, P., Cottee-Jones, E., Davis, M., Ghermandi, A., Kaphengst, T., Lago, M., McConville, A. J., Naumann S., Pieterse, M., Rayment, M., and A. Varma (2011) "The Social Dimension of Biodiversity Policy: Final Report" for the European Commission, DG Environment under contract: ENV.G.1/FRA/2006/0073 – 2nd, pages vii-205, Venice/Brussels, February 2011

[8] Farley J., (2012), Ecosystem services: The economics debate, *Ecosystem Services, Volume 1, Issue 1, 40-49, DOI: 10.1016/j.ecoser.2012.07.002*

Figure 3. The meaning of biodiversity for the economy, society and the environment
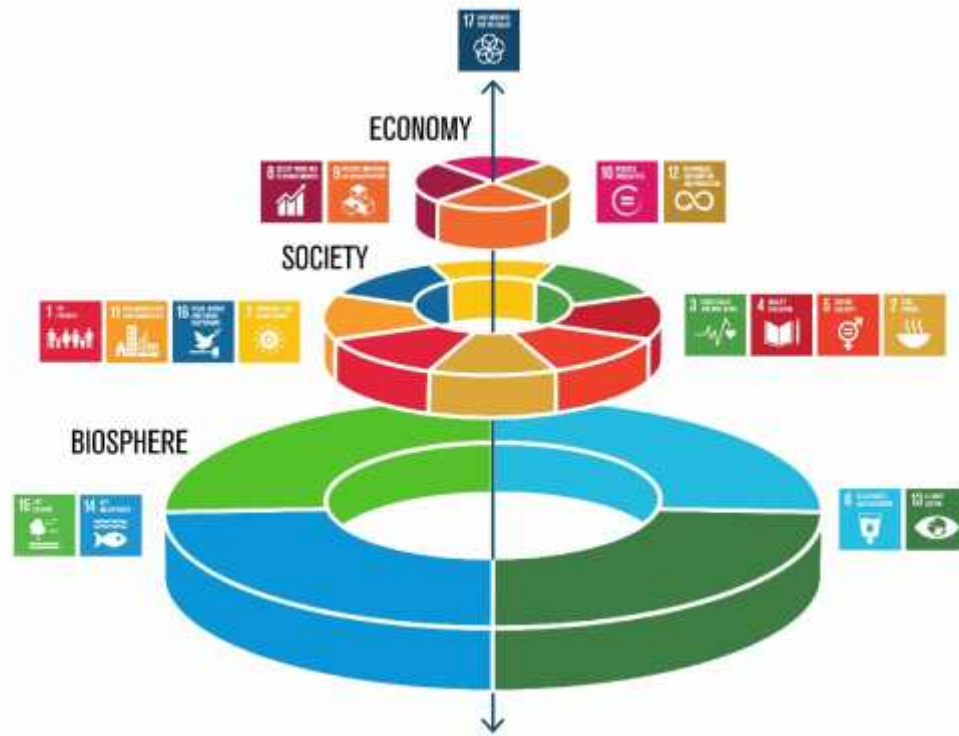
Source: TEEB, 2010

Even though biodiversity conservation produces the wide range of benefits mentioned above, due to the complex, multidisciplinary nature of biodiversity, it is difficult to properly estimate the economic attributes of biodiversity and its services.

From an economic point of view, environmental goods have the characteristics of public and common goods. Public goods have two basic characteristics: 'non-rivalry,' meaning that one person's enjoyment of such goods does not reduce the ability of other people to enjoy the same good, and 'non-excludability,' meaning that people cannot be prevented from enjoying the good.[9] Whereas common goods have the characteristics of rivalry, but are non-excludable. Figure 3 below classifies the goods services provided by biodiversity into economic categories.

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[9] Kotchen M., Whitehead J., Haab T., (2012), Public Goods, A draft chapter prepared for Environmental and Natural Resource Economics: An Encyclopedia, forthcoming, Santa Barbara, CA: ABC-CLIO, Inc.

Figure 4.Types of goods and services associated with biodiversity

	Excludable		Non-Excludable
Rival	**Private Goods**		**Common Goods**
	Sustainable local Agriculture	Organic Agriculture	International Fisheries
	Patented Processes from Genetic Resources	Sustainable Extractives	Access to Genetic Material
	Traditional Knowledge about Indigenous Species		
	Eco Tourism	Hunting and Local Fishing	Carbon Sequestration
	Natural Parks with Entrance Fees	Water quality through Ecosystem protection	
	Flood Control through Ecosystem Protection	Erosion Control through Ecosystem Protection	Existence of Species and Ecosystem
Non-Rival	**Club or Toll Goods Goods**		**Pure Public**

In the presence of public goods, there is the classic economic problem of "free riding": individuals, knowing that they cannot be excluded from accessing biodiversity resources, have fewer incentives to contribute to their sustainable use and to cover conservation costs. In the case of common goods, individuals try to maximize private gains from using the available resources. This results in the overexploitation of resources and the so-called tragedy of the commons.

Resolving the problem of free riding and thus seeking to prevent the under-provision of public goods is one of the primary economic rationales for government intervention. While markets allocate private goods efficiently, state intervention is usually required for the efficient (or even reasonable) allocation of public goods. That is why the provision of many public services is financed by government tax revenues. Governments can thus serve as a coordinating mechanism that provides public goods for the benefit of society. The same public-goods rationale applies to environmental protection. Because individuals and firms face free-riding incentives when it comes to protecting the environment, policies are often put in place to ensure that individuals contribute to conservation costs.

In addition to the problem of free riding generated by the public nature of environmental goods, government policies should deal with the overexploitation of resources arising from the overuse of common goods. In order to overcome this problem, policies should create the right incentives to promote and protect biodiversity.

4.1.1 IMPLICATIONS REGARDING AGENDA 2030 AND SDG ACHIEVEMENT

Due to the multi-dimensional nature of biodiversity, the conservation of biodiversity can help to achieve the 17 SDGs defined by Agenda 2030 and adopted by the 193 member states of the United Nations (UN) in September 2015. Although at first glance biodiversity may appear to be unrelated to many SDGs, more careful analysis shows links to many of them.

SDG 1: No poverty – Biodiversity provides the essential resources for a range of economic activities, such as agriculture, tourism, forestry and fisheries. Along with other non-market goods, ecosystem services are estimated to account for more than 50% of the total source of the so-called "Gross Domestic Product (GDP) of the poor" (income among poor and forest-dwelling households).[10] Despite presenting possible challenges in the short run, from a long-run perspective the overall impact on the poor can be positive. The conservation and sustainable use of biodiversity through subsistence agriculture may provide livelihoods for many of the world's rural poor and help them to escape poverty.

SDG 2: Zero hunger – Biodiversity is assumed to be the key element for ensuring food security and improving nutrition. More specifically, food production strongly depends on biodiversity and ecosystem services that support agriculture, soil fertility, water supply, etc. Again, there are a lot of challenges in the short run, but in the long run, biodiversity may contribute to diversity in agricultural production with a variety of nutritional benefits.

SDG 3: Good health and well-being – Biodiversity has a positive impact on human health.[11] Healthy ecosystems may reduce the spread and negative impact of pollution.[12] Forests regulate rivers and water flows and improve the quality of water. Many plants are used for medicines. Furthermore, there are indirect effects of biodiversity on human health. Diverse agricultural ecosystems are associated with sustainable production and reduced use of chemicals and pesticides, which positively affect human health. Clean water and improved sanitation increases the wellbeing of the population. Meanwhile, the recreational benefits from biodiversity can help improve the mental health of the population.

SDG 6: Clean water and sanitation – Biodiversity and healthy ecosystems positively affect water quality and reduce water-related hazards and disasters. Sustainable ecosystem-based approaches to agriculture reduce nutrient losses to surface water as well as groundwater, and lessen the subsequent polluting effects on drinking water sources. Such approaches do not necessarily have high costs. For example, conserving an upstream forest that contributes to ensuring clean water might cost less than establishing new water filtration infrastructure. In addition, conserving forests can prolong the lifetime of water infrastructure.

SDG 7: Affordable and clean energy – Nowadays, the use of biological resources, including wood, coal, charcoal or animal waste, for cooking and heating is high. The use of currently unexploited renewable energy sources generated from ecosystem services (e.g. forestry byproducts and agricultural residues) can provide additional opportunities for supplying affordable bio-energy to people. Conserving water resources and a proper management of forests can provide cheap, green energy in the form of hydro-power and reduce dependency on fossil fuels.

SDG 8: Decent work and economic growth – Biodiversity can contribute to economic activities by providing employment opportunities in agriculture, forestry, fisheries, energy, tourism, transport and trade. Furthermore, ecosystem-based approaches can lead to higher productivity and an efficient use of natural resources, guaranteeing economic growth that does not damage the environment.

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[10] Convention on Biological Diversity, Food and Agricultural Organization of the United Nations, The World Bank, United Nations Environment Programme, UNDP (2018), Biodiversity and the 2030 Agenda for Sustainable Development. Technical Note,Retrieved from https://www.cbd.int/development/doc/biodiversity-2030-agenda-technical-note-en.pdf

[11] Martend P., Beumer C., (2015), Biodiversity Keeps People Healthy, Health of People, Places and Planet, 477-492. Retrieved from
http://www.jstor.org/stable/pdf/j.ctt1729vxt.46.pdf?refreqid=excelsior:c81676ce8a0477e5c9d5c352eb6876c1

[12] Sandifer P.A., Sutton-Grier A.E., Ward B.P. (2015), Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation, Ecosystem Services,Volume 12, 1-15, DOI: 10.1016/j.ecoser.2014.12.007

SDG 11: Sustainable cities and communities – Considering and integrating biodiversity in urban planning can help create sustainable human settlements with inclusive and accessible green public spaces. Biodiversity can increase resilience to extreme weather events and natural disasters and help improve air quality and livelihoods in urban areas. For instance, the strategic placement of trees can cool the air and therefore reduce need for air conditioning.

SDG 13: Climate action – Efforts to protect and restore habitats can help adaption to climate change. Not only can biodiversity and healthy ecosystems offer cost-effective measures to mitigate the negative effects of climate change, but they also present important resources for increasing resilience and serve as natural buffers against extreme climate and weather events such as droughts, storms, and other natural disasters. Proper allocation of forests improves resilience to natural disasters caused by climate change. On the other hand, ecosystems such as forests and grasslands represent carbon stores. Their conservation, restoration and maintenance require good governance and law enforcement. Otherwise, they might become a source of carbon emissions through wildfires.

SDG 14: Life below water – This goal is directly related to biodiversity as it considers the conservation and sustainable use of the oceans and marine resources, including fishing and aquaculture activities. People living in coastal areas accrue economic benefits from access to ocean navigation, coastal fisheries, tourism and recreation – which is why human settlements are often concentrated in coastal zones. From this point of view, it is important to protect coastal territories and waters with international and national legislation.

SDG 15: Life on Land – The conservation of ecosystems and biodiversity, its restoration and sustainable use are necessary conditions for sustainable development. This goal integrates ecosystem and biodiversity values into development planning and poverty reduction strategies. Along with SDG 14, this goal is the most relevant to biodiversity and directly refers to it.

The information provided above is summarized in Figure 4, below.

Figure 5.SDGs and targets affected by biodiversity

Due to all the benefits of biodiversity for species, habitats, and society it is vital for countries to take actions to prevent the loss of biodiversity.

4.2 CHALLENGES FOR THE BIODIVERSITY OF GEORGIA

Nowadays, the rate of biodiversity degradation is high. This is due to considerable pressure placed on it from the local population, who is driven by poor socio-economic conditions. In addition, both the private sector and the government exploit natural resources.

Habitat loss, climate change, overexploitation, invasive alien species and pollution are usually mentioned among the major causes of biodiversity loss on a global scale. According to the stakeholder interviews, the major threats to biodiversity in Georgia result from:

Intensification of agriculture – People are cultivating larger areas in a more intensive fashion. Standard agricultural activities – such as tillage, drainage, practices based on monoculture, and the excessive use of fertilizers and pesticides – harm and threaten the flora and fauna. Species and habitats are disturbed by planting and harvesting activities. In addition, the increased number of sheep and overgrazing of marginal grasslands and heaths has caused the destruction of many habitats, especially peat lands.[13]

Infrastructure development projects – Infrastructural projects, such as roads, alter ecological conditions, cut through natural habitats, and consequently threaten populations of many wildlife species. They cause landscape fragmentation that affects biodiversity; while new structures and artificial barriers reduce the areas of habitats. The negative effect is even greater on species that need large spaces or that migrate seasonally. Higher land fragmentation increases the risk that such species will disappear from these areas. Infrastructure elements not only have direct effects on biodiversity, but also indirectly affect the landscape through emissions, noise or changes in the microclimate. The ecological impacts of infrastructure projects extend into the adjacent landscape (e.g., the 'infrastructure-effect zone'). Meta-analysis shows that the main response by mammals and birds in the vicinity of infrastructure is either avoidance or a reduced population density.[14] The effect of infrastructure on bird populations extended over distances up to about 1 km, and for mammal populations up to about 5 km. Mammals and birds seemed to avoid infrastructure in open areas over larger distances compared to forested areas, which could be related to the reduced visibility of infrastructure in forested areas.

Overexploitation of resources – As a developing country, Georgia tends to overexploit its natural resources through overfishing, poaching and illegal hunting. In most cases, the main driver of overexploitation is the poor socio-economic conditions of households. While the annual limit for the use of forests is set to 600,000 m^3, recent investigations show that on average 2.5 mln. m^3 of trees are used for non-industrial purposes on an annual basis, whereas the industrial use of forests amounts to at least an additional 0.5 mln. m^3. This implies that 4 out of 5 trees are cut illegally or at least "unsustainably"[15], which leads to the depletion of the resource and respective habitat loss.

Climate change – Climate change is a major cause of biodiversity loss on a global scale. In Georgia, as in the rest of the world, the effects of climate change are reflected in extreme weather events. High temperatures and low precipitation in summer have become more frequent for Georgia in recent years, leading to forest fires. Furthermore, climate change directly affects species as it causes changes to the fodder basis, changes of breeding habitats, and increases the spread of disease.

Underdeveloped waste management systems – As with many other developing countries, Georgia lacks waste management infrastructure. This leads to several problems. First of all, if waste is not recycled or recovered, the raw materials used for production are lost. Secondly, the remainders from production might be

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[13]An Chomhairle Oidhreachta / The Heritage Council (1999), Impact of Agriculture Schemes and Payments on Aspects of Ireland's Heritage. Retrieved from https://www.esri.ie/pubs/BKMNEXT23.pdf

[14] Benítez-López A., Alkemade R., Verweij P.A., (2010), The impacts of roads and other infrastructure on mammal and bird populations: A meta-analysis, *Ecosystem Services, Volume 143, Issue 6, 1307-1316, DOI: 10.1016/j.biocon.2010.02.009*

[15] Based on an interview with the CENN representative.

a cause of pollution in the environment and rivers. Furthermore, these can end up in the stomachs and tissue of fish, birds and mammals, causing their deaths and thus damaging biodiversity and ecosystem services.

Low public awareness – Low public awareness is considered to be a root cause of biodiversity loss. People do not understand the value of biodiversity, do not have information about the adverse effects of their behavior, and thus they cannot estimate the consequences of overexploiting or damaging natural resources. A recent study, "Public Knowledge, Attitude and Practice (KAP) assessment in relation to Biodiversity and Environmental issues (Georgia)", shows that knowledge about biodiversity is not very high in Georgia; Georgians also do not know about the environmental organizations operating in the country.[16] Moreover, the local population is not actively involved in projects related to biodiversity. Approximately 40% of Georgians surveyed think that jobs are more important than the environment. The low level of awareness of decision makers is also an important issue as they often neglect biodiversity when making decisions.

Lack of human and financial resources – There is a lack of human and financial resources directed to the conservation of biodiversity. The supervisory department of the MoENRP does not have enough rangers to monitor protected areas. The level of qualifications of human resources is yet another issue. According to the stakeholder interviews, there is a lack of qualified employees with relevant knowledge and competencies about biodiversity. This is reflected in the poor quality of the information provided to decision makers and the population. There is also a lack of financial resources to fund training, hire additional rangers, and create an effective monitoring system for biodiversity conservation.

Insufficient law enforcement – Existing regulations in relation to the protection of biodiversity are not enforced. This is not only a consequence of the lack of resources described above, but is also a consequence of the weak political mandate of controlling authorities and policy priorities in Georgia. The extensive hunting of migratory raptors on the coastline of Georgia is just one example of the lack of enforcement.

All of the above mentioned issues should be considered while designing policy on biodiversity conservation.

In order to overcome the challenges to biodiversity, Georgia has developed the National Biodiversity Strategy and Action Plan (NBSAP), according to which it is obliged to implement the National Biodiversity Monitoring System (NBMS). The NBMS is based on 26 indicators that have been selected according to the Organization for Economic Co-operation and Development's (OECD) Pressure/State/Response Model.[17] However, the NBMS is currently being revised to be fully compliant with the latest recommendations of the Convention on Biological Diversity (CBD).

Table 4. The list of biodiversity indicators

#	Pressure	#	State	#	Response
P1	Fragmentation of landscape	S1	Forest area	R1	Total area of protected areas
P2	Forest area with timber harvesting	S2	Agrobiodiversity	R2	Protected areas with management plans and qualified personnel
P3	Sustainability of wood production	S3	Population sizes of selected species	R3	Nature protection zones
P4	Intensity of fishery	S4	Population sizes of common birds	R4	Percentage of certified forests
P5	Intensity of agricultural land use	S5	Area of habitats of special conservation value	R5	Reforestation within the Forest Fund of Georgia

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[16] Georgian Opinion Research Business International (2017), Public Knowledge, Attitude and Practice (KAP) assessment in relation to Biodiversity and Environmental issues (Georgia), retrieved from http://biodivers-southcaucasus.org/wp-content/uploads/2016/03/Report_KAP-Survey-in-Georgia_2017.pdf

[17] GIZ, MoENRP,Implementation of the CBD in The Economics of Ecosystems and Biodiversity (TEEB) in Georgia, retrieved from http://biodivers-southcaucasus.org/wp-content/uploads/2015/02/Biodiversity-of-Georgia-Eng.pdf

P6	Genetically modified organisms	S6	Species diversity in landscapes	R6	Area under organic farming
P7	Intensity of pastureland use			R7	Financial resources for nature conservation
P8	Pressures arising from infrastructure in protected areas			R8	Hunting farms with management plans
P9	Number and distribution of invasive species			R9	Public awareness on biodiversity
P10	Confiscations on the basis of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulations				
P11	Forest diseases and forest fires				

Proper measurement of these indicators will contribute to informed decision making regarding policies related to preserving biodiversity and increasing public awareness about the benefits of biodiversity conservation.

4.3 POLICY CONTEXT

Georgia is a member of various international conventions related to biodiversity. One of the most important conventions is the Convention on the Conservation of European Wildlife and Natural Habitats, also known as Bern Convention (BC), which was first accepted in Switzerland in 1979. Georgia joined this in 2009. The convention regulates the conservation of species[18] by imposing restrictions on taking species from the wild and on their exploitation. It constitutes a commitment to protect species' habitats. Particular emphasis is given to endangered and vulnerable species.

In order to protect its rich natural heritage and conserve its biodiversity, Georgia joined the Convention on Biological Diversity (CBD) in 1994. The country is also a member of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, and a number of other conventions and international agreements. A more detailed description of the major conventions (other than the BC), is presented below:

- The CBD, focusing on the conservation of biodiversity, the sustainable use of biodiversity and a fair and equitable sharing of benefits.[19]

- The Cartagena Protocol on Biosafety[20], concluded and adopted in the framework of the CBD.

- CITES, aiming at ensuring that international trade in specimens of wild animals and plants does not threaten their survival.[21]

- The Ramsar convention on wetlands of international importance directed at the conservation and sustainable use of wetlands.[22]

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[18] The list of species is provided in the Annexes of the Bern Convention.
[19] UN Environment Programme (2017). Retrieved from https://www.cbd.int/
[20] UN Environment Programme (2017). Retrieved from https://bch.cbd.int/help/topics/en/What_is_the_Cartagena_Protocol_on_Biosafety.html
[21] The Convention on International Trade in Endangered Species of Wild Fauna and Flora (2017). Retrieved from: http://www.cites.org
[22] Retrieved from http://www.ramsar.org

- The CMS, aimed at conserving terrestrial, marine and avian migratory species throughout their range. Parties to the CMS (and agreements under the CMS listed below) work together to conserve migratory species and their habitats by providing strict protection for the most endangered migratory species.
  - ➢ The African-Eurasian migratory water bird agreement (AEWA) is an intergovernmental treaty dedicated to the conservation of migratory water bird species and their populations.
  - ➢ The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and the contiguous Atlantic area (ACCOBAMS).
  - ➢ The agreement on the conservation of populations of European Bats (EUROBATS), binding parties on the conservation of bats in their territory.

As a member of those conventions, and in light of the recently-signed AA with the EU, Georgia has an obligation to harmonize its regulations with EU regulations. In order to conserve biodiversity and fulfill the obligations defined by the above-mentioned conventions and the AA, the MoENRP initiated the Law on Biodiversity in 2015. Before that law was initiated, biodiversity-related issues were regulated by the following legal frameworks:

- The Law on Wildlife, which defines the use of forests, land, water and other natural resources.

- The Law on Protected Areas System, which defines and serves the protection of important ecosystems, habitats and genetic resources.

- The laws on the "Red Book" and "Red List", which include information about rare and endangered species. The list includes not only the status of species within Georgian territory, but also the international status of species defined within EU territory.

- The "Forest Code of Georgia", regulating territories managed by the National Forestry Agency and Agency of Protected Areas. The maintenance, restoration and reforestation of state forests as well as the state control of forest use are implemented by the relevant institutions under the system of the Ministry.

- The Law on Environmental Impact Assessments (EIA), which defines the activities requiring an EIA and permission from the MoENRP.

- Technical regulations on conservation and the supervision of greened territories in municipality areas.

4.3.1 THE NEED FOR INTERVENTION

There is a need to complement existing regulations with a modern, updated regulation on biodiversity for the following reasons:

1. *To protect species and habitats and contribute to the sustainable use of natural resources*

As was mentioned previously, biodiversity conservation generates benefits not only for species and habitats, but also for society through its economic, social and environmental impacts. Given that biodiversity has the characteristics of both public and common goods, it is important to ensure that natural resources are not overexploited. Government intervention is needed to overcome the free-rider problem described above and ensure the sustainable use of natural resources. As mentioned earlier, economic forces can drive the reduction of biodiversity, in spite of the fact that biodiversity itself has economic value. Therefore, there are problems with the way incentives are set and decisions made. There is clear scope for public intervention.

First of all, there is an underlying disparity between private and social interests when it comes to the usage of natural resources. Users of natural resources – farmers, private companies and consumers who are guided by self-interest – perform activities that usually impose costs on the rest of the society, so-called "externalities". Policies oriented towards biodiversity conservation should ensure that users internalize the costs they impose on others, either through adequate compensations paid to the government or by penalties (if some violation of rules is proved). The size of the penalty should ensure that the incomes from violating the law are lower than

the costs of violating it. This should be reflected in the size of penalty, weighted by the probability of being caught. Currently, the penalties are relatively low and are poorly enforced. The probability of being caught is also low due to an insufficient number of rangers. All of this makes the unsustainable use of natural resources more likely.

For individuals, the choice about whether to exploit the resources depends on the returns generated from the choice. An unsustainable use of natural resources might generate higher incomes in the short run, but would lead to lower incomes in the long run due to overexploitation. Thus, any individual who has to make a choice between the unsustainable and sustainable use of natural resources, basically chooses between high profits in the short run and zero in the long run, or relatively moderate incomes in both short- and long-run periods. The second outcome is associated with the sustainable use of natural resources and should be economically more rational for the individual; however, if they discount future benefits, individuals might still opt for high profits in the short run. Apart from this, returns from investment are likely to be higher than returns from conservation because those returns usually consist of non-market benefits that are difficult to monetize. Apart from this, while there is the free-rider problem on the level of individual members of society or at the company level, the state itself can be a free rider in its efforts to foster economic development (or to please influential individuals, if one takes corruption mechanisms into account). Regulation is thus needed in order to protect the state from itself and ensure sustainable economic development. The draft law should serve as a mechanism for balancing the needs of society and biodiversity conservation.

2. To comply with EU regulations (the AA and BC)

According to the BC and the revised calendar for the implementation of the Emerald Network, the development of guidelines on management, monitoring and reporting tools for Georgia (in line with existing Natura 2000 tools) was scheduled for completion at the end of 2011. In 2012, starting the assessment of proposed Emerald sites in the country was scheduled. Georgia should have completed the assessment of the proposed Emerald sites in 2013-2014 and the designation of the Emerald Network was scheduled for 2015-2016. However, Georgia did not meet these deadlines and is currently still working on designation issues (and on some other issues as well). Since the country is already behind schedule, it is vital to focus on biodiversity-related issues to ensure both that the Emerald Network of Areas of Special Conservation Interest is fully operational and that all appropriate management, monitoring and reporting tools, compatible with Natura 2000, are fully developed by 2020 – as requested by the calendar of the BC (see the calendar in Appendix A2).

As for the AA, Georgia is obliged to adopt national legislation regarding Nature Directives and to designate competent authorities to execute new regulations by 1 July 2018.

3. To fill the legal gaps generated by outdated, inefficient laws

Some of the existing regulations are already outdated and cannot conform to EU standards. The Law on Wildlife, which dates back to 1996, is one such example. The draft law is expected to follow a modern approach to biodiversity conservation (ensuring that the selection of species and habitats is not random, but done in a systemic way based on the real needs of the species and habitats) and to cover gaps in the existing legislation.

4. To help to meet the targets set by the SDGs

Since biodiversity conservation can help to reach many of the SDGs, government intervention aimed at the conservation of biodiversity can be considered as an additional measure the government can undertake to fulfil the requirements of Agenda 2030. However, it should be noted that biodiversity conservation is, understandably, not a priority for many developing countries. In spite of their political will to conserve biodiversity, such countries tend to allocate their resources to development projects rather than biodiversity conservation. That is why it is necessary to ensure that some financial resources are provided to developing countries from third parties.

4.3.2 NOVELTIES OF THE DRAFT LAW

Adoption of EU Nature Directives

The draft law presents a framework for adopting two EU Directives – the Directive on the conservation of wild birds, the so-called Birds Directive (BD) (Directive 2009/147/EC), and the 1992 Directive on the conservation of natural habitats and of wild fauna and flora, the so-called Habitats Directive (HD) (92/43/EEC). These are two major components of EU nature legislation that establish rules for nature protection across the member states (Milieu et al., 2016). The goals of the directives are achieved through the establishment of Natura 2000 – a network of areas of high nature value across the EU.

According to the European Commission on Environment, "Natura 2000 is a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right". The main purpose of the network is to conserve Europe's most valuable and vulnerable species and habitats that are listed under the BD and the HD. Natura 2000 represents the main element of the European biodiversity system and covers all EU countries.

Establishment of the Emerald Network in Georgia

The draft law defines the rules for establishing and managing a network of Areas of Special Conservation Interest – the Emerald Network – which is the main instrument of the BC. Under the BC, all member countries are obliged to develop Emerald Networks. As the BC applies to countries all over the world, Natura 2000 is considered to be part of the Emerald Network. Similarly to Natura 2000, Emerald sites do not represent a network of strictly protected areas. All sites that are proposed to join the Emerald Network should be carefully assessed at the biogeographical level for their sufficiency to achieve the ultimate objective of the network: the long-term survival of the habitats and species requiring specific protection measures. Once proposed, territories will be officially adopted as Emerald Network sites and have to be designated and managed at the national level. National designation and management measures are needed in order to contribute to the main objectives of the network, and their efficiency should be regularly monitored. Protected areas such as nature reserves, national parks, etc. can be Emerald sites; however, in contrast to classic protected areas, in some cases economic and business activities are allowed on Emerald sites.

Introduction of regulations on the use of genetic resources

One of the chapters of the draft law is devoted to the use of genetic resources. It aims to improve the conservation of threatened species, and the communities who depend on them. It focuses on the fair distribution of benefits arising from the utilization of genetic resources and establishes the basic concept of distributing benefits from traditional knowledge tied to the national genetic resources. The Ministry can permit the commercial and non-commercial use of genetic resources. The draft law envisions the development of an electronic registry to monitor the use of genetic resources originating in Georgia or imported from other countries.

Regulations related to international trade

The chapter on international trade in wild plants and animals aims to harmonize Georgian legislation with the requirements of CITES. In order to achieve this goal, it defines the rules for exporting, importing and re-exporting species protected under CITES. The draft law also considers issues of certification, permits and licenses for activities related to those species.

4.3.4 THE LINK BETWEEN THE DRAFT LAW AND NATIONALLY ADOPTED SDG INDICATORS

In light of the Agenda 2030 requirements, Georgia has developed a nationally adopted SDG matrix that features the major goals of the country for the next years. It should be noted that environmental indicators are relatively underrepresented in the matrix, implying that the Government of Georgia is not yet ready to prioritize environmental issues. Because of this, biodiversity has mostly indirect and relatively minor impacts on the indicators mentioned in the table. In some cases, the impact is mixed and there might be both positive and negative effects for stakeholders.

Table 5 shows how the articles of the draft law contribute to the achievement of nationally adopted SDGs.

Table 5.The link between the draft law and nationally adopted SDG indicators

Goal	Connection	Article
Goal 1: No poverty		
Each person earning more than $1.9 per day	Providing there is an alternative, one is not allowed to carry out actions that harm protected species, habitats or the delivery of eco-system services. In other cases, compensation measures or remedies should be carried out that can guarantee the long-term delivery of ecosystem services and the provision of related benefits to the population. However, it should be noted that, if the draft law limits the use of some natural resources, this might decrease the incomes of some stakeholders (e.g. collectors of non-timber products) in the short-run, but this will contribute to the sustainable use of natural resources and more stable incomes in the long run, unless access to some products is fully restricted. If the latter is the case, then the stakeholder will be compensated.[23] In that case, incomes are not increasing and stay the same.	74.1-74.4
	The benefits from genetic resources and related knowledge should be fairly distributed among locals, the owners of traditional knowledge and other related parties. This will allow the holders of traditional knowledge to generate income from their knowledge. Before the introduction of the draft law, this issue was not regulated. For instance, information held by the local population about the medical benefits of some plants was used by private companies, but the holders of the information were not compensated for its provision.	63.1, 63.2, 66.1
Covering all poor and vulnerable people	Treatment of forests, land, water and other natural resources while utilizing protected wild plants or animals will be controlled. This might also reduce the income of particular stakeholder groups in the short run, but, hopefully, will provide more stable incomes in the long run – unless access to some products is fully restricted. If the latter is the case, then the stakeholder will be compensated. In that case, incomes are not increasing and stay the same.[24]	3, 6b, 15.3, 19.1b

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[23] The size of compensation as well as the compensation process is not clearly defined yet. Thus, there is no guarantee of real and fair compensation.
[24] The size of compensation as well as the compensation process is not clearly defined yet. Thus, there is no guarantee of real and fair compensation.

Reducing the amount of deaths related to natural disasters	Protecting habitats improves ecosystem services and reduces the risks of natural disasters; this in turn reduces the amount of deaths related to these disasters.	74.1-74.4

Goal 2: Zero hunger

Increasing the income of rural families from self-employment	The benefits from the use of genetic resources and related knowledge should be distributed fairly. Once this issue is regulated by law, the local, rural population will be able to generate income from traditional knowledge.	63.1, 63.2, 66.1
	Extraction of protected plants located on personal allotments is allowed. Since such plants can be used for commercial purposes, this will contribute to increasing the incomes of the poor. However, it should be noted that if the draft law limits the use of some natural resources outside private land this might decrease the incomes of some stakeholders (e.g. collectors of non-timber products) in the short-run, but will contribute to the sustainable use of natural resources and thus provide more stable incomes in the long run, unless access to some products is fully restricted.	10.3

Goal 3: Good health and well-being

Reducing the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	A large share of protected natural habitats are forest territories that are beneficial for recreation purposes and provide fresh and clean air and water.	74.1

Goal 4: Quality education

Increasing enrollment in technical or vocational training programs	If confiscated dead animals or living plant objects are not destroyed or terminated, they should be transferred to museums and educational/scientific institutions. Doing so might have minor positive effects on research and lead to an increasing number of studies in respective areas.	12.1, 13.1, 14.2, 25, 58.3
	According to the law, dead or alive objects are allowed to be used for scientific and educational purposes. This will contribute to the conduct of more research studies in this field and therefore increase demand for related professions (e.g. ornithologists).	12.1, 13.1, 14.2, 25, 58.3
	The owners of traditional knowledge will share it and benefit from doing so. This might give rise to increased demand for traditional knowledge, which can contribute to research in relevant fields.	60-72, 63.2, 66.1

Goal 9: Industry, innovation and infrastructure

Promoting industry, innovation and infrastructure	Scientific and educational activities will be conducted and supported through the establishment of scientific bodies. The draft law envisions the establishment of scientific committees that will work on the challenges of the sustainable use of natural resources.	12.1, 13.1, 14.2, 16.2, 25, 47, 48, 58.3

Note: The articles numbers in the table refer to the "Ikalto" version of the draft law.

4.3.5 UNSETTLED ISSUES

Related to the draft law and subsidiary legislation

Together with the abovementioned laws, the draft Law on Biodiversity is supposed to fully cover the topic of biodiversity. However, according to the stakeholder interviews, there are still some issues that are either not covered by the draft law or are still under discussion. Those issues are described below.

Commercial use of non-timber products outside the forest. According to the interviews, the commercial use of non-timber products is only partially regulated by the Forest Code, because the code only defines regulations for forest territory and does not regulate the use of non-timber products outside the forest. The draft law mentions the necessity of obtaining licenses, but thus far only a concept has been developed. The restrictions on the commercial use of non-timber products and the duration of the license have yet to be defined. Non-commercial use has not been regulated either.

Definition of public interest. According to the draft law, if a proposed project (e.g. business activity) has very high public interest, it would be possible to implement it on an Emerald site, even if the Emerald Area Impact Assessment (EAIA) proves that the project would have an adverse effect on the species and habitats in that area. Since the term "high public interest" is very broad, there is a risk that such a broad definition might result in a large number of projects being implemented on Emerald sites, thus threatening species and habitats. However, practice shows that the chance of getting exceptions approved by the Bern Convention and the Council of Europe is rather small.

Management of Emerald sites. There are no guidelines for preparing management plans for Emerald sites and thus no management plans have been developed for the sites. It is not clear who should be developing those plans or how their development and execution will be financed. The management of Emeralds on private land is of particular importance and none of the management aspects have been clearly defined yet for private ownership cases. Since the management of Emerald sites will be regulated by the subsidiary legislation of the Law on Biodiversity, the current draft does not need to provide all the details of management. However, the subsidiary legislation should be developed in a timely manner.

In addition to this, the preliminary protection regime is not activated for candidate Emerald sites. Yet another gap is that the draft law does not explicitly state that priority should always be given to the stricter regulation.[25] The issue of spatial planning is also missing from the law.

Synchronization with liability law. Liability law is closely related to the draft Law on Biodiversity. The Ministry started to work on the former law two years ago, but it is still under development. Although stakeholders agree that the draft law should include a chapter about the prevention and handling of damage, any liabilities and damages should be part of the liability law. A number of issues remain unsettled:

- There is no clear definition of what can be considered as a substantial impact on the environment. It is difficult to draw the line between sizable and non-sizable impacts. The term "substantial damage" is not clearly defined (e.g. damage to Red List species, BC species, strictly protected species, reserves).
- There is no schedule for repaying compensation for damage to the government. It is not clear when compensation should be paid.

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[25] The legal team working on the draft law have agreed to add such a statement to the text of the law.

- The size of compensation is not defined.
- Compensation procedures in the cases of authorized and non-authorized damage have not been set.

Emerald Area Impact Assessment. Article 34 of the draft Law on Biodiversity requires the conduct of an environmental impact assessment for plans and projects with a potential material impact on Emerald sites. However, the methodology for this assessment has not been developed yet. Central issues to be addressed are the definition of significant impact and the subsequent steps to be taken for either the rejection of a project or mitigation, compensation, or derogation. Guidelines on these issues are expected to be fairly comprehensive and can be dealt with on the sub-law level in alignment with the objectives of the law.

Education promotion mechanism. According to the requirements of the AA (Article 22(c) HD), Georgia is obliged to establish a mechanism to promote education and to provide general information to the public before 1 July 2022. The draft law does not cover this issue.

Related to EU regulations

Priority Species. The EU Habitat Directive (Council Directive 92/43/EEC) includes priority species and habitats, which the BC does not have. It is not clear whether Georgia has freedom to choose whether it is going to have priority species or not, or whether there is a need to prioritize species. Priority species require special treatment and it is extremely difficult to obtain permission for an activity if it threatens those species. This has particular implications for private businesses and citizens. Technically, the list of priority species and habitats is derived from the situation in EU countries and is thus only partly relevant for the Caucasus.

Timetables for the AA and BC. The timetable from the AA document (pp. 591- 592) does not correspond to the calendar of the BC. There are thus contradicting deadlines for some activities. The timetable below (Table 6) divides the Habitat and Birds directives into different parts with differentiated deadlines. From the BC point of view, the establishment of an operational Emerald network – including national designation, provisions for management and monitoring – should be in place by 2020 (see the official revised calendar for 2011-2020 from the BC in Appendix A2), whereas the AA offers a deadline of 2022 for some activities.

Since the BC is binding, its deadlines are likely to be given priority.

Table 6.Timetable from the AA and links to the draft law and BC

#	Component (according to AA)	Deadline (according to AA)	Comment /Interpretation
1	Adoption of national legislation and designation of competent authority/ies.	1 July 2018	Integration of the BC into national legislation through the Law on Biodiversity and related bylaws (which are not yet developed) should be sufficient for meeting this requirement.
2	Assessment of bird species requiring special conservation measures and regularly occurring migratory species.	1 July 2019	This has been done during the process of Emerald site selection.
3	Identification and designation of special protection areas for bird species (Article 4(1) BD).	1 July 2021	Covered by the designation of Emerald sites.
4	Establishment of special conservation measures to protect regularly occurring migratory species (Article 4(2) BD).	1 July 2021	Covered by the implementation of the BC and the chapter in the Law on Biodiversity titled "Strictly protected and protected species".

5	Establishment of a general system of protection for all wild bird species, of which the hunted species are a special subset, and prohibition of certain types of capture/killing (Articles 5, 6, 7 and 8 and Article 9(1) and 9(2) BD).	1 July 2021	Covered by implementation of the BC.
6	Completion of an inventory of Emerald sites, designation of these sites and establishing priorities for their management (Article 4 HD).	1 July 2020	Article 4 of the HD also includes priority species and habitats, which the BC does not have. The deadline contradicts point 3 above.
7	Establishment of measures required for the conservation of such sites (Article 6 HD).	1 July 2020	Article 6.4 includes priority species/habitats, which the BC does not have.
8	Establishment of a system to monitor the conservation status of pertinent habitats and protected species as relevant for Georgia (Article 11 HD);	1 July 2022	Covered by Article 18 of the Law on Biodiversity. Does not match the BC timetable.
9	Establishment of a strict species protection regime for species listed in Annex IV of this Directive as relevant for Georgia and in line with reservations made by Georgia for some species in the Council of Europe Convention on the Conservation of European Wildlife and Natural Habitats (Article 12 HD).	1 July 2022	Covered by Articles 8-10 in combination with Article 22 of the Law on Biodiversity. Article 22 mentions priority species, but it is not yet clear if Georgia has to define them. Does not match the BC timetable.

The current policy context and challenges in biodiversity conservation require public intervention aimed at achieving the sustainable management of natural resources.

4.4. BACKGROUND TO THE BASELINE SCENARIO

Georgia is a part of the Caucasus eco-region, which is within one of the WWF's 35 "priority places", and represents two of the 34 "biodiversity hotspots": the Caucasus and Iran-Anatolian hotspots (Georgia's Fifth National Report to the Convention on Biological Diversity, MoENRP). Located in the South Caucasus mountainous region, Georgia is characterized by a high level of biodiversity, with rich endemic species, rare habitat types, and diverse ecosystems. As a consequence of its location and the variety of its climatic conditions, Georgia has remarkably rich flora. A total of 4,100 species of vascular plants have been recorded, 300 of which are endemic to Georgia. With around 700 species, vertebrates are well represented in Georgia.

In addition to 390 bird, 160 fish, 54 reptile, and 13 amphibian species, more than 100 small, medium and large mammals are native to the country. A number of large carnivores live in the forests, namely brown bears, wolves, lynxes and Caucasian leopards. The number of invertebrate species is also considered to be very high. To date, around 15,000 species of invertebrates have been recorded, including almost 9,150 arthropods (Georgia's Fifth National Report to the Convention on Biological Diversity, MoENRP).

According to the NBSAP (2014-2020), the Red List of Georgia comprises 139 animal species and 56 wooded plant species. Furthermore, 43 of the animal species and 20 of the plant species are considered either endangered or critically endangered.

Biodiversity endowment and use in Georgia is characterized by biodiversity indicators, which are still under development.

Below there is information on the state of biodiversity components in Georgia as well as data on the use of biodiversity products.

Currently, the total area of Georgia's protected territories is 598,409 ha, which accounts for approximately 9% of the country's total land. There are 10 National Parks and 14 Strict Nature Reserves in Georgia, which account for 59% and 23% of the territory of total protected areas, respectively. Natural monuments hold the smallest share (less than 1%) in the country's total protected territories (Figure 5).

Figure 6.Protected Areas of Georgia (%)
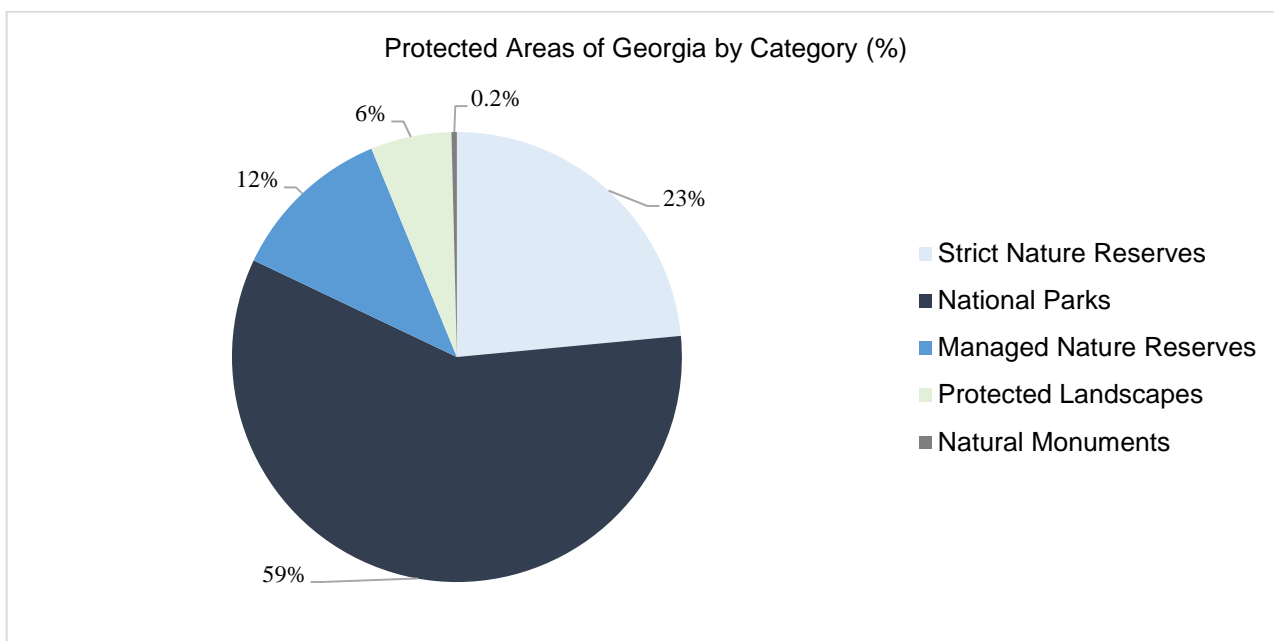
Source: Geostat, 2016

Forests are an important part of the ecosystem, covering about 40% of the country's territory. They serve to maintain ecological processes by protecting species and habitats. Accordingly, natural disasters, such as forest fires, present a threat to forests and the ecosystem. Figure 3 shows the area affected by forest fires in 2009-2015 within the country. The largest area (1,270 ha) covered by forest fires was reached in 2008, during which time about 1,000 ha (in the Borjomi-Kharagauli National Park) was burnt down during the August War between Russia and Georgia (Figure 6). In the summer of 2017, an unusually high number of forest fires occurred in Georgia, and around 800 ha[26] were destroyed in Borjomi (unfortunately, official figures for the 2017 forest fires in Borjomi are not yet available).

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[26] This figure is not included in the diagram, since official statistics for 2017 are not yet available.

Figure 7.Forest Fires (ha, number of cases)[27]

Forest Fires (ha, number of cases)

Legend: Forest area covered by fire, hectares — Number of fire cases
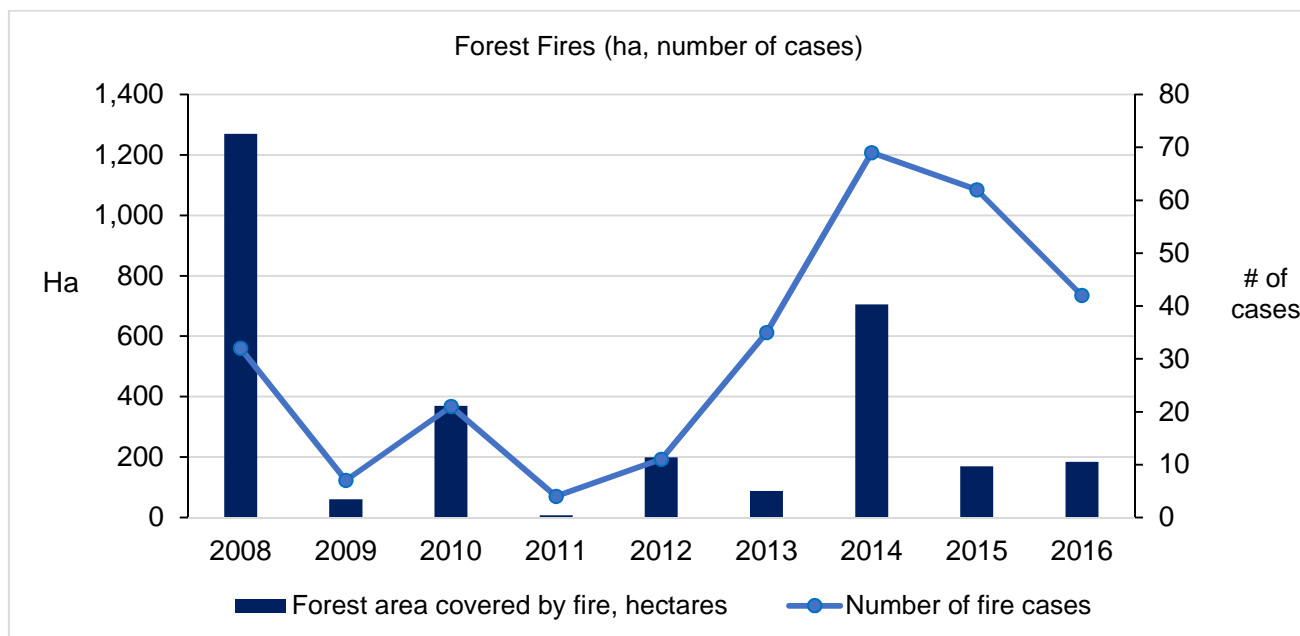
Source: Geostat

Another threat to Georgian forests is the illegal cutting of timber. Officially-registered illegal logging dropped sharply from 32,948 to 7,120 cubic meters in 2010-2011 and remained at an average 6,585 cubic meters in 2011-2013. However, this indicator increased more than seven times and exceeded 45,000 cubic meters in 2014 (Figure 7). However, other studies claim that the figures are considerably higher. Illegal logging accounts for about 75% of the total yearly harvest.[28]

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[27] It should be noted that the data from 2008 is not confirmed due to the Russo-Georgian war.
[28] Garforth M., Nilsson S., Torchinava P., (2016). Wood Market Study.
Retrieved from: http://biodivers-southcaucasus.org/wp-content/uploads/2017/03/Michael-Garforth_Wood-Market-Study_2016_Eng.pdf

Figure 8. Illegal Logging *(cubic meters)*
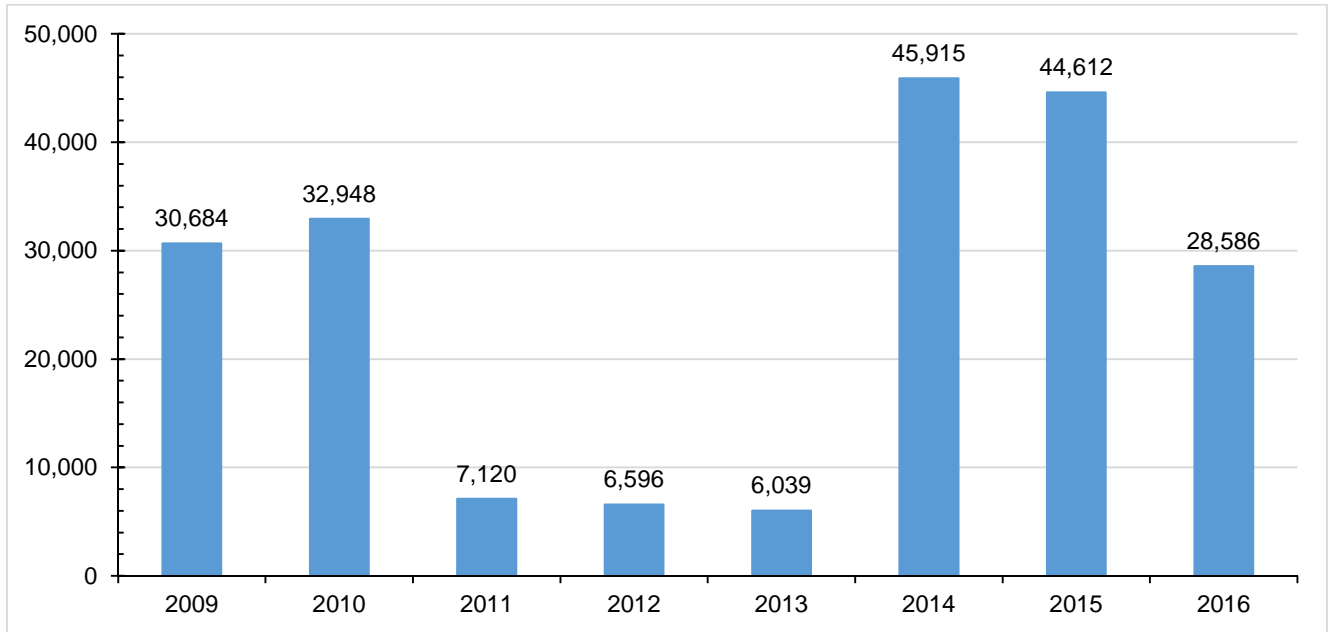
Source: Geostat

Unlike the illegal timber cut, the volumes of legally-harvested timber have remained fairly stable in Georgia. This indicator reached a maximum of 876,749 cubic meters in 2010, while the lowest volume of timber harvested (518,792 cubic meters) was observed in 2012. In the period 2013-2016, this indicator stood in the vicinity of 700,000 cubic meters annually (Figure 8).

Figure 9. Volume of Felled Timber (cubic meters)
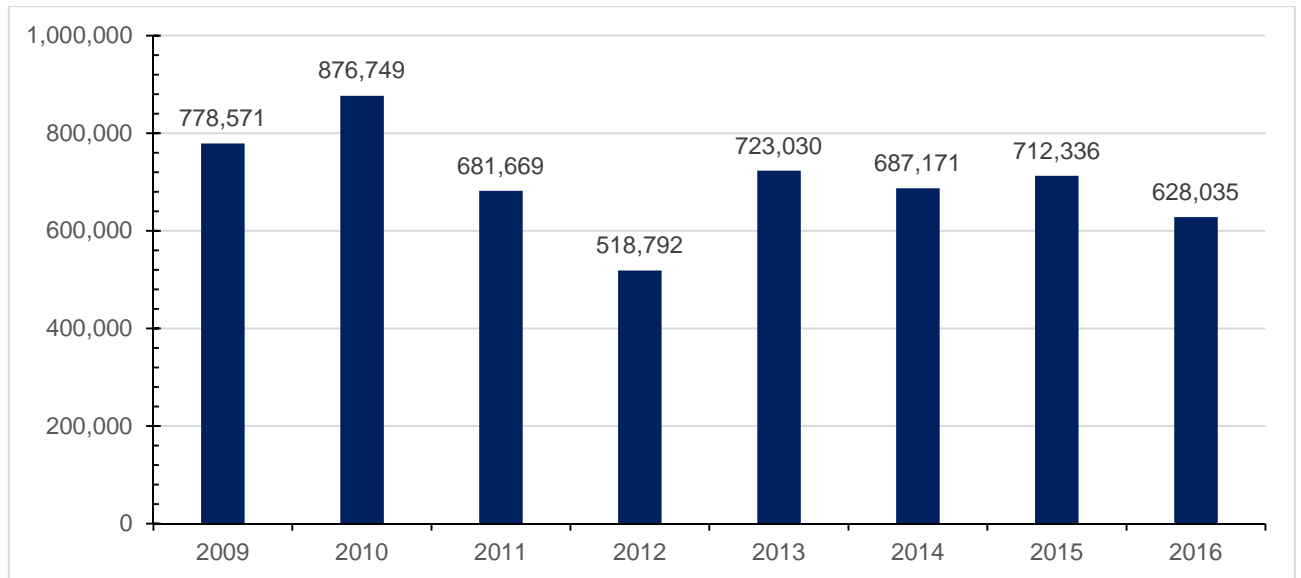
Source: Geostat

Timber is used for manufacturing, construction and furniture making, but people also use it as firewood. Firewood is a type of biofuel and represents an important source of energy (used for heat and water heating) for lots of Georgian families. During 2013-2015, firewood provided 1,344 ktoe of renewable energy and accounted for roughly one tenth of total primary energy supply in Georgia. Hydropower is the most important source of renewable energy for the country. In 2015, it produced 726.9 ktoe of energy, which accounted for approximately one sixth of Georgia's total primary energy supply (Figure 9).

Figure 10.Total Renewable Energy (ktoe)
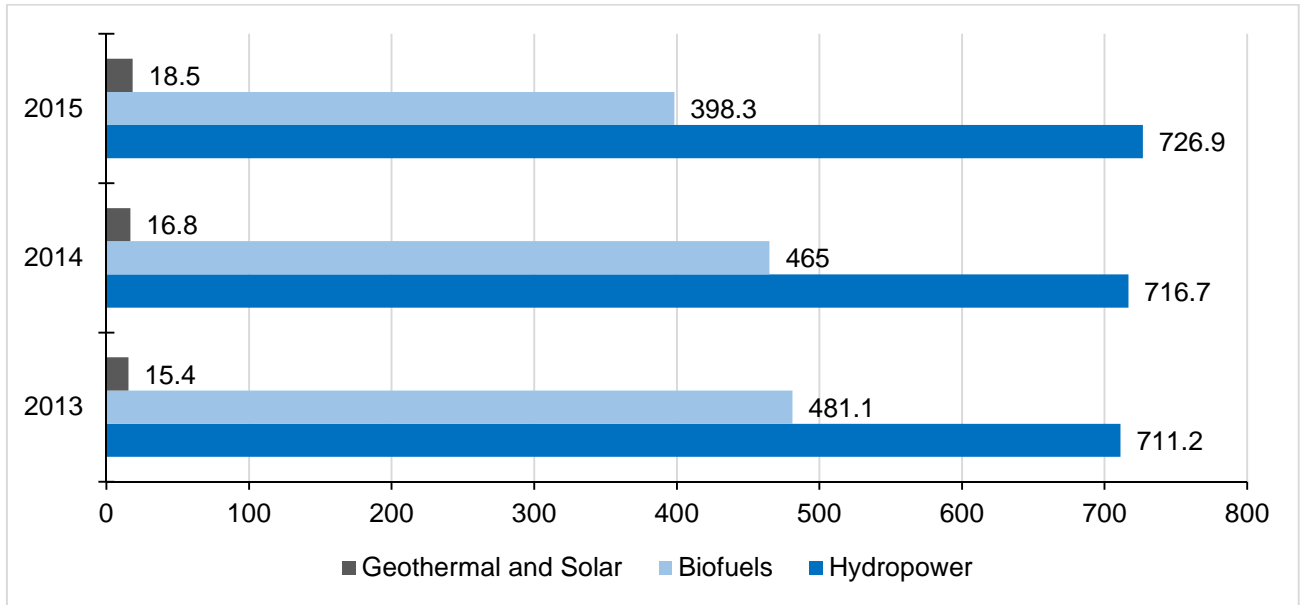
Source: Geostat

Figure 10 shows the final energy consumption (ktoe) of seven major groups of final energy consumers during 2013-2014. It appears that the biggest consumers of total final energy were the transport sector (around 30%) and households (around 30%), while the agriculture sector held the smallest share (less than 1%) in final energy consumption.

Figure 11. Final Energy Consumption (ktoe)
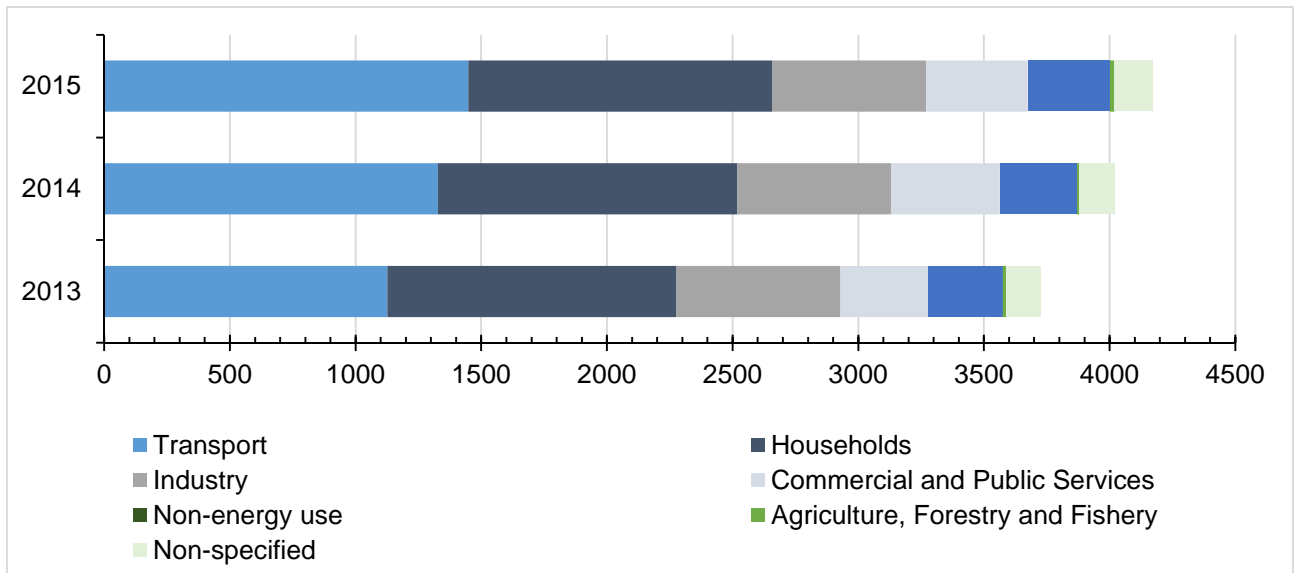
Source: Geostat

In addition to consuming the biggest share of total final energy, the transport sector was the biggest emitter of hazardous substances. Table 7 shows the emissions from road transport (thousand tons) in 2007-2014. The most emitted hazardous substances were carbon monoxides, nitrogen dioxides (NO2), and non-methane hydrocarbons (NmVOC). It should be noted that emissions of CO decreased during 2007-2014.

Table 7. Emissions from Road Transport (thousand tons)

Hazardous substances	2007	2008	2009	2010	2011	2012	2013	2014
Carbon monoxides (CO)	123.8	129.7	129.7	118.0	108.0	100.3	95.1	91.1
Nitrogen dioxides	19.3	19.5	19.6	20.1	21.2	22.2	22.9	23.5
Hydrocarbons (NmVOC)	16.1	16.3	16.4	15.5	14.8	14.3	13.9	13.6
Particulate matters (PM10)	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2
Particulate matters (PM2.5)	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1
Soot (EC)	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Ammonia (NH3)	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Sulphur dioxide (SO2)	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.2
Other hazardous substances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Geostat

Figure 11 shows the hazardous substances generated by stationary sources by region in 2015. It appears that regions in the east of Georgia were bigger polluters than those in the west of the country. Furthermore, the regions of Kvemo Kartli, Shida Kartli, and Tbilisi managed to absorb or neutralize the highest shares of the pollution generated by themselves, 97% each.

Figure 12. Hazardous Substances Generated by Stationary Sources (thousand tons)
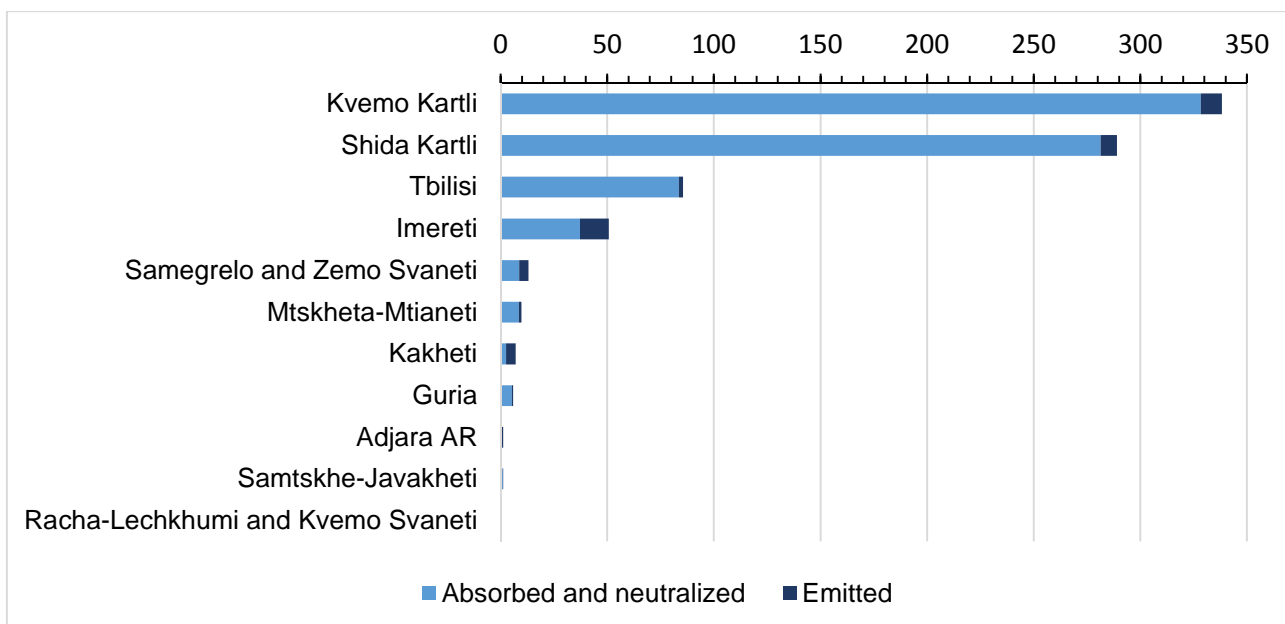
Source: Geostat

Figure 12 shows the total household water use in 2015-2016. Compared to 2015, household water use was almost 81 million cubic meters less than in 2016. Interestingly, the share of water supplied by the water industry in total water use increased by 3 percentage points in 2016 compared to the previous year.

Figure 13.Total Household Water Use (million cubic meters)
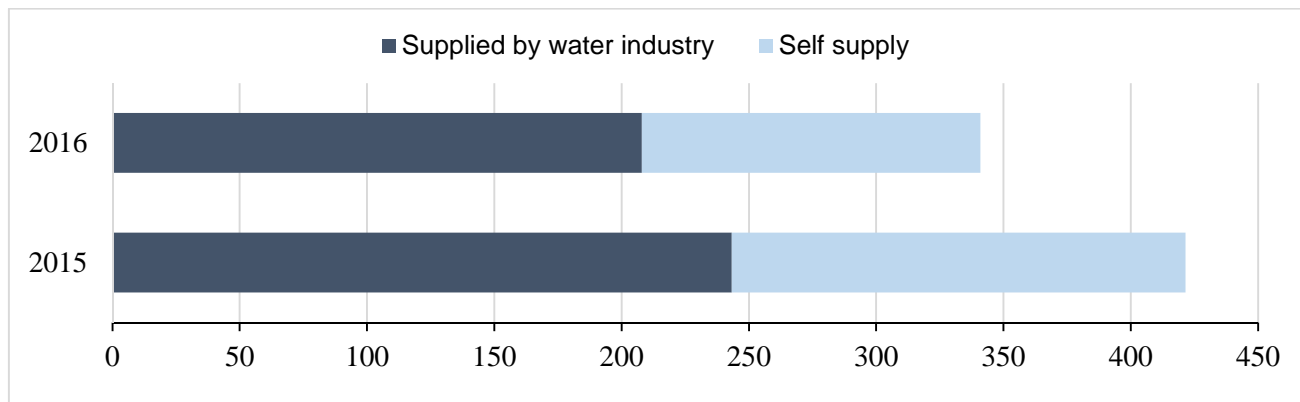
Source: Geostat

In 2016, the number of people connected to wastewater collecting and treatment systems increased compared to 2015, rising by 4.8% and 5% respectively (Figure 13). It can be claimed that the decreased water use in 2016 was due to more efficient water management and/or decreased water waste.

Figure 14. Population Connected to Wastewater Treatment (million people)
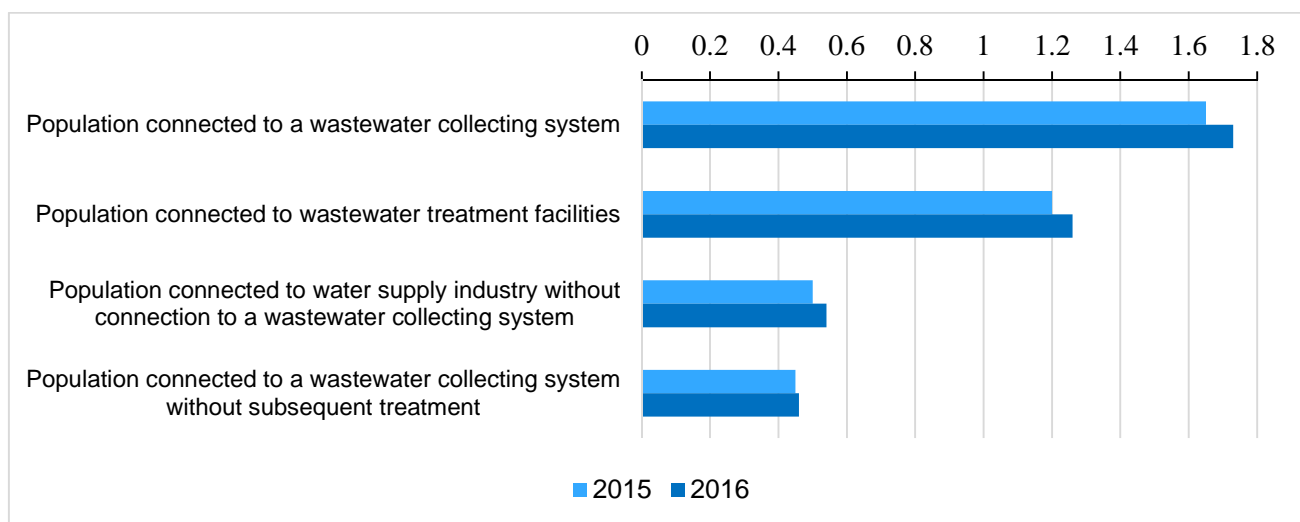
Source: Geostat

5. OBJECTIVES OF THE DRAFT LAW

5.1 GENERAL AND SPECIFIC OBJECTIVES

The purpose of this law is to "ensure conservation and rehabilitation of ecological system necessary for existence of the wild plants and animals, create favorable conditions for conservation of species and habitats, and ensure sustainable utilization of wild flora and fauna objects taking into account the interests of current and future generations, as well as to regulate issues related to generic resources and related traditional knowledge and fair and equitable distribution of benefits arising from their utilization" (Draft Law on Biodiversity of Georgia, MoENRP, 2017).

Based on these general objectives, the more specific objectives of the law can be formulated as follows:

1. Reduce direct pressure on biodiversity and ensure the sustainable use of natural resources.

2. Establishment of protected areas of international importance and the Emerald Network.

3. Fairly distribute the benefits received from access to and utilization of Georgian genetic resources and traditional knowledge among local community members and the holders of traditional knowledge.

4. Ensure that international trade in wild flora and fauna species does not endanger such species or their habitats.

5.2 OPERATIONAL OBJECTIVES

A number of specific operational objectives based on the NBSAP were identified during the research. These objectives along with the relevant indicators are presented in Table 8 below.

Table 8. Summary of objectives

OBJECTIVE	INDICATOR	RESPONSIBILITY	TIMING
1. Reduce direct pressure on biodiversity and ensure the sustainable use of natural resources			
1. Introduce the Implementation of the Emerald Area Impact Assessment for all activities or strategic documents directly connected to the Emerald sites	% of companies actually presenting an EAIA out of the total number of companies required to present an EAIA	MoENRP, consulting companies	Monitored on a monthly basis, with the first results presented by 2018
2. Introduce the "Pollutant Pays" principle to remedy the adverse effects on species and habitats	Amount of compensation paid by pollutant	MoENRP	Finalized by 2018
	% of compensations collected used to deal with the adverse effects	MoENRP	Finalized by 2018

3. Enforcement of administrative or criminal prosecution for individuals violating the law	% of cases where an administrative or criminal prosecution took place out of the total number of incidents	MoENRP	N/A
	% of cases in which the perpetrators actually paid fines	MoENRP	N/A
4. Reduce pressure on forests	Number of forest fires	MoENRP	Indicator is already in place and is reported by the relevant authority
	Amount of area affected by forest fires	MoENRP	Indicator is already in place and is reported by the relevant authority
	% of degraded forest area out of the total forest area	MoENRP	The system for reporting this indicator should be finalized by 2018
	% of deforested areas out of the total area of forests	MoENRP	The system for reporting this indicator should be finalized by 2018
5. Improved management of agricultural ecosystems and natural grasslands	% degree of landscape change	MoENRP, MoA	The system for reporting this indicator should be finalized by 2018
	Amount of area under organic farming	MoENRP, MoA	The system for reporting this indicator should be finalized by 2018
6. Ensure that infrastructure development and other activities that could have a significant impact on Emerald sites and their biodiversity are subjected to the Emerald Area Impact Assessment (EAIA) based on environmental standards	Number of assessments and economic instruments (including TEEB) ensuring biodiversity conservation and ecosystem services that are applied in decision making	MoENRP; research organizations; NGOs	Finalized by 2020

2. Establishment of protected areas of international importance and the Emerald network

1. Adoption of national legislation	Developed the Law on Biodiversity and related bylaws	MoENRP	Finalized by 2018

2. Strengthen existing legislative, institutional and administrative mechanisms	Increased capacity of the staff of relevant governmental agencies; % of staff trained	MoENRP; NGOs; international organizations	Performed on an ongoing basis, but most of the training (first round) finalized by 2020
	% of trainees showing improvement in pre- and post-test scores;	MoENRP; NGOs; international organizations	Performed on an ongoing basis, but most of the training (first round) finalized by 2020
3. Creation of a list of Strictly Protected and Protected Species and Habitats	The list of such species for Georgia	MoENRP, NACRES	Finalized by 2018
4. Drafting and adoption of monitoring tools and management plans, based on international guidelines	Number of indicators reported based on the NBMS	MoENRP	Finalized by 2018
	Number of management plans developed	MoENRP	Finalized by 2018
5. Designation and establishment of Emerald sites	The list of Emerald sites, including appropriate management, monitoring and reporting tools, compatible with Natura 2000	MoENRP, NACRES	Fully operational by 2020
	Total area of Emerald sites (ha)	MoENRP	Fully operational by 2020
	Number of Emerald sites with management plans and qualified personnel	MoENRP, NACRES	Fully operational by 2020
	% of Emerald sites that are managed according to their respective management plans	MoENRP; research institutes; NGOs	Fully operational by 2020

3. Fairly distribute the benefits received from access to and utilization of Georgian genetic resources and traditional knowledge among local community members and the holders of traditional knowledge

1. Defining the rules based on which the benefits of using and utilizing national genetic resources should be distributed	Existence of widely-accepted checklists for major groups of genetic resources and the existence of a relevant framework for benefits distribution	MoENRP; research organizations; NGOs	Finalized by 2018
2. Ensure fair distribution of incomes generated from traditional knowledge	Number of cases when the owner of traditional knowledge was remunerated	MoENRP; research organizations; NGOs	The basic principles of sharing benefits from traditional knowledge should be defined by 2018
3. Creation of an electronic registry to monitor the use of genetic resources	% of ministry staff using the electronic registry	MoENRP, research organizations; NGOs	Finalized by 2019
	Number of reports produced with the help of the electronic registry	MoENRP, research organizations; NGOs	Finalized by 2019

4. Ensure that international trade in wild flora and fauna species does not endanger such species or their habitats

1. Establishment of a scientific body for international trade-related matters	Existence of an operational scientific body	MoENRP; research organizations; NGOs	Finalized by 2018
2. Assess the international trade in Georgian flora and fauna species	Export/import figures on the trade in species	MoENRP; research organizations; NGOs	Finalized by 2018
3. Increase the capacity of the Georgian CITES Management Authority and the Georgian customs organization in implementing CITES through institutional strengthening and raising the qualifications of employees	Existence of electronic databases of fauna and flora	MoENRP; the Revenue Service; research organizations; NGOs; experts	Finalized by 2020
	Number of conducted trainings on CITES	MoENRP; research organizations; NGOs	Performed on an ongoing basis, but most of the training (first round) finalized by 2018
	% of staff trained and % of trainees showing improvement in pre- and post-test scores	MoENRP; research organizations; NGOs	Performed on an ongoing basis, but most of the training (first round) finalized by 2018

6. POLICY OPTIONS

The RIA policy options focus on an impact assessment of the consequences of establishing the Emerald Network. The options were derived based on discussions with stakeholders and focused on Emerald sites for the following reasons:

1. Establishment of the Emerald Network helps to achieve the overall objective of biodiversity conservation.
2. It is a binding obligation from the BC and an obligation under the AA.[29]
3. It fulfils the objectives of EU policy on nature conservation and helps to fulfil the obligations generated as a result of the EU Nature Directives (the BD and HD).
4. Most of the interviewed stakeholders considered the establishment of the Emerald Network to be the most important novelty of the draft law.
5. According to the stakeholders, the majority of incremental costs generated by the draft law are attached to the establishment of the Emerald Network.
6. Limited data to quantitatively assess some other parts of the law.

After a careful review of the proposed regulatory framework of biodiversity conservation in Georgia, accompanied by a review of international practices and stakeholder consultations, the RIA team decided to focus the RIA on a comparison between scenarios that differ in terms of management and monitoring. The scenarios are as follows:

- Baseline scenario – No policy change[30]
- Option 1 – Decentralized management of Emerald sites
- Option 2 – Centralized management of Emerald sites by the APA

The management of Emerald sites is a crucial issue that is currently under debate. This research aims at identifying the pros and cons of various management options with regard to social, economic and environmental dimensions.

Before the final set of options was selected, the RIA team considered a number of other options that were ultimately excluded for various reasons. One of those options related to the establishment of a so-called Emerald Management Agency that would manage Emerald sites irrespective of their geographical location. This option was discarded because it was considered to be too costly for the government compared to the other options. The establishment of a new agency would require hiring new staff, including administrative staff, which would be an extra cost for the state. In addition to this, this option would create the risk of double management at sites that coincide with PAs and forests. Yet another option considered was related to the development of an electronic database that would contribute to the efficient exchange of information between various stakeholders and would help improve the monitoring of biodiversity stocks and the development of biodiversity conservation policies. This option was discarded due to the lack of data. A third option was related to the strengthening of the biodiversity monitoring system, either through hiring additional human resources or using so-called eco-drones. This option was considered unrelated to the draft law and was thus discarded. The last option considered by the team envisioned the development of a biodiversity fund that would rest on the concept of PPP, but this was also excluded due to insufficient data.

The objective of the analysis is to identify the main quantitative and qualitative impacts of the suggested options for various stakeholders with regard to the baseline scenario. In parallel to the identification of impacts, the opportunities and risks associated with the option will be qualitatively discussed.

Before describing the assumptions that are specific to each of the suggested options, it is important to discuss the assumptions that are common to both options. All of the variables mentioned in Table 9 below are exogenous. They are independent from the model and cannot be altered by the suggested option.

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[29] See pp.452-453 of the AA.
[30] Given the commitment of the government to the reform, the baseline scenario is not feasible. However, since the goal of the analysis is to assess the incremental costs and benefits with respect to a baseline scenario, it is necessary to have such a scenario defined. The baseline scenario is the reference point against which the incremental costs and benefits are calculated.

Macroeconomic assumptions

The values of the main macroeconomic variables, their sources and assumptions about their development are displayed in Table 9.

Table 9. Macroeconomic variables, sources and assumptions

VARIABLES	INITIAL VALUES IN 2017	FINAL VALUES IN 2028	SOURCE
Inflation	3.00%	3.00%	Based on the National Bank of Georgia's inflation target
US inflation	2.00%	2.00%	Based on the Fed's inflation target
EU inflation	2.00%	2.00%	Based on the European Central Bank's Inflation target
USD/GEL exchange rate	2.50 USD/GEL	2.76 USD/GEL[31]	Based on the National Bank of Georgia[32]
Discount rate	9.1%	9.1%	Nominal interest rate on 10-year government bonds

The policy options are described in more detail below.

BASELINE SCENARIO: NO POLICY CHANGE

This option assumes that biodiversity legislation does not change and nothing is done to alter the current state of affairs.

In the baseline scenario, protected areas, which account for 598,409 ha of land (approximately 9% of country's total land), and forest funds are managed by the APA, the NFA, the Adjara Forestry Agency and a municipality (in the case of Tusheti).

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[31] The exchange rate evolves on the basis of the inflation differential. GEL depreciates in this case.
[32] The nominal interest rate is used in the analysis and all variables grow at the internal inflation rate.

Figure 15. Baseline scenario
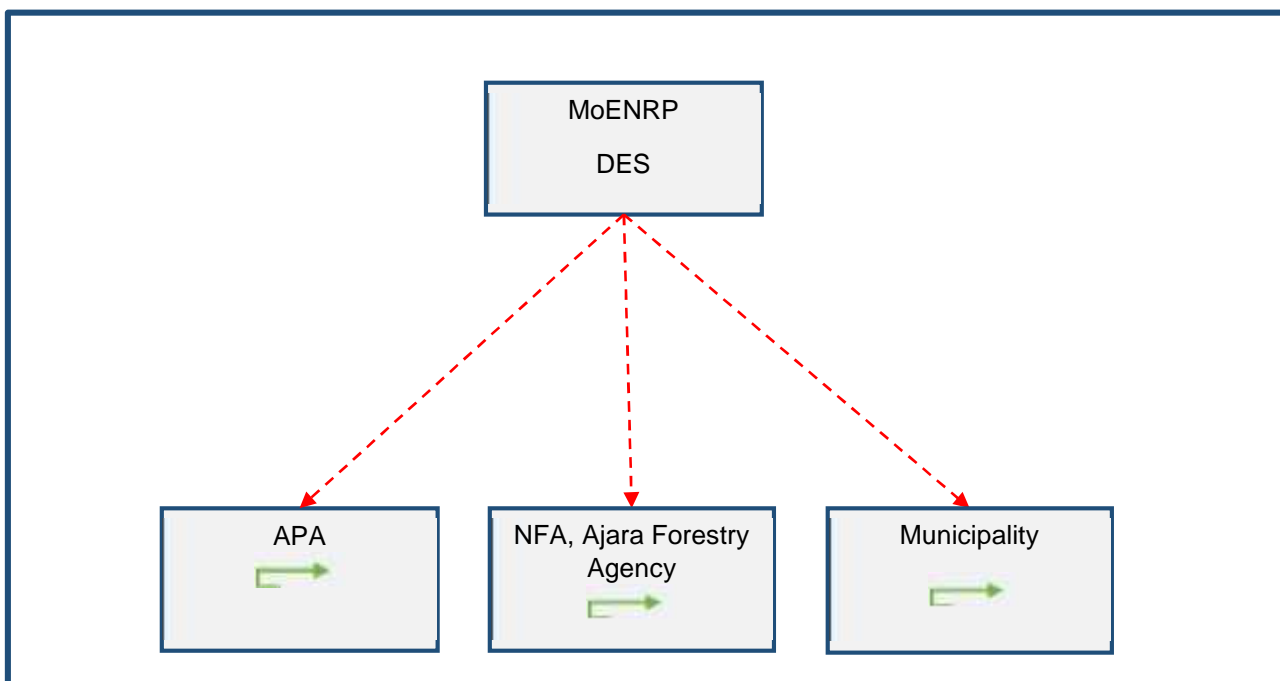
The arrows on the diagram refer to management and supervision functions.

Table 10. Functions of managing bodies

ARROW TYPE	TYPE OF FUNCTION
	Management function – daily management and control, prevention of encroachment/poaching, support of monitoring activities
	Supervision function – control activities performed by the MoENRP's Department of Supervision (DES)

In the baseline scenario, the APA manages its protected areas, whereas the municipality of Tusheti manages its protected landscape. The APA has 20 administrative units and is relatively well represented throughout the country.

Forests are managed by the NFA, with the exception of forests in Adjara, which are managed by the Ajara Forestry Agency.

All of the managing bodies mentioned above are accountable to the MoENRP and the DES has a mandate to implement overall supervision over managing bodies as well as protected areas and forests.

Only nine protected areas have either fully or partially developed management plans and there are four regions of the country with forest management plans. The staff of agencies are trained on various topics at least once a year. Private businesses are required to conduct an EIA if their proposed activities fall under the list of activities requiring one. The list is developed by the MoENRP.

The baseline scenario is characterized both by a relatively high number of illegal activities threatening species and habitats and by poor law enforcement.

OPTION 1 – DECENTRALIZED MANAGEMENT OF EMERALD SITES

This option assumes the establishment of the Emerald Network in Georgia in accordance with two EU nature directives – the BD and HD.

This option assumes full implementation of the proposed legislation and has the following characteristics:

1. Establishment of the Emerald Network
2. Establishment of a management unit for Emerald sites
3. Development of management plans for Emerald sites
4. Introduction of Emerald Area Impact Assessments (EAIA)
5. Capacity building of Emerald sites' managing bodies

Establishment of the Emerald Network

The standing committee to the Bern Convention regularly nominates "candidate Emerald sites" from a number of sites proposed by all countries currently working on the establishment of the Emerald Network. Thus far, Georgia has developed a list of 34 candidate sites and planned to give Emerald status to three of those (Batsara, Vashlovani and Lagodekhi[33]) by the end of 2017. The total area under the 34 proposed sites is 791,138 ha.

In addition to the candidate sites, another 21 proposed sites exist which are still under research and do not yet have candidate status. The area under those 21 sites is 306,884 ha. The number of sites and the corresponding area might change in the future when the studies conducted by the NACRES research center are finalized.

Our analysis looks at the 55 sites together and groups them into the following categories based on their location and type of managing body:

1. Emerald sites inside/overlapping with the APA
2. Emerald sites inside/overlapping with the NFA/Adjara Forestry territories
3. Emerald sites overlapping with municipality land
4. Emerald sites overlapping with church land
5. Emerald sites overlapping with MoESD land
6. Emerald sites overlapping with private land

Graphically this can be represented as follows:

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[33] These candidate sites were designated as Emerald sites at the latest stage of the research.

Figure 16. Option 1 – Decentralized management of Emerald sites
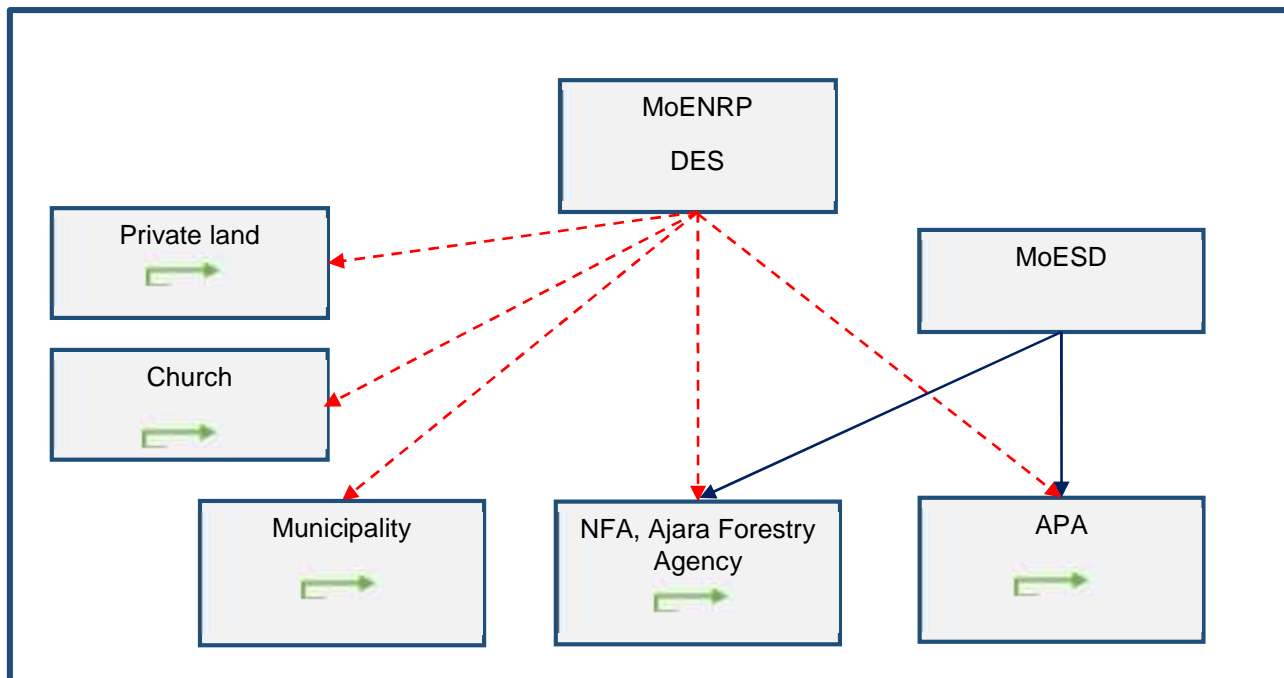
In this scenario, Emerald sites that fully or partially coincide with the APA, are managed by APA; sites which fully or partially coincide with NFA territories, are managed by the NFA. Emerald sites in Tusheti are managed by the municipality.

The sites overlapping with MoESD land can be transferred either to the NFA or APA, depending on their proximity to either of those agencies. The management functions for the transferred lands should be performed by the respective agencies.

The church is supposed to manage Emerald sites overlapping with its territory (this currently only applies to one site – David Gareji) and the DES has to supervise the activities of the church. In cases where a site is overlapping with private land, there are two possible options for management: either the private owner should sell the land to the state for management by the latter, or the state should provide some incentives to the private owner to sustainably manage the site. In the latter scenario, the private land owner has the responsibility for managing the site and the DES should supervise the private owner's actions.

The DES has a supervision mandate for all types of sites. Supervision of Emerald sites on private lands, church lands and transferred lands is an additional task for the DES.

Division of sites into categories has significant cost implications for stakeholders. For sites managed by the APA or NFA, there is less potential for conflicts of interests with other stakeholders such as private businesses, the Ministry of Energy, the Ministry of Regional Development and Infrastructure and farmers. At the same time, for sites which coincide with PAs, the incremental costs are going to be relatively low because entrepreneurial activities were restricted at those locations before the introduction of the Emerald Network. The incremental benefits for the latter are also going to be relatively low because the conditions for conservation of species and habitats are presumably good at protected areas.

The highest incremental costs are expected for sites located on private land, the land of the church and state land. Since conservation activities were not performed at those places before, the establishment of an Emerald site generates additional responsibilities and thus higher costs for the respective managing bodies. The opportunity costs for private businesses and local communities are the highest in this category of sites, because there is more chance that some entrepreneurial activity is likely to be restricted on an Emerald site. There might be cost implications for the local community if, after the establishment of the site, locals are restricted in the commercial use of some products (e.g. non-timber products). Moreover, the execution of the law might be

difficult on this category of sites. The risk of strong opposition from interested parties to the designation of those kind of areas as Emerald sites is higher.

In order to minimize potential negative outcomes in cases where sites overlap with private land it is recommended to create incentives for the private sector to implement conservation actions. In order to achieve private land conservation, there are a wide range of incentive mechanisms that can directly or indirectly encourage landowners to change their behavior.

Incentives can be classified as positive or negative incentives (disincentives). Positive incentives aim to motivate landowners to conserve biodiversity under their private property, while negative incentives discourage private owners from performing harmful activities. Taxes, fines and fees are examples of negative incentives. The incentive mechanisms for private land conservation can be divided into three groups: financial incentives, social and ethical incentives, and other types of incentives, including legal tools (see Figure 16). Some mechanisms can be attributed to two or three of these groups.

Figure 17. The typology of incentive mechanisms for the private sector

Financial Incentives

Subsidies
Compensation payments
Taxes, charges
Mitigation and offsetting
Private funding

Land stewardship

Labelling
Certification

Social and Ethical Incentives

Information campaigns
Public recognition

Volunteer Involvement

Tax breaks
Insurance and liability
Safe harbor agreements

Other incentives, legal tools

Right of first refusal
Conservation easements
Conservation leases
Privately protected areas

Source: This diagram was adapted from Disselhoff, 2015[34]

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[34] Disselhoff T. (2015), Alternative Ways to Support Private Land Conservation. Report to the European Commission, Ref. No: E.3-PO/07.020300/2015/ENV. Retrieved from:

Financial incentives can be created in different forms such as subsidies, compensation payments and taxes. Charges and fees attached to biodiversity damaging activities represent the costs of an action; in other words, policy makers put a price on activities that harm the environment and charge violators this price. Accordingly, rational individuals are likely to adopt the behavior that costs them the least. Even though financial incentives can be easily influenced by public policy, they are not often the main instruments for private land conservation. The reason is that such instruments rely on price signals and they cannot prevent overexploitation. Interestingly, there are no tax laws in the EU that are explicitly linked to private land biodiversity conservation. Financial incentives such as compensation payments/environmental subsidies are the most common instruments used in EU countries.

Social and ethical incentives, such as information campaigns and public recognitions, are non-monetary incentives for private landowners to conserve biodiversity under their property. Such incentives encourage landowners to manage biodiversity resources sustainably and this generates a sense of responsibility. For instance, one way to create incentives for private stakeholders is to appreciate their activities in public. This can be achieved by labelling that shows a company's commitment. In times of constrained public budgets, non-monetary incentives enable policymakers to encourage private landowners to conserve biodiversity without increasing public subsidies.

Other incentives, such as legal tools, can be employed to encourage private landowners to conserve biodiversity. In some countries, enabling legislation to designate Privately Protected Areas (PPAs) represents the main tool for fostering private land conservation. Nowadays, only a few countries in the EU formally recognize PPAs as a conservation category: Portugal, Slovakia and Belgium. Other countries do not mention the possibility of designating private properties as PPAs, but allow it implicitly. However, thus far there is no explicit definition of PPAs and their functions. Conservation easements, conservation leases and tax reliefs are the main legal tools for creating incentives for private land conservation.

Establishment of management units for Emerald sites

The management of Emerald sites requires the creation of management units that will be responsible for the daily management and control of sites, the prevention of encroachment/poaching, public relations and the support of monitoring activities.

The typical management unit includes two specialists with field equipment (GPS, binoculars, uniforms) and a vehicle. The management unit should be provided with an operational budget and office space. Since the management unit represents the MoENPR, which has administrative units in all regions of Georgia, the same office space might be shared with the management unit. This unit could execute the basic management activities for one or a meaningful combination of Emerald Sites based on their proximity to each other.

The size of the management unit depends on the size of the site and its location. For small sites coinciding with the APA, there is no need for two additional hires. For these types of site the management duties will be performed by existing administrations in the APA and this would merely require training and capacity building for existing staff. Operational costs also vary depending on the size of the site. Additional human resources would be needed on the central level at the MoENRP to ensure the compliance of the system with international standards.

Development of management plans for Emerald sites

Conservation Area Management Plans are short documents which address issues specific to individual conservation areas. The management plan is a working document that informs strategies for managing each of the conservation areas. Management plans should include mid- to long-term strategies and objectives for addressing the issues and recommendations arising from the conservation area appraisal. Currently, management plans have been developed for some protected areas and NFA territories, but not all areas have such plans. If there is a management plan available, then the introduction of an Emerald site might just require

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http://ec.europa.eu/environment/life/publications/lifepublications/generalpublications/documents/support_land_conservation.pdf

the modification of the existing plan, which is less costly than the development of a completely new one. The cost of developing management plans varies depending on the following:

1. If the candidate or proposed Emerald site coincides with APA, NFA or municipality territories that already have management plans, then the cost of developing an Emerald management plan will be the lowest because the existing management plan(s) will be modified.
2. If the candidate or proposed Emerald site coincides with APA, NFA or municipality territories that do not have management plans, then the cost of developing an Emerald management plan is higher than in the previous case.
3. The highest costs are expected for those sites which do not coincide with APA or NFA territories and thus require full development of management plans.

Introduction of EAIAs

The Environmental Assessment Code regulates the rules for conducting screening and scoping activities as well as EIAs. The code classifies activities into two categories: activities requiring screening (which are listed in Annex 1 of the code) and activities requiring an EIA (listed in Annex 2 of the code). As a result of the screening, some activities might not require an EIA, whereas others might be required to present the results of an EIA.

Once the Emerald Network is introduced, any activity that can have a potential impact on one or more Emerald site, irrespective of the distance to the site(s), must be screened. When the result of the screening cannot unambiguously exclude obvious reasons that the activity might cause a significant impact, then an EAIA has to be undertaken. If the EAIA results in a significant impact, then the activity is not permissible.

Since the types of activities requiring screening and an EIA are predefined by the code, these were used as the basis for evaluating the number and type of companies that will be required to conduct an EAIA.

Capacity building of Emerald sites' managing bodies

The managing and supervisory bodies of Emerald sites should be trained to ensure proper management of Emerald sites. The decentralized management of Emerald sites implies relatively high costs for the capacity building of managing bodies, because in this scenario each type of owner manages its site and the owners differ in terms of their experience of managing conservation areas: the APA has the greatest experience in implementing conservation activities, whereas the church and private owners are the least experienced. The NFA and municipality are less experienced than the APA, but more experienced than the church and private sector.

Risks

The major risk associated with the option is related to the weak enforcement of the law, leading to biodiversity loss. Due to unfavorable socio-economic conditions and the low level of awareness of the population about the benefits of preserving biodiversity, paired with insufficient human and capital resources owned by the state to monitor the execution of the law, there is a risk that natural resources will continued to be overexploited in spite of the introduction of the law. This risk is more prevalent for Emerald sites that do not coincide with protected areas. There is a risk that private actors, the community and the church will not manage the sites properly, either intentionally or unintentionally.

The second risk is a potential conflict with other (legitimate) development objectives, plans and projects related to infrastructure and urbanization, as well as the modernization of agriculture (which is a major reason for biodiversity loss in Western countries). Potential conflicts between economic development and environmental protection might create tension between various groups of stakeholders, at least in the short run.

There might be negative social consequences and conflicts (especially in the short run) with the achievement of other SDGs. Even if people abide by the law and there is strong enforcement, there might be significant (negative) social impacts for marginalized groups with a potential increase in poverty and rising under-nutrition.

Certain stakeholder groups (e.g. hunters, land owners, land users, license holders, and the tourist industry) might be resistant to follow the new regulations regarding biodiversity. There might be a general resistance to changing bad habits in the population as well.

Furthermore, as suggested by several stakeholders during the consultation process, one of the issues concern the formulation of the draft law. This may create ambiguity and allow multiple interpretations or leave gaps preventing its most effective application. All this would have a significant influence on the performance of the law. From the RIA perspective, this ambiguity may cause a large variation with the actual results seen in the future.

Finally, there is a risk that future governments might not be committed to protecting biodiversity. Since each government has its priorities, there is a risk that if a change of government occurs in the future, priorities will also change.

All these risks could be minimized by a consistent effort to share the goals of the reform with the public and to maintain a high level of transparency with regard both to the process of choosing among different alternatives and to the future phases. Full access to all available and relevant data should be provided to all relevant stakeholders (at both the local and national levels) and to all interested citizens and organizations.

OPTION 2 – CENTRALIZED MANAGEMENT OF EMERALD SITES BY THE APA

The second option is similar to the first in terms of major characteristics (the five characteristics described above), but it has two additional features:

- Expansion of the APA's mandate to manage all Emerald sites
- Additional human resources needed for the APA to manage all sites

Graphically this scenario can be represented as follows:

Figure 18. Option 2 – Centralized management of Emerald sites by the APA
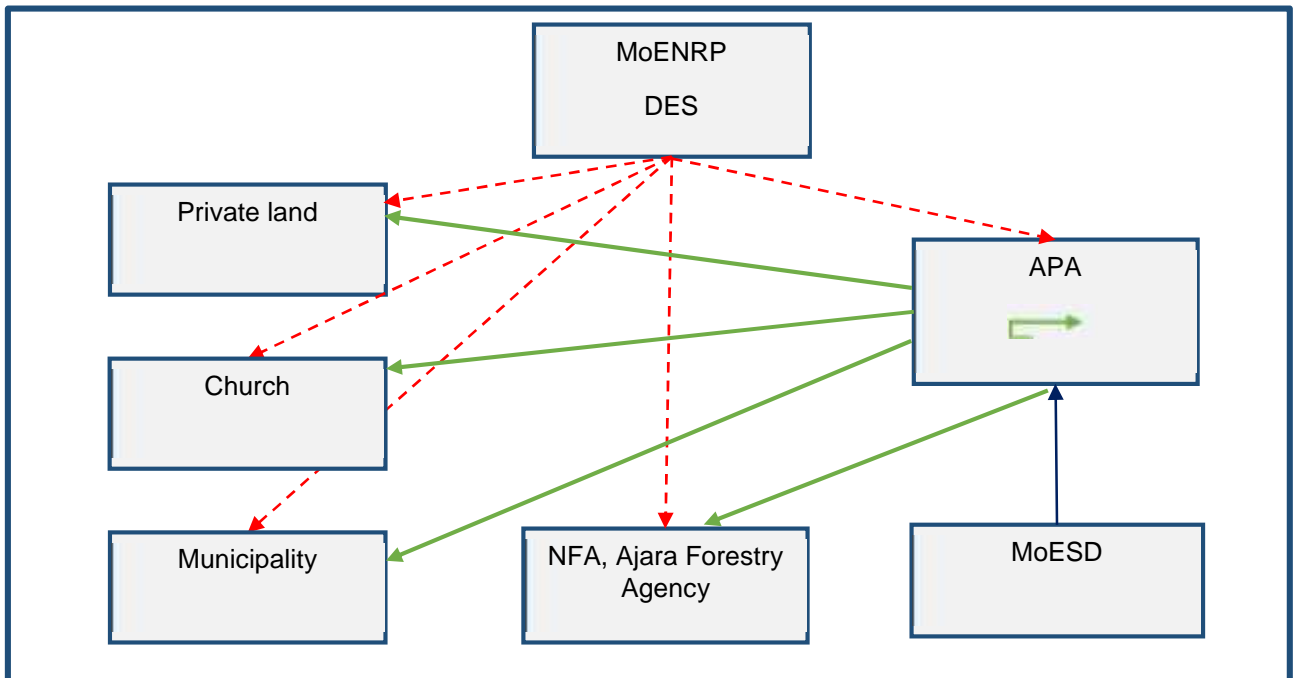
Expansion of the APA's mandate to manage all Emerald sites

In this option, the APA manages all Emerald sites, irrespective of their location. Since the APA has experience of managing PAs it should be relatively easy for it to manage the Emerald sites if additional human and financial resources are made available. However, there might be conflicts of interest at sites overlapping with NFA territories and in the municipality where the NFA and the municipality have a mandate. The APA might also face difficulties in managing sites which overlap with private and church lands.

In this scenario, the MoESD should transfer its land to the APA.

Additional human resources needed for the APA to manage all sites

The APA's staff should be increased in this option because the current number of employees is hardly enough to manage the existing PAs. If the APA is tasked with the management of Emerald sites as well, the new management units are assumed to be formed of the APA's employees.

Risks

The major risk associated with the option is the potential for double management in NFA and municipality territories. In cases where sites overlap with NFA and municipality land, there might be confusion regarding the division of tasks.

There might be a potential conflict with other (legitimate) development objectives, plans and projects related to infrastructure and urbanization, as well as the modernization of agriculture (which is a major reason for biodiversity loss in Western countries). Potential conflicts between economic development and environmental protection might also create tension between various groups of stakeholders, at least in the short run.

There might be negative social consequences and conflicts (especially in the short run) with the achievement of other SDGs. Even if people abide by the law and there is strong enforcement, there might be significant (negative) social impacts for marginalized groups with a potential increase in poverty and higher under-nutrition.

Certain stakeholder groups (e.g. hunters, land owners, land users, license holders, and the tourist industry) might be resistant to follow the new regulations regarding biodiversity. There might be a general resistance to change bad habits in the population as well.

Furthermore, as suggested by several stakeholders during the consultation process, one of the issues with the draft law is its formulation. That may create ambiguity and allow multiple interpretations or leave gaps preventing its most effective application and could have a significant influence on the performance of the law. From the RIA perspective, this ambiguity may cause a large variation with actual results seen in the future.

Finally, there is a risk that future governments might not be committed to protecting biodiversity. Since each government has its priorities, there is a risk that if a change of government occurs in the future, priorities will also change.

The first (major) risk could be minimized through consultations and discussions with the APA, NFA and municipality representatives. Joint discussion regarding the management of Emerald sites will improve the process.

All other risks could be minimized by a consistent effort to share the goals of the reform with the public and to maintain a high level of transparency with regard both to the process of choosing among different alternatives and to the future phases. Full access to all available and relevant data should be provided to all relevant stakeholders (at both the local and national levels) and to all interested citizens and organizations.

7. ANALYSIS OF IMPACTS

7.1 METHODOLOGICAL APPROACH

The methodology applied in the (efficiency-focused) analysis of the impacts is a Cost-Benefit Analysis (CBA), coupled with a qualitative analysis of impacts that were not quantified because of time and data constraints. The analysis focuses on the monetization of costs, but does not quantify the benefits[35] of biodiversity due to the complex nature of the topic. Even though it might have been possible to have opted for a strategy in which potential biodiversity gains are estimated by projecting the Total Economic Value (TEV) of ecosystem services, we decided against this option for the following reasons:

- Low levels of awareness on the importance of biodiversity among the population of Georgia. There is low awareness about the concept and value of biodiversity in society, which makes it difficult to use TEV as usually applied to estimate the benefits of environmental goods and services.
- There is no general consensus among biodiversity specialists about the range and scale of the species within ecosystems or about ecosystem functions and services. This makes the estimation of the direct and non-direct use values in TEV challenging.
- There is insufficient original data to estimate the benefits of biodiversity for Georgia.
- Since the draft law is just one of the elements in the regulatory framework on biodiversity, it is challenging to devise a proper attribution strategy for the allocation of biodiversity benefits to this draft law.

The qualitative CBA represents the efficiency-focused part of the Multi-Criteria Analysis (MCA) used to assess how each option performs against a number of criteria. The final choice of option depends on all the criteria listed in the MCA table.

The proposed regulation is expected to affect the following stakeholders:

- Public sector representatives owning and/or operating (or considering operating) on candidate Emerald sites.
- Private sector representatives owning and/or operating on candidate Emerald sites.
- Regular citizens owning and/or operating on candidate Emerald sites.
- Central and local government bodies responsible for the development of management plans, conservation measures, monitoring, etc.
- Civil organizations and NGOs interested in biodiversity conservation that might participate in the management of Emerald sites in the future.
- Research organizations studying Emerald sites and participating in the development of management plans.
- Other citizens affected by the changes, either positively (an increase in biodiversity) or negatively (indirect negative impacts associated with the reform).

The novelties of the law translate into a set of incremental changes to the activities of various stakeholders, as well as resulting in additional obligations and costs and benefits (both monetary and non-monetary) for them. Thus, for each stakeholder group the costs and benefits of the regulation are evaluated both qualitatively and quantitatively where possible.

The analysis relies on data from the following sources:

- GeoStat
- The National Bank of Georgia
- The MoENRP
- Statistical data from other countries and international organizations
- Expert opinions
- Other publicly accessible information

The time horizon of the analysis is 12 years, covering the period 2017-2028. The discount rate used in the analysis is 9.09% (i.e. the nominal return on 10-year government bonds). Sensitivity analysis is performed at 6.95% and 11.22%.[36] The Present Value (PV) of costs is calculated for respective stakeholders in both

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[35] It should be noted that avoiding the quantification of benefits does expose the reform to critique and it might make it more vulnerable.

[36] Central value ± 1.96 standard deviations, corresponding to the boundaries of 95% confidence interval.

scenarios – Option 1 and Option 2 – using the above-mentioned discount rates. Only incremental costs associated with each option are considered in the analysis.

It is assumed that all candidate and proposed sites are designated by 2020 in both options.

The robustness of the results is tested in alternative scenarios that differ in terms of the speed at which Emerald sites are established.

7.2 ANALYSIS OF IMPACTS

The impacts of the selected options are summarized below.

Table 11.Summary of impacts of selected option

| IMPACT	BASELINE SCENARIO	OPTION 1	OPTION 2
Administrative/ State budget	**Current government spending on biodiversity conservation is relatively low because neither the APA nor the NFA and DES have enough human and financial resources to ensure biodiversity conservation.** **However, in the event of violating the BC and AA, indirect costs (e.g. withholding of EU funds) might arise due to non-compliance.**	**The reform has both positive and negative effects on the state budget.** **On the positive side, as the Emerald Network expands, state revenues from ecotourism are expected to increase. All business activities taking advantage of improved ecosystem services should be benefiting from the reform and indirectly contributing to the budget by paying higher taxes.** **On the negative side, there are public administrative costs which include:** • **Site designation, including scientific studies, administration, consultation, etc.** • **Establishing and maintaining management bodies** • **Preparation and review of management plans** • **Public communication and consultation** • **Spatial planning** • **Permitting and development controls** • **Research, surveys and monitoring** • **Investigation and enforcement** • **Compensation for the loss of income (e.g. restrictions of land use like grazing, intensive agriculture)** **The overall effect depends on magnitude of the positive and negative sides.**	**The expected impacts are similar to Option 1, but in Option 2 government costs are expected to be higher because management is undertaken by a government agency – the APA – whereas in Option 1, the church and private owners manage some sites themselves.**

Economic	Biodiversity conservation has both positive and negative economic impacts. On the positive side, ecosystem services generate jobs provided by the tourism[37], agriculture, forestry and fishery sectors. On the negative side, some economic opportunities are forgone when the EIA proves that the project generates a negative environmental impact. Apart from this, occasionally the population experiences damages caused by protected species, including large carnivores and fish-eating birds.	Biodiversity conservation leads to an increased availability of ecosystem services, which are a source of employment and income for the private sector and the general population. The reform is expected to have significant economic impacts, which can be divided into positive and negative dimensions. On the positive side, there are increased employment opportunities generated through one-off and recurring conservation management and monitoring actions, as well as jobs provided by the tourism, agriculture, forestry and fishery sectors. A relatively minor effect is expected on employment in the pharmaceutical and education/science sectors. The revenues for businesses involved in these sectors are expected to increase, as well	The expected impacts are qualitatively similar to those discussed in Option 1, but in Option 2, the overall management cost of Emerald sites is lower because one agency performs all of the management tasks. In Option 1, private owners are supposed to manage the sites and each owner has to incur some cost, which increases the overall management cost.

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[37] According to the tourism sector statistics, in recent years Georgia is attracting more and more tourists. The latest data show that in January 2018 the number of international arrivals in Georgia amounted to 444,241, showing an increase of 14.8% compared to the same period of previous year. For the first three quarters of 2017, tourism accounted for 7% of Gross Domestic Product of the country. While the tourists' interest towards Georgia cannot be fully attributed to the beauty of Georgian nature, the latter plays an important role in attracting tourists.

as the incomes of the population employed in them. Sustainable management of natural resources leads to the increased productivity of economic agents in the <u>long run.</u>
Avoidance of costs related to disasters through regulating services, such as the prevention of erosion, landslides, avalanches, etc., also saves funds for the state, private sector and community.

On the <u>negative side</u>, there might be the following costs:

Opportunity costs:

- **Economic opportunities forgone as a result of site and species protection, including any potential effects on output and employment.**
- **A slowdown of some existing economic activities resulting from site and species protection and any potential effects on output and employment.**
- **Restrictions on economic output (e.g. agricultural and forestry production) resulting from species and site protection measures.**
- **Restrictions on other activities (e.g. recreation, hunting) resulting from species and site protection measures.**

Damages caused by protected species, including large carnivores and fish-eating birds.

The following private administrative costs and burdens are expected:
- **Time and fees involved in applications and permitting process when a proposed activity is related to an Emerald site.**
- **Conducting Appropriate Assessments and Emerald Impact Assessments, including surveying and evidence gathering.**

		• The time and fees involved in compliance with species protection measures. • Applications for permits and derogations. • Delays and uncertainties relating to permitting processes.	
Social	On the <u>positive side,</u> there is a favorable effect on the livelihoods of the rural poor, who are mostly involved in agriculture and depend on biodiversity in terms of food and raw materials. Other positive social impacts include the impact on health through the availability of fresh air. There are recreational benefits generated to the population through the availability of green spaces. Other cultural services – such as aesthetic, spiritual values, cultural heritage and sense of place – are also considered as important social benefits. There are no <u>negative</u> social outcomes of biodiversity conservation.	The expected social impacts of this reform are numerous and are potentially both positive and negative. On the <u>positive side</u>, the benefits are qualitatively the same as in the baseline scenario, but would occur at a higher magnitude reflected in more sustainable livelihoods in the long run. On the <u>negative side,</u> since access to some natural resources might be restricted by the law, in the short run this might worsen the socio-economic conditions of <u>marginalized groups</u> of society who use natural resources for commercial purposes. Demand might arise for targeted state support policies in the short run if the losses for marginalized groups are substantial. However, in the long run the sustainable use of natural resources will lead to more stable livelihoods.	The expected impacts are qualitatively similar to those discussed in Option 1.
Environmental	The Environmental impacts of biodiversity conservation are substantial and are reflected in the following: • Regulating services – regulation of water quality and flows, climate, air quality, waste, erosion, natural hazards, pests and diseases, and pollination. • Supporting services – soil formation and nutrient cycling.	Option 1 has higher positive impact on species and habitats due to additional protected areas (i.e. Emerald sites). This is the main purpose of the law compared to the baseline scenario.	Option 2 has even higher positive impact on species and habitats than both the baseline scenario and Option 1, because the APA is expected to manage Emerald sites better (providing higher quality management) than other managing bodies.

	There are no negative environmental impacts associated with biodiversity conservation.		
Private Sector	**Current regulations formally restrict the implementation of environmentally harmful projects, but business development projects are often given higher priority than biodiversity conservation. In practice, this results in almost unrestricted business activities and only formally conducted EIAs.**	**On the positive side, private bodies managing Emerald sites can benefit from various monetary and non-monetary incentive mechanisms offered by the government in exchange for biodiversity conservation. There are also additional opportunities for private companies in the fields of assessment and monitoring and for the various sectors depending on availability of natural resources (agriculture, tourism, etc.)** **On the negative side, higher costs for private owners are expected compared to the baseline scenario, because private owners have to incur management costs.**	**There are lower costs for the private sector in Option 2, because the sites are managed by the APA.**

High impact	Medium impact	Low impact
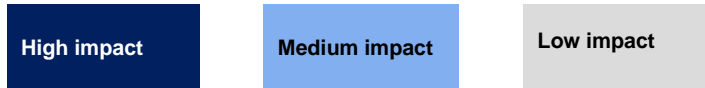
7.3 COST-BENEFIT ANALYSIS

It is assumed in the analysis that economic trends are exogenous to the reform. This allows us to produce more reliable estimates of the costs associated with selected options while the benefits are not quantified in the analysis.

OPTION 0 – BASELINE SCENARIO

We do not quantify any costs associated with the baseline scenario. Instead, we focus on the quantification of the incremental costs of Options 1 and 2 that are assumed on the basis of the collected information.

OPTION 1

In this scenario, it is assumed that three candidate Emerald sites were designated as Emerald sites at the end of 2017. It is further assumed that 31 candidates become designated in 2018, and, out of the remaining 21

candidates, 10 are designated in 2019, and the remaining 11 are designated in 2028. Since there is no information about the designation order of sites in the period 2019-2020, it is assumed that the area of the Emerald Network will increase proportionally to the number of sites added (10 and 11, respectively).

QUANTIFIED COSTS

- o *Private Sector[38]*
  - o **EAIA:** All companies that intend to undertake some economic activities on an Emerald site have to conduct an EAIA. The initial cost of such an assessment is 28,688 GEL[39] in 2017, but gradually increases up to 38,554 GEL in 2028 due to inflation.
  - o **Management units:** Depending on the size of the site, each site has a management unit consisting of at least one person. There are two sites (the Chorokhi delta and Kotsakhura) which overlap with private and community lands. The number of private company representatives responsible for managing an Emerald site is five. There are three companies responsible for the management of an Emerald site until 2020 and from 2020 onwards there are five companies managing Emerald sites.
  - o **Operational budget:** The size of operational budget needed for conservation activities was derived based on the current spending of the APA on conservation activities. The budget size varies depending on the site area.

- o *Community*
  - o **Management unit:** It is assumed that each household whose land overlaps with an Emerald site assigns one family member to manage the site. More than 50 households were identified on the territory of the Kotsakhura site (there are no households at the Chorokhi Delta site) and, based on this, it is assumed that there will be at least 50 community representatives responsible for site management.

- o *Public Sector*
  - o **Additional personnel costs on the central level:** Two additional hires were made in 2017 at the central level to ensure that there is a dedicated staff at the Ministry to work on Emerald Network-related issues.
  - o **Additional personnel costs:** Additional monitoring officers are hired at the municipality level and at the mayor's office for sites which overlap with private, state and community lands (the Chorokhi Delta and Kotsakhura sites).
  - o **Capacity building of the APA, NFA, private sector and community:** The private sector and community will be trained until 2020, whereas the APA is trained annually, and NFA staff are trained twice a year.
  - o **Management units:**

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[38] When calculating the expected number of companies that will have to conduct an Emerald Impact Assessment, only companies operating in seven sectors of the economy were taken into account. The choice of the sectors was based on the requirements given in the draft Law on Biodiversity and on the historical data on Environment Impact Assessments conducted during the period 1995-2017. Given the data on the activities for which Environment Impact Assessments were conducted, the seven different sectors of the economy considered as potentially requiring Emerald Impact Assessments were mining and manufacturing; electricity and natural gas; water production and distribution; construction; agriculture, hunting and forestry; fishing and fish-breeding; and transport and communication. The sectorial structure of companies operating in each region of Georgia was taken from 2015 statistics and served as the initial structure of the economy in each region.

The average growth rate in the number of the companies in each sector in the 2012-2017 period was used to calculate the expected number of companies in the seven economic sectors of interest for the projected period. It is assumed that the territorial distribution of companies within each separate region is uniform and will stay as such for the next ten years. It is assumed that if an Emerald site constitutes x% of the total area of the region, the same proportion of companies in the region would require an EAIA.

[39] It is assumed that an assessment requires two people (one biologist and one expert) and one week of field work. The total cost includes their remuneration, accommodation and per diem.

- o *Additional personnel*: each management unit has at least one monitoring officer depending on the site area.
  - o *Equipment and uniform costs:* every monitoring officer gets a pair of binoculars and a GPS device when starting the job. Their uniforms are replaced every year.
  - o *Vehicle:* a new pick-up truck will be purchased in 2018 and a new vehicle added once every three years.
  - o *Operational budget:* operational costs are proportional to the area and equal 11.2 GEL/ha for sites which do not coincide with PAs.
- o **Management plans for Emerald sites:** A management plan is required for each of the Emerald sites. The costs of developing management plans vary from 21,250 GEL[40] (8,500 USD) to 102,500 GEL (41,000 USD), depending on whether the site coincides with a PA or forest and whether the PA and forest already have management plans.

In general, the most cost-intensive activities for the public sector would be habitat restoration measures, which are partially reflected in the operational budget. Other unpredictable costs would be linked to compensation for the loss of income (e.g. restrictions of land use for grazing or intensive agriculture). These costs are not quantified in the analysis due to uncertainty.

UNCERTAINTIES

Additional costs for the Emerald Impact Assessment paired with uncertainty in the permitting process are likely to generate specific outcomes for businesses.

According to the draft law, projects with very high importance for society can be implemented on Emerald sites, even if they have a negative impact on species and habitats, when there is no other alternative. Thus, if the social benefits outweigh the adverse impact on species and habitats and there is no alternative to implement the business activity, it will be implemented on the site. Since the criteria is very general and it is not clear what is meant by high social importance, the following consequences for businesses are expected:

- There might be companies that would require compensation if they already operate on Emerald site and have to close or downscale their activity. If the size of the compensation is equal to the profits forgone, then there is no change in the overall outcome for society.
- There might be companies willing to start their activities on Emerald sites and ready to pay compensation to the government because the estimated potential profits from business activities are higher than the compensation paid to the government. This is an efficient outcome for society because if the company pays compensation, it internalizes costs.
- There might be companies that decide not to propose potentially profitable projects because of the high initial costs spent on research (assessments) and because of the uncertainty in the approval process. This is an inefficient outcome for society because profitable opportunities are not pursued. In order to avoid this outcome, the government might consider giving some concessions to small businesses. However, it should be mentioned that in the long run these restrictions do support the planning process in the sense that the potential negative impacts of activity are minimized beforehand. The result in the long run is positive for society because the degree of sustainability increases.

Apart from this, there is uncertainty regarding the type of conservation activities that the private sector should perform on sites overlapping with private lands. However, since in this scenario the private actor is responsible for managing the site, he/she should be involved in the management plan development process right from the beginning, thereby reducing overall uncertainty.

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[40] Based on experts' estimations.

OPTION 2.

In this option, all Emerald sites are managed by the APA. This implies zero management costs for the private sector and the community. In this scenario, the government does not need to train the private sector or the community, but has to focus on the APA's capacity building.

QUANTIFIED COSTS

- o *Private Sector[41]*
  - o **Emerald Impact Assessment:** The cost of assessment is the same as in Option 1.

- o *Public Sector*
  - o **Additional personnel costs on the central level:** The same as in Option 1.
  - o **Additional personnel costs:** Additional monitoring officers will be hired at the municipality level and the major's office for sites which overlap with private, state and community lands (the Chorokhi Delta and Kotsakhura sites).
  - o **Capacity building:** Training costs slightly decreased because in this scenario private actors, the NFA and community representatives are not trained. Only the APA is trained, but the number of participants (APA employees) and thus the number of training sessions is increased.
  - o **Management units:**
    - o *Additional personnel*: This is higher than in Option 1 because all the monitoring officers would be employed by the APA.
    - o *Equipment and uniform costs:* This is higher than in Option 1 because additional personal should be properly equipped.
    - o *Operational budget:* This is also higher than in Option 1.[42]

  - o **Management plans for Emerald sites:** The same as in Option 1.

UNCERTAINTIES

In this option the uncertainties are qualitatively the same, but might be higher because in this scenario sites overlapping with private lands are managed by the APA. Uncertainly regarding additional requirements for the private sector might thus be even higher if private actors are not sufficiently informed and/or involved in the process of the Emerald Network development.

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[41] When calculating the expected amount of companies that will have to conduct an Emerald Area Impact Assessment (EAIA) or an appropriateness assessment companies operating in only seven different sectors of the economy were taken into account. The choice of the sectors was based on the requirements given in the draft Law on Biodiversity and on the historical data on Environment Impact Assessments conducted during the period 1995-2017. Given the data on the activities for which Environment Impact Assessments were conducted, the seven sectors potentially requiring Emerald Impact Assessments were mining and manufacturing; electricity and natural gas; water production and distribution; construction; agriculture, hunting and forestry; fishing and fish-breeding; and transport and communication. The sectorial structure of companies operating in each region of Georgia was taken from 2015 statistics and served as the initial structure of the economy in each region.
The average growth rate in the number of the companies in each sector in the 2012-2017 period was used to calculate the expected number of companies in the seven economic sectors of interest for the projected period. It is assumed that territorial distribution of companies within each separate region is uniform and will stay as such for the next ten years. It is assumed that if an Emerald site constitutes x% of the total area of the region, the same proportion of companies in the region would require an EAIA.
[42] The redistribution of operational budget between the private and public sectors has changed, but the overall operational budget did not change.

7.4 SUMMARY

The cost analysis shows that Option 1 is associated with higher incremental costs than Option 2, as compared to the baseline scenario. However, the difference is not dramatic.

Table 12. Summary of incremental costs and benefits

Impact Type	OPTION 1	OPTION 2
Present Value of Incremental costs (PV, mln. GEL)[43]	380.8	375.5
Qualitative impacts (if quantitative not possible)	**POSITIVE:** 1. Reduced risk of double management at sites coinciding with NFA and municipality lands. 2. No legal and practical burdens for management. **NEGATIVE:** 1. Lack of experience in managing protected areas in case of management by bodies other than the APA. 2. Lack of coordination between various managing bodies and lack of coherence in reporting. 3. Risk of lower protection for species and habitats, particularly at sites overlapping with private land. 4. Higher costs for private actors tasked with management of Emerald sites.	**POSITIVE:** 1. More sustainable management of natural resources. 2. Higher protection of species and habitats. 3. The APA is well represented throughout the country. 4. Better coordination and more coherent reporting. **NEGATIVE:** 1. Higher pressure on the APA's rangers. 2. Double management at municipality and NFA territories. 3. Legal and practical burdens for the APA when managing sites that do not overlap with PAs because of conflicts between the APA and other landowners (the NFA, church, municipalities and private owners).

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[43] This is total present value of incremental costs and reflects sum of costs incurred by private sector, community and public sector.

Figure 19.Comparison of the incremental costs of policy options by stakeholder groups
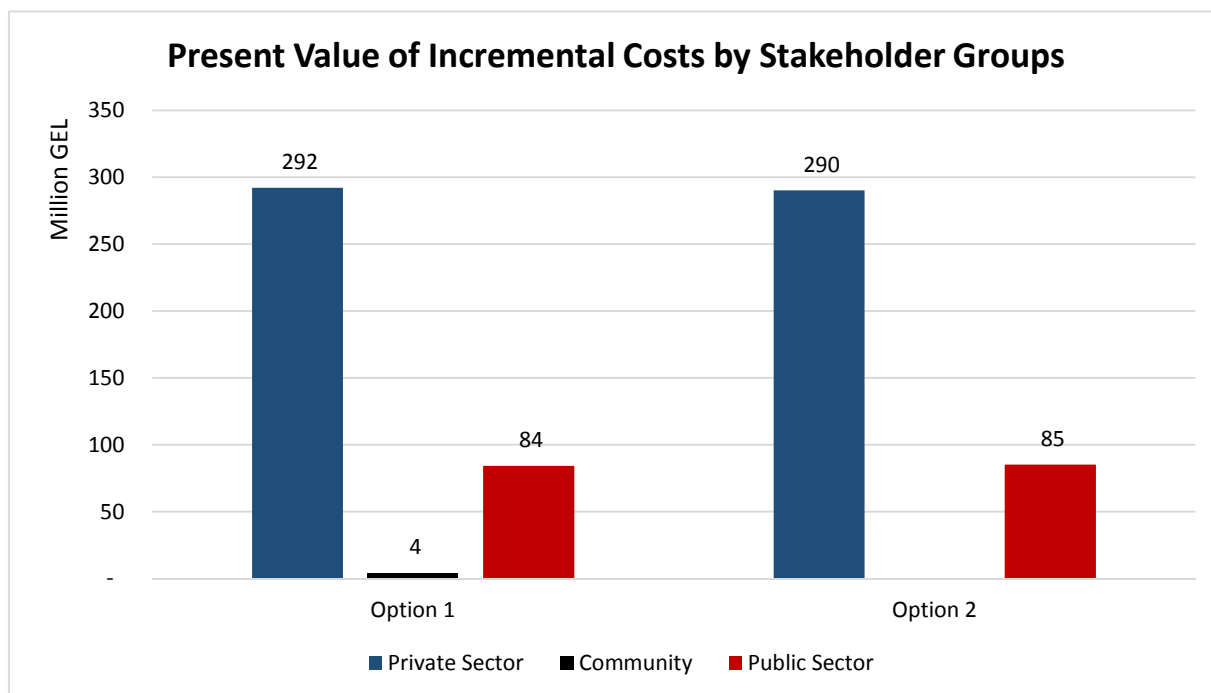
Table 13. Disaggregation of incremental costs by categories

Stakeholder	Present Value (GEL), Option 1	Present Value (GEL), Option 2		
Private sector costs			PV (GEL)	PV (GEL)
EAIA	290,150,884	290,150,884		
Operational budget	1,536,882	N/A		
Management units	502,524	N/A		
			292,190,289	290,150,884
Community				
Management units			4,255,333	N/A
	4,255,333			
Public sector				
Additional personnel on central level	247,940	247,940		
Management units attached to the sites	21,064,530	21,685,940		

Capacity building	3,768,195	2,471,299
Management plans	1,829,498	1,829,498

Figure 20. Distribution of incremental costs by year for the government in Option 1 and Option 2 (mln. GEL)

Public Sector Costs in Nominal Values

Figure 21. Distribution of incremental costs by year for the private sector in Option 1 and Option 2 (mln.GEL)
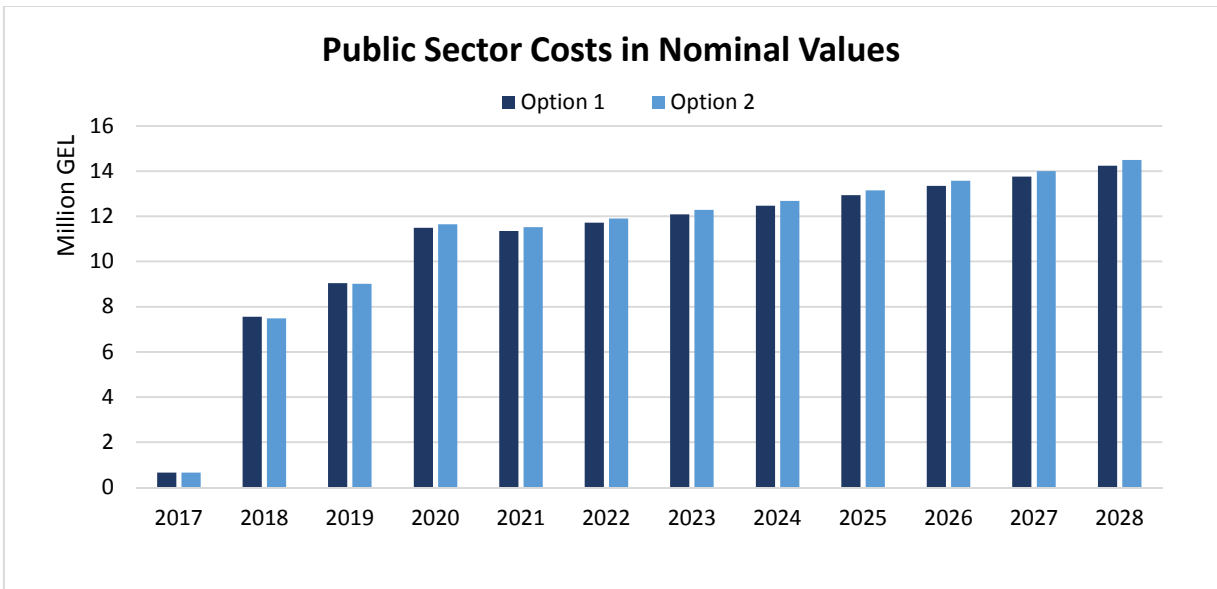
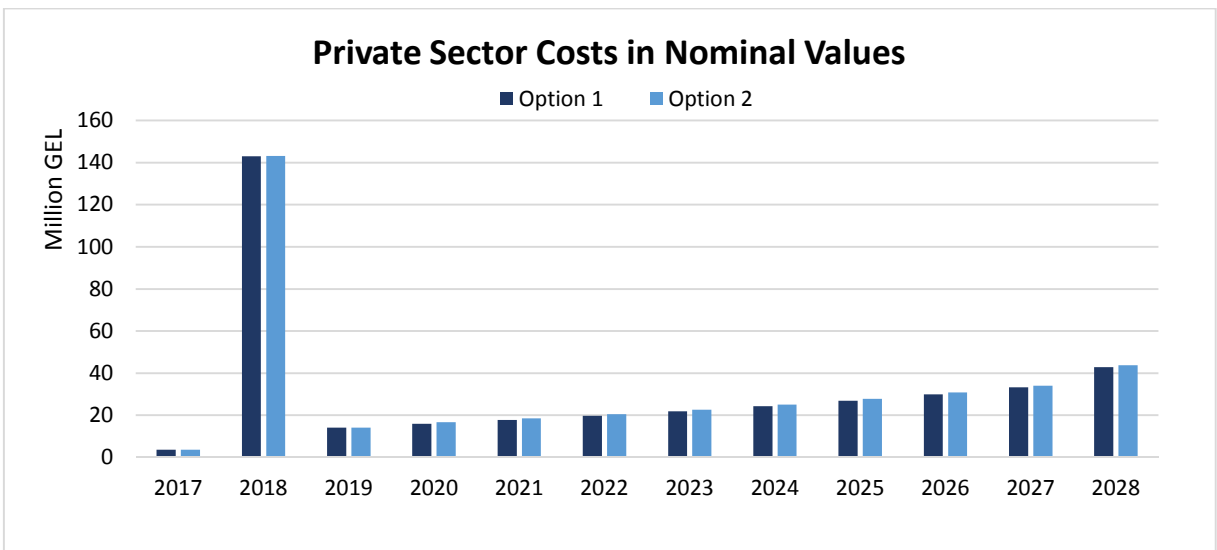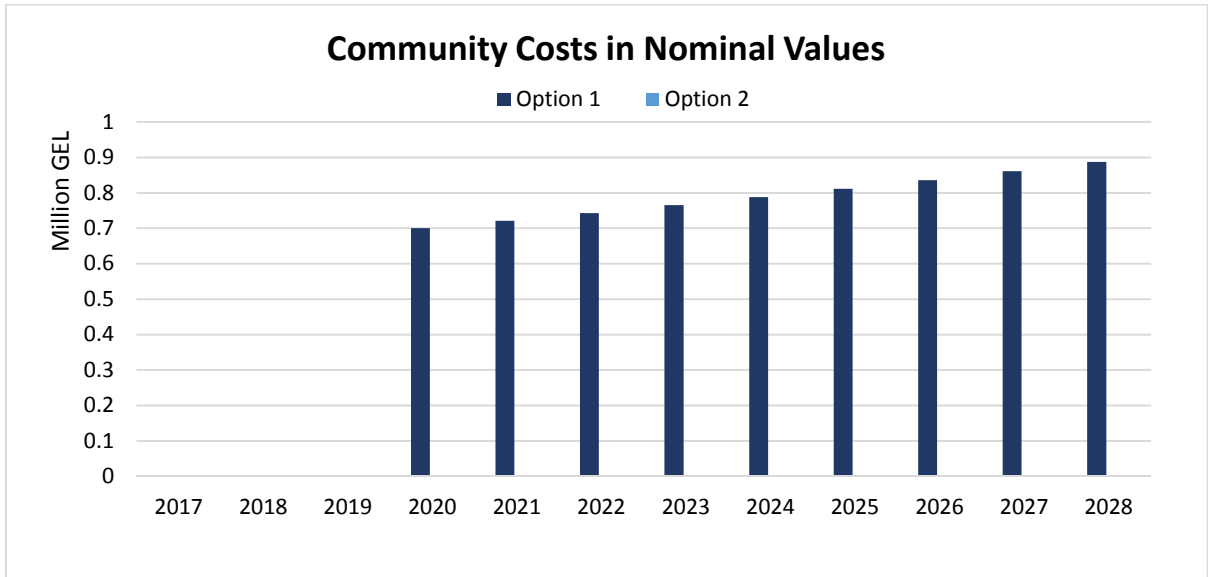**Private Sector Costs in Nominal Values**

Figure 22. Distribution of incremental costs by year for the community in Option 1 and Option 2 (mln. GEL)

Community Costs in Nominal Values

8. COMPARING THE OPTIONS

The selected options are compared based on the set of criteria developed by the research team in accordance with the objectives of the reform.

8.1 MULTI-CRITERIA ANALYSIS

While comparing the two alternatives to identify the preferred one, we considered a number of criteria in addition to PV. These are:

- Effectiveness against objective 1
- Effectiveness against objective 2
- Effectiveness against objective 3
- Effectiveness against objective 4
- Feasibility
- Mitigated conflict of interests
- Systemic efficiency
- Impact on business opportunities
- Impact on development opportunities
- Minimization of risks

Effectiveness: the capability to produce the desired results according to the objectives of the reform. The options' capability to achieve the following objectives:

1. Reduce direct pressure on biodiversity and ensure the sustainable use of natural resources.
2. Ensure the establishment of the Emerald Network with proper management plans and a conservation policy.
3. Fairly distribute the benefits received from access to and utilization of Georgian genetic resources and traditional knowledge among local community members and the holders of traditional knowledge.
4. Ensure that international trade in wild flora and fauna species does not endanger such species or their habitats.

Feasibility: ease of realization.

Mitigated conflict of interests: the capability to eliminate disagreements within existing managing bodies.

Systemic efficiency: utilization of existing human and capital resources.

Impact on business opportunities: constraints on certain business activities.

Impact on development opportunities: impact on sustainable development on Emerald sites in the long run.

Minimization of the following risks associated with the reform:
- Biodiversity loss
- Potential conflicts of interest with development projects
- Potential negative social consequences of the law
- Adverse impact on marginalized groups
- Ambiguity in the interpretation of the law and/or gaps preventing its most effective application
- Low commitment of future governments to protect biodiversity

Table 14. Comparison of options using MCA[44]

EVALUATION CRITERIA	OPTION 0	OPTION 1	OPTION 2
Incremental costs for private sector (PV, mln. GEL)	N/A	292	290
Incremental costs for community sector (PV, mln. GEL)	N/A	4	N/A
Incremental costs for public sector (PV, mln. GEL)	N/A	84	85
Effectiveness 1 – Sustainable management of natural resources	+	++	+++
Effectiveness 2 – Establishment of Emerald Network	-	+++	+++
Effectiveness 3 – Fair distribution of benefits from traditional knowledge	-	0[45]	0
Effectiveness 4 – Safe international trade in species	-	0	0
Feasibility / Ease of realization	+++	++	+
Mitigated conflict of interests	+++	++	+
Systemic efficiency	0	+	+++
Impact on business opportunities	+	-	--
Impact on development opportunities	-	+	++
Contribution to achieving SDGs	+	++	++
Minimization of risks	+	++	+++

8.2 PREFERRED OPTION

Option 1 is more costly than Option 2. Additionally, when assessed against other criteria (equally weighted), Option 2 outperforms Option 1 because it better satisfies the criteria related to the sustainable management of

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[44] Pluses and minuses in the table are used to rank the options.
[45] The option does not have an impact on the objective.

natural resources, systemic efficiency and risk minimization. However Option 2 is more difficult to implement than Option 1.

9. MONITORING AND EVALUATION PLAN

In order to track progress and evaluate the impact of the law, it is important to monitor how the indicators of the reform objectives (set in section 4) change. The indicators are divided into four categories – indicators which ensure the establishment of a protected area system and the Emerald Network; reduce direct pressures on biodiversity; fairly distribute the benefits received from access to and utilization of Georgian genetic resources and traditional knowledge among local community members and the holders of traditional knowledge; and ensure that international trade in wild flora and fauna species does not endanger such species or their habitats.

Table 15. Indicators of progress towards meeting the objectives

INDICATOR	FREQUENCY	RESPONSIBLE FOR MONITORING
1. Establishment of protected areas of international importance and the Emerald Network		
Developed the Law on Biodiversity and related bylaws	X[46]	MoENRP
Increased capacity of the staff of relevant governmental agencies; % of staff trained	Twice a year	MoENRP in collaboration with NGOs
% of trainees showing improvement in pre- and post-test scores	Twice a year	MoENRP in collaboration with NGOs
The list of protected species for Georgia	Annually	MoENRP in collaboration with NACRES
Number of indicators reported based on NBMS	Depends on the particular indicator	MoENRP
Number of management plans developed	Tied to the designation of Emerald sites	MoENRP
The list of Emerald sites, including appropriate management, monitoring and reporting tools, compatible with Natura 2000	Tied to the designation of Emerald sites	MoENRP in collaboration with NACRES
Total area of Emerald sites (ha)	Tied to the designation of Emerald sites	MoENRP
Number of Emerald sites with management plans and qualified personnel	Tied to the designation of Emerald sites	MoENRP in collaboration with NACRES
% of Emerald sites that are managed according to their respective management plans	Tied to the designation of Emerald sites	MoENRP in collaboration with research institutes and NGOs
2. Reduce direct pressures on biodiversity and ensure the sustainable use of natural resources		
% of companies actually presenting an EAIA out of the total number of companies required to present an EAIA	Quarterly, after enforcement of the Law on Biodiversity and Emerald site establishment;	MoENRP in collaboration with consulting companies

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[46] Once the Law on Biodiversity is enforced a few updates might be undertaken where necessary.

	Five years after the designation of Emerald sites, the indicator might be measured annually	
Amount of compensation paid by polluter	Quarterly	MoENRP
% of collected compensations used to deal with adverse effects	Quarterly	MoENRP
% of cases where an administrative or criminal prosecution took place out of the total number of incidents	Quarterly	MoENRP
% of cases in which the perpetrators actually paid fines	Quarterly	MoENRP
% of degraded forest area out of the total forest area	Annually	MoENRP
% of deforested areas out of the total area of forests	Annually	MoENRP
% degree of landscape change	Annually	MoENRP in collaboration with MoA
Amount of area under organic farming	Annually	MoENRP in collaboration with MoA
Number of assessments and economic instruments (including TEEB) ensuring biodiversity conservation and ecosystem services that are applied in decision making	Annually	MoENRP in collaboration with research organizations and NGOs

3. Fairly distribute the benefits received from access to and utilization of Georgian genetic resources and traditional knowledge among local community members and the holders of traditional knowledge

Existence of widely accepted checklists for major groups of genetic resources and the existence of a relevant framework benefits distribution	Y[47]	MoENRP in collaboration with research organizations and NGOs
Number of cases when the owner of traditional knowledge was remunerated	Annually	MoENRP in collaboration with research organizations and NGOs
% of Ministry staff using the electronic registry	Annually	MoENRP in collaboration with research organizations and NGOs
Number of reports produced with the help of the electronic registry	Annually	MoENRP in collaboration with research organizations and NGOs

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[47] The frequency of updates should be defined by the MoENRP.

4. Ensure that international trade in wild flora and fauna species does not endanger such species or their habitats.

Existence of an operational scientific body	N/A	MoENRP in collaboration with research organizations and NGOs
Export/Import figures on the trade in species	Annually	MoENRP in collaboration with research organizations and NGOs
Existence of electronic databases of fauna and flora	Annually	MoENRP in collaboration with the Revenue Service; research organizations; NGOs; experts
Number of trainings conducted on CITES	Twice a year	MoENRP in collaboration with research organizations; NGOs
% of staff trained and % of trainees showing improvement in pre- and post-test scores	Twice a year	MoENRP in collaboration with research organizations; NGOs

10. CONCLUSIONS AND RECOMMENDATIONS

Given the multidimensional nature of biodiversity, the draft Law on Biodiversity is a complex piece of legislation that has environmental, social and economic implications for the state, the private sector and the general community.

The RIA showed that the awareness of stakeholders about the major changes offered by the draft law is low because they are not sufficiently involved in the law-making process. There are also disagreements and concerns inside the Ministry's departments on the content of the draft law. The question of managing Emerald sites is open and opinions on which management option is better are divided.

The current study summarizes the feedback received from stakeholders regarding the draft law as a whole and offers a monetary assessment of the costs and a qualitative assessment of the benefits generated as a result of both a decentralized and centralized management of Emerald sites. Given the limited coverage of Emerald sites (Emerald sites do not cover even a fifth of the country and cover only a small fraction of Georgia's biodiversity and some select endangered species and habitats) and the importance of ecosystem services, the new law is insufficient and approaches for the whole territory are needed. Although ongoing reforms in the environmental sector have some elements of this already in the pipeline – such as the Forest Law, the introduction of a water framework directive and a marine strategy directive, and there is a possibly of a new law on impact assessment (which hopefully applies the polluter pays principle to 100% of the country) – subsidiary legislation has yet to be developed.

According to the RIA results, centralized management of Emerald sites is less costly and more efficient when all criteria used for the comparison of options are equally weighted. However, given that the centralized management of Emerald sites by the APA is likely to cause significant disagreements among other managing bodies (the NFA, church, municipality and private owners), one might consider giving greater weight to the feasibility criteria. The weights of other criteria might also need revision as the law-making process moves forward.

Since this RIA is a part of a process rather than a one-time exercise, it is expected that the current research be used by the Ministry to foster further discussions with stakeholders to lead to a refinement of the draft law as a result of such discussions.

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APPENDIX

Table A1. The list of candidate Emerald sites in Georgia

Sitecode	Emerald_Type	Emerald_Name	Emerald_Area (HA)
GE0000001	candidate	Lagodekhi	24451.14
GE0000002	candidate	Arkhoti	79786.33
GE0000003	candidate	Chachuna	5431.00
GE0000004	candidate	Madatapa	1398.13
GE0000005	candidate	Bugdasheni	119.32
GE0000006	candidate	Kolkheti	44604.83
GE0000007	candidate	Vashlovani	34741.80
GE0000008	candidate	Tusheti	114375.45
GE0000009	candidate	Kazbegi	9216.63
GE0000010	candidate	Borjom-Kharagauli	82957.59
GE0000011	candidate	Ratcha 1	14635.98
GE0000012	candidate	Svaneti 1	37389.34
GE0000013	candidate	Algeti	7124.63
GE0000014	candidate	Kintrishi	13676.24
GE0000015	candidate	Batsara	2985.96
GE0000016	candidate	Mtirala	15698.78
GE0000017	candidate	Khanchali	727.28
GE0000018	candidate	Ajameti	4838.76
GE0000019	candidate	Gardabani	3733.75
GE0000020	candidate	Mariamjvari	1022.55
GE0000021	candidate	Samegrelo	38838.38
GE0000022	proposed	Alazani	11611.54
GE0000023	candidate	Amtkeli	8078.46
GE0000024	proposed	Ilto	6971.44
GE0000025	candidate	Bichvinta-Miusera	23794.48
GE0000026	proposed	Goderdzi	51450.02
GE0000027	proposed	Gombori	65810.51
GE0000028	candidate	Gumista	13641.48
GE0000029	proposed	Kvareli-Shilda	25890.18
GE0000030	candidate	Liakhvi	6555.78
GE0000031	candidate	Machakhela	6103.07
GE0000032	candidate	Pskhu	25702.69
GE0000033	candidate	Ritsa	38079.20
GE0000034	proposed	Surami 1	27332.80
GE0000035	proposed	Artvisi valley	100.40
GE0000036	proposed	Dashbashi canyon	668.98
GE0000037	proposed	David-Gareja	0.26
GE0000038	proposed	Ktsia-Tabatskuri	22100.62
GE0000039	proposed	Prometheus cave	46.88

GE0000040	candidate	Ratcha 2	26649.02
GE0000041	candidate	Ratcha 3	11543.51
GE0000042	candidate	Ratcha 4	14305.18
GE0000043	proposed	Glianna cave	0.07
GE0000044	proposed	Samshvilde	475.00
GE0000045	candidate	Svaneti 2	45254.64
GE0000046	candidate	Kvernaki	12978.59
GE0000047	proposed	Saguramo	21037.70
GE0000049	proposed	Surami 2	11164.95
GE0000050	proposed	Surami 3	11488.70
GE0000051	proposed	Kotsakhura	38446.94
GE0000052	proposed	Surami 4	2992.30
GE0000053	proposed	Surami 5	4897.95
GE0000054	candidate	Chorokhi delta	2232.34
GE0000055	proposed	Kistauri	4397.04
GE0000056	candidate	Borjom-Kharagauli 2	18465.32

Table A2. Calendar for the implementation of the Emerald Network 2011-2020 according to the Bern Convention

Timing	Strategic issues	Phase I	Phase II	Phase III
2011-2012	• Update Res. 6 (1998) and Res. 4 (1996); Submission to the Standing Committee at its 31st and 32nd meeting (2011-2012), according to timely presented proposals. • Collection of background information on presence and distribution of species and habitats in collaboration with EEA. • **Development of guidelines on management, monitoring and reporting tools in**	• Negotiation of a Pilot projects for Tunisia; • Implementation of a second pilot project for Morocco; • Feasibility analysis for a second pilot project in Turkey and/or possible planning for completion of Phase I; • Negotiation of completion of Phase I in Bosnia-Herzegovina • **Completion of Phase I for Armenia, Azerbaijan, Georgia and Moldova through**	• Assessment of proposed Emerald sites in 6 West-Balkan countries: Albania, Bosnia-Herzegovina, Croatia, Montenegro, "the former Yugoslav Republic of Macedonia" and Serbia; gap analysis; • Negotiation with West-Balkan countries concerning possible designation of new ASCIs; • **Start of assessment of proposed Emerald sites for Armenia,**	

	line with existing Natura 2000's tools.	**the ENP project by the end of 2011;** • Fulfilment of 80 % of Phase I for Ukraine; • Fulfilment of at least 50 % of Phase I for Belarus and the European part of the Russian Federation; • Completion of Phase I for Switzerland, Norway and Iceland; • Negotiations for the identification of sites in the countries which have not been participating in the pilot project's programme: Andorra, Liechtenstein, Monaco, Kazakhstan (European part).	**Azerbaijan, Georgia and Moldova (2012);** • Start pre-evaluation of the first set of proposed Emerald sites for countries asking for it (Switzerland, Norway)	
2013-2014	• **Finalisation of collection of background information on species and habitats of European interest**. • **Drafting and adoption of monitoring tools and management plans, based on international guidelines; setting-up of a coherent Pan-European Ecological Network;**	• Continuation of the pilot project in Tunisia; • Completion of the Emerald Network in Morocco; • Implementation of a full Emerald project in Turkey; • Completion of Phase I for Belarus, the European part of the Russian Federation and Ukraine; • Development of principles of the establishment of	• **Completion of the assessment of the proposed Emerald sites in Armenia, Azerbaijan, Moldova and Georgia** • Start of assessment of proposed sites in Belarus, the Russian Federation and Ukraine in coordination with the evaluation for sites in Moldova and South Caucasus, if appropriate;	• Official designation of the Emerald Network in the West-Balkan • Implementation of management, monitoring and reporting tools in the West-Balkan area.

		the Emerald Network (as Core Areas of the PEEN) in Asian parts of the Russian Federation and Kazakhstan, in Kirghizistan, Tadjikistan, Turkmenistan, Uzbekistan (further activities in this field of actions will be planned if appropriate)	• Assessment of proposed Emerald sites in Switzerland, Iceland and Norway. Assessment of proposed Emerald sites in other countries according to achievements in Phase I (Andorra, Liechtenstein, Monaco, Kazakhstan (the European part))	
2015-2016	Continuation of drafting and implementing management plans and monitoring for designated ASCI's.		Finalisation of the evaluation of proposed Emerald sites in Belarus, the Russian Federation and Ukraine • Assessment of proposed Emerald sites in participating African countries	**Designation of the Emerald Network in Moldova and South Caucasus;** • Start designation of Emerald sites in Belarus, the Russian Federation and Ukraine; • Designation of the Emerald Network in Norway, Iceland and Switzerland; • Re-assessment of all agreed Emerald sites according to new knowledge. • Designation of the Emerald Network in other countries according to achievements in Phase II (Andorra, Liechtenstein, Monaco, Kazakhstan (the European part))

2017-2019				• **Publication of the lists of the Emerald Network of areas of special conservation interest;** • Finalise the designation of Emerald sites in the whole Pan-European area, as well as in participating African countries; • **Full assessment of the Pan-European Emerald Network in view of the long-term survival of the species and habitats of European concern;** • **Assessment of the adequacy of the Bern Convention's Appendices and Resolutions No. 4 and No.6**
2018	**First reporting exercise on the Emerald Network implementation for the period 2013-2018, as foreseen in Resolution No. 8 (2012)**			
2020	• **The Emerald Network of Areas of Special Conservation Interest is fully operational to guarantee the long-term survival of all species and habitats of European Interest, including appropriate management, monitoring and reporting tools, compatible with NATURA2000** • **Procedures for continuous updating of the data and evaluation of the long-term survival of the species and habitats have been put in place**			