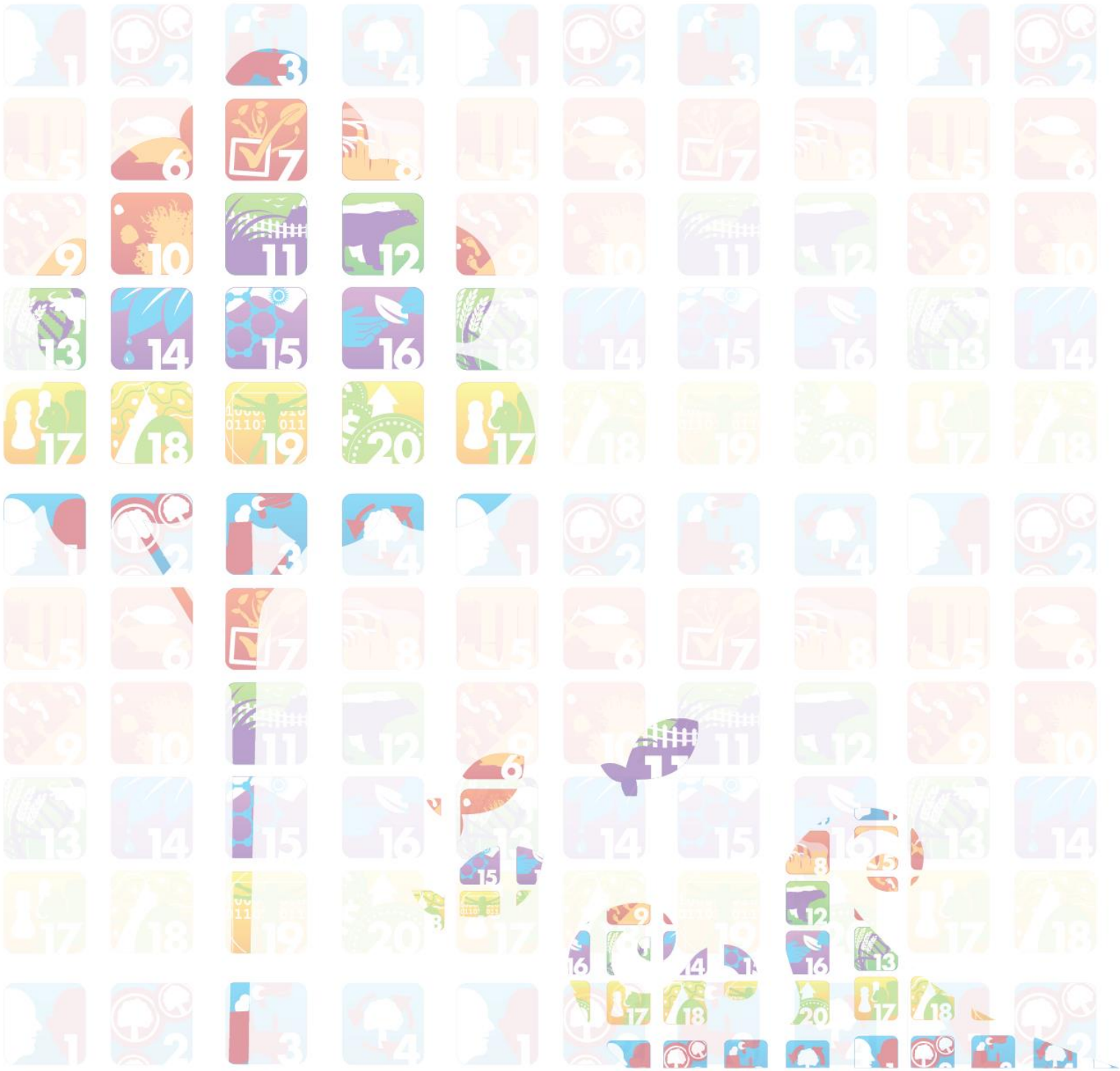

GEORGIA

Sixth National Report to the Convention on Biological Diversity

2014–2018

gef

ENVIRONMENTAL INFORMATION AND EDUCATION CENTRE

Convention on Biological Diversity

UN environment
United Nations Environment Programme

The report was prepared by the Ministry of Environmental Protection and Agriculture of Georgia and the LEPL Environmental Information and Education Centre with the financial support of the United Nations Environment Programme (UNEP) as a part of the project on Supporting the Preparation of the Sixth National Report on Biological Diversity.

Contributions from: Levan Inashvili, David Kikodze, Irakli Shavgulidze, Tornike Phulariani, Ana Rukhadze, Bela Japoshvili, Mariam Jorjadze, Tea Siprashvili, Natia Iordanishvili, Merab Mosidze, Bejan Lortkipanidze, Kakha Artsivadze, Nona Khelaia, Salome Nozadze, Zurab Gurielidze, Teona Karchava, Mariam Archuadze.

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Tbilisi, 2020

SECTION I: INFORMATION ON THE TARGETS BEING PURSUED AT THE NATIONAL LEVEL

☒ My country has adopted national biodiversity targets or equivalent commitments in line with the Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets

National Target A.1: By 2020, at least 50% of the population of Georgia is informed about biodiversity; this segment of the population is aware of the value biodiversity provides to society and the economy, knows about the ways it is threatened, and is acquainted with the steps necessary to mitigate those threats

Rationale for the national target

Public awareness on the importance of biodiversity, challenges it is facing and means for prevention is essential if Georgia is going to retain its rich biodiversity. The goal here is, by building the understanding and importance of biodiversity, to create a culture of appreciation, conservation, and action. Despite the fact that, until 2014, Biodiversity Service under the Ministry of Environment Protection has planned and executed a number of awareness raising activities, systemic approach to public communications on the issues of biodiversity protection was missing due to the limited capacity of tinvashe service. During the process of NBSAP elaboration, it was noted that only limited resources were available for teachers under the frames of formal education in order to enhance educational processes on biodiversity issues. It was also highlighted, that most of the non-formal education on biodiversity issues was delivered through NGOs and were project specific, lacking sustainability after the project completion. It is also noteworthy, that the key stakeholder groups including those directly linked to the use of biological resources (decision-makers, local governments, communities, media, private sector, youth and children) were still poorly informed about biodiversity issues.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☒ 1	☐ 6	☐ 11	☐ 16
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Other related Aichi Biodiversity Targets

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Relevant websites, web links, and files

https://www.cbd.int/doc/world/ge/ge-nbsap-v2-en.pdf

National Target A.2: By 2020, significantly more people, especially local populations, are interested and effectively taking part in decision making processes that contribute both to conservation and sustainable use of biodiversity and to biosafety.

Rationale for the national target

Low public awareness on the value of biodiversity and significance of its conservation and weak involvement in decision-making processes is one of the causes of the direct threats for biodiversity. By the time of elaborating the national target A.2 existing regulations and schemes didn't ensure effective public participation in decision-making processes on biodiversity issues. Despite the measures implemented under the frames of different programs and projects public awareness on the significance of biodiversity and ecosystem services was insufficient. Mostly there was no updated and accessible information on the values, state of biodiversity or its threats, especially at local level. Local population due to insufficient knowledge, experience and lack of information was not effectively involved into the decision-making processes.

Ensuring public participation in environmental decision-making processes is the national and international obligation of the country defined by the Convention on "Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters" (Aarhus Convention), other international agreements, EU-Georgian Association Agreement and by the national legislation.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

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Other relevant information

National Target A.2 is based on the detailed analyses of the existing legislation, procedures, international obligations of the country and existing practice. The following stakeholders were involved in elaboration of the national target, progress indicators and relevant measures: Ministry of Environmental and Natural Resources Protection of Georgia, Ministry of Education, Science, Culture and Sports of Georgia, The Georgian Public Broadcasting, NGOs, media and universities.

National Target A.3: By 2020, sustainable use and the economic values of biodiversity and ecosystems are integrated into legislation, national accounting, rural development, agriculture, poverty reduction and other

relevant strategies; positive economic incentives have been put in place and incentives harmful to biodiversity have been eliminated or reformed

Rationale for the national target

By the time the National Biodiversity Strategy and Action Plan (NBSAP) for 2014-2020 was drafted in 2012, Georgia was focused on rapid economic growth. In such a development scenario the value of biodiversity could be easily ignored in national and local development strategies. In the same period, two important strategic documents – Strategic "10-Point Plan" of the Government of Georgia for Modernization and Employment (2011–2015) and the State Strategy for Regional Development of Georgia (2010-2017) made reference on the importance of environmental protection however did not provide any specific ways on how economic development and protection of biodiversity should be balanced. The "National Strategy for the Development of Hydro-electric Power" and plans for a new city – Lazika – in the Black Sea coastal zone also did not provide any links regarding biodiversity. Therefore, the situational analysis conducted in 2012 raised the concern about the efficiency if EIA system as well as general mainstreaming of biodiversity into development planning.

It should be noted, that by 2012 the role and significance of biodiversity and ecosystem values, as well as sustainable use of natural resources were limited to the environmental and biodiversity-related legislation and policy framework (e.g. specific chapter on biodiversity in National Environmental Action Programme 2, 2012; Protected Areas Strategy and National Action Plan, 2009) and were not adequately reflected into other sectoral and socioeconomic development planning (e.g. Agriculture, Energy, Tourism, Mining).

In 2011, Georgia has offered to be a pilot country for a TEEB Scoping Study which was prepared in 2012. This was the first attempt to introduce the economic valuation of the goods and services provided by ecosystems.

In 2011, the Government of Georgia has introduced a special program in support of agricultural works by providing a special voucher which could be used to purchase fertilizers or diesel fuel. This could be considered as subsidy harmful to biodiversity due to the fact that the potential adverse impacts on biodiversity and ecosystem services were totally neglected. In addition, lack of knowledge on potential threats related to inappropriate use of fertilizers could lead to irreversible consequences.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

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Relevant websites, web links, and files

https://matsne.gov.ge/document/view/2343783?publication=0

National Target A.4: By 2020, an effective and fully functional national biosafety system has been put in place ensuring adequate protection of the country's biodiversity from any potential negative impact from living modified organisms

Rationale for the national target

Risk management associated with LMOs is of particular interest for Georgia, considering a large number of local varieties/ landraces of crops and domestic animals and their wild relatives. Some of them are endemic for the country. The establishment of an effective biosafety system is important for maintaining the country's rich genetic resources and protection of the biodiversity.

According to the Cartagena Protocol on Biosafety, the parties are obliged to regulate risks associated with LMOs.

The Deep and Comprehensive Free Trade Area Agreement (DCFTA) which is the significant part of the EU-Georgia Association Agreement, entails an obligation on the approximation of national legislation regarding LMOs to the EU acquis. Accordingly, the approximation program was agreed between Georgia and EU (DCFTA, Chapter IV, Sanitary and Phytosanitary measures, annex IV c).

By the moment of defining the national target, there was no legal or regulatory framework in place regarding LMO risk management; institutional responsibilities were not clearly defined; no official data on the release of LMOs into the environment nor placing them to the market was available. Accordingly, there was no information regarding the threat scale related to the LMOs.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

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Other relevant information

Prior to the elaboration of the **National Target A.4**, the detailed situational analysis was conducted, which included the survey and analysis of existing legislation and institutional gaps, international obligations of the country and the assessment of scientific and technical capacity and needs. The following stakeholders were involved in elaboration of the national target, progress indicators and relevant measures: Ministries of Environmental Protection and Agriculture, Economy and Sustainable Development, Labor, Health and Social Affairs; Customs Service; Tbilisi State University; Agricultural University of Georgia; I. Beritashvili Center of Experimental Biomedicine; Green Movement of Georgia; Biological Farming Association "Elkana"; representatives of private sector.

National Target B.1: By 2020, negative factors directly affecting threatened natural habitats have been significantly reduced through the sustainable management of at least 60% of these habitats, including at least 60% of forests, 80% of wetlands and 70% of grasslands

Rationale for the national target

Approximately, 40% of Georgia is covered with forest. Based on this number, Georgia belongs to the countries rich with forests. 95-98% of the forest is of natural origin. Composition of species, growth-development and other characteristics creates rich biodiversity - up to 400 species of trees and bushes growing in Georgia and a number of endemic plants (61 species are endemic to Georgia, and 43 - to Caucasus) indicate to the high diversity of dendroflora.

According to the inventory of the forest fund undertaken in 2003, the national forest fund of Georgia comprised of 3,005,300 Ha area, where territory covered by forest was 2,772,400 ha. Thus, according to the existing data, approximately 0,5 million ha belongs to untouched forests, 2,2 million ha is changed natural forest, and 0,06 million ha is artificially planted forest.

Due to lack of forest inventory during the decades, there is still no accurate data concerning the forest fund available (including the areas covered by forest) for the whole country. Data provided in the different official documents and reports is based on 2003 indicators, and for the following period, it was based on the boundaries of the state forest fund defined by the Public Registry according to the regulation N299 adopted by the Government of Georgia on 4th August, 2011. However, it should be noted that there were several inaccuracies made during determination of boundaries, which obviously complicates general picture regarding forests in the country.

Level of application:

☒ National/federal

Main related Aichi Biodiversity Targets

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Other related Aichi Biodiversity Targets

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National Target B.2: By 2020, alien invasive species have been assessed with regard to their status and impact; their pathways have been evaluated and identified, and measures are in place to prevent their introduction and establishment through the management of these pathways; no new alien species have been recorded

Rationale for the national target

In the past, there was no control of the introduction (both intentional and random) of alien species into Georgia and many invasive alien species are now found throughout the country. In some cases, the impact has been devastating (e.g. crucian carp (*Carassiusm carassius*) in freshwater lakes). Georgia's forests are suffering from pest species and diseases that have been unintentionally introduced into the country. The species and deceases (e.g. great spruce bark beetle, Chestnut blight, etc) that were spread unintentionally, have caused serious damage to the forest ecosystems in Georgia. The need for an effective control mechanism against introduction of invasive alien species, as well as their monitoring and inventory was identified, considering the fact, that by the moment of NBSAP elaboration, no detailed studies have been conducted on the impacts of most alien species on local ecosystems and biodiversity.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

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Other related Aichi Biodiversity Targets

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Other relevant information

In the process of defining National Target B.2, the experts highlighted the importance of development of the comprehensive strategy to conduct the inventory and monitoring of existing IAS in order to elaborate mitigation measures, as well as create effective mechanisms for the control of IAS introduction and distribution.

Relevant websites, web links and files

https://www.researchgate.net/publication/236591742_Invasive_Carassius_Carp_in_Georgia_Current_state_of_knowledge_and_future_perspectives
https://www.researchgate.net/publication/317490343_The_population_of_Carssius_gibelio_Bloch_1782_and_its_parasites_in_Madatapa_Lake_South_Georgia
https://www.researchgate.net/publication/322682308_Preliminary_information_about_the_occurrence_of_Prussian_carp_Carassius_gibelio_Bloch_1782_in_mountainous_Lake_Devdoraki_Caucasus_Georgia

National Target B.3: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem functioning and biodiversity.

Rationale for the national target

Like the rest of the world, environmental pollution in Georgia is one of the major threats to biodiversity, especially for inland waters and the Black Sea ecosystems. The water quality monitoring network in Georgia was extremely limited by the time of the formulation of the national target. Water quality was monitored only for 22 rivers and one lake. The main sources of surface water pollution were municipal wastewater, medical and industrial facilities.

Due to the discharge of untreated industrial waters, the pollution of some rivers with heavy metals exceeded the limits. Increasing eutrophication, as well as chemical contamination with oil, heavy metals, pesticides, solid waste, was one of the major threats in the Black Sea region of Georgia.

According to the Association Agreement, Georgia is obliged to maintain, protect and improve water quality and the marine environment.

Level of application:

☒ National/federal

Main related Aichi Biodiversity Targets

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Other relevant information

National Objective B.3 is based on an assessment of agrobiodiversity, the biodiversity of the Black Sea and inland waters (2012), which identifies water and soil pollution as one of the major threats to biodiversity.

National target, progress indicators and relevant measures were developed by the Ministry of Agriculture, Ministry of Environment Protection, Ilia State University, Biological Farming Association "Elkana".

National Target B.4: By 2020, the management of agricultural ecosystems and natural grasslands is improved

Rationale for the national target

Agricultural ecosystems and natural grasslands, that cover about 43.4% of the country's territory, are a significant and integral part of Georgia's biodiversity.

A number of important initiatives have been implemented since 2000 aiming at the rehabilitation of degraded agricultural lands, windbreaks and forest edges in the Dedoplistskaro municipality. Unfortunately, these efforts were not sufficient to combat the increased degradation and genetic erosion of the natural grasslands of Georgia.

By the moment of NBSAP elaboration, the country did not possess an effective national system to address the root causes of the main problems contributing to the degradation of agroecosystems and natural grasslands, and to ensure the restoration and sustainable use of agricultural ecosystems.

The main problems as listed in the National Biodiversity Strategy and Action Plan are the following: lack of information, Insufficient legal and institutional framework, Degradation of agricultural ecosystems, Overgrazing and degradation of natural grasslands, Natural grasslands and climate change.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

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Other related Aichi Biodiversity Targets

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Other relevant information

In 2005 first National Biodiversity Strategy and Action Plan (NBSAP) was developed. However, the first NBSAP was mostly focused on wildlife and the issues related to agricultural ecosystems and natural grasslands were not covered.

Relevant websites, web links and files

https://www.iucn.org/sites/dev/files/import/downloads/biotopic_nbsap.pdf;
https://www.cbd.int/doc/world/ge/ge-nbsap-v2-en.pdf;

National Target B.5: By 2020, the impact of fisheries on stock, species and ecosystems is within safe ecological limits

Rationale for the national target

Decline in number of fish species and quantity in the rivers and lakes of Georgia and in the Black sea remains a serious problem. Illegal fisheries and prohibited methods for fishing cause irreversible damage to fish and other hydrobionts.

In Georgian inland waters catches of local (Caucasian scraper, bulatmai barbell, catfish, vimba, carp) and introduced (vendace, peled, Prussian carp, silver carp, grass carp) species are regulated by the legislation.

European anchovy (*Engraulis encrasicholus*) is the main target fish species and main source of income for Georgian commercial fleet. Catches are undertaken with seine nets and pelagic trawls. By the end of the 20th century, the number of anchovies sharply dropped because of overfishing and negative impact of invasive warty comb jelly (*Mnemiopsis leidyi*). According to the Ministry of Environment Protection, steady stock rise has been detected in recent years. However, the constant growth of quotas and unsustainable catches may lead to the irreversible decline of the fish population.

The absence of an effective assessment mechanism for fish stocks and using the different methods for calculation of quotes could cause unpredictable threat.

Development of aquaculture can reduce stress/impacts on natural resources and could guarantee restoration of endangered water organisms. However, in the case of weak management, the development of aquaculture may have a negative impact on ecosystems and eventually cause harm to both the environment and socio-economic sector;

Level of application:

☒ National/federal

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Other relevant information

During the development of national target, situation analysis of biodiversity of Black Sea and internal waters ecosystems was conducted, which included fisheries and research of aquaculture sector as well as identification of existing challenges. The Ministry of Environment Protection, the Ministry of Agriculture, water ecosystem researchers/experts were involved in the development of the national target.

National Target B.6: By 2020, a national system of sustainable hunting is in place which ensures the viability of game species

Rationale for the national target

Ineffective management of hunting in Georgia has resulted in a decline of many game species while some have completely disappeared. Wild ungulates have suffered from illegal hunting particularly severely. By the end of the last century, Georgia had already lost Goitered gazelles (*Gazella subgutturosa*), while all other wild ungulates were significantly reduced. At the time of NBSAP elaboration following main challenges were identified: ineffective anti-poaching mechanisms, insufficient administrative resources allocated to law-enforcement, absence of the concepts of sustainable hunting and community and/or trophy hunting, the lack of awareness and education among amateur hunters.

Level of application

☒ National/federal

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National Target C.1: By 2020, the status of biodiversity has been assessed through the improvement of scientific and baseline knowledge and the establishment of an effective monitoring system

Rationale for the national target

Georgia has started establishment of the National Biodiversity Monitoring System in 2007 and significant steps were made since then. However, methodologies for number of monitoring indicators are yet to be developed.

By the time of NBSAP development, the Ministry of Environment and Natural Resources Protection had signed special memorandums with number of relevant organizations on cooperation in the biodiversity monitoring field. However, legislative framework for the biodiversity monitoring had yet to be developed. At the same time, responsibilities should be delegated to the relevant institutions.

Development of the electronic databases containing plant and animal species data was considered as important step. The databases should contain accurate information about the species native to Georgia (description, population status and trends, distribution, etc).

Level of application

☒ National/federal

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National Target C.2: By 2020, the status of species - including 75% of "Red List" species - has been considerably improved through effective conservation measures and sustainable use

Rationale for the national target

By the time of the NBSAP drafting, conservation action plans for a number of species had been elaborated. However, the implementation processes were hampered by the fact that species conservation plans lack any legal status. Furthermore, conservation plans for a number of rare or economically important species need to be developed.

Before 2014, captive breeding programs for wild goat and goitered gazelle recovery and reintroduction have been implemented in protected areas. However, planned growth of the captive populations could not be achieved. At the same time, a Cholchic pheasant (*Phasianus colchicus*) breeding programme was successfully implemented in Dedoplistskaro district by a local NGO. It could be concluded that better planning and species-specific recovery/reintroduction plans were needed to achieve success.

In many parts of the country, the conflict between the local farmers and large carnivores is unresolved. The root causes of such conflicts often lie in the destruction of habitats and wild prey, as well as lack of proper household waste management (e.g. random landfills close to settlements). Despite some surveys, human-wildlife conflict in Georgia was not thoroughly explored.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

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National Target C.3: By 2020, forest biodiversity is safeguarded through sustainable management policies and practices

Rationale for the National Target

Approximately, 40% of Georgia is covered with forest. Based on this number, Georgia belongs to the countries rich with forests. 95-98% of the forest is of natural origin. Composition of species, growth-development and other characteristics creates rich biodiversity - up to 400 species of trees and bushes growing in Georgia and a number of endemic plants (61 species are endemic to Georgia, and 43 - to Caucasus) indicate to the high diversity of dendroflora.

According to the inventory of the forest fund undertaken in 2003, the national forest fund of Georgia comprised of 3,005,300 Ha area, where territory covered by forest was 2,772,400 ha. Thus, according to the existing data, approximately 0,5 million ha belongs to untouched forests, 2,2 million ha is changed natural forest, and 0,06 million ha is artificially planted forest.

Level of application

☒ National/federal

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National Target C.4: By 2020, at least 12% of the country's terrestrial and inland water areas and 2.5 % of marine areas are covered by protected areas; areas of particular importance for ecosystem services are effectively and equitably managed via an ecologically representative system and other effective conservation measures; development of the protected areas network and its integration into the wider landscape and seascapes is ongoing

During 2007– 2013, there was only insignificant increase of the total coverage of protected areas in Georgia and by the end of 2013 the total area of the country covered by protected areas was less than 7%. Therefore, the new national target in the NBSAP 2014-2020 was set at 12% of the country's terrestrial and inland water areas and at 2.5 % of marine areas; these target percentages were considered realistic as opposed to those set by ABT 11 (17% and 10% respectively).

The territorial distribution and the degree of coverage of important conservation areas was not sufficient for ensuring the long-term conservation of the country's biodiversity; Internationally recognized instruments – such as a UNESCO World Heritage site, Ramsar site, biosphere reserve – were insufficiently applied or non-existent in Georgia. Georgia's protected areas failed to form a network – there was no interconnected system of protected areas integrated into the broader landscape/seascape. There was a need of protected areas spatial development plan that would contribute to the expansion of protected areas coverage and improve the degree of connectivity. Some preparatory work was completed to support the development of such a plan, including: (i) a document on planned protected areas, (ii) priority conservation areas and priority corridors for the Caucasus were identified, (iii) critical conservation areas and forest conservation areas were identified and the Caucasus Ecoregion Conservation Plan was elaborated. All of this was intended to serve as a basis for the development of an effective protected areas network.

Georgia needed an updated legislation on protected areas to ensure further development of the PA system as a connected and effective network and more effective management of various PA categories. While recognizing only one form of PA management – management by the government, private management, co-management or management by local communities were non-existent in Georgia. The legislation also failed to regulate compensation and incentivizing mechanisms for local communities.

Mostly, PAs were managed almost in isolation from the wider landscapes and threats such as contamination, degradation of neighboring ecosystems, disturbance, etc. posed to the territories adjacent to protected areas by use of natural resources, non-sustainable agriculture, development, etc. remained a serious issue.

The regulations for PA management planning had been refined and management plans were being developed for a number of PAs. Nevertheless, the majority of the country's PAs did not have valid management plans; their management was conducted by special interim regulations. There was a lack of PA management planning capacity both at the central apparatus (Agency of Protected Areas) and at territorial units (PA administrations).

Problems persisted with ensuring sustainable pasture management and sustainable forest management in traditional use zones. Certain forms of functional uses such as the production of traditional farming products and crafts-making needed to be promoted to maintain unique local historical and cultural environments and stimulate income-generating activities that will ensure sustainable agriculture and resource use.

Research and monitoring systems remained largely inadequate and the evaluation of management effectiveness was not conducted on a regular basis. Climate change was not adequately reflected in the PA management plans. Most protected areas lacked adequate infrastructure and equipment and there was a general lack of qualified personnel. There were no programmes or implemented measures for mitigating the impact of alien invasive species that pose an important threat to many protected areas.

Low public awareness was considered one of the root causes of many problems pertinent to the development of the protected areas system. In addition, there was a lack of interest in and understanding of protected areas issues among decision-makers.

Funding for the PA system had increased. However, almost all components of the PA management structure and operation were still underfinanced, including salaries and operational costs. Practically no funding was allocated to monitoring or educational activities. The lack of financing was recognized as one of the major causes of the above-listed problems and obstacles for effective PA management.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☒ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☐ 14	☐ 19
☐ 5	☐ 10	☐ 15	☐ 20

Other related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☐ 16
☐ 2	☐ 7	☒ 12	☐ 17
☐ 3	☐ 8	☒ 13	☒ 18
☐ 4	☐ 9	☒ 14	☐ 19
☒ 5	☐ 10	☒ 15	☐ 20

Other relevant information

This national target was developed as a result of consultations with all key stakeholders at the national level including governmental agencies, relevant NGOs and academic institutions. It served as a basis for the development of the new strategy of the Agency of Protected Areas, the institution responsible for the management of almost all PAs in Georgia.

Relevant websites, web links and files

http://apa.gov.ge/en/
http://greenalt.org/wp-content/uploads/2018/07/Monitoring_of_Biodiversity_in_Protected_Areas.pdf

National Target C.5: By 2020, the genetic diversity of farmed and domesticated animals, cultivated plants and of their wild relatives, including other socioeconomically as well as culturally valuable species, is maintained; strategies have been developed and implemented for safeguarding their genetic diversity

Rationale for the national target

There about 100 families and 350 local species of grain crops in Georgia, among which there are numerous endemic species.

The reduction of agricultural diversity has severely affected Georgian agriculture. Not only has plant diversity been reduced but also indigenous crops are used less frequently. Since the 2000s, some important initiatives have been implemented aiming to improve the conservation status of the agricultural biodiversity of Georgia. Unfortunately, the efforts were not sufficient to combat the genetic erosion of the agricultural biodiversity in the country.

The main challenges listed in the National Biodiversity Strategy and Action Plan are as following:

- Lack of information;
- Lack of public awareness on agrobiodiversity issues is directly linked to the lack of qualified specialists, poor quality of the information provided to decision makers and the general public;
- Limited access to seed and planting materials;
- Lack of specific knowledge on the cultivation of specific landraces and local varieties;
- Low recognition of landraces and their products on the market;
- Genetic erosion of CWRs, medicinal plants and wild plants harvested for food;
- Absence of national ex-situ conservation strategy or national vision.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☒ 13	☐ 18
☐ 4	☐ 9	☐ 14	☐ 19
☐ 5	☐ 10	☐ 15	☐ 20

Other relevant information

The first National Biodiversity Strategy and Action Plan (NBSAP) was adopted in Georgia in 2005. However, the document was mainly focused on wildlife and the issues related to agricultural ecosystems and natural grasslands were not covered.

Relevant websites, web links and files

https://www.iucn.org/sites/dev/files/import/downloads/biotopic_nbsap.pdf;
https://www.cbd.int/doc/world/ge/ge-nbsap-v2-en.pdf;

National Target C.6: By 2020, the pressure of human activities on the Black Sea and inland waters has decreased; the integrity and functioning of the aquatic ecosystem are preserved

Rationale for the national target

Freshwater is one of the most important economic resources for Georgia while freshwater ecosystems are under severe threat due to excessive and illegal use, as well as industrial and rapid infrastructural development.

The Black Sea and the inland waters are under strong anthropogenic pressure. Illegal extraction, excessive consumption, unsustainable fishing, invasive and alien species, are the forms of degradation of the natural habitat caused by human activities, which seriously threaten and significantly damages the biodiversity of water ecosystems.

Water consumption is one of the main problems affecting water ecosystems, especially the irreversible water use (irrigation), which reduce water level and water resources as a whole.

The National Energy Policy of Georgia aims to maximize usage of water resources in the country and declare the development of hydro energy sector as a state priority. It is very important to adequately analyze the anthropogenic impacts and adverse impacts on river system, to identify possible risks within the cumulative impact assessment, which can threaten environmental goals and function of socio-economic structures.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☒ 6	☐ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☒ 14	☐ 19
☒ 5	☐ 10	☐ 15	☐ 20

National Target D.1: By 2015, the Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (the Nagoya Protocol) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) have been ratified and implemented

Rationale for the national target

By the time the National Biodiversity Strategy and Action Plan 2014-2020 was adopted Georgia was not a party to the international agreements related to the genetic resources. Obviously, legislation relevant to such issues did not exist by that time, nor the issues related to ABS were addressed in the first NBSAP of Georgia

(2005-2015). According to NBSAP 2014-2020 Georgian legislation did not include specific provisions to ensure (i) access to genetic resources important for agriculture, (ii) equitable sharing of the benefits from their use or (iii) effective action against "bio-piracy" and the protection from unauthorized use of the names of Georgia's genetic resources. This also hampered international cooperation in the field of genetic resources important for food and agriculture.

It was considered that such agreements, particularly the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization had critical importance for Georgia.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☒ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☐ 14	☐ 19
☐ 5	☐ 10	☐ 15	☐ 20

Relevant websites, web links and files

NBSAP 2014-2020
NBSAP 2005-2015

National Target D.2: By 2020, the impact of climate change on biodiversity is evaluated; ecosystems resilience has been enhanced through relevant environmental policies and activities

Rationale for the national target

Based on the various climate scenarios, increase of temperature and decrease of precipitation is expected in some regions of Georgia. This will have negative impact on ecosystems. Georgian biodiversity will face considerable threat due to the vertical shift, because of the mountainous terrain and sharply expressed vertical zoning. Some species will probably extinct, since they will not be able to adapt to the climate change.

Alpine and semi-arid pastures are extremely sensitive against climate change. Obviously, rise of global temperature will significantly impact high-mountain plant species, which are used to lower temperatures. It is expected that such species will be substituted by thermophile species, distribution of which was limited by low temperatures.

Impact of the climate change on forest ecosystems has a complex character. Forest fires, strong winds, soil erosion, forest deceases are among the risks, at the same time climate change also creates excellent conditions for invasive species.

Protected areas of Georgia also require attention, especially those located within the zones sensitive for climate change, e.g. semi-arid zone or Kolkheti lowland. Capacity of protected areas for climate change adaptation should be assessed.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☐ 14	☐ 19
☐ 5	☒ 10	☒ 15	☐ 20

Other related Aichi Biodiversity Targets

☒ 1	☐ 6	☐ 11	☐ 16
☒ 2	☐ 7	☒ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☐ 14	☐ 19
☐ 5	☐ 10	☐ 15	☐ 20

Relevant websites, web links and files

https://matsne.gov.ge/ka/document/view/2342057?publication=0

National Target E.1: By 2020, knowledge has been enhanced on the values, functioning, status and trends of biodiversity and the consequences of its loss; the corresponding science base has been improved

Rationale for the national target

In the process of elaboration of the strategy, the following challenges have been identified: lack of qualified staff in both public and private, and scientific institutions, restricted access to modern technologies and methodologies, insufficient technical skills required for adequate forest management, lack of incentive mechanisms to attract and retain qualified staff in the public and scientific sectors are among the main challenges of the forestry sector in Georgia.

Lack of qualified personnel, as well as an inadequate research and monitoring system and absence of comprehensive database necessary for the planning of protected areas and the development of conservation plans for habitats and species, can be considered as significant challenges for the development of PA systems.

Lack of relevant knowledge and qualified staff is a critical barrier to the sustainable development of the fishing and hunting sector.

At the time of the NBSAP update, Georgian habitats were not classified according to the internationally recognized classification systems, creating a problem of harmonizing European conservation policies and strategies, hampering Georgia's role as a country with a diversity of habitats.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☐ 14	☒ 19
☐ 5	☐ 10	☐ 15	☐ 20

Other relevant information

National Target E.1 was formulated based on the situational analysis of PAs, forest biodiversity, species and habitats. The results of the analyses revealed the fact that lack of qualified specialists is a significant challenge for the establishment of a full-fledged forest management, biodiversity monitoring system, including protected areas. The absence of a unified habitat classification system has led to a number of misunderstandings over the years and made it difficult to plan and conduct effective conservation activities.

National Target E.2: By 2020, teaching on biodiversity issues is improved in all stages of formal and non-formal education; continuous teaching of biodiversity is ensured and all necessary resources are available.

Rationale for the national target

Formal and informal education are very important for the teaching of biodiversity related issues. During the process of the elaboration of NBSAP the problems related to the lack of qualifications of teachers and educational resources (textbooks, Internet access and other relevant facilities) in terms of knowledge transfer and values development were identified. Issues related to agrobiodiversity were not adequately reflected in education programmes. Insufficient attention was paid to teaching the sustainable development principles in higher and vocational educational programs for fields that involve indirect or direct interaction with natural resources.

Informal environmental education was still unsystematic and fragmented. The sustainability was an issue as well, more specifically, the most of the providers of informal environmental education were NGOs, which seized their activities upon completion of specific project-related funds.

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☐ 18
☐ 4	☐ 9	☐ 14	☒ 19
☐ 5	☐ 10	☐ 15	☐ 20

Relevant websites, web links and files

https://www.cbd.int/doc/world/ge/ge-nbsap-v2-en.pdf

National Target E.3: By 2020, the interest and traditional knowledge of local people in biodiversity conservation and use are integrated into the legislation and strategies.

Rationale for the national target

There are ancient traditions of harmonious attitude to nature in Georgia. However, over years the knowledge and capacity of the local population for biodiversity conservation has significantly reduced. Although the involvement of local communities is an integral component of the projects related to biodiversity conservation and sustainable use, so far, no systematic approach to identify and integrate traditional knowledge on nature conservation in the country is available.

There are no legal grounds for ensuring access to traditional knowledge of genetic resources and equitable sharing of benefits; The issues regarding the intellectual property rights of traditional product starters is not regulated; Microflora of traditional products is not declared as state-owned; Traditional rules of food production are forgotten and endemic microbial flora replaced by imported, industrial starters; Protecting the authenticity of originating products at the world and local market remains a problem.

The Georgian legislation does not set out mechanisms to ensure the inventory and protection of traditional knowledge.

While setting a national target, Georgia was not a party to the International Agreement on "Plant Genetic Resources Important for Food and Agriculture".

Level of application

☒ National/federal

Main related Aichi Biodiversity Targets

☐ 1	☐ 6	☐ 11	☐ 16
☐ 2	☐ 7	☐ 12	☐ 17
☐ 3	☐ 8	☐ 13	☒ 18
☐ 4	☐ 9	☐ 14	☐ 19
☐ 5	☐ 10	☐ 15	☐ 20

Other relevant information

National Target E.3 is based on a detailed analysis of the situation in the country in terms of agrarian biodiversity, conducted in the process of updating the NBSAP by the Biological Farmers Association – "Elkana".

SECTION II: IMPLEMENTATION MEASURES TAKEN, ASSESSMENT OF THEIR EFFECTIVENESS, ASSOCIATED OBSTACLES AND SCIENTIFIC AND TECHNICAL NEEDS TO ACHIEVE NATIONAL TARGETS

Capacity Building

There are 17 actions, related to capacity building of different stakeholders, envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.1, A.4, E.1, E.2
Aichi Target(s) – 1, 4, 7, 19;

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

By 2019, there is positive trend in the number of adequately trained staff in relevant state agencies, however both professional qualifications and general skills still need improvement. Also, the need of extra human resources is still actual.

It is still a challenge to train employees of public sector in sustainable management of biodiversity and its components. Regular training of staff is required. Frequent changes of forest guards and rangers make the need for regular training more evident, including the need for short induction trainings for newly appointed staff.

Environmental Information and Education Centre (EIEC) has been one of the most effective players in the field of environmental education since its establishment in 2013 under the Ministry of Environment Protection and Agriculture of Georgia.

"Professional development program of environmental specialists in Georgia" covers trainings on more than 60 different topics offered on request (by EIEC and other departments of MEPA). Since 2014 more than 2203 persons were trained. Following courses are closely related to biodiversity protection and conservation:

Table 1. Trainings Conducted by EIEC

Training Topic	Beneficieries #				
	2014	2015	2016	2017	2018
Forest Management	218	210	407	15	
Environmental Inspection in the protected areas		74	30		
Environmental inspection	16			241	
Fisheries and sustainable fishing	15				
Flood modeling and management	4	9	40	12	
Prevention of Illegal Trade with Wild Fauna and Flora	1			25	
Biodiversity conservation			9	38	
Climate change			8	11	
Other	36	5	47	68	66

The Centre for Environmental Information and Education has developed training modules and guidelines on forest management, inspection, and wildlife conservation.

Since 2013, the Centre for Environmental Information and Education (Ministry of Environment Protection and Agriculture) has been conducting regular trainings to improve qualification of the staff of the Ministry

of Environment Protection and Agriculture. Below is a list of trainings organized by the centre (indicating the number of participants).

Table 2. The trainings conducted by EIEC to MEPA Staff in Forest Management

Name	Year	Number of Trainings	Number of beneficiaries
Training of young specialists in forest taxation	2014	1	20
Training Course on Response to Forest Crimes and Forest Management Based on Functions and Responsibilities of Forest guards	2014	1	84
Capacity building for National Forestry Agency staff and forest guards	2014	4	270
Identification of administrative violations in the forests of Georgia and subsequent response	2014-2016	5	104
Basic principles of forest planning and management	2016	22	353

Since 2013, a number of actions have been implemented with the support of partners, mainly the German Government, which has contributed to the gradual development of forest education. The Ministry of Environment and Ministry of Agriculture prepared the Education Strategy and Action Plan for Forestry; the National Education Development Center, the National Forestry Agency and other stakeholders prepared the professional educational standard of the forest job and program of professional educational program in the forestry. The program is implemented successfully in 4 professional colleagues since 2017.

In addition, according to the National Forestry Agency, 25 forest fire management specialists were trained in 2016-2018, 10 staff were trained as forestry specialists in 2017-2018, three GIS specialists were trained in 2019, and 15 interns were trained in forest inventory and fieldwork.

37 trainings were held for the staff of the Agency for Protected Areas in 2014-2018, 10 of which were related to biodiversity monitoring. In total, 682 staff members participated in the trainings, and 158 staff members participated in biodiversity monitoring.

Table 3. Trainings of Agency of Protected Areas Staff

Year	Number of trainings	Number of participants
2014	7	120
2015	5	99
2016	2	33
2017	5	77
2018	18	353

These trainings were supported by various donors and organizations, including UNDP, KFW, TJS, SABUKO, Ilia University, NACRES - Biodiversity Conservation Center.

The National Forestry Agency and the German Society for International Cooperation (GIZ) also the Austrian Development Agency technically supported selected colleges: specific equipment and tools necessary for teaching the program, teacher training, further development of modules and updating of teaching materials are planned.

During the reporting period, 5 staff members of National Food Agency were trained in sampling regarding food safety (GMO food safety, legislation, cases). The trainings were implemented under the frames of the project 'Support to Further Strengthening Accreditation in Georgia to Meet EU Best Practices' supported by EU.

Private accredited laboratories equipped according to international standards are functioning in Georgia. These laboratories have the ability to detect and identify the GMO. LEPL Agricultural Laboratory (under the MEPA) also possess technical equipment suitable for GMO detection.

Obstacles and scientific and technical needs related to the measure taken

Challenges:

- Despite some actions taken, administration of some protected areas still lack the specialists - foresters. There are almost no field experts, such as an ornithologist, ichthyologist, botanist, entomologist, etc. There is a lack of knowledge of sustainable forest use (allocation of forests, documentation preparation, etc.), forest monitoring, as well as monitoring and maintenance of forest roads. There are also no specialists in forest fires management. The knowledge of modern technologies and methodologies is scarce. Lack of qualified staff is particularly acute in the fishing and hunting sectors.

- Significant steps have been taken to improve forest education, but the number of qualified foresters is still far behind the needed number.

Needs:

- To make the professional development of environmental professionals even more effective, the EIEC could make the service more consistent basing its programs on regular needs assessments of skills gaps in the sector. At the first stage, these services (trainings) could be implemented together with universities with the relevant profile.

- It is necessary to improve the capacity of human and technical resources in the field of biosafety (training of staff in the controlling agencies, elaboration and adoption of relevant guidelines and instructions).

<u>Conservation Management</u>

There are 53 actions, related to conservation management, envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – B.1, C.3, C.4, C.5, C.6, D.1, E.1, E.3
Aichi Target(s) - 5, 11, 13, 14, 15, 16, 18, 19

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Forest

The important step in ensuring growth of forest restoration scale, was the development of Georgia`s "Nationally Determined Contribution" (NDC) (2016), which has prioritized the following activities for mitigation of climate change impacts on the forestry sector: (a) establishing practice for forest sustainable management; (b) forest planting/forest restoration and support for natural restoration; and (c) increase of protected areas.

According to NDC Georgia, country`s **Unconditional commitment** is to:

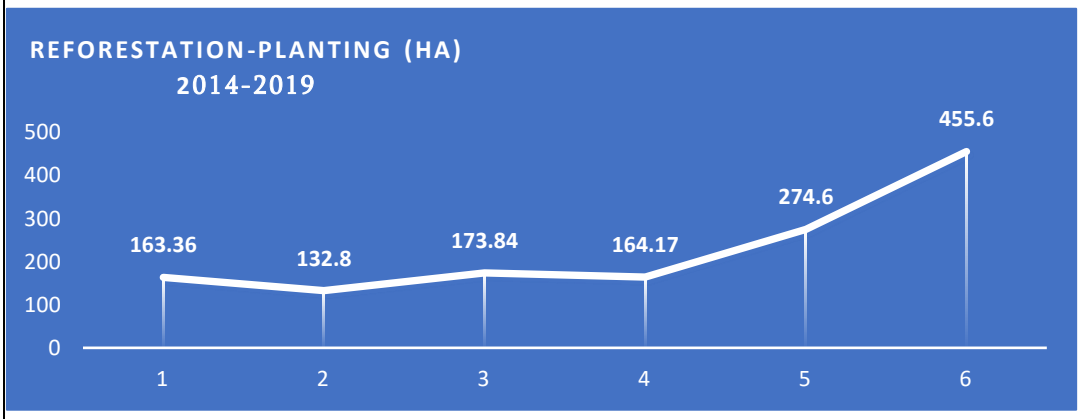
- Implement afforestation/reforestation activities on already identified 1,500 ha of degraded lands by 2030;
- Assist natural regeneration of forests through different silvicultural methods on 7,500 ha by 2030 in order to restore natural forest cover.

In addition, to unconditional commitment, the country has expressed Conditional commitment, that:

- In case of external financial and technical support, the country commits itself to afforest/reforest up to a total of 35,000 hectares, as well as support relevant activities to assist natural regeneration in identified areas needing afforestation/reforestation until 2030;

In 2016-2019, forest management agencies of the country plan activities for forest restoration-planting according to above mentioned postulates and there is visible progress towards scale of implemented activities compared to the previous decade.

Figure 1. Reforestation-planting activities, 2014-2019 years.



Forest restoration works (creation of sustainable planted forest on the degraded territories) were carried out on 192,1 ha area in 2016-2018. Natural restoration was supported (cleaning from sub-forest and other) on 59,4 ha area; Sanitary cutting and cleaning from windfall was carried out in 5 regions (Kakheti, Shida Kartli, Samtskhe-Javakheti, Samegrelo-Zemo Svaneti, Kvemo Kartli) - 10 702 m^3 of total volume.

According to 2018 data, there are up to 2000 information-warning signs placed on 44 forest areas, with a risk of fire and recreational zones. The National Forestry Agency carries out updating/exchange and/or addition of signs annually, based on additional needs submitted from the regions.

Arrangement of fast-growing species plantations is the best tool/approach for reducing impact on natural forest, when timber material derived from such plantations are used as firewood, as well as for agricultural activities.

Arrangement of acacia and bot aspen plantations (as fast-growing species) was widely used practice in the country before. Starting from 2014, the National Forestry Agency has reinstated this practice on the territory of the forest fund, which is currently not covered with forest.

In 2014-2019, plantations were arranged on 39,2 Ha area of Kakheti, Guria and Shida Kartli regions.

The obstacle for the upscaling of this activity is the fact, that after the determination of the state forest fund boundaries in 2011 (conducted by Public Registry Agency), there are almost no territories left that are not covered with forest under the management of the LEPL National Forestry Agency, which would have been appropriate for purposes of arranging the plantations.

At the same time, private sector involvement remains low. Thus, in order to achieve the sustainability and up-scaling of the process, it is necessary to create incentives and specialized programs for private sector.

During the transition period, before adoption of the new Forest Code, number of legislative gaps were addressed, mainly regarding use of land and resources of forest fund. Particularly: a) the issue related to the payment of compensation amounts for logging the resources outside of the territory of state forest fund, in cases defined by the law on "Red List and Red Book of Georgia" was resolved, which was left out of the legislative regulation; b) the most important changes concerned the cancellation (partial cancellation at the initial stage) of the regulation on so called social logging (which considers delivering standing timber for provision of raw material or firewood), which was important constraint for the protection of forest fund and proper use of timber. The aim of the amendment was to reduce the impact on forest on one hand and increase the accessibility to forest resources based on actual demand on other, as well as the implementation of forestry activities by qualified personnel only. The rule regarding the issuance of rounded timber (logs) (raw timber material) within social logging was completely changed for population, as well as, budget organizations, including, Patriarchate. Previous practice/regulation related to the issuance of raw timber material and/or standing trees under the frames of the so called "social logging" program, with the purpose of provision to budget organizations was also cancelled. The Forestry Agency obtained the competence and responsibility to prepare raw timber material in order to supply population or budget organizations and firewood timber resource to supply budget organizations. This responsibility also envisages the transportation of the resources to place. c) one of the important steps forward in terms of reducing the impact on forests and maintenance of resources, could be considered the amendments creating the opportunity for persons involved in bio-fuel production to use leftovers in forest (bark left from making timber, chips, sawdust, branches that cannot be used for firewood, windfall without timber resource).

The new draft Forest Code defines the requirements for categorization of forests. Due to multi-functionality of the forests, the aim of the categorization is to support protection of ecological functions of forest and maintain its biodiversity, sustainable use of economic potential and implementing social functions of forest. Forest of Georgia, considering its ecological, social and economic functions and main management principles, is divided into following categories:

a) Protected forest;
b) Resort and recreational forest;
c) Guarding forest;
d) Agricultural forest.

For establishing forest categorization system, it is necessary to create categorization and zoning rule based on the ecological, social and economic value of forests.

Forest categorization will be implemented gradually during the forest inventory process, however, list of green zone and resort zones within the state forest fund under the management of the National Forestry Agency was conducted and approved in 2014.

Pastures

"Monitoring guidelines for winter pastures of Azerbaijan and Caucasus" was developed for Georgia, Azerbaijan and Armenia with support of the GIZ. The guideline also contains principles and recommendations for pasture management.

Based on the guidelines, the Centre for Biodiversity Conservation and Research – NACRES has conducted research and prepared/is preparing management plans for following protected areas:

- Lagodekhi Protected Areas (Managed Reserve);
- Vashlovani Protected Areas (Traditional use zone);
- Tusheti Protected Areas (Traditional use zone, Protected Landscape);
- Borjom-Kharagauli National Park (Traditional use zone);

Similar approach was used in assessment of several pastures in mountainous Adjara and Gombori pass. At the same time, REC Caucasus is using same methodology in assessment of the pastures in Sagarejo region.

The guideline is not officially adopted. However, based on the Strategy for Rural Development 2017-2020, the approach used within the protected areas may be used as model pilot programme, which would support implementation of the sustainable pasture management in Georgia.

Habitat Conservation

Identification and mapping of wetland habitats (according to the EUNIS habitats classification system) was conducted by the Ilia State University and with support of GIZ.

According to the EUNIS classification, 58 habitats are currently identified in Georgia, which are included in Resolution 4 of the Standing Committee of the Berne Convention and whose maintenance of "favorable conservation status" is the country's obligation under the Berne Convention and the Association Agreement between Georgia and the EU.

NACRES is implementing the project aiming development of the system for assessment of the state of habitats. The project is supported by GIZ. The system foresees preparation of reports on state of habitats based on the Resolution #8 adopted by the Standing Committee of the Bern Convention on Conservation of European Wildlife and Natural Habitats. Assessment of habitats will be undertaken based on the guidelines prepared by the Secretariat of the Bern Convention and considers assessment of status of habitats towards "favourable conservation status". Assessment of the habitats is conducted based on the EUNIS habitats classification system.

Protected Areas

A comprehensive assessment of the current PA legislation was conducted in order to identify major gaps and specific aspects that needed to be improved. Then it was agreed among the main stakeholders that it would be beneficial to develop and adopt a national policy on protected areas before endeavouring the complex work of updating the legislation. This policy would be adopted by the Parliament of Georgia (similarly to the then recently adopted National Forest Concept) and would therefore achieve the highest possible legitimacy and status. Most of key stakeholders supported this approach and the Ministry of Environmental Protection and Agriculture initiated the process. An *ad hoc* working group was established including representatives of all key stakeholders such as NGOs, relevant international organizations and programmes as well as research and academic institutions. However, the process was delayed mainly due to the fact that national policies of such kind are relatively new to Georgia. Nevertheless, a draft policy was prepared. After finalisation it will be submitted to the Parliament of Georgia for review and subsequent approval. After its adoption, the national policy on protected areas will serve a basis for the updating of the national PA legislation namely the main law, the Law on Protected Areas System (1996).

The establishment of a Biodiversity Monitoring System for Protected Areas is supported by the Protected Areas Support Project of KFW Georgia, and is implemented by GFA Consulting. The project supports the improvement of the management of four protected areas (Kazbegi, Pshav-Khevsureti, Kintrishi and Algeti Protected Areas). So far, only creation of an administrative database is planned, which will have a biodiversity component (species diversity in protected areas).

Conservation of genetic resources

Scientific-Research Center of Agriculture:

- Study of rare plant species of forest, the genetic resources of wild relatives of fruit trees – for the first time in Georgia high conservation value forest sites have been described according to international criteria; genetic material of 49 different fruit tree varieties collected and planted on collection plots; Based on detailed inventory, materials were processed on 8 rare species of Adjarian Colchis and for 4 species, maps of the distribution area prepared;

- Seed samples 19 species of fruits collected for seed bank;

- To support reintroduction of indigenous crop varieties a catalog of indigenous agricultural varieties that are allowed for distribution in Georgia was developed. So far, the catalogue includes 4 endemic wheat crops, 3 varieties of corn, 5 varieties of beans.

- Number of activities were conducted for the recovery and improvement of local breeds and populations of domestic animals, poultry, fish and beneficial insects spread in Georgia. The breeds include: Megrelian red cow, Georgian mountain cow, Kakhetian and Svanetian pigs, Megrelian goat, Georgian fine-wool and semi-fine-wool sheep, Tushetian sheep, Imeretian sheep, populations of local chicken, duck and Javakhetian goose. In addition, Megrelian population of Georgian bee and local varieties of mulberry silkworms have been studied, 4 varieties of mulberry silkworms documented for registration in Sakpatenti.

Institute of Botany, Ilia State University and the Georgian National Botanical Garden (National Seed Bank):

- In 2015-2018 seed material of 18 wild relatives of fruit trees collected by the scientists of the Institute of Botany, Ilia State University and the Georgian National Botanical Garden; the seed collections are stored in Millennium Seed Bank and Seed Bank of Georgia National Botanical Garden.

- In 2018-2019 following activities were carried out by the Institute of Botany, Ilia State University and the Georgian National Botanical Garden - Collection and Conservation of Seeds of 84 wild relatives of fruit and nut trees; storing seeds in Millennium Seed Bank and Seed Bank of Georgia National Botanical Garden; Training of the staff of the partner organizations in Georgia on the use of seed conservation and red list criteria and use for target species of fruit and nut trees; Study of genetic diversity and utilization of selected species of economic importance by graduate students and staff of partner organizations; Evaluation of the extinction risk of 10 targeted tree species after training conducted by the Kew Royal Botanical Garden Plant Assessment Unit; the results to be published through IUCN; Involve local communities in ethnobotanical research and share knowledge gained within the project (trainings on sustainable collection methods);
- The National Seed Bank preserves the seeds of 26 taxa (species, subspecies) collected from 265 populations (species, subspecies) of Crop Wild Relatives.

Figure 2. Endemic wheat Dika

Ex situ collections of research institutes

Scientific-Research Center of Agriculture:

The Scientific-Research Center has *ex situ* collections of endemic species and indigenous varieties of field crops, vegetables, fruits and grape-vine. E.g.:
- At Jighaura, Mtskheta Base of Permanent Crop Research - collection of 437 Georgian grapevine varieties, more than 300 seed and stone fruits, nuts and berries; 11 varieties and more than 30 forms of mulberry;
- Annual crops collections at Tsilkani, Mtskheta demonstration base and Vachiani, Akhalkalaki Base.

National Botanical Garden of Georgia (National Seed Bank):

The National Botanical Garden of Georgia has *ex situ* collections of endemic species and indigenous varieties of field crops, among them wheat (12 variations of Makha - ***Triticum macha*** Dekapr. & Menabde, 3 variations of Chelta Zanduri - ***Triticum timopheevii***) Zhuk., 3 variations of Dika - ***Triticum carthlicum Nevski***, Zhukovsky wheat - ***Triticum zhukovskyi*** Menabde & Ericzjan, Colchian Asli - ***Triticum palaeo-colchicum*** Menabde, 5 variations of Gatsa Zanduri - ***Triticum monococcum*** *L.*, 4 variations of Asli - ***Triticum dicoccum*** Schrank, varieties and variations of soft wheat - ***Triticum aestivum*** L. (Khulugo, Iphikli, Doli), 2 varietions of ***Triticum durum*** Desf., 2 variations of ***Triticum spelta*** L., English wheat - ***Triticum tirgidum*** L., Polish wheat - ***Triticum polonicum*** L.), millet (23 variations of Ghomi - ***Setaria italica*** (L.) P. Beauv., 30 variations of millet - ***Panicum miliaceum*** L., Kvrima - ***Setaria mocharica*** Alef. Menabde & Ericzjan.), Barley (***Hordeum*** L. - 5 variations), Rye (***Secale cereale*** L.), legume crops (peas - ***Pisum sativum*** L., Faba beans - ***Vicia faba*** L., grass pea

- ***Lathyrus sativus*** *L.*, lentils - ***Lens culinaris*** Medik., Cow pea - ***Vigna unguiculata*** L. Walp., chickpea - ***Cicer arietinum*** L.) and oil-fiber crop (flax - ***Linum usitatissimum*** L.).

- In total, more than 130 varieties. Seed material is renewed annually.

Figure 3. Ghomi (indigenous millet)

Plant Genetic Resources Bank of the Georgian Agrarian University:

- 2,307 accessions of field and vegetable crops seed material are preserved in the Plant Genetic Resource Bank of the Georgian Agrarian University, including 866 accessions of cereal crops, 193 - millet, 629 - legume, 45 - feed, 351 - technical, 39 - aromatic and 184 vegetable crops.

- Genbank's research team implements a standard Genbank activities - short and long-term conservation of cereal, millet, legume and vegetable crops seeds stored, for their timely regeneration, reproduction and research.

Main research objectives include: evaluation of genetic material, morphological and biochemical characterization, taxonomic identification, evaluation of insect and disease susceptibility in the field and in laboratory conditions; Also monitoring seed viability and enhancing seed germination capacity for long-term storage.

Under the frames of Material Transfer Agreement, GenBank takes the responsibility to supply with the material for scientific research purposes:
In 2015 - LEPL Agricultural Research Center received 22 samples of millet crops.
In 2017 - LEPL Agricultural Research Center received 23 samples of millet crops.
In 2018 - in the frame of Shota Rustaveli National Science Foundation's project FR2017 / FR17_566 "Recovery, characterization and conservation of Georgia's endemic and wild wheat collection" 106 samples of wheat were transferred.

Shota Rustaveli Science Foundation:

In the frame of the current fundamental research project - "Finding, Regeneration and Characterization of Unique Species of Local Genetic Resources of Plants Preserved in Foreign Banks", GenBank actively cooperates with international Genbanks and research centers such as Gatersleben Plant Genetic Resources Research Institute, US Department of Agriculture Agricultural Research Center (USDA ARS) and

International Corn and Wheat Improvement Center (CIMMYT). The project has returned more than 500 accessories of Georgian origin, plant genetic resources of major plant origin, and is currently conducting regeneration, characterization, evaluation, taxonomic identification and conservation according to international standards.

Figure 4. Seeds of Abashuri Kviteli (corn) from the Seed Bank of Agrarian University

Biological Farming Association Elkana:

In addition to above mentioned Seed farms for multiplication seed and planting material, Elkana has a seed depository at the main office in Tbilisi. About 40 accessories of field crops are kept and regularly renewed in Elkana depository.

The Agricultural Biodiversity Conservation Program of Elkana supported by the Brot für die Welt (Germany) - Elkana operates with two conservation farms: Seed Arch Farm in village Tsnisi, Akhaltsikhe municipality (Samtskhe-Javakheti) and Animal Husbandry Farm in village Zemo Khodasheni, Akhmeta municipality (Kakheti). In total about 200 farmers have been involved in conservation program. For wheat and legume crops local value chains have been established.

Figure 5. Local Population of Chicken

Figure 6. Kakhetian Pig

Georgian Wheat Growers Association:

- The organization was established in 2017 works on distribution of local wheat landraces among Georgian farmers.

International networks on plant genetic resources

In 2019 Georgia has renewed membership of the european cooperative programme for plant genetic resources and received respective quota (8) to participate in the working groups established under the programme.

The representatives of the Scientific-Researc Centre established under the Ministry of Environmental Protection and Agriculture are involved in the working groups on vine, wheat, Leguminosae and apple.

Ex-situ collections of the genetic resources for food and agriculture:

Main purpose of the Agricultural Scientific-Research Center is research, restoration and conservation of traditional varieties. The Scientific-Research Centre stores ex-situ collections in the form of seed bank and live collections. Particularly, Tsilkani base stores seed bank of grassland cultures. The collections were created based on international standards - Genebank Standards for Plant Genetic Resources for Food and Agriculture http://www.fao.org/agriculture/crops/thematic-sitemap/theme/seedspgr/gbs/en/ Gene bank contains 500 specimens of endemic and local wheat varieties, 200 specimens of 8 bean and 5 maize varieties.

The center restored and described traditional Georgian wheat varieties – Dika, Makha and Zanduri.

Guidelines of the Union for the Protection of the New Varieties of Plants on distinctness, uniformity and stability were used to describe Georgian varieties. http://www.upov.int/test_guidelines/en/list.jsp 6 bean and 4 maize varieties are also described based on UPOV methodology.

Tsilkani scientific base works on in-vitro conservation of genetic resources. In-vitro collections of following varieties are represented:
1. 3 varieties of wolfberry - 60 specimens;
2. Sweet potato – 20 specimens;

3. Potato - 1050 specimens;
4. 27 varieties f Georgian vine – 5-5 plants each variety.

Jigaura base also stores live ex-situ collections of 25 fruit cultures, including apple, pear, quince, peach, plum, walnut, etc.

Online database of forest cultures is developed www.forestgenresources.ge and field expeditions are carried out in order to collect forest cultures.

Memorandum of understanding is signed with the Tbilisi Botanical Garden aiming involvement of scientists from the botanical garden in field expeditions and exchange genetic materials.

Inland Waters

In 2015, German Ministry of Environment, Nature Conservation, Building and Nuclear Safety (BMUB) financed the project "Environmental Impact Assessment of Cumulative Impacts of Hydro Power Plants in Georgia". The project has developed gradual methodological concepts on cumulative impact assessment of several hydro-power plants, according to the river basin requirements, the country scale and the requirements of the EU "Water Framework Directive". The practical aspects of the project activities are important and will support the staff of Ministry of Environmental Protection and Agriculture and National Environmental Agency to carry out their daily activities, including inspection of environmental impact assessment (EIA) reports on hydro-power projects. Within the framework of the project, specific methodological details and rules for their use was elaborated. As a result of conducted activities, the possible risk of cumulative impact of hydro-power plants on Rioni river basin has been estimated, 4 planned and 3 already existing HPPs have been evaluated.

Species Conservation

In 2017, the FFI launched a sturgeon conservation project, which aims conservation of the Rioni river and its sturgeon habitat, with collaboration of state institutions, higher education institutions and the WWF Caucasus Office. Intensive field works are being carried out in Rioni river for the purpose of sturgeon survey/research. Within the framework of the project, the eDNA analyses for Rioni river was conducted two times, based on which the resident species were defined. A number of activities have been carried out in the region to raise awareness about sturgeon importance.

In 2016 1000 specimens of endemic salmon species was released in Kintrishi river to support restoration of endangered species.

Ilia State University is conducting research of cetacean species, including population numbers and distribution. Cetacean conservation plan was developed and bycatch control is carried out.

The status of intangible cultural heritage is currently granted to the following traditions and traditional rules of production:

- The ancient Georgian traditional method of "Kvevri" (Clay Wessel) wine making;
- Meskhetian Cheese Tannin Making Technology;
- Ancient food production technology from Pshavi for "Dambalkhacho";
- Georgian Silk;
- Georgian folk medical knowledge and traditions of its use;
- Falconary;

- Consumption of following medicinal-mineral, acidic waters In Zemo Svaneti : Mugviri, Artskheeli, Kakhrld, Legab, Seth, Kvedilashi and Shedge;
- Local wheat culture (endemic species and local varieties).

These traditions and traditional rules of production are identified and documented. The Agency for the Protection of Cultural Heritage and the National Wine Agency ensure their protection and promotion.

It is important to highlight, that, in December 2013 the oldest Georgian traditional method of Kvevri wine making was included in the list of UNESCO Intangible Cultural Heritage Sites. At present inclusion of local wheat culture in UNESCO Intangible Cultural Heritage List is being discussed.

Obstacles and scientific and technical needs related to the measure taken

Challenges:

- In spite of the fact that there was an agreement among the key stakeholders to adopt a national policy on protected areas before updating the legislation, this step was delayed and the process of legislation improvement was delayed accordingly. The main obstacle probably was the fact that national policies of such kind are relatively new to Georgia. Nevertheless, the first draft of the policy was prepared and it is expected that its adoption by the Parliament will greatly facilitate the process of updating of the national PA legislation.

- Measures to support on-farm conservation activities are rather small-scale, as number of organizations that work in this direction is quite limited. In addition, following represent main obstacles: (i) limited access to seed and planting materials, (ii) lack of specific knowledge on the cultivation of specific landraces and local varieties and (iii) low recognition of landraces and their products on the market, remain in place.

- Unified database that would include training modules, manuals, information regarding the specialists in biodiversity conservation and sustainable use (who have participated in relevant trainings), does not exist. It is therefore difficult to identify a professional knowledge trend related to the management of components of biodiversity.

- There is no unified database of traditional knowledge related to biodiversity conservation and sustainable use.

- No coordination mechanism in-place for the agencies responsible for protecting traditional knowledge of biodiversity (Ministry of Environmental protection and Agriculture, National Agency for Cultural heritage Preservation and other stakeholders).

Needs

- There is a need of human and technical capacity building for the research, protection, promotion and revitalization of the traditional knowledge on biodiversity conservation and use.

Finances and Ecomonic Valuation

There are 5 actions related to finances and economic valuation envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.3
Aichi Target(s) – 2

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been ineffective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

In 2012 Georgia became one of the pilot countries for TEEB Scoping Study. Under the scoping study, which was conducted with participation of the MENRP, UNEP, WWF-Caucasus Program Office, five core sectors of Georgian economy (energy, tourism, agriculture, mining, and forestry) were identified, applicable for a more detailed TEEB study. The study highlighted the substantial dependence of these driving forces of Georgian economy on natural capital and the services it provides.

Following to TEEB scoping study, TEEB for the Forestry Sector of Adjara Autonomous Republic, Georgia was prepared in 2016, which was focused only on economic valuation of high importance and potentially threatened forest ecosystem services for one particular region of the country only. There were no further TEEB related follow-up actions, thus the actions A.3-o2.1., A.3-o2.2. and A.3-o2.3. could be considered as unsuccessful with no implications or any kind contributions to the overall implementation of the National Target A.3.

Relevant websites, web links and files

http://img.teebweb.org/wp-content/uploads/2017/03/TEEB-Adjara-Final-Report.pdf – TEEB for the Forestry Sector of Adjara Autonomous Republic

http://img.teebweb.org/wp-content/uploads/2014/01/TEEBScoping-study-for-Georgia-main-findings7wayforward-2013.pdf - TEEB Scoping Study

http://doc.teebweb.org/wp-content/uploads/2014/01/TEEB-Scoping-Study-for-Georgia_2013WEB.pdf - TEEB Scoping Study (short version)

Other relevant information

During the consultation meetings, Forest Policy Division (MEPA) noted, that the absence of baseline information has negatively affected the success of the TEEB study. Currently the country is undertaking the forest inventory process, which could serve as a good baseline for implementation of TEEB study in the future.

Obstacles and scientific and technical needs related to the measure taken

Obstacles:

1) Lack of willingness and ownership of the process from national authorities;
2) Limited financial support from donor organizations for follow-up actions.
3) Lack of successful implementation experience of TEEB initiative worldwide;
4) Country focus on rapid economic development/growth.

5) As 2016 TEEB study was limited to only one region of the country and only few ecosystem services, the results of the survey did not allow to draw the general picture of the biodiversity/ecosystem services values, thus could not obtain relevant support to follow up.

Needs:

1) Awareness raising of the decision makers at national level regarding the benefits of the application of TEEB and its inclusion into development planning;
2) Technical assistance from external sources to build national capacity for implementation of TEEB.
3) Obtain baseline information which would allow to apply TEEB approach.

Innovation and Piloting

There are 12 actions related to innovation and piloting envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – B.1, B.4
Aichi Target(s) - 5, 7, 14, 15

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

The state program of "Rational use of pastures in the highlands" was initiated in 2017 and continued in 2018. The agricultural cooperatives that met the criteria established by the program benefitted from long-term leases of state-owned natural pastures and from renting necessary machinery and different equipment. There were 21 agricultural cooperatives from 21 highland municipalities engaged in the program.

Number of projects were carried out in 2014-2018 to support implementation of sustainable and modern pasture systems. The projects were aiming to reduce grazing threats on pilot areas near the forests.

The project “Improvement of biodiversity in prioritized transboundary protected areas of Ior-Mingechauri region” (financed by Federal Ministry of Economic Cooperation and Development (BMZ) and World Wide Fund for Nature (WWF) Germany. The project implemented by WWF Caucasus Program Office carried out number of activities aiming at improvement of grazing practice on winter pastures nearby Chachuna managed reserve. At the same time, one of the important components of the project supported restoration of riparian forests. For this purposes the path to the watering area was fenced. This will prevent new sprouts and support implementation of principles for sustainable forest management.

The project “Sustainable management of pastures in Georgia to demonstrate climate change mitigation and adaptation benefits and dividents for local communities” (UNDP/EU) aimed at support of improvement of Vashlovani National Park management and adaptation to the climate change. Sustainable pasture management plan was developed in order to reduce degradation and number of activities were implemented as pilot projects aiming at rehabilitation of ecosystem and reduction of pressure on pastures. The pilot activities were planned and implemented with support of the local sheperds association. Water supply system was set up to provide water directly to farms, reduce necessity of cattle migration and increase efficiency of

farming and grazing. This will prevent cattle from occurring in nearby forests and support rehabilitation of ecosystems.

The project "Integrated erosion management in South Caucasus" aimed at assessment of condition of pastures in Tusheti Protected Areas and use of these pastures, as well as implementation of pilot projects aiming at reduction of erosion. The project aimed at improvement of regulation of grazing process.

Mainstreaming of Biodiversity in Different Sectors

There are 10 actions related to mainstreaming of biodiversity in different sectors envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.1, A.3, B.4, D.2
Aichi Target(s) - 1, 2, 3, 7, 14, 15

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

The positive trend can be observed in cooperation between the government and non-governmental organizations. More focus was given to the national policies and strategic documents (e.g. NBSAP, The NEAP 2017-2020, National Rural Development Strategy 2017-2020, Youth Policy Document (approved in 2013), National Strategy for Education for Sustainable Development 2019-2023 (forthcoming)). Some funds from the state budget are allocated to finance non-formal extracurricular eco-education (various competitions, exhibitions, seminars and lectures, expeditions in protected areas, eco-club activities).

Environmental Assessment Code

On June 21, 2017, parliament of Georgia has adopted the "Environmental Assessment Code", which has been prepared with the support of UNECE and other international partners. The code was prepared in accordance with EU Directive 2011/92/EU and Directive 2001/42/EC. Chapter 3, of the code is dedicated to Strategic Environmental Assessment, which aims to integrate environmental assessment into country`s plans and programmes at the earliest stages, and thus help in laying down the groundwork for sustainable development. The chapter, among others provides the list of sectors, where SEA is mandatory for development of strategic documents (these sectors include: Agriculture, Forestry, Fishery, Energy, Industry, Transport, Waste Management, Water Resources Management, Communication, Tourism and Spatial Planning). Involvement of the Ministry of Environmental Protection and Agriculture (MEPA) and the Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs is mandatory for adoption of strategic documents for development of above-mentioned sectors. The process of strategic environmental assessment contains screening and scoping processes, also public participation should be ensured.

The provisions of the Code regarding the SEA came into force since June 2018, so far five SEA applications were submitted out of which two are subject to the scoping phase. Both are tourism-related infrastructure development projects – 1. Popular ski destination – Gudauri and 2. Balneological resort – Lebarde.

The article 10.7 of the Code outlines, that, during the process of preparation of EIA, "Environmental Impact Assessment Preparation Guidelines" could be followed. Also, these guidelines could be used by MEPA during the preparation of scoping phase conclusion or screening phase decision. So far, no such guideline was introduced in practice.

In 2018-2019, the BIOFIN project has supported MEPA and prepared the Guideline and checklists for inclusion of Biodiversity-related topics into the EIAs for HPPs. This could be considered as an initial step to cover/address the gap on specific requirements and topics to be addressed during the preparation of EIAs.

Biological farming

In 2013, the Government of Georgia adopted the Regulation on Bioproduction which entered into force since January 1, 2014. This regulation is based on EU legislation and specifies rules for organic production. The responsible entity for the issues related to organic production (organic farming) is the Ministry of Environmental Protection and Agriculture. The majority of activities associated with organic farming that have been addressed by the Ministry are primarily based on the 2013 Government of Georgia's Regulation on Bioproduction #198 and the Strategy of Agricultural Development of Georgia 2015-2020. Bioproduction in the Strategy is mentioned within the framework of the Strategic Direction 3.7: Climate change, Environment and Biodiversity are mentioned in measure 3.7.1. By the end of 2018 the government has announced about initiation of a comprehensive, USD 0.5 mln, five-year program aimed at promoting production and certification of organic products as part of the Green Economy initiative introduced by the Prime Minister of Georgia. It will provide co-financing and tax allowances for producers and/or processors, as well as assistance in certification and technical training, expected to be implemented by the newly established entity in the MEPA – Agriculture and Rural Development Agency. This initiative will become part of the new agricultural program.

Figure 7. Land area used for certified organic crops (red) and wild collection (blue) in Georgia, 2004-2018 (ha)

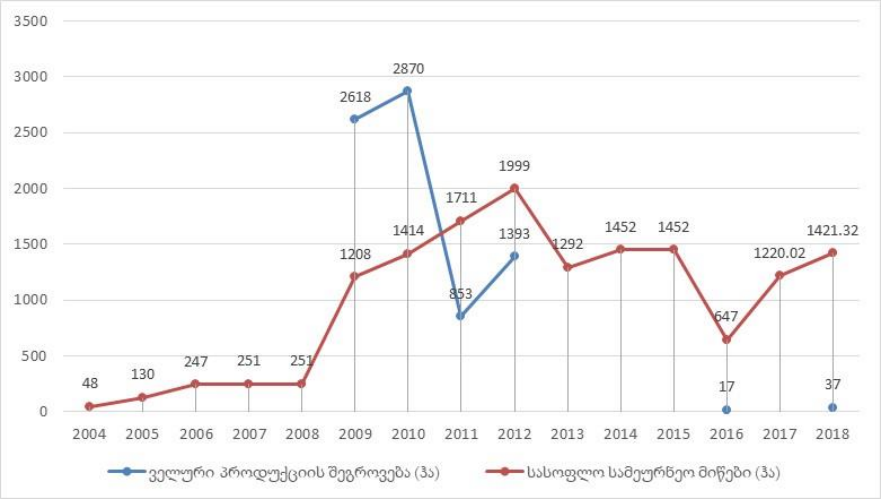
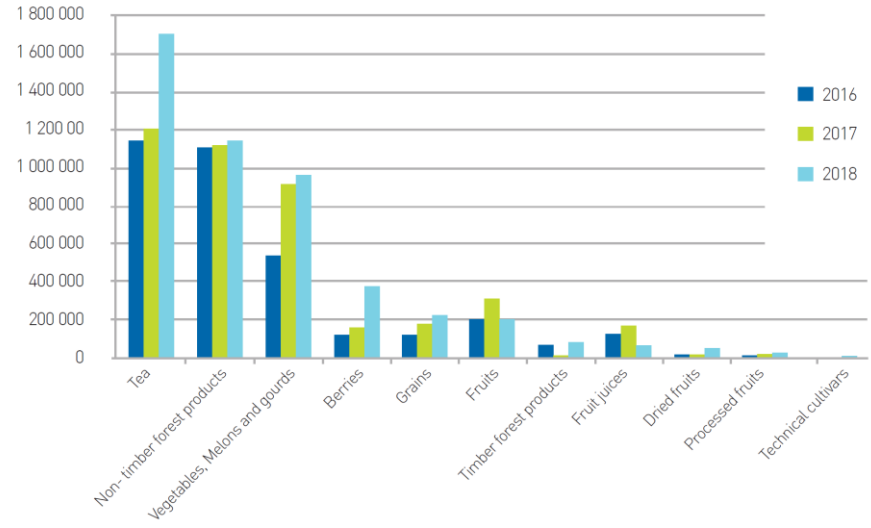


Figure 8. Three-year dynamics of plant products produced in Georgia using organic methods, (GEL)



In May 2018, the Government of Georgia has adopted a new regulation - the rule for granting the right to use the quality mark, which defines 10 quality marks in food production and respective State Quality Labels in Georgia, among them: "Bio Product", "In Conversion to Bio Product", Geographical Indications (GI) - Protected Appellation of Origin (PAO) and Protected Geographical Indication (PGI), "Produced in Georgia," "Handmade", "Grass-fed", etc. Granting of the right to use "Bio" and GI labels require introduction of respective certification system and external audits by an accredited certification bodies, while for other quality labels the responsible body is the Marketing Council of the MEPA.

Figure 9. State Quality Marks – PGI, PAO, Bio Product, In Conversion to Bio Product

Environment and Biodiversity Conservation is a strategic direction # 7 of the Agricultural Development Strategy and Action plan 2015-2017. According to mid-term evaluation of the action plan implementation, this strategic direction has been the most moderately implemented. E.g. implementation of the measure 7.1. - Maintain good agricultural practices, biodiversity and environmental sustainability programmes, is evaluated as following:

7.1.1. Promoting good agricultural practices in the agricultural sphere – partly implemented, as it was limited to production of good agricultural practice manuals and some efforts made in their implementation in the field;
7.1.2. Promotion of bio-agro-methods and increase awareness of farmers toward bio production is marked as "implemented", although mentioning that "the level of the achievements is moderately the same as the level in any other CIS countries";

7.1.3. Adoption of measures against the soil degradation (desertification, salinization, erosion) resulting from climate change – partly implemented as the Ministry doesn't have many possibilities to implement those measures except to make information campaigns and to raise awareness among farmers.

Climate change

The Environmental information and Education Center, with support of the United Nations Development Programme (UNDP) has implemented the project Harmonization of information management for improved knowledge and monitoring of the global environment in Georgia, funded by the Global Environmental Facility (GEF). The aim of the project was harmonization of the environmental information management in Georgia and analysis of the capacity of the governmental institutions responsible for collection of information and reporting. One of the important components of the project aimed at assessment of national needs to ensure climate change trends and monitoring. The report was prepared outlining the capacities of the governmental institutions concerning the reporting on biodiversity and climate change. The report makes clear that the national reports do not adequately reflect information on threats of climate change on biodiversity. Based on the report, despite improved quality of the reports, there is no information on habitats and species vulnerable to climate change in Georgia. Information on impact of climate change on ecosystems ad biodiversity is almost nonexistent, which is caused by the lack of relevant research.

It is assumed that the biodiversity related issues will be analyzed in depth within the Fourth National Communication to the UNFCCC and Second Biennial Update Report.

Relevant websites, web links and files

https://matsne.gov.ge/document/view/3691981?publication=2 – Environmental Assessment Code of Georgia

Other relevant information

In 2014, Georgia signed an Association Agreement with the European Union. Under the agreement, Georgia has committed to harmonize the national legislative framework to the EU legislation. The document, inter alia, covers environmental issues. Namely, two chapters are related specifically to Environment – Chapter 3 – Environment and Chapter 4 – Climate Action. Annex XXVI of the agreement provides specific list of EU environmental directives and regulations. Georgia is obliged to approximate its legislation to these directives and regulations within the respective timelines. The list includes the Directive 2003/35/EC "of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment" and Directive 2001/42/EC "of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment".

Relevant websites, web links and files

https://eeas.europa.eu/sites/eeas/files/association_agreement.pdf - Association Agreement with the European Union
https://mepa.gov.ge/En/Reports
http://eiec.gov.ge/Main/გარემოს-საინფორმაციო-სისტემა/Attachement-N4-Assessment-of-national-needs-and-Pl.aspx

Obstacles and scientific and technical needs related to the measure taken

Obstacles:

- Frequent outflow of the personnel. The trained staff members usually leave the Ministry for better remunerated positions in other public institutions, consultancy companies or private sector;
- Lack of knowledge of relevant staff on specific economic sectors subject to SEA;
- The adoption of new Code and introduction of SEA, is certainly the significant step made towards the achievement of NBSAP National Target A.3, however, it should be noted, that although the code forms general framework for preparation of SEAs, there are no specific requirements on how biodiversity or ecosystem-services should be integrated into SEA. Also, considering that the SEA provisions became effective only recently, it does not allow to make specific conclusions about its effectiveness;
- The State-owned agricultural land, including natural grasslands and community pastures, is managed by the National Agency of State Property (NASP) of the Ministry of Economy and Sustainable Development (MESD) under the category "Real Estate – Agricultural land". Although privatization of pastures is prohibited, pastures can be leased for up to 49 years;
- Lack of financial resources and limited number qualified staff to accomplish sustainability objectives in agricultural programs – e.g. MEPA often does not have enough financial resources and staff capacity for adoption of measures against of soil degradation (desertification, salinization, erosion) resulting from climate change;
- Intensive chemical treatment against Marmorated stink bug in west Georgia in 2017-2018 had negative impact on beneficial insects, which resulted in huge imbalance in agricultural ecosystems;
- There is a big deficit of qualified agronomists, veterinarians, food safety specialists and other agricultural workers; The limited number of experts often do not have good understanding of sustainable development, gender and environmental issues;
- The National Environmental Agency (NEA) is the main source of information for prognosis and assessment of climate change. It should be mentioned that the information from the agency has a technical character and consists of raw data, e.g. tables obtained from various stations. The information is stored on the server of the agency.
- Unfortunately, access to the server for external users is not provided or the information is not available free of charge. Sometimes part of important information is not available electronically and only exsists as a hardcopy.
- The projects implemented at the national level and the non-governmental organizations have important role for information collection and reporting. However, the results are not always shared. This reduces the efficiency and causes duplication. Most of the projects do not address important issues such as support to the adaptation of agrobiodiversity and ecosystems. These issues are mostly only formally represented in the projects. E.g. The projects often involve pilot activities aiming increase of energy efficiency or forest restoration, which are more of a mitigation activities rather

than adaptation. At the same time, it should be mentioned that considering size of the country, such activities may only have very limited impact on climate change.

- At the same time, most of the reports prepared, have not take into account the the measurement, reporting and verification (MRV) procedure, with the exeption of the biennial update report.
- Development of sectoral guidelines on integrating biodiversity considerations and ecosystem services in SEA;
- Training of relevant MEPA staff on identification of potential impacts of different sectors on biodiversity and ecosystem services.

Relevant websites, web links and files

https://ec.europa.eu/clima/sites/clima/files/docs/eu_strategy_en.pdf
https://climate-adapt.eea.europa.eu/
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:165:0013:0040:en:PDF
http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN
https://ec.europa.eu/environment/nature/climatechange/pdf/Guidance%20document.pdf

Monitoring, Statistics and Analytics

There are 20 actions related to monitoring, statistics and analytics envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.4, B.1, B.2, B.3, B.4, C.6, E.1
Aichi Target(s) - 1, 5, 7, 8, 9, 14, 15, 19

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Living Modified Organisms

Based on the requirements of the Cartagena protocol, Ministry of Environmental Protection and Agriculture carries the responsibility of Competent National Authority and National Focal Point of the protocol. Customs service under the Ministry of Finance is responsible for the control of transboundary movement of LMOs. Illegal introduction of LMOs into the environment is controlled by the Environmental Supervision Department under the Ministry of Environmental Protection and Agriculture of Georgia. Placement of LMOs on the market is controlled by the National Food Agency of the Ministry of Environmental Protection and Agriculture.

Table 4. Number of samples to control GMO and detect LMO

Year	Number of samples to detect LMO	Number of samples to detect GMO in food
2015	628	362
2016	625	572
2017	1506	689
2018	2556	846

In 2014-2018, there were 5 cases of illegal import of living modified organisms recorded (exporting countries: Turkey, South Africa, and India. LMO cultures: corn and bean). The cargo containing GMO was destructed or returned to the exporting country. Control of the cargo to detect GMO is based on the risk assessment.

Since 2015 Environmental Supervision Department, under which the division of the control of LMOs is operating (4 employee), controls the selected agricultural lands annually for illegal introduction of LMOs into the environment. In total, 177 agricultural land plots were inspected in 2015-2018. The following agricultural species were tested: crop, soybean, potato, wheat, alfalfa, pumpkin, tomato and beans. There were no cases of illegal introduction of LMOs into the environment. The agricultural land plots for inspection are identified based on the risk assessment.

As mentioned above, placement on market of the food product/fodder containing LMOs was restricted in 2016. List of the LMOs allowed for placing on the market (7 soybeans species) in 2015-2016 was adopted by the order of the Minister of Environment and Natural Resources Protection of Georgia (the order is now abolished).

Monitoring of placement of Genetically Modified Organisms Designated for Food Products/Fodder and Genetically Modified Products produced from them on market is in progress according to Food safety, veterinary and phytosanitary state control program, which is adopted by the Minister of Environmental protection and Agriculture of Georgia on annual basis. In total, 580 samples were tested by National Food Agency in 2014-2018. Not a single case of placement of GMO designated for food products/fodder on market was registered. 5 cases of violation of the rule of labeling of GMO products were identified (soybean, potato, corn, soy filling, solitude and starch).

Agencies responsible on GMO monitoring and control (Revenue Service, National Food Agency, Environmental Supervision Department) have commitment to cooperation. Accordingly, planning of control and monitoring is carried out based on joint analyses of the information and data.

Private accredited laboratories equipped in compliance to international standards are operating in Georgia. They have the capacity for detection and identification of GMO. LEPL Laboratory of the Ministry of Agriculture has adequate technical capacity.

Forests

Inaccurate information and lack of data on actual conditions of forest and its quantitative and qualitative indicators often serve as an obstacle during the planning and assessment processes. There is no comprehensive inventory conducted for the state forest fund during the last 20 years.

A forest inventory process was reinitiated in 2013 and accordingly, the data was updated for the 360 136 Ha area in 2014-2018, including: Ajara, Guria and Samtskhe-Javakheti regions, also, in specific forest areas of Imereti and Kakheti regions (Kharagauli, Lagodekhi).

In 2016, development of the new methodology for forest inventory has started by the initiative of the Ministry of Environment and Natural Resources Protection with a support from German Society for International Cooperation (GIZ). Inventory of forest management level (FMI) represents analogue of current practice for forest detailed inventory, however, the new methodology considers strict statistical design and ensures provision of accurate statistical results. Piloting of forest inventory with the new methodology was carried out in the different municipalities of Georgia during 2016 by the Georgian and international experts.

At the same time the methodology for the National Forestry Inventory (NFI) has been developed. This methodology can be considered as the best instrument for forest monitoring. Also, it can serve as a basis for monitoring of environmental and ecological policy. Forest inventory at the national level has started in Spring, 2019.

Actions taken by the LEPL National Forestry Agency in 2018 towards institutionalization of the process can be considered as a significant step forward. These actions envisage the development of the special teaching programme, training of young forester-specialists and carrying out forest inventory with own resources. The forest inventory in Lagodekhi and Akhmeta forested areas and development of management plans were initiated in 2019 using this particular approach.

In 2017, development of forest information and monitoring system has started with support of the German Government. At the same time, platform developed by the World Resource Institute (WRI) was introduced within the framework of the project – "Global Forest Watch (GFW) Georgia" financed by the Global Environment Fund. The platform will improve land use and access practices, transparency and accuracy of information about forests. Also, it will ensure active use of information and support during planning, as well as, monitoring of the activities related to forestry sector.

One more important process, related to the implementation of the mechanisms for law enforcement and monitoring, has been started in 2014. The process of developing criteria and indicators for sustainable forest management was started with the support of the German Government, within the framework of the project "Criteria and Indicators - for sustainable management of forest" (FAO/UNECE) implemented since 2016 with the support of United Nations Economic Commission for Europe (UNECE), United Nations Food and Agriculture Organization (FAO) and United Nations Development Programme (UNDP). National level criteria and indicators of Georgia were positively assessed, and the document is ready for approval.

As a result of the forest inventory carried out in Ajara, Guria, Samtskhe-Javakheti regions and Kharagauli forested areas in 2014-2018, high level of forest degradation on these territories (decrease of frequency, loss of biomass supplies) has been observed. However, comprehensive assessment (even at the national level) has not been carried out yet.

Forest restoration and maintenance activities are planned on annual basis by the LEPL National Forestry Agency plans, based on the data provided by the regional forestry units. Based on such data, **22 028,2 Ha** area (it is noteworthy that this indicator will be significantly increased after forest inventory) of forest fund territory under the management of the Agency is a subject of restoration for 2019.

Management of Timber Resources

Electronic system for the management of timber resources developed in 2011 has been upgraded during 2014-2018, instruction for system functioning was approved (Order N118 by the Minister of Environment Protection and Natural Resources Protection; 30th of April, 2014), the better control mechanism was introduced - marking of rounded log (raw material) with signs. This latter is a strict accounting, specialized sign, which is protected from fabrication or/and multiple use.

Impact of grazing on forest habitats

Assessment of grazing impact on forest habitats has not directly been conducted in 2014-2018. Assessment of grazing has only been conducted on natural meadows within the certain protected areas, namely: Lagodehi protected areas, Vashlovani protected areas, Tusheti protected areas, Borjom-Kharagauli national park. However, during the project impact on pastures within the forests was assessed. Based on the assessment, the negative impact of grazing on forests near the pastures is clear.

At the same time, opposite trend can be observed in high mountainous areas, where reduction of cattle has caused reduction of grazing and consequently reforestation of pastures.

Based on the surveys conducted by the Centre for Biodiversity Conservation and Research NACRES in the Truso Gorge (Kazbegi) it is evident that the grazing intensity in the gorge has reduced in past 20 years and the forest area has increased by 118 ha. At the same time it should be mentioned that reforestation has occurred in the areas of former pastures.

Forest Pests

In 2014-2018, Vasil Gulisashvili Forestry Institute has carried out a research on main pests-diseases damaging forest currently, including: cambium beetle, bleeding canker of horse chestnut, box tree moth and box tree burn. Accordingly, pests-diseases spread areas are identified across the country and actions for fighting against them were carried out at the same period.

Invasive Species

Within the framework of NBMS, most dangerous 50 species for Georgia's biodiversity were listed, monitoring of the selected species should be conducted in 5 protected areas.

Considering extremely limited expertise in the country, implementation of modern technologies for IAS study is very important. In August 2018, within the framework of CBD/GTI a meeting/training on water IAS species was held. After the genetic treatment of Georgian samples of fish and crabs, 2 new alien/invasive species were detected for Georgia, one - *Rhinogobius* sp. (Pisces) and another- *Rhithropanopeus harrisii* (Crustacea). *Rhinogobious sp.* has also been observed in the Rioni Basin as a result of environmental DNA (eDNA) research (by Fauna and Flora International-FFI, 2019). This indicates that implementation of the DNA-based methods in Georgia may significantly enhance IAS monitoring and research efficiency.

For the reporting period IAS inventory has not implemented and no assessment of impact of any invasive species on natural ecosystems was carried out.

Some of the new invasive species for Georgia (e.g. *Ferrissia californica, Mytilopsis leucophaeata*) were found in fragmented studies (by scientific / research institutions, Ilia University) and some ecological problems related to IAS have been identified in limited geographical scale (as in case of Prussian carp). It should be

taken into consideration, that these studies do not have a systemic character and are entirely related to the interest/grants of individual researcher or research groups.

A study published in 2013 emphasized the necessity of collection the precise data on the distribution of Prussian carp, to conduct a sample survey in several water reservoirs for risk assessment. It will apply as a base for regulation and impact mitigation development.

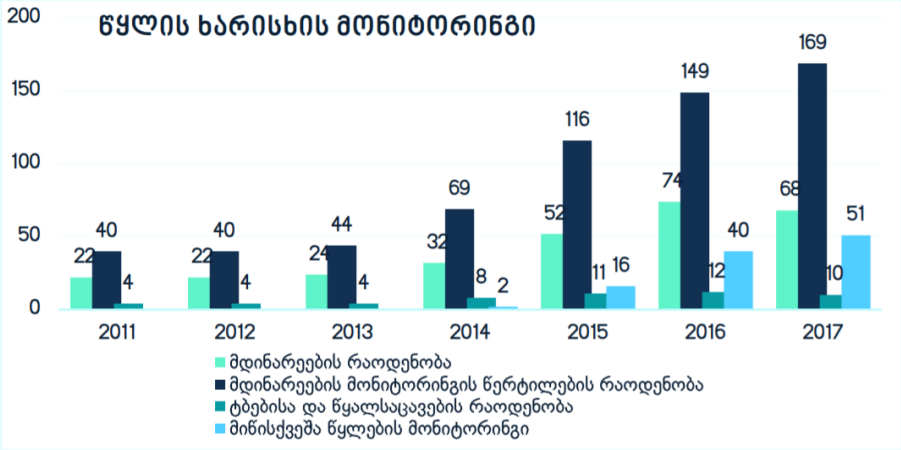
Scientific research published in 2019, presents several new records for invasive species in one taxon (Mollusca)

Research of the Kartsakhi lake (Kartsakhi managed reserve) in 2019 identified 4 new invasive species. It is planned to catch the invasive species to ensure restoration of lake biodiversity.

Water Quality Monitoring

Since 2013, the water quality monitoring network has significantly expanded. In 2017, 68 rivers (22 rivers in 2013) and 169 points (3.8 times more than in 2013) were monitored.

Figure 10. Expansion of water quality monitoring network in 2011-2017



Source: National Environmental Agency Annual Report, 2017

Water quality is monitored by the National Environment Agency (Ministry of Environmental Protection and Agriculture). Surface water quality reports are regularly published on the National Environmental Agency's website (http://nea.gov.ge). The following physical and chemical parameters are being monitored: pH, dissolved oxygen, BoD, nitrite, nitrate and ammonium nitrogen, phosphates, sulfates, conductivity, mineralization, iron, zinc, copper, lead, manganese, and on some spots arsenic.

Since 2014, hydrobiological monitoring of water has started. The introduction of hydrobiological monitoring was launched within the framework of the EU-funded project Environmental Protection of International River Basins (EPIRB) (http://blacksea-riverbasins.net). As of 2017, hydrobiological and ichthyological observations are conducted at 20 lakes annually. Hydrobiological monitoring of the marine environment is

carried out at four monitoring stations four times a year and at three stations monthly. Monitoring at the of the six river mouth is carried out twice a year.

In 2016, with the assistance of the EU Black Sea Environmental Improvement Monitoring (EMBLAS) project (http://emblasproject.org/), Georgia collected significant water quality data from expedition and research activities along the Black Sea coast. The survey was conducted at 15 stations/points along the coast of Georgia, including those where no monitoring has been conducted in the last 25 years. In frames of the research macrobenthos, meiobenthos, microplankton, Ichthyoplankton, solid waste, noise and chemical pollution were studied. This survey provides more comprehensive information on the state of coastal waters in Georgia.

Data was digitized with the support of the Norwegian Water Resources and Energy Directorate (NVE), enabling water resource management professionals to retrieve statistical data easily and consider them in decision-making process.

Survey results for surface water objects (2014-2017) show that ammonium nitrogen pollution, which is mainly associated with discharge of untreated urban wastewater and runoff from agricultural lands, is the most common form of surface water pollution. Heavy metal pollution is a serious problem in only a few rivers (Kazretula, Mashavera, Kvirila) and is mainly associated with mining activities. Surface water monitoring results show that contamination of the fertilizers in surface water is not widely spread wide in Georgia.

Figure 11. Average annual ammonium nitrogen concentration in the Caspian rivers in 2014-2017

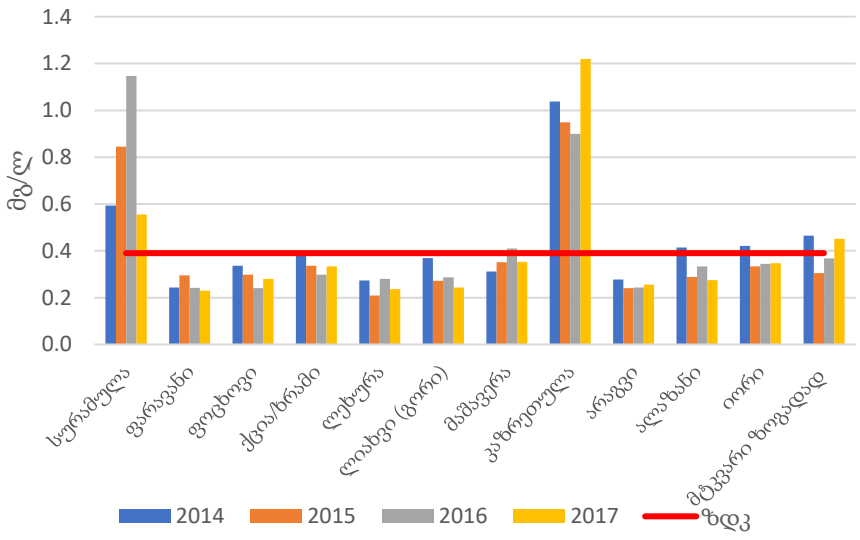
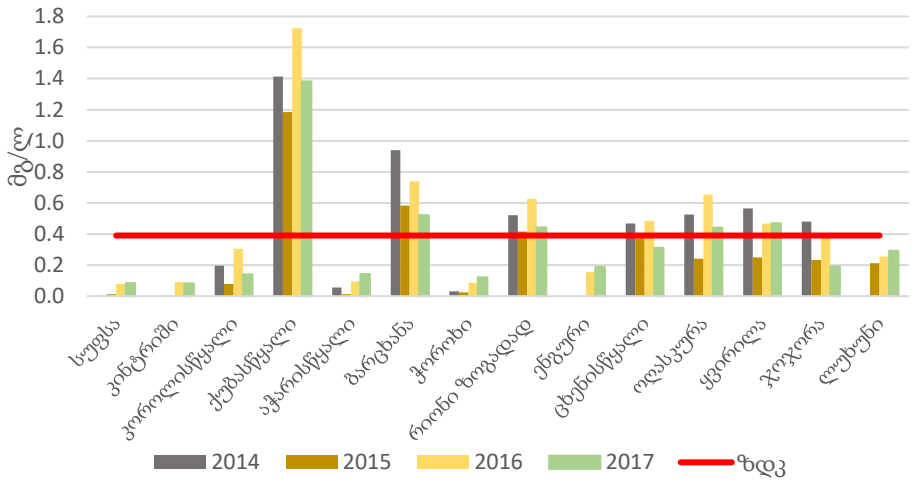


Figure 12. Average annual ammonium nitrogen concentration in the Black Sea rivers 2014-2017



The main source of ammonium nitrogen pollution of surface water of Georgia is domestic wastewater. In 2017, household wastewater was 58% out of the total wastewater generated in the country. Livestock farms, from which wastewater flows into surface water without any treatment, are also a source of pollution with ammonium nitrogen. Currently, three wastewater treatment plants are operating in Georgia (30 wastewater treatment plants were operating in in the 80s of the twentieth century).

The wastewater management strategy was developed in 2014 with the support of the Regional and Municipal Development Project (RMIDP, WB, 4516-GE). Donor organizations have completed, or are in the process of constructing or planning construction / reconstruction of wastewater treatment plants. (Construction of wastewater treatment plants completed / underway - in Tbilisi, Anaklia, Ureki, Kobuleti, Telavi, Tskaltubo, Zugdidi, Poti, Mestia, to be completed in 2022 in Kutaisi).

Mining is a source of pollution of surface waters with heavy metals. The Kasretula and Mashavera rivers are polluted from the factories of gold, copper and zinc, and in the case of Kvirila, from the manganese factories. Despite the measures taken by the operator company to reduce pollution in Kazretula and Mashavera, the pollution of these rivers with heavy metals remains a critical problem.

Landfills are also a major source of surface water pollution. As of today, 23 of the 54 landfills are closed. In the coming years, existing landfills will be replaced by new regional landfills, established by international standards agreed by the Ministry of Environmental Protection and Agriculture. By 2022, municipalities are planning to close all uncontrolled landfills and clear the area.

Black Sea Water Pollution Status and Measures Taken

Based on the results of the monitoring, Georgia's Black Sea shelf water quality in terms of eutrophication level can be assessed as mainly acceptable. However, at two sites - Anaklia and Poti Port area, moderately high levels of chlorophyll are observed. The accuracy of these data is also supported by the results of hydrobiological monitoring, which revealed intensive growth and development of diatoms, especially in the coastal waters of Supsa-Poti.

The results of the study also indicate the contamination of polychlorinated biphenyls (PCBs) and pesticides in the Black Sea. Concentrations of polychlorinated biphenyls were within the EU Environmental Quality

Standards (EQS), although concentrations of pesticides - hexachlorocyclohexane, heptachlorohepoxide and cypermethrin exceeded EQS at several stations / points.

Hydrocarbons of petroleum origin have been observed in the shallow layers of surface water. In 83% of the water samples, the value was almost five times higher than the Maximum Permissible Concentration (MPC = 50 μg / L).

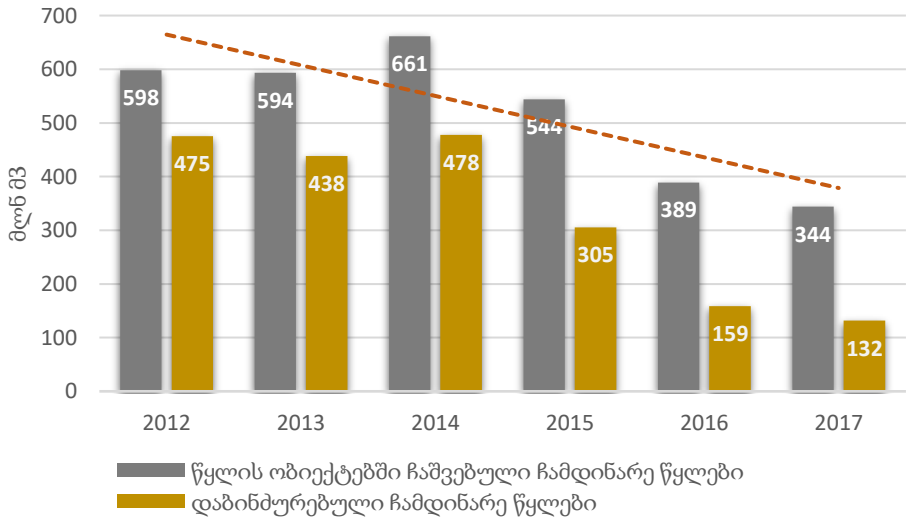
Study conducted under the EMBLAS project shows that there are an average of 322 municipal waste units per square kilometer of Black Sea coastal waters. The largest share of waste material comes from packaging, plastic bags and bottles. According to the study's findings, a significant portion of large and small waste in the sea comes from the rivers.

Microbiological monitoring of seawater is carried out on two main parameters: intestinal sticks and fecal streptococci. In 2014, all parameters were within the norm. In 2015, high concentrations of these bacteria were observed in Poti (especially coliform bacteria), Supsa and Batumi. In 2016, these options were mostly within the Maximum Permissible Concentrations near Mtsvane Kontskhi, Batumi and Sarpi. A relatively high concentration of coliform bacteria was observed at the Batumi observatory during the summer. Fecal contamination in the samples taken at the Batumi port during the summer and autumn was significantly higher than the permissible limit.

Pollution of the Black Sea coastal waters is mainly related to offshore sources. In particular, nutrients found in the Black Sea come from urban wastewater of Kutaisi, Poti and Zugdidi. The hydrocarbon pollution of coastal waters is likely to be linked to the operation of the Batumi oil terminal and the Poti port. The use of hexachlorocyclohexane (CHC) is prohibited by the Stockholm Convention on Persistent Organic Pollutants. The mentioned pesticide is not imported and produced in Georgia.

The volume of polluted wastewater is being reduced. In 2013 there was 438.2 million m3, while in 2017 - 131.7 million m3.

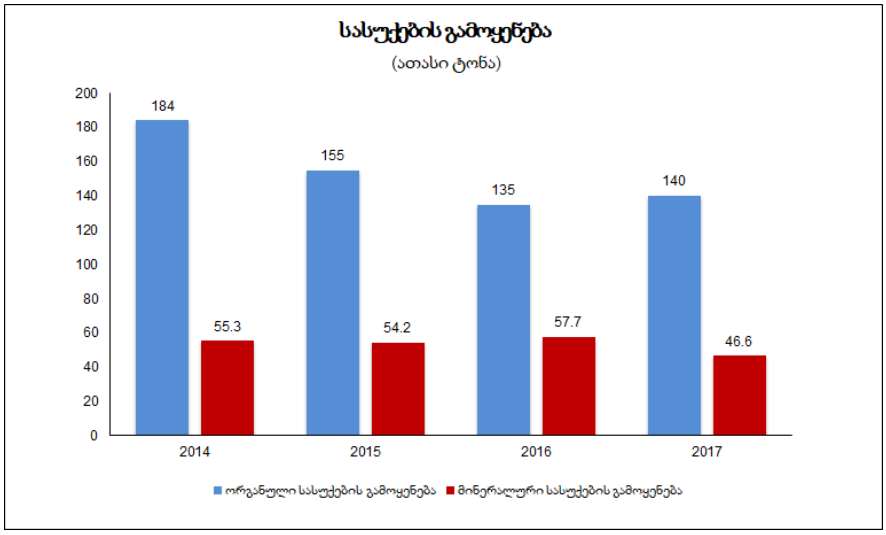
Figure 13. Volume of wastewater discharged into the water objects (2012-2017)



Pollution from Agriculture

One of the important indicators of the impact of agriculture on the environment is the volume of the used agricultural chemicals, especially when the unsustainable practices of using these chemicals are observed. Utilization of mineral fertilizers for agricultural production was almost equal during 2014-2016. In 2017 there was 19% decrease, due to a 22% decline in the use of nitrogen fertilizers.

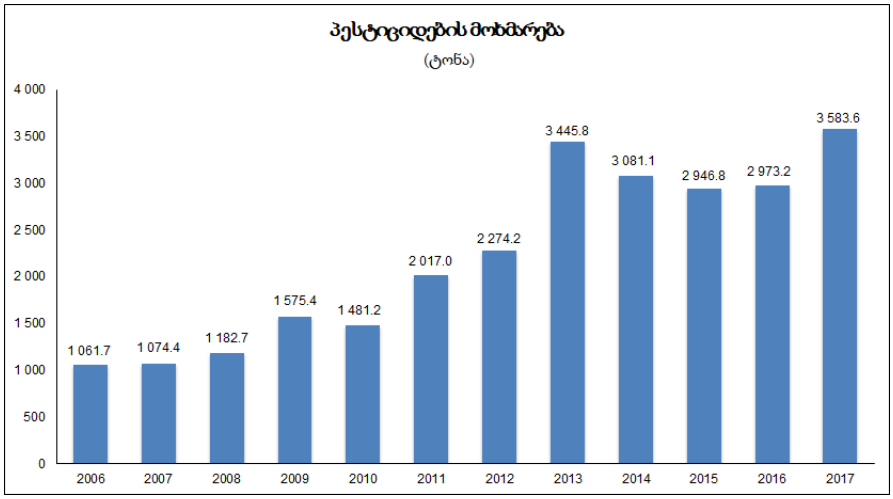
Figure 14. Mineral and Organic Fertilizers Used by the Agricultures (Thousand Tons)



Source: National Statistics Office

In 2014-2017, the area of perennial crops (thousand ha) changed slightly, but after 2006, pesticide consumption increased significantly and consequently, pesticide consumption per unit of agricultural land increased from 0.35 kg / ha to 1.18 kg / ha.

Figure 15. Pesticide consumption (tonnes)



In recent years, West Georgia's agriculture has been significantly affected by the spread of invasive brown marmorated stink bug (BMSB). An integrated pest control plan envisages the use of insecticides,

including the use of insecticides containing cypermethrin, as a result of which this chemical is found in surface and coastal areas.

Agrarian Ecosystems and Natural Pastures

The National Statistics Office of Georgia conducted a household & population census in November 2014 and agricultural legal entities census in the spring of 2015. As a result, information has been collected on all households and legal entities, which as of October 1, 2014, had agricultural land, ownership, or temporary use, had cattle, domestic fowls, bees or perennials crops.

In 2016 only 25% of the land was registered in the country and the State has initiated a project of the National Agency of Public Registry (NAPR) - "Real Estate Property Registration". The share of agricultural plots registered in 2014-2017 is only 15%, and area – 24%.

In 2018 the Ministry of Environmental Protection and Agriculture initiated the "Farms/Farmers Registration Project". As a short-term result, it was planned to register about 100,000 farms by the end of 2018 (according to 2014 agricultural census the number farms in Georgia was more than 650,000). The objective of the project is to register all entities involved into the agricultural activity on the whole territory of Georgia, that will enable the Government to obtain statistic information as well which will be applied for correct selection of target groups and planning and implementing of different stimulating projects/programs, in case of such necessity.

Monitoring of protected areas

The development of a biodiversity monitoring system for protected areas is being supported by the Caucasus Wildlife Fund (CNF). In 2015 GEF Small Grants Program and GIZ co-sponsored a pilot study for two protected areas (Borjomi-Kharagauli National Park and Lagodekhi Protected Areas) for the preparation of baseline data and monitoring of relevant biodiversity indicators. Based on the above, the project "Enhancing financial sustainability of the Protected Areas System in Georgia" (GEF / UNDP, implemented by CNF) is planning to conduct field biodiversity monitoring in 12 selected protected areas of Georgia using innovative technologies to obtain reliable and up-to-date scientific data. Which will be the basis of implementation of alternative approaches of management.

Protected area administrations and various scientific groups carry out scientific research / monitoring of protected areas. In 2017, a total of 30 scientific researches were conducted on the protected areas of Georgia. Notable among these is the study of Black Sea mammals. Biodiversity of Vashlovani, Borjomi-Kharagauli and Kolkheti National Parks is particularly interesting for researchers from protected areas.

Relevant websites, web links and files

https://www.researchgate.net/publication/236591742_Invasive_Carassius_Carp_in_Georgia_Current_state_of_knowledge_and_future_perspectives

https://www.researchgate.net/publication/317490343_The_population_of_Carssius_gibelio_Bloch_1782_and_its_parasites_in_Madatapa_Lake_South_Georgia

https://www.researchgate.net/publication/322682308_Preliminary_information_about_the_occurrence_of_Prussian_carp_Carassius_gibelio_Bloch_1782_in_mountainous_Lake_Devdoraki_Caucasus_Georgia

https://www.hawaii.edu/cowielab/Tentacle/Tentacle_27.pdf

http://www.esenias.org/

http://abs.igc.by/en/on-20-30-august-2018-minsk-hosted-the-regional-training-event-using-dna-technologies-for-identification-and-study-of-alien-and-rare-species/

Obstacles and scientific and technical needs related to the measure taken

- The water monitoring network has been significantly expanded in 2014-2018, but the number of monitoring points is still insufficient to fully assess the quality of water. Technical capacity building in biomonitoring is also needed. The lack of field offices and staff of the National Environmental Agency is a main gap for full monitoring of water resources.

- The main constraints of the forest inventory process, along with the financial cost, are lack of personnel/private companies for implementing works, long-term period required for implementation of works and that the only available mechanism for data collection is the forest detailed inventory. Currently, condition of degraded forest and opportunities for their restoration is not assessed properly due to lack of inventory.

- There is no long-term strategy developed for forest restoration, which would include aims for its implementation and operational plan of costs.

- There is no system for forest pathological monitoring, which would allow operative and constant observation on forest sanitary conditions, and support timely detection of forest damaged or/and risky areas and assessment of spread of forest pests, forest pathological researches are carried out in case of specific, identified pests-diseases.

- The decree of the Minister of Environment and Natural Resources Protection of Georgia on the Indicators of the National Biodiversity Monitoring System was adopted on 18th of December, 2012. Based on the decree Indicator P9 – Number and distribution of invasive species was elaborated. Terms of use of the indicator is not defined up to date and therefore still not functioning.

- Strategy and necessary infrastructure for inventory, research and monitoring of invasive species does not exist, to prevent integration and utilization of fragmented data.

- Pollution of agricultural soils is not monitored in Georgia. Organic substances - such as PAHs, PCBs, pesticides and others aren't monitored under the National Water Quality Monitoring Program.

- While the amount of pesticides used per unit of agricultural land is increasing, biological monitoring is not carried out to identify the impact of increased pesticide use on biodiversity and ecosystems.

Public communication, awareness raising and education

There are 16 actions, related to Public communication, awareness raising and education, envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.1, A.2, A.4, C.5, E.1, E.2
Aichi Target(s) - 1, 7,13, 19

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes:

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Awareness Raising Activities/Information Dissemination

One of the important tools for informing the public is the **National Report on the State of Environment,** which the government has to prepare every four years. According to the Government Decree "on the Approval of the Rule for the Preparation of National Report on the State of the Environment", the report contains the information about the biodiversity, as well as the impact of agriculture, forestry, fishing and hunting on the biodiversity. The Reports on the State of the Environment are published on the web-site of the Environmental Information and Education Centre.

Environmental Information and Education Centre has been one of most effective players in the field of environmental education since its establishment in 2013 under the Ministry of Environmental Protection and Agriculture of Georgia. Apart from its information collection, analysis and dissemination related functions, the Centre is responsible:

- To carry out different activities and events in order to raise awareness on environmental issues among the target groups;
- To support environmental education in Georgia and coordinate an implementation of the respective activities.

In line with the mandate, the centre has substantially contributed to environmental awareness and education. First of all, the centre creates and delivers targeted training courses for environmental professionals in the country. It provides assistance to all levels of formal education system in Georgia, to ensure the coverage of environmental and sustainability issues within curricula, develops educational resources and trains teachers in applying the curricula. The centre designs and conducts awareness raising events and activities on all major topics related to environment, environmental protection and sustainability, including biodiversity and biodiversity conservation.

The centre runs a website www.eiec.gov.ge that serves as a tool for public information and participation in environmental issues and apart from comprehensive and systematized information on environment and environmental issues in Georgia, houses environmental education resources and activities. Currently, the Centre`s Facebook page has 17000 followers and consistently covers all events related to environmental issues and awareness and education activities of the EIEC. Information, posts and quizzes for awareness raising are regularly shared through the facebook page.

Among the most important educational and awareness programs run by the centre are "Lectures and Seminars on Environmental Issues for School Children" with approx. 3000 listeners annually, "Public Seminars on Environmental Issues" where EIEC delivers ad hoc public lectures on environmental issues of high public interest and training for trainers for teachers in formal education (targeted at preschool and general education teachers). The centre has developed several educational resources among them "Preschool Environmental Education" for preschool institutions. One chapter in this document covers theory and practical exercises about biodiversity, "Basics of Environmental Education for General Education," "A Cross-disciplinary Standard on Environmental Education for sustainable development" (developed in partnership with the Ministry of Education, Science, Culture and Sports of Georgia), Module "Environment" for Vocational Education, which was integrated in 7 vocational courses, etc. The centre has initiated and substantially contributed to the revision of School Textbook Approval Standards and Criteria (to ensure adequate coverage of sustainability issues) and trainings of authors and reviewers of textbooks.

The centre is also coordinating development of the communication strategy and action plan 2019-2020 for forestry sector. Within 2019 16 radio programmes on this topic, as well as existing situation and challenges were broadcasted with participation of relevant experts, representatives of various stakeholders.

The educational package of state or non-state non-formal education providers, like national parks and museums has been increased and programs and activities targeting at improving the biodiversity knowledge and values and skills for conservation, which were previously mainly provided in Tbilisi, capital city, are now accessible in the regions as well. The non-formal biodiversity education providers include: Tbilisi Botanical Garden, Simon Janashia National Museum of Georgia, Mtatsminda Amusement Park, Tbilisi Zoological Park (Tbilisi Zoo), Administrations of Protected Areas (20 administrations throughout of Georgia), etc. NGO sector continues to be active in this regard. Ecovision – Union for Sustainable Developments, CENN, Sabuko - Society for Nature Conservation, Elkana are a some of the most active.

The Ministry of Environmental Protection and Agriculture and its agencies, the Environmental Information and Education Centre, The Agency of Protected Areas and the National Forestry Agency in cooperation with non-governmental and international organizations, are active in planning and organizing awareness raising events, the targeted beneficiaries of which has increased considerably. Number of participants in the events organized by the Agency of Protected Areas (and its 20 administrations throughout Georgia) reached 95,000 in one year.

There is a network of eco-clubs (especially at general education level) that contributes to the extracurricular activities of schools and targets at the creating of environmental knowledge, skills and values. More than 20000 school students are involved in 80 eco-clubs throughout Georgia. The network and related programs are managed under the frames of different projects implemented by various governmental, non-governmental and/or international organizations including, but not limited to USAID, Tbilisi Botanical Garden, EIEC, The Agency of Protected Areas of Georgia, National Museum of Georgia, NGO CENN, NGO Ecovision- Union for Sustainable Development, NGO Greens Movement-Georgia/Friends of Earth-Georgia, etc.

There were a number of TV and Radio programs as well as special printed media dedicated to covering environmental issues in general and biodiversity-related topics in particular.

Monthly National Geographic Magazine published by National Georgraphic Georgia is of crucial importance. Apart from the articles dedicated to biodiversity issues, the National Geographic Georgia regularly organizes public lectures and discussions, distributing copies of the magazine free of charge.

In 2013-2017, children's educational TV show – "Ecovision" created 100s of videos in Georgian language (later subtitled in English) that covered all important environmental issues. The show was led and participated by children. It contained explanations of difficult environmental issues in age-appropriate language. The project was implemented by NGO Ecovision - Union for Sustainable Development and financed under the international school project "SPARE".

"Niko Ketskhoveli School Award" is the largest environmental school competition administered since 2015. The competition is organized by NGO CENN in cooperation with the Ministry of Environmental Protection and Agriculture, the Ministry of Education, Science, Culture and Sports and the Parliament of Georgia with financial support from Austrian Development Cooperation (ADC), USAID and other state and non-state actors. The partners include governmental, public, private and research organizations at national and local levels.

The nominations include "the Green Award for School" (participating schools present the projects implemented in the relevant communities in response to global challenges), "the Green Award for teachers", "the Best Eco Speaker", etc.

CENN eco-camps

CENN's Green Centre in Bulachauri has been hosting eco-camps every summer since 2010. In 2016 the camps were devoted to forest ecosystems and their sustainable management. The main goal of eco-camps is to prepare future generations for tackling environmental challenges. The syllabus of the camps included various environmental topics including forest ecosystems and their sustainable management, integrated waste management and steps taken by Georgia in that area, the impact of mining on natural, urbanization and trends in urban development, natural risk reduction and management possibilities, climate change and the consequences related to its risks, climate-smart agriculture and pasture management.

TV, Radio and Social Media campaign to save Georgian Boxwood

As part of the National Forest Program (NFP), initiated by the Ministry of Environment and Natural Resources of Georgia (at present the Ministry of Environmental Protection and Agriculture), the Caucasus Environmental NGO Network (CENN) and the National Forestry Agency together with other stakeholders from governmental and non-governmental sectors developed an action plan to save the Colchis Boxwood. The activity was implemented under the framework of the project "Sustainable forest management in Georgia" financed by the Austrian Development Cooperation (ADC).

The action plan envisaged monitoring of harvesting, transportation and sale of boxwood branches (which are a symbol of the Easter holiday in Georgia), a media tour to Samegrelo Region forests and Protected Areas in Adjara Region to inform the representatives of central and regional media on the catastrophic consequences of unsustainable use/harvesting of Boxwood and a follow up series of TV and Radio programs.

Children's environmental Newspaper

Monthly children's environmental newspaper "POPCorn" was issued for the preschool and primary school children. The project was administered by Ecovision-The Union for Sustainable Development and financed by the Norwegian Ministry of Foreign Affairs and GIZ.

Public Lectures on Georgian Biodiversity for school children by young scientists – Tbilisi Zoological Garden project

A series of public lectures were held by young scientists of Ilia State University on different topics of Georgian biodiversity. The lectures covered – Migratory Birds, Urban Biodiversity, Sea Mammals, Bats, Fish, Amphibians, Reptiles, Spiders, Insects etc. The target audience for the lectures were high school students.

National Botanical Garden

In 2019 with the initiative of the National Botanical Garden of Georgia, the First International Conference on "Achievements and Outlook of Biodiversity Research and Conservation in Georgia" was organized in Tbilisi.

Association ELKANA

In 2014 an electronic catalogue of aboriginal agricultural biodiversity of cultivated plants and domesticated animals was developed through GIZ support; the catalogue is available on-line through "Elkana" webpage (www.elkana.org.ge). It includes the information on field and vegetable crops - 317 varieties, grapevine - 251 varieties, fruit and berries - 217 varieties, agricultural and domestic animals - 39 breeds.

Regular (four annually) information meetings on agricultural biodiversity is being conducted by Elkana on its pilot farm – "seed arch" and animal breeding farms; about 100 farmers attend such meetings annually.

A film on food tasting event and agricultural diversity was prepared for FOOD TV channel by Natia Montgomery, Georgia.

A documentary on Georgian landraces of wheat was prepared National Geographic Georgia and Elkana with the financial support of GIZ.

Georgian Agrarian University

In 2016, V. Gulisashvili Forestry Institute has carried out the project "Seasonal Forestry School – 2016" Masters and Doctorate students from the three countries of the region. The course covered two main thematic directions: 1. Forest Inventory, forests and climate change; 2. Forest ecosystems and biodiversity. The course was conducted by national and international scientists.

The project "Share the experience of Czech experts on forestry education and support to the science" was undertaken in 2017 with support of the Czech Development Agency

Education

There are several universities in Georgia, where among other subjects the biosafety issues are covered, within Bachelor's, Master's and PhD programs:

- Tbilisi State University – Bachelor's program on "Applied Biological Sciences and Biotechnology", Master's program on "Applied Biosciences", also certificated continuous education course on "the Use of PCR Methods in Testing the Food and in Clinical Diagnostic Laboratories";
- Ilia State University – Natural Sciences, Bachelor's program of "Biology" (course: "Principles of Biotechnology"), Master's program on "Food Science" (course: "Genetically Modified Organisms and their Detection in Food"), PhD program on "Molecular Biotechnology and Biochemistry" (courses:

„Molecular Biotechnology", "Genomic of Genetically Modified Organisms", "Molecular Diagnostic of Genetically Modified Food").

Scientific projects regarding detection and identification of GMO are being implemented in Ilia State University.

In addition to the achievements in vocational education, it is important to support the development of higher education. An important prerequisite for this is the existence of educational standards and the sectoral characteristics. The National Center for Educational Quality Enhancement, through the Higher Education Sectoral Council of Agrarian Sciences, has developed sectoral characteristics of higher education in forestry. This will significantly improve the process of higher education and ensure that highly qualified specialists are available in the sector in line with international standards and national needs to support the development of the forestry sector in the country.

Bachelor's programme in Forestry is accessible at Agrarian University, Technical University. Master's Degree in "Natural Sciences" at Ilia State University covers forestry topics. All higher education institutions have renewed forestry curricula.

Table 5. The number of graduates in Natural Sciences and Forestry from 2013-2018

Year	Bachelor`s Degree			Master`s Degree			PHD			Total		
	Woman	Man	total	Woman	Man	total	Woman	Man	total	Woman	Man	total
2013	1	27	28	0	4	4	0	0	0	1	31	32
2014	2	8	10	0	0	0	0	0	0	2	8	10
2015	2	7	9	1	0	1	0	0	0	3	7	10
2016	0	5	5	0	0	0	0	0	0	0	5	5
2017	4	2	6	0	1	1	0	0	0	4	3	7
2018	1	0	1	0	0	0	0	0	0	1	0	1

However, only three students gained a master's degree in the field of forestry in 2011-2018.

A new MA program in "Environmental Management and Policy" has been developed and launched by one of Georgia's higher education institution – Georgian Institute of Public Affairs (GIPA) and the Environmental Education and Information Centre. The project was initiated within The Integrated Biodiversity Management, South Caucasus (IBiS) programme (2015 – 2019) financed by GIZ.

Under the framework of preschool education reform, national standards for preschool education programs were established: "School Readiness Education National Standard" (approved by the Order №110/n of Minister of Education and Science of 31 August, 2015) and "National Standards on Early and Preschool Education and Care" (approved by Resolution №488 of the Government of Georgia of 30th October, 2017). As a result of the cooperation between the experts from the Ministry of Education, Science, Culture and Sports and the Ministry of Environmental Protection and Agriculture the teaching on environment protection (including biodiversity) became the part of the national preschool standards.

The introduction of the new standards at the national level should be followed by professional development program for teachers in order to introduce new standards, requirements and content and practice in preschool education.

In 2016 the Environment Information and Education Centre has developed a textbook – "Environmental Education in Preschool" to support preschool teachers in implementation of national standards. The centre is carrying our training of preschool teachers to support introduction of the textbook. So far, about 2000 teachers were trained.

Biodiversity related concepts and topic are also the part of National General Education Curricula. The concept and methodology of teaching science has been revised during recent curriculum reform (First generation national curriculum was in operation before 2011, second generation curricula – 2011-2016 (current one) and the third generation curricula is being gradually introduced since 2016 (in the primary education since 2016, in basic education since 2018, the one for secondary education is still under revision) to focus on integrated teaching of natural sciences (physics, chemistry, biology). Apart from subject teaching the national curricula contains cross curricula competencies or priority thematic areas that are to be taught across all subjects, including environmental protection (New National Curricula 2018-2024, Chapter II Goals of learning and teaching. Article 7.2. Priority Thematic Areas).

Since 2018 the introduction of the new curricula is accompanied by capacity building activities. "New School Model" is the name of the program that assigns each school with 3 "facilitators": a curriculum, school leadership and ICT, tasked to help schools improve practices in these respective areas. Under the framework of the project the couches were trained by the Centre.

In addition, General Education Development Department of the Ministry of Education, Science, Culture and Sports of Georgia and Environmental Information and Education Centre under the Ministry of Environmental Protection and Agriculture of Georgia developed a cross-curricular national standard for education for sustainable development for students (classes from 1 to 12) with the financial and technical support of GIZ Integrated Biodiversity Management, South Caucasus (IBiS) programme (2015 – 2019). The standard served as the basis during the revision of national GE curricula of 2018-2024.

To ensure comprehensiveness of sustainable development (among them biodiversity-related) topics in textbooks/manuals (activity E2-i2.of NBSAP), in 2017 the Ministry of Education, Science, Culture and Sports (decree #28/n of 16/02/2017) introduced a new "rule for approving school textbooks", accompanied by "Content and Technical Criteria for Reviewing Draft Textbook/Series of Textbooks" (Decree #768 of 31/05/2018). The criteria 5.6. calls for compliance with ESD and promotion of SD within textbooks.

Since 2013 Vocational Education curricula has been revised (occupational standards were revised, curricula were revised in order to teach the competencies defined under occupational standards of respective professions, curricula are modularized to ensure flexible horizontal and vertical progression and transfer and accumulation of credits across different programs). All the occupational standards reflect sustainable development considerations relevant to the specific sector. Consequently, all VET curricula teach respective sustainability issues. In addition, a module – environmental protection was developed in 2017 by the environmental and vocational education experts (an activity financed under GIZ Integrated Management of Biodiversity in South Caucasus (IBiS) Programme). The module will be compulsory part of all vocational education curricula. It is already integrated in the agriculture and veterinary programs.

New vocational education program in Forestry was developed and introduced in 4 vocational colleges throughout Georgia. The training is fully funded by the state. Forestry education of medium skill professionals

was missing for 10 years and respectively, related vacancies were filled by unqualified staff (receiving small or no training on the job).

Relevant websites, web links and files

http://ncp.ge/files/ESG/NC%202018-2024/1.%20National%20Curriculum.pdf
http://ecovision.ge/eng
https://www.facebook.com/pg/BulachauriGreenCenter/posts/?ref=page_internal
http://www.cenn.org/lorem-ipsum-simply-dummy-text-printing-typesetting-industry/
https://www.youtube.com/channel/UCAptSAdWmlBmDXj0WWl5z6A
https://www.facebook.com/TbilisiZoo/
https://www.youtube.com/watch?v=YhfKVkh0mGE
https://www.youtube.com/watch?v=5YcifutDGzk
https://www.youtube.com/watch?v=mJ_zOncb-YI
https://www.youtube.com/watch?v=t0n9L0fkdbE
https://www.youtube.com/watch?v=WpRr1UMF-dg
https://www.youtube.com/channel/UCAptSAdWmlBmDXj0WWl5z6A/playlists
https://biodivers-southcaucasus.org/fact-sheet-georgia

Other relevant information

As the KAP survey (Public Knowledge, Attitude and Practice (KAP) assessment in relation to Biodiveristy and Environmentla issues``, GIZ-IbiS, 2017) demonstrated, that the public in Georgia is quite aware of biodiversity issues and is aware of the threat of biodiversity loss, however only a small part of the public participates in biodiversity conservation activities. The majority of the population wants to participate more actively in biodiversity conservation. For 40% of the population, employment opportunities are more important than environmental protection. Which indicates that for the other 60% of the population, environmental protection is just as important as employment. This is an interesting findings of the study as according to social studies, unemployment is one of the most important problems in the country.

Obstacles and scientific and technical needs related to the measure taken

Challenges:

- Despite the progress in sharing knowledge and skills and youth involvement, there is still a need for increasing the scale and coordination/cooperation among the eco-club networks created within different projects.

- Due to the shortage of specialists in the private sector, even with the availability of financial resources it is not possible to complete a full inventory of forests in a relatively short period of time. Despite the high academic professionalism of current taxators, they still have limited access to modern methodologies and technologies.

Public Participation

There are 5 actions related to public participation envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.2
Aichi Target(s) – 1

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

For the improvement of national legislation and approximation of it to the EU directives "Environmental Assessment Code" entered into force from January 1, 2018. According to the code strategic environmental assessment is required for the strategic documents. Based on the "Environmental Assessment Code" it is legally required to conduct impact assessment on the environment and human health and ensure public participation in the elaboration of the development plans of different sectors (agriculture, forestry, fishery, energy, industry, transport, waste management, water resources management, electronic communications, tourism, planning and spatial planning).

Environmental Assessment Code defines the progressive procedure for making an environmental decision on implementation of the projects, ensuring public participation on all three stages of environmental decision (screening, scoping, environmental decision on EIA report). Ministry is obliged to make available for public all information regarding planned activities and their impact on environment on all three stages. General public can provide the comments (on the level of screening – in writing, on the level of scoping and EIA through public discussions), the Ministry has to review all considerations provided by the public and take them into account in case of relevant justification, decision should be accessible for public. The code establishes the obligation of the Ministry of Environmental Protection and Agriculture to ensure public participation in decision making process, also detailed procedures of public participation, obligatory documents for publishing, terms, procedures of public discussions. The code defines the list of activities which requires EIA (the first annex of the code), also the list of activities for which EIA will be carried out accordingly to the screening (the second annex of the code). Before adoption of the Environmental Assessment Code, carrying out public discussion for the activity was the obligation of the project initiator, but according to the Code, carrying out the public discussion became the obligation of the Ministry of Environmental Protection and Agriculture.

According to the General Administrative Code of Georgia, public institutions are obliged to publish public information proactively (amendments of 2012). In general, according to the General Administrative Code (1999) public institution has to provide public information instantly or no later than 10 days.

According to the "Rules of proactive publishing the public information, standard of electronic request of public information and the rule of accessibility of the environmental information for the Ministry on Environment and Natural Resources Protection", adopted by the order of the Minister of Environment and Natural Resources Protection of Georgia N12 of 27 March 2017, the documents for proactive publishing are: the strategies elaborated by the Ministry, concepts, action plans, given permissions, preliminary and final EIA reports, reports elaborated by the Ministry.

303 public consultation meeting to discuss EIA reports were organized in 2014-2017. Following the entry into force of the Environmental Assessment Code (January 1, 2018), 112 public hearings were conducted by the Ministry of Environmental protection and Agriculture to discuss scoping reports and 43 public

consultation meeting were organized on the EIA reports. In 2018, 83 public hearings on EIA reports were held with 1157 participants.

NGOs actively participate in the discussions and contribute to policy formation processes. They monitor implementation of environmental activities. The NGO sector is particularly critically assessing the public participation opportunities in energy sector development plans and projects (hydropower generation and transmission), which have a significant impact on biodiversity and local populations.

Policy and strategic documents, draft laws and regulatory acts are proactively published on the web-page of the Ministry of Environmental Protection and Agriculture. The ministry conducts public discussions and consultation meetings with public representatives. Active public participation in the process elaboration of National Forestry Concept and Forest Code is worth of mentioning (during the elaboration of forest code in 2014-2016 about 150 public workshops were held with participation of public).

Process of elaboration of National Forest Program (NFP) has begun in 2013. It aimed to ensure stakeholder participation and donor coordination in implementation the reform in forest sector and in decision making processes. The main objective of the program is to support institutional and legislation amendments for establishment of the sustainable forest management system. The mandate of the program includes: organization of workshops for discussion of thematic subjects and elaboration of the recommendations, coordination of technical and financial donors, preparation of draft laws and other documents. The following stakeholders are participating in the national forest program: Ministry of Environmental Protection and Agriculture and other ministries, non-governmental organizations, private sector, representatives of educational and professional institutions, regions, international organizations and patriarchate. 160 representatives of 55 organizations are participating in the NFP that ensure public transparency of the program. 8 thematic working groups are established in frames of the NFP. 51 meetings of working groups were held in 2013-2014.

Active public consultations were held in the process of elaboration of the draft law on Biodiversity. 15 meeting with participation of stakeholders was held in 2013-2018, including public discussions of the draft law. About 200 representatives of NGOs, hunter and fishing associations, scientific institutions participated in abovementioned discussions.

To ensure public participation, the Agency of Protected areas discloses the draft management plans of protected areas and conducts public hearings. To conduct public hearing of the draft management plans of protected areas is required by the legislation. Regional Advisory Councils of Algeti, Kazbegi, Kintrishi and Pshav-Khevsureti Protected Areas have been set up to ensure public involvement in the management of protected areas. Members of the Regional Advisory Councils are appointed by both local authorities and the general public.

One of the effective instruments for involving local population and other stakeholders in the management of protected areas is the development of associations - “Friends of Protected Areas”. As for today, associations of friends of Tusheti, Lagodekhi, Algeti, Kazbegi, Kintrishi, Kolkheti, Mtirala, Machakhela, Eagle Valley, and Pshav-Khevsureti are established.

Obstacles and scientific and technical needs related to the measure taken

Needs:

- Ensuring the public participation in the decision-making process regarding amendments to the Environmental Decision on the project is recommended by the non-governmental sector. It is also recommended to review the list of activities in the first and second annexes and reconsider the limits and criteria's of the Code.

Regulation

There are 45 actions related to biodiversity regulation envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.2, A.3, A.4, B.1, B.3, B.4, C.3, C.4, C.5, C.6
Aichi Target(s) - 1, 2, 3, 5, 7, 8, 11, 13, 14, 15, 18

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Association Agreement
In 2014, Georgia signed an Association Agreement with the European Union. Under the agreement, Georgia has committed to harmonize the national legislative framework to the EU directives. The document provides specific list of EU environmental directives and Georgia is obliged to approximate its legislation to these directives within the respective timelines.

Law on Biodiversity
In order to ensure conservation of biodiversity and fulfill the obligations defined by various international conventions and the Association Agreement, the Ministry of Environment and Natural Resource Protection of Georgia (at present – the Ministry of Environmental Protection and Agriculture) initiated development of the Law on Biodiversity in 2015. Initial process for drafting the law first has started in 2013. The draft Law on Biodiversity became available in June 2017, but the final version is not developed so far. It shall be mentioned that that current draft version does not cover agricultural biodiversity.

Environmental Assessment Code
It is important to note that, in 2018, a new Environmental Assessment Code entered into force. It regulates the procedures related to issuance of environmental impact permit, strategic environmental assessment, public participation in decision-making and transboundary impact assessment on the environment (the latest will enter into force after the Espoo Convention will be ratified by Georgia). The new code covers more activities than the previously existing law on Environmental Impact Permit. It is in line with EU directives, particularly, the articles of the Directives 2011/92/EU, 2001/42/EC and 2003/35/EC Georgia is obliged to implement. The Code introduces screening and scoping phases, however the code provides only principles on how EIA processes should be conducted. There are no sector specific guidelines and requirements for the inclusion of principal details related to biodiversity or ecosystem services. The effective mechanism of law-enforcement is yet to be formed.

By the amendments of 2016 of the law on ``Environment Protection``, the term ``Environmental Information`` was defined. According to the abovementioned amendment Environmental information, together with other subjects, comprises the information regarding biodiversity and its components, GMOs, Ecosystems, pollution of food chains, environmental policy, reports, information regarding activities, that can have the significant impact on environment.

According to the "Rules of proactive publishing the public information, standard of electronic request of public information and the rule of accessibility of the environmental information for the Ministry on Environment and Natural Resources Protection", adopted by the order of the Minister of Environment and Natural Resources Protection of Georgia N12 of 27th March 2017, the documents for proactive publishing are: the strategies elaborated by the Ministry, concepts, action plans, issued permits, preliminary and final EIA reports, reports elaborated by the Ministry.

Biosafety

According to the law of Georgia on Living Modified organisms, adopted in 2014, introduction of LMOs in Georgia was restricted. In 2016 placement of LMOs on market, their import and re-exportation was also prohibited. Accordingly, Georgia was declared as free zone from LMOs. Only contained use and import of LMOs for this purpose is permitted.

The Georgian law on Labeling of Genetically Modified Organisms Designated for Food Products/Fodder and Genetically Modified Products Produced from them (2014), makes mandatory labeling of GMO products and defines the rules for labeling.

Contained use of LMOs in Georgia is a subject of license, issued by the Ministry of Environmental Protection and Agriculture of Georgia. Risk assessment rules regarding contained use of LMOs is defined by the decree of the Government of Georgia (#460, 07.10. 2016). Only the contained use of LMOs registered in the unified registry is allowed. Registration rule is defined by the decree of the Government of Georgia (#727, 26.12.2014). Standards for contained use of LMOs is also defined by the decree of the Government of Georgia (#728, 26.12.2014). At this time there is no license issued for the contained use of LMOs in Georgia.

Prior notification to the Ministry of Environmental Protection and Agriculture and its consent is required to transit LMOs on the territory of Georgia. Terms of transportation, safety, labeling, packing and identification of LMOs are determined by the decree of the Government of Georgia (#759, 31.12.2014).

Control of transboundary movement of LMOs in Georgia is regulated by the decree of the Government of Georgia (#728, 26.12. 2014). Rules for customs supervision of food products/fodder and genetically modified products produced from them are determined by the decree of the Government of Georgia #221 (16.07.2015).

liability for violation of regulations on contained use, terms of safe transportation and rules of labeling are defined by the Administrative Offences Code of Georgia. According to Georgian legislation, introduction of LMOs into the environment, placement LMOs on market, their import or re-exportation are criminal offences and is charged with imprisonment. Violation of the rules regarding use of living modified organisms, which caused health damage to humans or resulted damage to the environment and biodiversity is also a criminal offence.

According to the requirements of the Cartagena protocol, Ministry of Environmental Protection and Agriculture serves as a Competent National Authority and National Focal Point of the protocol. Customs

Service under the Ministry of Finance of Georgia is responsible for the control of transboundary movement of LMOs. Illegal introduction of LMOs into the environment is controlled by the Department of Environmental Supervision under the Ministry of Environmental Protection and Agriculture of Georgia. Placement of LMOs on the market is controlled by the National Food Agency under the Ministry of Environmental Protection and Agriculture.

Forest Legislation and Management

Since 2016, it became possible to start working on the new forest code. In 2016, by the initiative of the Ministry of Environment and Natural Resources Protection of Georgia, the development of the new forest code has been initiated with the support of the World Bank (WB) within ENPI FLEG II framework. The process was continued with the technical support of GIZ. It shall be mentioned that the fulfilment of obligations of international, as well as, national strategies, has been started along with the development of the new forest code.
A draft version of the New Forest Code is developed according to the principles determined by the National Forestry Concept, which was approved by the Parliament of Georgia in 2013 and modifies the approaches regarding the issues like:

- Fragmentation and reduction of the forest fund;
- Neglecting multifunctional use and economic potential of forests;
- Prohibition of social logging and moving to organized forest use, which will create new additional rural jobs, and getting effective economic benefits from forest;
- Status and potential development of the forest management agencies;
- Promotion of forester profession and social guarantees.

At the same time, the draft law complies with the obligations taken by the country for integration with the EU and international standards in the sector. If the law is not adopted and approaches are not changed, adverse impacts on ecological, social and economic conditions of the country will be inevitable in a few years. Also, it will significantly hinder country's recognition at the international community.

It shall be mentioned that the process of elaboration of the draft code was collaborative and transparent, public discussion process involved all the stakeholders. 14 regional, more than 50 internal and more than 20 public discussions were held.

Although, the draft law was submitted to the Parliament only in 2019, it influenced certain follow-up processes, like development-adoption of legislative acts and regulations necessary for effective law enforcement. Also, it hindered the establishment process of respective structures of forest management (Action B.1-o1.2).

At the same time, the new Forest Code allows diversification of ownership and management forms. According to the new definition of forest it is possible to create forest under the private ownership. Also, it considers the involvement of the local governments - according to the Code the definition criteria of "forest of local importance" and rule of transfer to a municipality will be developed. However, it is important that law will apply to every forest in the country, regardless of its ownership and management form.

The process of the National Forestry Programme (NFP) has started in 2013. The NFP platform was launched within the Forest Europe process. It represents pan European approach regarding the National Forestry

Programme and envisages strengthening coordination and synergy between the representatives of the forestry sector, and between the forest sustainable management and related policies.

The National Forestry Programme of Georgia aims to support forestry reform and involvement of stakeholders during the decision-making process. It also represents an instrument for cooperation with the donor and partner organizations. Up to 300 working meetings were organized until 2019, which involved up to 70 government and non-government organizations, up to 270 representatives of the academic sector, civil society, donor and partner organizations. The National Forestry Programme supports development of the thematic and strategic documents. Within ongoing process, official meetings were held in Tbilisi and different regions of Georgia for introducing the National Forestry Policy and forest reform process.

The process of developing the strategy and action plan for forestry sector reform has been started in 2016. Development of the document has been started with the technical support of the Government of Germany. The development process involved all the stakeholders, including non-governmental sector, along with the sector experts.

According to the decision made at the national level regarding the format of the strategic documents, the document was not approved separately and in 2017 it was integrated in "the third National Environmental Action Plan", which is approved by the Order N1124 adopted by the Government of Georgina on 22nd of May, 2018.

With the support of the project on "Increase of national potential in fires management and risk reduction of natural fires in the South Caucasus countries", development of policy document on fires in nature started in 2013 and completed in 2014. The document aims to develop relevant strategy for research, information analysis, to improve legal and technical base, determination of competencies, fire risk assessment and its prevention, and immediate response.

The document was not adopted regardless of the preliminary plan and it was integrated in the existing strategic documents related to the sector, including: in the "2017-2020 National Strategy and Action Plan for Disaster Risk Reduction in Georgia".

Legislation and Management of Water Resources

A draft law on management of water resources regulating both surface and groundwater aspects has been prepared for the approximation of Georgian legislation to the EU legislation (work on the draft version was launched in 2012 with the support of the United Nations Economic Commission for Europe (UNECE)). The draft law introduces the principles of integrated water resources and river basin management. The draft law forms a legal framework for the protection of water resources through regulation of the discharge of priority pollutants, prevention of discharge of hazardous substances and water losses.

In 2014 Georgia joined the International Convention for the Control and Management of Ships' Ballast Water and Sediments, which created the legal basis for ballast water management.

In 2013-2018, Georgia adopted following new environmental regulations related to water quality:

- Technical Regulation of Protection of Surface Water of Georgia from Pollution (December, 2013);

- Technical Regulation on Calculation of Maximum Emissions of Pollutants Discharged into Surface Water Bodies (December, 2013);
- Technical Regulations for Discharge of Industrial and Non-Industrial Wastewaters into Surface Water Bodies (January, 2014);
- Technical Regulation of Ballast Water Management Procedures (March, 2015).

Although non-compliance with the norms and standards is punishable by law, low penalties and shortcomings in enforcement (e.g. low probability of detection of violations) make water pollution control less effective (OECD, 2017). Mining operators do not fully fulfill the requirements of the national legislation. Most wastewater treatment plants are out of order or perform only mechanical wastewater treatment, which results in discharge of untreated wastewater into surface water and contamination with ammonium nitrogen and other contaminants. Although discharge of untreated wastewater into inland waters have been decreased, there is still no trend to decrease the concentration of ammonium nitrogen.

Pesticides and Agrochemicals

The legal basis for the safe use of pesticides and agrochemicals in Georgia is the Law on Pesticides and Agrochemicals (1998, last amended in 2018), which indicates that only pesticides and agrochemicals registered and listed in Georgia can be imported and circulated. Special authorization is required for the circulation of pesticides that have a high potential for adverse impacts on human health and the environment. According to the law, the Minister of Agriculture has approved (lately readopted by the Minister of Environmental Protection and Agriculture) the State Catalogue of Pesticides Allowed for Use in Georgia. Despite current legal requirements, pesticides and agrochemicals remain as sources of pollution from agriculture due to their unsustainable use and improper storage practices. In this regard, it is noteworthy that in 2016 the Government of Georgia adopted the "Technical Regulation on the Maximum Level of Pesticide Residues in Food and Feeds " intended to protect human life and health as well as consumer interests. However, these regulations will enter info force from 2020.

Agrobiodiversity

Introduction of the Technical Regulation on "Veterinary and Sanitary Rules" for animal migration and transportation (including summer and winter pastures) – establishment of Biosafety Points (BSP) is a positive development to support animal migration from winter to summer pastures without spreading diseases. The BSPs provide animal dipping and spraying, movement control, ear-tag and coverage control, as well as increasing public awareness of hygiene standards. However, the existing BSPs still are not sufficient to provide coverage for all animals migrated to seasonal pastures and do not cover all migration routes.

With the Decree # 783 of the Government of Georgia of May 5, 2014, the Decree No. 1756 of the Government of Georgia on December 28, 2010 on Approving the Comprehensive Strategy and Legislative Approximation Program in Food Safety was amended.

The draft Law on Rehabilitation and Protection of Windbreaks is developed. According to the document, MEPA shall ensure the development of the Recovery and Rehabilitation Plan of the windbreaks before January 2020. The Ministry of Economy and Sustainable Development of Georgia, before November 30, 2019 shall prepare windbreaks inventory plan. The following documents shall be prepared and submitted by MEPA before the Government of Georgia for approval by January 1, 2020: a) rules for restoration, cultivation, care and protection of windbreaks; b) rule of formation and operation of windbreak system.

In December 2014, the Georgian Government Decree #742 of 29th December 2014 on approval of 2nd National Action Programme to Combat Desertification 2014-2022 was adopted, with the strategic objectives to improve the living conditions of affected population; to improve the condition of affected ecosystems; to generate global benefits through effective implementation of the UNCCD; and to mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors.

In December 2018 the Georgian Government Decree #578 on Joining and Entering into force of the International Treaty on Plant Genetic Resources Important for Food and Agriculture was adopted. It aims at the conservation and sustainable use of all plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security.

According to the order of the Director General of the National Agency for Cultural Heritage Preservation of Georgia (N02 / 50 07.09 2018) the intangible heritage element Georgian wheat - five endemic species: Dika (*Triticum carthlicum Nevsky*), Chelta Zanduri (*Triticum timopheevi Zhuk.*), Makha (*Triticum macha Dek. & Men.*), Colchis Asli (*Triticum paleocolchicum Men.*) and Hexaploid Zanduri (*Triticum zhukovskyi Men. & Er.*) and local varieties, have been granted the status of an intangible cultural heritage. A plan to protect Georgian wheat culture has been developed and sent to UNESCO.

The new Law of Georgia on Compulsory Certification of Agricultural Crops Authorized for Distribution and Seed Production (2017) defines the term of a local (aboriginal) variety and also sets criteria for distinctiveness.

Protected Areas

While the updating of the national legislation on the PA system was delayed, several new special laws were adopted for the establishment and management of new PAs. Amendments were made to the Law on The Status of Protected Areas (2007), through which regulations have been provided for the status, size, boundaries and management of all the remaining PAs that were established by various legal acts issued by Soviet authorities (i.e. before the Law on Protected Areas System was adopted). This measure has eradicated the inconsistency in the legal designation of PAs.

Intangible Cultural Heritage

According to the Convention for the Safeguarding of the Intangible Cultural Heritage, to which Georgia has been a party since 2007, the status of the Intangible Cultural Heritage can be conferred on knowledge and practices related to nature and the world. According to this provision of the Convention, by the Order # 3/28 (24.01.2012) of the Minister of Culture and Monument Protection of Georgia "On Approval of the List of Intangible Cultural Heritage Objects and Registry", the status of the Intangible Cultural Heritage can be assigned to an external experience, such as: Natural resources: extraction and utilization of minerals and natural waters, use of forests and pastures, hunting and fishing practices, traditional fields of agriculture, folk medicine (use of medicinal herbs).

Relevant websites, web links and files

https://matsne.gov.ge/ka/document/view/3691981?publication=2 – Environmental Assessment Code

http://nfa.gov.ge/ge/sursatis-uvnebloba/saxelmwifo-programebi
http://greenalt.org/en/publications/page/6/
http://www.qlab.ge/

Obstacles and scientific and technical needs related to the measure taken

Challenges:

- Presently, pressure reduction / raise trends on freshwater ecosystems have not been identified, which is related to the lack of relevant research. Although many large-scale projects have been implemented in recent years in sustainable management of fresh water ecosystems, these projects have relatively accidental character and are less based on systematic (cross-cutting) approach. Specifically, the implemented/ongoing projects consider(ed) a large-scale inventory of water resources/ecosystems, improvement of legislative basis of management, supporting sustainable development etc.
- There is no integrated national database for the biosafety, where all the data and information regarding the control and monitoring of living modified organisms would be gathered and make planning more efficient based on the risk assessment;
- Forest fires still remain as one of the challenges, especially considering predicted climate change. Increase of scale of preventive activities, as well as, increasing capacity of forest management units is required.

Needs:

- Elaboration of economic sector-specific guidelines on preparation of EIA reports and inclusion of biodiversity and ecosystem service topics;
- Capacity building of MEPA staff on effective application of the guidelines during the EIA expertise;
- Lack of financial and human resources hinders the effective control and monitoring. Capacity building, organizing of relevant trainings of existing staff is necessary. Also, it is necessary to elaborate and adopt relevant technical guidelines and instructions (risk assessment guidelines, procedure of sampling and submitting the samples to the laboratory);
- It is necessary to improve the capacity of human and technical resources in the field of biosafety (training of staff in the controlling bodies, elaboration and adoption of relevant guidelines and instructions);

Scientific Data, Research and Knowledge Management

There are 18 actions related to biodiversity scientific data, research and knowledge management envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – A.2, B.1, B.4, C.5, C.6, D.2, E.1
Aichi Target(s) - 1, 5, 7, 13, 14, 15, 19

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Knowledge Management

The System of management of Environmental Information and Knowledge was established in frames of the project "Harmonization of Information Management for Improving Environmental Knowledge and Monitoring", implemented with the support of UNDP in 2014-2018 (https://eims.eiec.gov.ge/ka/app/). The purpose of the above-mentioned system is to provide access to the information and data needed to monitor compliance with the obligations under the Rio Conventions. Data on biodiversity is currently being filled. Environmental Information and Knowledge Management System ensures consolidation, analysis, sharing of environmental data/information. The following functions can be implemented through the system: modeling, forecasting and reporting, risk management and decision making; publishing of public information, spatial information analysis and interpretation (GIS).

An on-line Atlas of forest and land use is developed in Georgia, through which information about forestry sector will be publicly available for interested parties. The Atlas created with the support of GEF, UN Environment, Global Forest Watch (GFW) and the World Resources Institute will be managed by MEPA. It is a monitoring platform providing unique analysis tools and information related to forest and land use in Georgia. Using the latest forest monitoring technology, users can view and analyze up-to-date data sets at both the national and sub-national level. The Atlas map includes tools to enable instant analyses including tree cover gain / loss, forest fires, intact forest landscape, and land cover. It includes the following type of data: biodiversity, land use, land cover, protected areas, forest inventory and hazards. The portal contains an interactive map of land degradation compiled from the data taken from the Electronic Soil Database of Georgia (2004).
The database was restored and upgraded in 2017.

Scientific information

Habitats

The list of priority habitats was developed under the framework of the NBSAP updating process. The habitats were selected based on the following criteria:

- 13 habitats were selected based on the list of protected habitats under the Resolution N4 adopted by the Standing Committee of the Bern Convention on Conservation of European Wildlife and Natural Habitats.
- 14 habitats important for Georgia selected by the national experts.

It should be mentioned that description of the habitats protected under the Bern Convention was undertaken based on the EUNIS habitats classification system. At the same time, national experts have used CORINE habitats classification system.

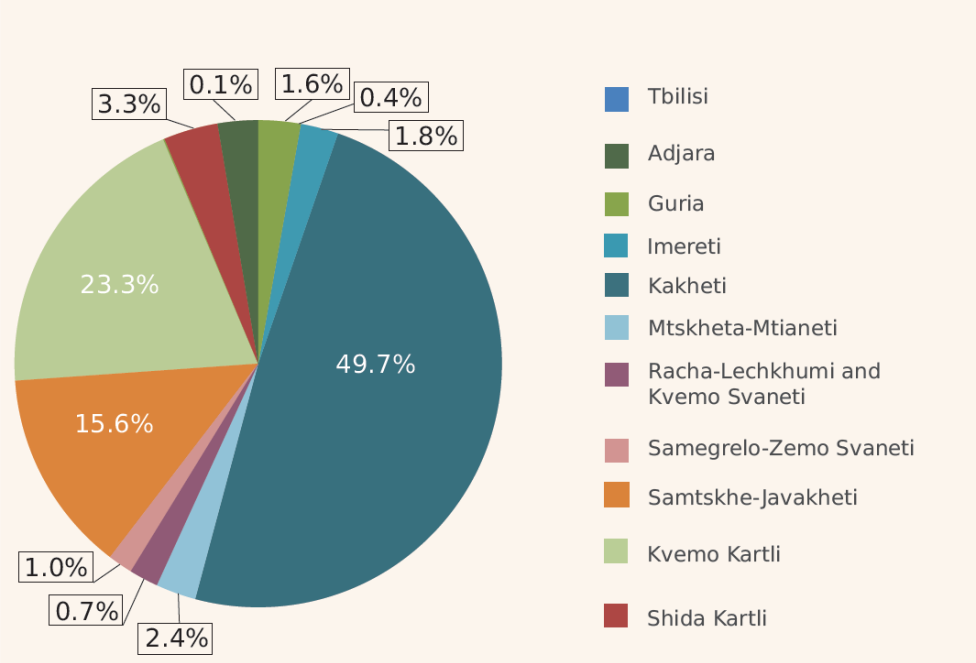
As a result, 27 priority habitats were selected and 13 out of those were mapped in 2013-2018 years. At the same time, 60 more habitats were identified in Georgia (based on EUNIS classification) which should be protected based on the Bern Convention. All these habitats are priority for Georgia and part of them were mapped in process of establishment of the Emerald Network.

The Desk Study on biodiversity of the Kura-Aras River Basin and the Black Sea Catchment Basin in Georgia implemented in the frame of the regional project – "Promoting Sustainable Dam Development at River-Basin-Scale in the Southern Caucasus" financially supported by the Ministry of Foreign Affairs of Norway and led by WWF in the Southern Caucasus. Within the framework of the project, freshwater ecosystems of the Black Sea (Georgia) and Kura-Araks basins were estimated. According to the research 35 critical freshwater habitats, from where 18 in Georgia, with a total area of 2 422 241 ha were defined. Out of this area, only 625 081 ha (25.81%) is within the borders of protected areas of different categories, only 32% is within PAs at eco regional level.

Natural Grasslands and Climate Change

According to the Climate Change National Adaptation Plan for Georgia's Agriculture Sector, 2017, prepared by the LEPL "Environmental Information and Education Centre" of the Ministry of Environment and Natural Resources Protection of Georgia, natural grasslands and pastures take up 1,911.2 thousand ha in Georgia, 143.0 thousand ha of which is natural grasslands and 1,768.2 thousand ha - pastures. These lands are found in lowland, lower mountain, mid mountain, subalpine and alpine zones.

Figure 16. Natural hay meadows and pastures for agricultural use by regions (all categories of production, as of October 1, 2014, %)



The impact of climate change is partially evaluated for Dedoplistskaro pastures only; agricultural lands degradation caused by the climate change is partially evaluated in Adjara and partially in Kakheti.

The recent studies revealed that impact of the current and forecasted climate changes on the agriculture sector includes the following:
- Displacement of the agro-climatic zones;
- Reduction of productivity of the most crops resulting from the draughts, strong winds, unevenly distributed precipitation, hail days, heat waves and evapotranspiration growth;
-Reduction of the agricultural lands' fertility and degradation intensity growth, frequently aggravated by the intensive extreme phenomena caused by climate change (landslides, mudflows, floods, inundations etc.);
- Loss of productivity, as a result of extreme weather frequency growth (hails, frosts etc.);
- Reduction of irrigated land areas and increase of demand for irrigation water.

In the process of preparation of plans for agricultural adaptation to climate change in Georgia, an assessment of the climate change impact of the productivity of pastures was done in Samegrelo-Zemo Svaneti, Mtskheta-Mtianeti and Kakheti regions as well as the Autonomous Republic of Adjara.

EU/UNDP Project "Sustainable management of pastures in Georgia to demonstrate climate change mitigation and adaptation benefits and dividends for local communities"

Vegetation of the Vashlovani Protected Areas was assessed and mapped under the project. The maps were developed based on the satellite images and field assessments. The pasture condition was assessed by the national and international experts. Unfortunately, impact of climate change on pastures could not be assessed. However, the pasture management plan was developed which covers climate change adaptation and resilience of local communities.

Agricultural Biodiversity

There is no unified, regularly updated database on agricultural biodiversity in the country. There are few institutions involved in agricultural biodiversity conservation, and each of them has its own agenda regarding the conservation measures, data collection and information management.

- In order to restore the scientific-research activities in agricultural sector, the government of Georgia on 13th February 2014 has established the Scientific-Research Center of Agriculture (SRCA). Among the objectives of the SRCA are the following:
    - Research, rehabilitate and develop local gene pool of the annual and perennial crops;
    - Set up the genetic bank;
    - Explore, restore and improve the population of local breeds of agricultural and domestic animals, poultry, fish and beneficial insects of Georgia; Research and adaptation of imported breeds;
    - Set up electronic information bank;
    - Develop and promote the extension programs, spread the regional knowledge.
- To accomplish its objectives, the SRCA has following infrastructure:
    - Perennial crops research base and New Integrated Plant Protection Laboratory in village Jighaura, Mtskheta Municipality
    - Annual crops research demonstration base - Tsilkani village, Mtskheta municipality
    - Annual Crops Base in village Vachiani, Akhalkalaki Municipality
    - Selection and variety test demonstration plots in 23 municipalities of Georgia;

- Beekeeping Station in village Mukhuri, Chkhorotsku Municipality

Among the measures undertaken by the Center so far has to be mentioned:

- Grapevine - 50 local grapevine varieties described in accordance with OIV (the International Organization of Vine and Wine) descriptors; Microzones of Khashmi, Usakhelouri and Tsarapi grapes studied in Georgia, to identify and register respective geographical areas for the production of new appellation wines - dry wine "Khashmi", semi-sweet "Usakhelouri" and "Tsarapi"; 32 forms of wild and wildly grown grape vines were studied and described based on OIV descriptors.
- Fruit trees – survey & conservation of rare and endangered varieties in the eastern regions of Georgia (Kakheti, Shida Kartli, Kvemo Kartli, Samtskhe-Javakheti, Mtskheta-Mtianeti); study of agricultural & biological characteristics of 40 varieties.
- Annual crops - demonstration plots of different annual crops and primary nurseries were organized in 12 municipalities of Georgia (Telavi, Akhmeta, Mtskheta, Akhaltsikhe, Akhalkalaki, Adigeni, Mestia, Kazbegi, Khashuri, Dedoplistskaro, Marneuli, Ambrolauri); identification & conservation of local varieties of onion (2), garlic (2) and bean (1) carried out; 2 local varieties of potatoes identified by drought resistance, yield and disease resistance: Javakhetian and Meskhetian red.

Through GiZ support scientists from the Georgian Agrarian University and Elkana join their efforts to collect information on aboriginal agricultural biodiversity of cultivated plants and domesticated animals; a catalog established and is available on-line on Elkana webpage. It includes information on field and vegetable crops - 317 varieties, grapevine - 251 varieties, fruit and berries - 217 varieties, agricultural and domestic animals - 39 breeds.

- In 2016-2018 – a project of the Agricultural University of Georgia on description and systematization of micro and macroscopic samples of the herbarium collected from 1857 to date; collection, identification and conservation of microscopic fungi strains collected in agro-biosphere and publication of a Catalog of Mycological Collection 1857–2018; webpage: http://agruni.edu.ge/herbarium

- In 2016 a research expedition of the Institute of Agrarian and Membrane Technologies of Batumi Shota Rustaveli State University in a historic Southern Georgia - Klarjeti and Shavsheti territories - Mashine, Artvin, Borchka, Imerekhevi, Bazgreti and their nearby villages (present territory of Turkey) for collection of old Georgian grape varieties, collecting and retrieving root material for identification and further studying. About 30 varieties of grapevine and its wild relative species are examined.

-In 2016, the seed bank named “National Seed Bank” was established under the National Botanical Garden. The National Seed Bank preserves the seeds of 26 taxa (species, subspecies) collected from 265 populations (species, subspecies) of Crop Wild Relatives, as well as seed collection of agricultural field crops.

Enhancing Scientific Knowledge

In 2014-2018, Ilia State University carried out significant research that helped to enhance scientific knowledge about Georgia's biodiversity.

Number of projects was implemented in 2014-2018 by the V. Gulisashvili Forestry Instititute which supported development of the scientific knowledge on Georgian biodiversity.

Table 1. Scientific Research of Ilia State University 2014-2018 regarding Biodiversity

Year	Title of the study	Source of funding
2012-2014	Concentration of heavy metals in soil invertebrate animals and their biodiversity on polymetallic deposits	Shota Rustaveli National Science Foundation
2012-2014	Biodiversity of invertebrate animals of the karst caves of Georgia	Shota Rustaveli National Science Foundation
2012-2014	Development of trans-Caucasian plant diversity conservation tools	Free University of Berlin
2014	ex situ and in situ conservation of Nitraria schoberi	BGCI
2014	Ecosystems Survey of Javakheti Lakes for Sustainable Environment and Fisheries Development	Shota Rustaveli National Science Foundation
2014	Development of the Ilia State University Botany Institute and National Herbarium of Georgia 2014	Shota Rustaveli National Science Foundation
2014	Ethnographic study of fungi and lichens of Georgia	Shota Rustaveli National Science Foundation
2014-2016	Creation of a collection of wild ancestors of Georgian cultural plants by botanical institutes	World Plant Biodiversity Fund
2015	International Trade of Plant Species (CITES) - Technical Study in Georgia	German Society for International Cooperation GIZ
2015	Georgian Plant Diversity: The Scientific Basis of Survival and Practical Measures, Development of the National Herbarium of Georgia in 2015	Shota Rustaveli National Science Foundation
2015-2017	Supporting Sustainable Mountain Development in the Caucasus (Sustainble Caucasus)	Joint project of the Swiss National Science Foundation and Geneva University
2016-2019	Ex situ and in situ conservation of Transcaucasian relict trees	Project of the Botanical Gardens Conservation Science Council (BGCI)
2016-2019	High Mountain lakes as akey component of local environment, study of natural and man-made impacts	International Scientific Technology Center (ISTC)
2016-2018	Development of Trans-Caucasian Plant Diversity Conservation Tools - Phase II	Free University of Berlin project with the financial support of Volkswagen Stiftung
2016	Objectives of the Ilia State University, Institute of Botany for 2016 related to Georgia's Biodiversity Strategy and Action Plan 2016-2020, Development of the Botanical Institute Herbarium (National Herbarium of Georgia)	Shota Rustaveli National Science Foundation
2016	Selection of Special Bird Areas (SPAs) in Georgia	GIZ, IBiS
2016	Partnership with Millennium Seed Bank: Caucasus Flora Survival Program, Georgia	QUE Royal Botanical Garden (KEW United Kingdom)
2016-2019	Diversity of invertebrate animals of the Upper Imereti Plateau gastric caves	Shota Rustaveli National Science Foundation

2016-2019	origins of rock lizard species: secondary contact between isolated populations	Shota Rustaveli National Science Foundation
2016-2019	Biodiversity of freshwater molluscs in Georgia	Shota Rustaveli National Science Foundation
2017-2018	Working together to save endangered *Betula megrelica* in Georgia	BGCI
2017-2018	Ex situ and in situ conservation of Georgian Red List species of Salix kikodseae	BGCI
2017-2018	Partnership with Millennium Seed Bank: Caucasus Flora Survival Program, Georgia	QUE Royal Botanical Garden (KEW United Kingdom)
2017	Objectives of the Ilia State University Botany Institute in 2017 regarding Georgia's Biodiversity Strategy and Action Plan 2014-2020	Shota Rustaveli National Science Foundation
2017-2018	Supporting Sustainable Mountain Development in the Caucasus (Sustainable Caucasus)	Joint project of the Swiss National Science Foundation and Geneva University
2017-2019	Community Development Survey on the Example of Artificial Forests of Javakheti	Shota Rustaveli National Science Foundation

137 publications on biodiversity (according to the Scopus database) have been prepared and published by Ilia State University scientists and / or students.

The University is involved in international partnerships related to the study and conservation of biodiversity. These include the Caucasus Life Barcode Project (donor - German Government), which is a continuation of GBOL's German national project (https://ggbc.eu).

The molecular-genetic laboratory of biodiversity has been significantly upgraded. The Marine Center in Grigoleti has been renovated. Program for modern forestry and natural resource management, launched in 2011 is extensively ongoing with support of DAAD's.

In addition to Ilia State University, the studies of National Museum (number of butterflies) and the University of Agrarian University (number of syphilis, mites in the soil) are noteworthy.

In 2014-2018, Rustaveli Science Foundation funded the following scientific researches (excluding the abovementioned ones):

Table 2. Research activities by the Rustaveli Science Foundation

Year	Title of the study
2014	Biodiversity of saprophytic fauna of Lagodekhi Protected Areas
2015	Biodiversity of Functional pollinators and their Threats in Georgia
2017	Protease Activity, Biodiversity, Physiological Regulation, and Biochemical Characterization of Georgian Basidiomycetes

Relevant websites, web links and files

http://agruni.edu.ge/herbarium ;
https://www.bsu.edu.ge/sub-17/news/0/5/index.html ;

https://www.youtube.com/watch?v=9leH0Wew-cM ;
http://nfa.gov.ge/ge/kanonmdebloba/mtavrobis-dadgenilebebi/mtvrobis-dadgenilebebi-da-gankargulebebi-universaluri;%20https://www.heritagesites.ge/ka/news_item/269 ; http://www.srca.gov.ge/pagenotfound ;
http://blacksea-riverbasins.net/ ;
http://greenalt.org/wp-content/uploads/2015/12/GA_comments_on_Chorokhi_River_Basin.pdf ;
http://greenalt.org/wp-content/uploads/2016/02/cklis_resursebis_mmartva_2016.pdf ;
https://sites.google.com/a/g4g.ge/g4gpublicfiles/water-resource-management-reform

Obstacles and scientific and technical needs related to the measure taken

Challenges:

- Government does not provide any incentives for local agricultural diversity conservation activates; Donor support is also very limited;
- Lack of adequate financial resources for research projects and for maintaining qualified staff in research institutions.

Needs:

- There is no integrated national database for biosafety, where all the data and information regarding the control and monitoring of living modified organisms would be gathered, which would make planning based on risk assessment more efficient;

- The lack of professionals and expertise is a problem is a critical challenge. It is necessary to strengthen human and technical capabilities in the field;

- It is necessary to develop relevant directions in higher education institutions and to enhance professional staff. The above measures enhance strengthening research capabilities, which in turn will increase the knowledge of inland waters, assess biodiversity, identify threats, minimize the risks of ecosystem failure.

Sustainable Use and Human Wildlife Conflict

There are 16 actions related to sustainable use and human wildlife conflict in different sectors envisaged in current NBSAP.

For the implementation measure, please indicate to which national or Aichi Biodiversity Target(s) it contributes

National Target(s) – B.5
Aichi Target(s) – 6

Assessment of the effectiveness of the implementation measure taken in achieving desired outcomes

☒ Measure taken has been partially effective

Please explain the selection and where possible indicate the tools or methodology used for the assessment of effectiveness above

Fisheries in Black Sea

16 fish species are allowed for fisheries in the Black Sea waters of Georgia, including anchovy, sprat, whiting, mackerel, black sea mullet, mullet, spiny dogfish, common stingray, common stargazer, bonito, goby, turbot, shad, bluefish, garfish, pickerel. Though the main object of fishery is anchovy. In 2014-2017 catches of anchovy varied between 50-70 thousand tonnes, which is almost 99% of total catches. Horse mackerel, black sea mullet and whiting are important trade species, but the amount harvested of these species is less than anchovy. Annual harvest of the remaining species is insignificant (Table 1). Fish stock is estimated annually, based on which fishing quotas are defined.

Nowadays, 9 commercial fishing licenses are issued to 5 companies. These licenses were granted for a ten years period in 2006. In April 2016, according to the resolution of the Government of Georgia the term of the fishing licenses was extended until 1 September 2026. From October 1, 2017, the license holders are obliged to follow the electronic monitoring system and conduct the electronic fishing records.

In the years 2014-2016, licnce holders were using 20 seiners, which decreased to 15, by 2016-2017. The total capacity of fishing seiner ranges from 147 to 694 tonnes. Besides the seiners, in the Black Sea 33 medium sized fishing vessels are operating with a total capacity of 10 tons to 109 tons. The majority of these vessels are built in the Soviet time and has not been modernized. These ships equally deal 12% of the fishing quota. The fishing is carried out mainly by the bottom and pelagic trawls.
The actual catch of all fish species are within the limits of fishing quota, in some cases it is even less than defined quota.

Table 6. Fish catch and quotas in Black sea (2013-2017)

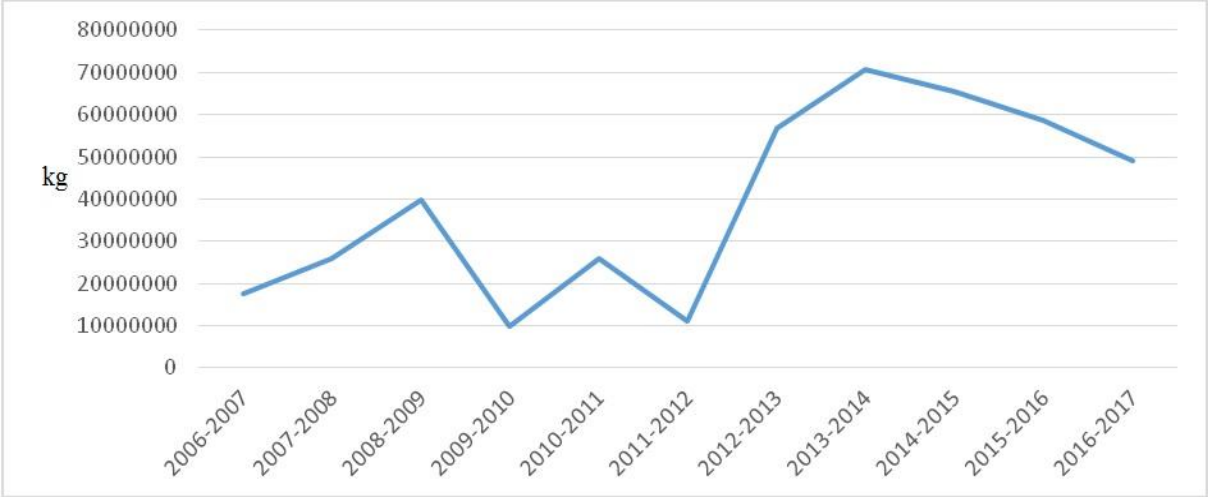
Fish species	Fishing seasons							
	2013-2014		2014-2015		2015-2016		2016-2017	
	Quota, kg	Catch, kg	Quota, kg	Catch, kg	Quota, kg	Catch, kg	Quota, kg	Catch, kg
Anchovy	85 000 000	70 774 141,720	85 000 000	65 493 458,026	85 000 000	58 548 826	90 000 000	48 972 234
Sprat	80000	-	60 000	22 526	60 000	1 500	60 000	-
Whiting	600 000	21 783,500	400 000	66 102,477	400 000	45 101,123	400 000	19 595
Mackerel	1 500 000	708 019,500	1 600 000	403 824,600	1 600 000	653 652,650	1 600 000	310 040,300
Black sea mullet	600 000	29 914,260	500 000	55 858,373	800 000	50 533,600	1 000 000	35 612,800
Mullet	100 000	24,700	100 000	138,500	100 000	560,500	100 000	50
Spiny dogfish	10 000	39	-	-	-	-	-	-
Common stargazer	30 000	204	30 000	187,400	30 000	196	30 000	37
Bonito	60 000	-	60 000	-	60 000	-	30 000	-

Goby	30 000	74,500	30 000	75,800	30 000	14,300	30 000	9
Turbot	20 000	53,700	20 000	433,700	20 000	1 263,800	30 000	451,500
Shad	30 000	582,100	30 000	655,700	30 000	253	30 000	1 364
Pickerel	20 000	27	20 000	529,500	20 000	714,449	20 000	309
Bluefish	100 000	143,500	100 000	1 655,300	100 000	1 303,800	500 000	1 403
Garfish	10 000	-	10 000	-	10 000	2,351	10 000	-
Stingray	10 000	1 079,500	10 000	533,500	10 000	513	100 000	770,500
Total	**88 700 000**	**71 725 357,980**	**88 970 000**	**66 206 830,876**	**88 770 000**	**59 386 266,073**	**94 440 000**	**49 341 876,100**

Source: Department of Environmental Supervision

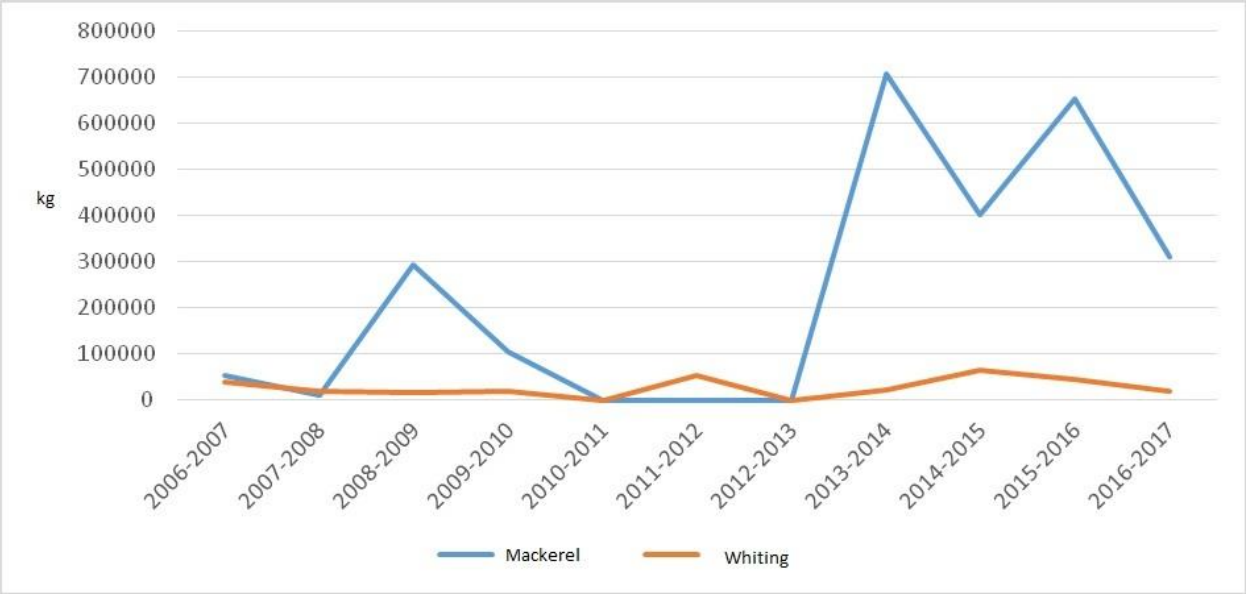
In 2014-2017, harvest of some species were carried out only in some seasons. For example, in the 2015-2016 season, catch of sprat reached to 22.5 tons, in the following years it was very few or no harvest at all. Despite the define quota, in the period of 2014-2017, there was almost no harvest of spiny dogfish, bonito and garfish.

Figure 17. harvest of Anchovy in Black sea in 2006-2017 (kg)



Source: Department of Environmental Supervision Service

Figure 18. harvest of Mackerel and Whiting in Black sea in 2006-2017yy (kg)



Source: Department of Environmental Supervision

Currently, the electronic monitoring system operates on all vessels in Georgian waters. Data is automatically transferred to the Department of Environmental Supervision. Introduction of industrial fishing self-monitoring and reporting system is one of the obligations under the Association Agreement between Georgia and the European Union.
In 2014-2017 there was no case of illegal fishing on the Black Sea, but there were 117 cases of violation of fishing rules, mostly during coastal fishing.

Under the frame of NBMS, the quotas and actual catches for Black Sea fish species has been calculated 3 times. Revision of the indicator to monitor species dynamics is being undertaken.

Fisheries in Inland waters

In inland waters of Georgia, fishing is a subject to licensing according to the Resolution No. 138 of 11 August 2005 by the Government of Georgia on "Approval of the Regulations on the Rules and Conditions of Fisheries License". However, in some cases, activities carried out by license holders violate the integrity and proper functioning of water ecosystems.

Nowadays, commercial fishing is carried out only in four lakes - Jandari, Tabatskuri, Sulda and Nadarbazavi lakes and in three water reservoirs - Tsalka, Dali mountain and Shaori reservoirs. The main species are: gibel carp, vendace, bighead carp, vimba, common carp, grass carp, Caucasian scraper, bulatmai barbel, catfish, pelad, from which 50-70% is gibel carp, and 11-27% - bighead carp.

Table 7. Catches in Inland waters (tons)

Water reservoir	2014	2015	2016	2017
Tabatskuri lake	-	0,847	-	-

Tsalka Reservoir	79,129	5,105	22,04	10,5
Nadarbazevi lake	-	2,000	3,200	-
Sulda lake	-	-	0,064	-
Dali reservoir	31,383	4,181	2,441	-
Shaori reservoir	3,1	0,249	3,309	2,936
Jandara lake	-	2,047	4,057	5,545
Total	**113,612**	**14.429**	**35.111**	**18,981**

One of the main reasons for the reduction of indigenous species in lakes and reservoirs of Georgia, is introduction of Gibel Carp in the last century. It is a competitor of the local fish in terms of the nutrition and reproduction areas. It is reproduced intensely, occupies the reservoir space fully, excludes other species of fish and has negative impact on their populations.

Since 2014, the Ministry of Environment Protection and Agriculture of Georgia actively cooperates with the Regional Fisheries Management Organization (RFMO) - General Fisheries Commission for the Mediterranean (GFCM), based on the requirements of the EU-Georgia Association Agreement (Article 234 and 336), FAO Agreement (Georgia is a signatory party since 1994) and the UN Convention on Maritime Law (signed By Georgia in 1996).

In 2015, Georgia became a member of the GFCM Compliance Committee, on the basis of cooperation and the information received from the existing cooperation (assessment of stock, fishing fleet, catches, aquaculture).

Aquaculture

Based on a letter of agreement signed in February 2018, between the Ministry of Environment Protection and Agriculture of Georgia and FAO / GFCM, Georgia has technical support for sustainable development of fishing and aquaculture sector.

In 2018, the National Statistics Office of Georgia, for the first time, carried out a pilot study of the aquaculture farms in the country. As a result, 700 aquaculture farms were examined; the main statistical indicators of the aquaculture field, such as the volume of fish produced in the reservoirs and the production of fish, the average prices of realized fish, the area of water reservoirs and its structure for aquaculture were determined.

The area of aquaculture by end of 2017 has been determined as 4 309.0 hectares, with 2 224.6 hectares for ponds, 27.6 hectares for basins/tanks, and 2 056.8 hectares for water reservoirs and natural water bodies (part of the lake, river, or sea).

By the end of 2017, the largest part of the ponds located in Kakheti and the total area comprise 1 473.5 hectares. The area of the tanks in Samegrelo-Zemo Svaneti is 476.2 ha, 103.5 hectares in Imereti and in the rest of the regions totaled 171.5 hectares. By the end of 2017, most of the ponds were located in Shida Kartli, with a total area of 18.2 ha. Samtskhe-Javakheti ponds comprices 3.5 hectares, in Adjara - 1.8 hectares, in Guria - 1.7 hectares, and in the rest of the regions less than 2.4 hectares.

Figure 19. Aquaculture structure based on the type of water reservoirs, by 2017 (%)

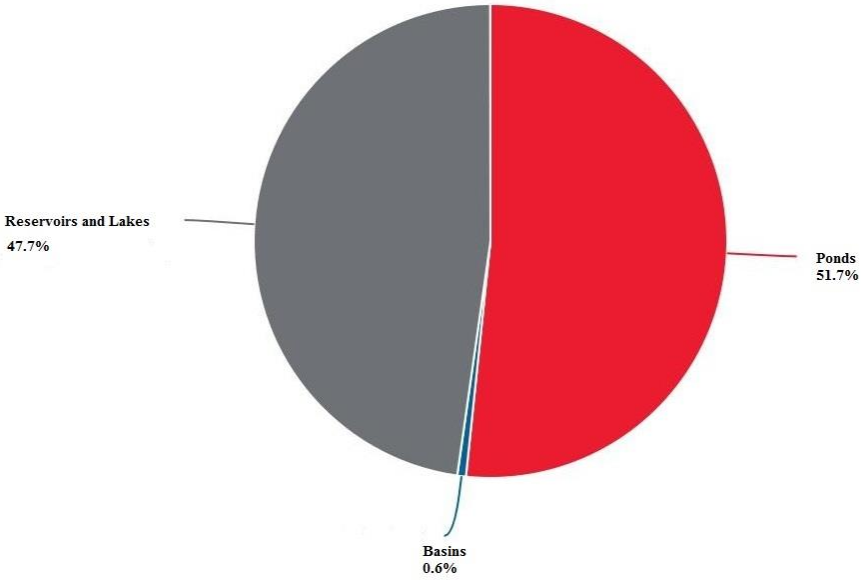


Table 8. Fish stock in the reservoirs according to regions by 2017 (tons)

	2017
Georgia	**2 067.6**
Adjara	121.2
Guria	106.6
Imereti	90.3
Kakheti	882.0
Samegrelo-Zemo Svaneti	184.5
Samtskhe-Javakheti	112.9
Kvemo Kartli	97.6
Shida Kartli	361.9
other regions	110.6

Table 9. Salmonids by the regions by 2017 (tons)

	2017	
	Salmonids in Reservoirs	only rainbow trout
Georgia	**780.8**	**755.7**
Adjara	102.3	96.2
Guria	101.3	101.3
Kakheti	35.6	17.2
Samerelo-Zemo Svaneti	135.7	135.7

Samtskhe-Javakheti	96.2	96.1
Shida Kartli	284.0	284.0
other regions	25.7	25.2

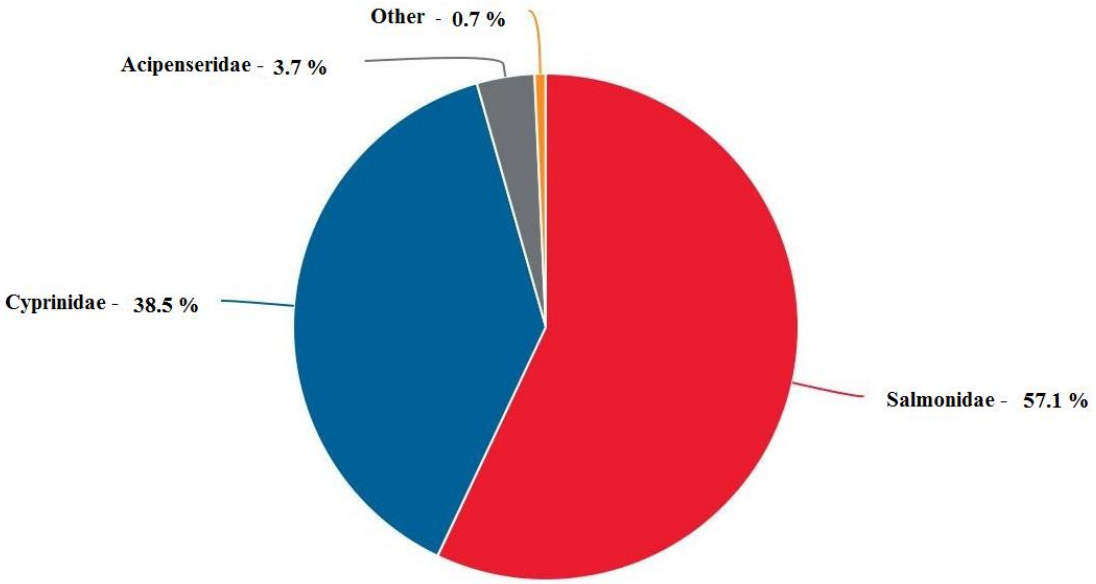
Salmonids – rainbow trout, river trout, lake trout, Coho salmon

Table 10. Cyprinids in the inland waters, by regions (tons)

	2017			
	Cyprinids in inland waters	from this:		
		Common carp and Mirror carp	Grass carp	Bighead carp and Spotted silver carp
Georgia	**1 063.9**	**475.9**	**170.3**	**405.3**
Imereti	68.0	39.4	11.7	16.5
Kakheti	667.9	253.5	103.4	309.3
Samegrelo-Zemo Svaneti	47.0	27.6	10.5	7.0
Kvemo Kartli	92.4	49.7	8.3	34.5
Shida Kartli	65.8	49.1	12.7	3.3
other regions	122.8	56.7	23.8	34.7

Cyprinids - carp, mirror carp, bighead carp, grass carp, spotted silver carp, Transcaucasian barb, bulatmai barbel, kura barbel, shemaya, gibel carp.

Figure 20. Fish production, in 2017



Salmonids - rainbow trout, river trout, lake trout, coho salmon

Cyprinids - carp, mirror carp, bighead (silver) carp, grass carp, spotted silver carp, Transcaucasian barb, bulatmai barbel, kura barbel, shemaya, gibel carp.

Sturgeons - Russian sturgeon, Siberian sturgeon, sterlet
other – European catfish, African catfish, pike, shad, perch, gobies

Source: National Statistics Office

In 2017 aquaculture farms produced 2 041,7 tons of fish, the main part of which is the rainbow trout and bighead carp.

In 2017, 35,1% of the fish were produced in Kakheti farms, while 26,6% were produced - in Shida Kartli and 14,3% in Guria farms.

At present, in aquaculture of Georgia sturgeons represents only 3.7%. During the period of 2014-2017, Georgia imported up to 300 tons of live sturgeons and sturgeon meat.

All species of sturgeons distributed in Georgian waters are listed in Red List of the country. Therefore, commercial catch of sturgeon species is prohibited. Aquaculture produces *A.baerii*, *A. gueldenstaedtii*, *A. ruthenus*, *A. schrenckii* and *A. transmontanus*, from these species only *A. gueldenstaedtii* occurs naturally.

Arrangement of fish farms in Georgia does not require a license. Prior to 2018, the environmental impact permit was required 10 000 m³ and bigger water reservoirs. Since 2018, over 40 tons per year fisheries farming capacity is a subject to screening in order to define the need of conducting full scale environmental impact assessment.

Other relevant information

Although licensed reservoir owners are required to develop management plans, conduct stock research and define the quotas, conduct biological monitoring, the methodology to assess the stock and determine the quotas, remains imperfect. The data often is inconsistent and in many cases it is obscure how the particular quota was determined.

Setting up an electronic monitoring system in the field of fisheries, which will fully comply with European standards and requirements is of crucial importance. It will enable Georgian entrepreneurs to obtain the relevant certification and export their products to the international market.

Obstacles and scientific and technical needs related to the measure taken

Challenges:

- Lack of professionals and the absence of expertise;

- Illegal fishing and fishing violations in inland waters of Georgia is quite often. In 2014-2017, 778 cases of illegal fishing revealed and obtained 720.31 kg of fish. The main objects of illegal fishing are Transcaucasian barb and mullet. In addition, in the same period, 2872 cases of violation of the rules of fisheries and fish stock were revealed, including 1392 cases of breach of amateur and sport fishing

rules. At the same time, 277 cases of fishery, explosive and poisonous substances were detected. Due to the lack of human resources at the Department Environmental Supervision is limited in the monitoring process and the digit is likely significantly behind the actual index.

- Special educational programs do not exist, research is not sufficient. Georgia does not have a specially equipped vessel for fish research in the Black Sea.

Needs:

- It is necessary to strengthen the human and technical capabilities in the field, to strengthen the Environmental Inspection Service, in particular the frequent monitoring is required.

SECTION III: ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET

National Target A.1: By 2020, at least 50% of the population of Georgia is informed about biodiversity; this segment of the populace is aware of the value biodiversity provides to society and the economy, knows about the ways it is threatened, and is acquainted with the steps necessary to mitigate those threats

Category of progress towards the implementation of the selected target

☒ On track to achieve target

Date the assessment was done

June 2019

Additional information

The assessment is based on the national report on the implementation of Aarhus Convention (2016), the Study of "Public Knowledge, Attitude and Practice (KAP) assessment in relation to Biodiversity and Environmental issues in Georgia" (2017) conducted with the financial and technical support from GIZ's Integrated Biodiversity Management in the South Caucasus (IBiS)

Indicators used in this assessment

A.1- i1. Trends of awareness and attitudes of various target groups towards biodiversity (results of qualitative and quantitative studies incorporating the gender dimension)
A.1- i2. Rate of media coverage of biodiversity issues (Published articles, radio and TV shows)
A.1- i3. Number of supporting groups for communication, education and awareness-raising
A.1- i4. Number of hits/clicks/visitors on the biodiversity web portal

Level of confidence of the above assessment

☒ Based on comprehensive evidence

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

National Target A.2: By 2020, significantly more people, especially local populations, are interested and effectively taking part in decision making processes that contribute both to conservation and sustainable use of biodiversity and to biosafety

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

Assessment of the achievement of the target is based on national report to the Aarhus Convention (2016), study of „Public Knowledge, Attitude and Practice (KAP) assessment in relation to Biodiversity and Environmental issues (Georgia), which was implemented in frames of GIZ project: "Integrated biodiversity management, South Caucasus" in 2017 ("Green Alternative, 2014-2018).

Practice shows that the quality of public participation is effective when the public information and participation procedures are properly implemented, or if public is highly interesting in the plans/projects. In this regard, it is noteworthy that NGOs, general public and the local population, as well as media were actively participating in the public discussions of the plans and projects for the development of hydropower and road infrastructure in the mountainous regions.

Indicators used in this assessment

Following indicators were identified by NBSAP for the national target A.2

A.2- i1. Percentage of draft policy, strategic and legal documents related to biodiversity and biosafety made accessible for public consultation and the number and composition of consultation meetings

A2 –i2. Existence of new amendments to the legislation aimed at improving public participation in decision making processes

A.2- i3. Number of NGOs, including women's organizations and other stakeholders (especially representatives of local communities taking into account the gender balance), participating in public consultations on development projects and natural resource management plans

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

Assessment was done with following directions according to the indicators:

1. Changes in legislation;
2. Strategic and legislation documents published for public discussions;
3. Number of participants in public discussions.

For the first two directions assessment was based on analysis of legislation amendments and existing situation regarding the disclosing of draft strategic documents and legislative acts regarding biodiversity.

Information regarding the public consultations organized by the ministry and the private companies as well as the number of participants is available however is not complete. Effectiveness of public participation is assessed as poor by independent studies. Successful and unsuccessful cases of public participation in decision-making processes is not documented.

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

No monitoring is conducted on public participation and/or whether the opinion of stakeholders is considered during the decision-making process. Accordingly, there is no comprehensive quantitative data and information available regarding the public participation in decision making processes on biodiversity issues as well as its effectiveness.

National Target A.3: By 2020, sustainable use and the economic values of biodiversity and ecosystems are integrated into legislation, national accounting, rural development, agriculture, poverty reduction and other relevant strategies; positive economic incentives have been put in place and incentives harmful to biodiversity have been eliminated or reformed

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June 2019

Additional information

National Target A.3 includes five objectives and 21 actions. There is some progress towards the achievement of set National Target, however none of the actions could be considered as fully implemented. The implementation progress varies per objective, however there are objectives which could be considered almost achieved (A.3-o1) and other objectives, which had no progress so far (A.3-o2).

It is important to note, that overall National Target A.3 is far behind of the implementation schedule, as most of its actions (even the ones which have been partially implemented) were supposed to be implemented in the years 2014-2015. There has been some progress in terms of elaboration and adoption of new regulatory framework – new Environmental Assessment Code (which has been prepared in accordance with the EU directives) has been officially adopted by the Parliament of Georgia in 2018. The Code sets out a novelty by introducing the SEA concept as well as the scoping and screening phases and division of the activities subject to EIA into two annexes (Annex 1 activities which are subject to EIA and Annex II activities which might be the subject to EIA as a result of screening decision). This could be considered as an important achievement by the country which could form a cornerstone to ensure the inclusion of environmental dimension into the development programmes. However, there still is a need for additional implementation mechanism for proper integration of biodiversity values into SEA and EIA process. Also, it is noteworthy, that starting from 2018,

the mining industry was included in the list of activities subject to mandatory EIA procedures, which was in place since 2006.

Currently number of key national-wide policy documents address biodiversity considerations. Moreover, most of these documents could be linked to NBSAP actions to certain extent. "Social-Economic Development Strategy of Georgia "Georgia 2020", "Regional Development Programme of Georgia for 2018-2021", "National Strategy for Rural Development 2017-2020", "Agriculture Development Strategy 2015-2020" – all these important sector-specific policies have separate notions regarding the biodiversity (including agrobiodiversity, protected areas, sustainable use and preservation of biodiversity resources etc), however it should be noted, that inclusion of biodiversity-related topics into other sectoral development policies is mainly carried out on ad-hoc basis and there is no national guideline developed so far, which would ensure the comprehensive integration of biodiversity considerations or ecosystem approach into policy planning and decision-making.

Along with the relatively successful cases, where the objectives have been partially met, there were almost no terms of TEEB initiative application throughout the country, nor its inclusion in development programmes or national statistics. Thus, objective A.3-o2 (together with the actions A.3-o2.1., A.3-o2.2. and A.3-o2.3) could be considered as unsuccessful with no implications or any kind of contributions to the overall implementation of the National Target A.3

In 2015, the recommendations on mainstreaming the biodiversity into spatial planning process was prepared with the financial support of GIZ and relevant guideline was developed. Spatial planning of Akhmeta municipality was undertaken in compliance with the guideline, however at this stage the guideline is not legally-binding. The Spatial Planning, Architecture and Construction Code of Georgia was adopted in 2018, which defines environment protection (including biodiversity) as one of the main principles of urban development.

The draft law on Biodiversity was prepared by the Ministry (with support of GIZ) in 2018 and currently is under discussion. All stakeholders, including the Forestry Policy and Biodiversity Department, admit that the draft law is more focused on conservation and does not cover sustainable use of biological resources. The ministry states, that the specific provisions related to the resource use will be incorporated into the relevant sectoral legislation (e.g. forestry, licenses and permits etc). Currently, certain work has been carried out to prepare the by-law to regulate the commercial use of Non-timber forest products. However, despite the fact that there is a clear interest to harvest and export certain animal species (e.g. various species of frogs and reptiles), commercial use of animal species will be left without regulation at this point.

In 2018 BIOFIN project in Georgia has conducted the Finance Needs Assessment study which among others included the costing of NBSAP actions. According to the report, the total estimated cost of National Target A.3 was 4,073,000 USD out of which the TEEB-related actions were estimated as 2,700,000 USD. According to the same study, by 2017 the spent amount for National Target A.3 slightly exceeded 15% of total calculated amount.

Establishment of the National Biodiversity Monitoring System was initiated back in 2008 by the Ministry of Environmental Protection. In 2012, 25 indicators (State, pressure, response) were adopted by the Order #262 18 December. Methodologies were developed for most of the adopted indicators and 12 of them were calculated repeatedly from 2012 to 2015. Only two indicators were calculated including 2018. The monitoring indicators were reviewed in 2016 in order to reflect needs of Strategic Biodiversity Plan 2011-2020 and its Aichi targets. Consequently, 35 indicators were developed. However, the new indicators have not been adopted so far. Currently 4 indicators are being calculated. None of the indicators are publicly available.

Indicators used in this assessment

Indicators suggested by the NBSAP for target A.3.

A.3 – i1. Existence of newly enacted policies, laws, regulations and institutional changes that ensure compliance with the Convention on Biological Diversity and other biodiversity-related international commitments

A.3- i2. Number of economic tools and instruments (including TEEB) ensuring biodiversity conservation and ecosystem services that are applied in decision-making

A.3 – i3. Statistical information placed on www.geostat.ge and biodiversity monitoring reports/calculated biodiversity indicators placed on www.biomonitoring.gov.ge

Please describe any other tools or means used for assessing progress

The Biodiversity Finance Needs Assessment ("FNA") study conducted by BIOFIN Georgia Project in 2018 revealed and calculated the total amount of funding required to sustain and protect biodiversity in Georgia. FNA covered not only NBSAP, but other areas which have a significant effect on biodiversity and ecosystem services. In addition, during the course of the study, NBSAP activities were prioritized based on urgency and the scale of overall impact. Prioritization coupled with the cost-estimation by different activities enables policy makers to focus on the most critical items.

Total biodiversity financing needs over the 10-year period 2013-2022 amounted to USD 390 million;

After comparing the needs to available financing, the gap was calculated. Total financing gap amounted to USD 135 million over the five-year period 2018-2022.

Based on the analysis of the data gathered through workshops with key biodiversity experts in Georgia, it was estimated that the total funds required to finance all of the actions in NBSAP amounted to USD 95.7 million. During the years 2013-2017 USD 18.9 million was spent, while additional USD 25 million were budgeted and allocated for the next five-year period. The gap therefore amounted to USD 51.8 million, or about 54% of the total need.

Relevant websites, web links and files

http://biodiversityfinance.org/knowledge-product/financial-needs-assessment-fna-0 - Finance Needs Assessment, BIOFIN

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

The assessment of the progress of National Target A.3 is based on desk review of existing legal acts and policy documents, interviews and workshops with relevant stakeholders (National authorities, including Environment, Agriculture, Mining etc., environment/biodiversity experts) and on authors opinion.

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place

In 2014, the NBSAP Implementation Coordination Board was established with the participation of high-level representatives (Deputy Ministers) from different sectoral ministries as well as representative from NGO sector and International donor organizations and proved to be ineffective.

No other monitoring system was in place.

National Target A.4: By 2020, an effective and fully functional national biosafety system has been put in place ensuring adequate protection of the country's biodiversity from any potential negative impact from living modified organisms

Category of progress towards the implementation of the selected target

☒ On track to achieve target

Date the assessment was done

June 2019

Additional information

Assessment of the achievement of the target is based on the analysis of legislation regarding biosafety, official data received from the enforcement units.

Indicators used in this assessment

4 indicators are defined for fulfillment of A4 target according to the NBSAP:
A4-i1. Existence of newly enacted legislation on biosafety.

A4-i2. Existence of clearly defined functions of the state agencies in the field of management, monitoring and control of LMOs reflected in their statutes.

A4-i3. Existence of fully functional infrastructure for management, monitoring and control of LMOs, including accredited laboratories.

A4-i4. Number of trained specialists (considering the gender dimension), with appropriate qualification in the assessment, monitoring, management and control of LMOs.

Following indicators are adopted under the framework of the National Biodiversity monitoring system:

1. Cases of illegal introduction of GMO into the environment, according to municipalities, species, area of cultivated land and taken measures.
2. Contained use of GMO

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

During the assessment of the national target, the official data provided by the enforcement agencies. Illegal introduction of LMOs into environment, their import and placement into the market might not be revealed completely because of the lack of financial, technical and human resources. In particular, frequency of taking samples to control placement of the LMOs on the market and their introduction into the environment is not enough. Fodder, seedling and seed materials are not controlled.

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Biodiversity and Forestry Department of the Ministry of Environmental Protection and Agriculture, as the focal point for the Biosafety Cartagena Protocol monitors the achievement of the target. Relevant Governmental bodies are monitoring the transboundary movement, introduction into the environment and placement on the market of living modified organisms. Illegal introduction of LMOs into environment, their import and placement on the market might not be fully detected due to the lack of financial, technical and human resources.

National Target B.1: By 2020, negative factors directly affecting threatened natural habitats have been significantly reduced through the sustainable management of at least 60% of these habitats, including at least 60% of forests, 80% of wetlands and 70% of grasslands

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Indicators used in this assessment

B.1-i1. Percentage of natural habitats that are managed according to their respective management plans

B.1-i2. Existence of a relevant legal base providing for (i) the integration of biodiversity conservation requirements into the EIA process and (ii) monitoring and enforcement of environmental impact permits (EIP) and licences

B.1- i3. Rate of loss of forested areas

B.1 -i4. Area of degraded forest

B.1 - i5. Scale of grazing in the forest

B.1 - i6. Area affected by forest fire

B.1- i7. Area of forest affected by pests and diseases

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

The assessment of the progress of National Target B.1 is based on desk review of existing legal acts and policy documents, interviews and workshops with relevant stakeholders and on authors opinion.

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

National Target B.2: By 2020, alien invasive species have been assessed with regard to their status and impact; their pathways have been evaluated and identified, and measures are in place to prevent their introduction and establishment through the management of these pathways; no new alien species have been recorded

Category of progress towards the implementation of the selected target

☒ No significant change

Date the assessment was done

June 2019

Additional information

Animals

Various alien mammal species were introduced in Georgia during last century. Raccoon (*Procion lotor*), coypu (*Myocastor coypus*), muskrats (*Ondatra zibethicus*) and red squirrel (*Sciurus vulgaris*) successfully adapted to local environment and probably negatively affected on local biodiversity. Although, an impact of the invasions on local biodiversity was never studied. There is no robust data on the species range, number and impact on local biodiversity. But, according to sporadic data at least two of the alien mammals (raccoon and muskrat) are probably expanding their range in the country.

Recently, rose-ringed parakeet (*Psittacula krameri*) was observed near the capital, Tbilisi. Experts believe that the species can survive and breed in our climate and can potentially have negative effect on local species populations.

There is no data regarding the alien invasive species among amphibians. New, non-resident reptiles were observed in Georgia. For instance, red-eared slider (*Trachemys scripta elegans*) was found in Sioni reservoir and Turtle Lake. The red-eared slider is listed as one of the "Top 100" World's Worst Invaders and it may become an invasive species in Georgia. Recently, new Lebanon lizard (*Phoenicolacerta laevis*), with limited range, was found in Anaklia (western Georgia) by the scientist of Ilia State University. It probably was introduced from Turkey in the past. According to experts, the species could not expend its range due to unfavorable climate and competition with local species.

Three new invasive insect species found in Georgia. In 2014, box tree moth (*Cydalima perspectalis*) was first detected in the country. Governmental agencies tried to limit the species using biological method – species specific bacterium that killed the moth on early larva stage. According to state monitoring results, the method did not have good results and government decided to use pesticides against the box tree moth and the decision was made to use pesticides on the small area of forest fund (20 ha), so that in future propagation materials could be collected. This area is far from populated area and fully isolated.

In 2015, brown marmorated stink bug (*Halyomorpha halys*) was first found in Georgia. The stinkbug spread very fast in western Georgia and caused great damage to the agriculture, especially to hazelnut plantation. The stinkbug became a number one pest in the country and the government used various methods to limit its number. Bifenthrin insecticides were widely used to control the species, but it also affected local species as well as domestic bee population. There is no data on the impact of this invasion on local biodiversity and nor the affect of wide range pesticides on local insect populations.

In 2018, new potential invasive species was detected in western Georgia – *Drosophila suzukii.* It might become an aggressive pest and could cause the substantial damage on local agriculture.

In the past, few alien insect species were introduced in Georgia. Some of the notable species are the European spruce bark beetle (*Ips typographus*), the fall webworm (*Hyphantria cunea*), the great spruce bark beetle (*Dendroctonus micans*), *Rhizophagus grandis*. National Forest Agency and the Protected Areas Agency monitore the European spruce bark beetle (*Ips typographus*) population. The agency tries to control the species population via pheromones and sanitation cuttings.

Two fungal plant pathogens were also introduced in the past: (1) *Calonectria pseudonaviculata* caused shoot blight of boxwood and (2) *Cryphonectria parasitica* is an agent that causes chestnut blight. Recently National Forest Agency started working to separate virulent strains of the chestnut blight fungus Cryphonectria parasitica that potentially will control this disease.

Plants

In recent years 50 most important invasive alien species were identified. Monitoring of several species was conducted and methods for the reduction of the population were tested in the field. For more details please see the report on the assessment of the contribution to Global Strategy for Plant Conservation (GSPC) - Chapter V.

In 2019 the Georgian Agrarian University and the Vasil Gulisashvili Forestry Institute have started the project "Research of the alien, potentially invasive timber species in the protected areas of Georgia". Te Project is funded by the Shota Rustaveli National Science Fund.

Legislation that supports invasive species control

Since 2014, government had not adopted new law, or strategy and action plans to prevent new invasions and enhance control on obvious invasion pathways. Strategy to control brown marmorated stink bug in Georgia (adopted in 2018) is the only legal act of government that tries to control the alien invasive species in the country.

Objective and activities defined by the NBSAP

B.2-o1. Prevent the distribution of new alien invasive species and control the existing populations of alien species

The country could not prevent new invasions. Despite the attempts to control the invasion, the alien invasive processes are still ongoing all over the Georgia. Except European spruce bark beetle (*Ips typographus*), almost no activities were carried out to study and control existing alien species populations, or their impact on local biodiversity.

Activities

B.2-o1.2. Assess the status and distribution of invasive alien species and conduct a modelling of the threats they pose to native biodiversity and ecosystems

Distribution of two alien species: brown marmorated stink bug and box tree moth were assessed and monitored. The species impact on local biodiversity was not studied.

B.2-o1.3. Develop a legal framework and strategy for the management of invasive alien species;

Strategy to control brown marmorated stink bug was adopted by the decree of the Government of Georgia #588 (March 24, 2017)

B2-o1.4. Establish effective measures for the control of the populations of marine alien species, including Mnemyopsys leidi and Rapana venosa

Resolution #17 of the Government of Georgia on the approval of environmental technical regulations was adopted on Januari 3, 2014

Conclusions

Important alien invasive animal species were not identified and their number and distribution was not fully monitored. Alien invasive species effect on local biodiversity was not assessed in Georgia. Invasive alien species pathways were not studied and potential risks identified. There is no unified strategy document for management of alien invasive species.

Georgian government focused only on those invasive species (insects) that made substantial damage to local agriculture, or to important tree species. Fast invasion of the insects and intensive use of insecticides could potentially have a negative impact on local species.

Indicators used in this assessment

Following indicators are defined by the NBSAP for achievement of B.2 national target:

B.2- i1. Existence of a strategic document for the management of alien invasive species and for the prevention of their introduction and establishment

B.2-i2. Number and distribution of invasive species

Level of confidence of the above assessment

☒ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above

8 experts from various scientific and governmental institutions were consulted. Based on the data, reports and articles the progress toward national target B.2 was assessed. The assessment results were discussed on expert consultation meetings (3 meetings in total).

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place

No IAS monitoring system in place

National Target B.3: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem functioning and biodiversity.

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

The assessment of this target is based on the results of monitoring of surface water and Black Sea pollution, which is being implemented by the National Environment Agency and with the support of different projects. The monitoring results are published on the website of the National Agency (http://nea.gov.ge/), on the website of National Statistics Office (www.geostat.ge), in addition, following links can be used to access project reports used in the evaluation process: http://blacksea-riverbasins.net; http://emblasproject.org/

Indicators used in this assessment

Following indicators are defined by the NBSAP for achievement of B.3 national target:

B3-i1 Main anthropogenic sources of the anthropogenic sources of the eutrophication of the Black Sea identified; measures aimed at their eradication underway;
B3-i2 Enacted legislation regulating environmental pollution;
B3-i3 Existence of the reports on the control of environmental pollution.

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

The Inland Waters and the Black Sea water quality monitoring network is being currently developed. As a result, no continuous data on water contamination for long period of time is available for various parameters in order to detect pollution trends.

Bio-monitoring of inland waters and the Black Sea has recently started and the impact of water quality on biodiversity has not been assessed yet. Impact indicators should be selected and monitoring should be carried out to assess the impact of environment pollution on biodiversity.

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Environmental pollution monitoring is carried out by the National Environmental Agency.

National Target B.4: By 2020, the management of agricultural ecosystems and natural grasslands is improved

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June 2019

Additional information

State-owned agricultural land, including natural grasslands and pastures, is managed by the National Agency of State Property (NASP) of the Ministry of Economy and Sustainable Development (MESD) under the category "Real Estate – Agricultural land". Ministry of Environmental Protection and Agriculture has no authority on pasture management. Thus, the progress towards the target of the mentioned activity could be considered as "moving away from target". According to current legislations, the pasture leasing terms and conditions (except the pastures within the boundaries of protected areas) are defined by National Agency of State Property, local communities lost the authority to manage community pastures. Although privatization of pastures is prohibited, pastures can be leased for up to 49 years.

Indicators used in this assessment

Following indicators are defined by the NBSAP for achievement of B.4 national target:

B.4 - i1. Relevant changes introduced in the legislation

B.4- i2. Existence of a National Agricultural Strategy and Action Plan

Please describe any other tools or means used for assessing progress

Desk research, interviews with respective experts and e-mail communication; Experts' meeting was organized on June 5, 2019, which was attended by 9 experts.

Level of confidence of the above assessment

☒ Based on partial evidence

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The unified system of Indicators for Biological Diversity Monitoring, approved by the Minister's decree in 2012, includes the monitoring methodology for data collection on agricultural ecosystems and natural grasslands. However, a comprehensive system for monitoring of agricultural ecosystems and natural grasslands does not exist in Georgia yet, as the country still does not have unified land database. Systemic approach has been recently developed through on-line Atlas of forest and land use. The Atlas will provide publicly available information about forestry sector and land use to interested parties. The Atlas was created with support of GEF, UN Environment, Global Forest Watch (GFW) and the World Resources Institute and will be managed by MEPA. It should become a monitoring platform that provides analysis tools and information related to forest and land use in Georgia.

Relevant websites, web links and files

www.atlas.mepa.ge

National Target B.5: By 2020, the impact of fisheries on stock, species and ecosystems is within safe ecological limits

Category of progress towards the implementation of the selected target

☒ No significant change

Date the assessment was done

June, 2019

Additional information

The assessment of the achievement of the target is based on the official data received from relevant agencies, information received during the meeting with the stakeholders and expert opinions.

Indicators used in this assessment

Following indicators are defined by the NBSAP for achievement of B.5 national target:

B.5 - i1. Existence of approved and scientifically sound methodology for stock assessment of commercial fish species in inland waters
B.5 - i2. Existence of approved and scientifically sound methodology for establishing harvest quotas for commercial species in inland waters and the Black Sea
B.5 - i3. Trends in stocks of commercial species in inland waters and the Black Sea
B.5-i4. Existence of effective legal and institutional frameworks for the management of aquaculture in place

NBMS Indicator:

P4. Fishing intensity - Change of fishing intensity, number of fish caught by year (according to species) and ending quoted fishing quotas (fishing percentage points related to permitted quotas of the appropriate species of fish).

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

The assessment is based on information received from relevant services of the Ministry of Environmental Protection and Agriculture, Official Data from the National Statistics Office of Georgia, as well as activities conducted within the framework of several projects and expert opinions.

No regular research of fish diversity, distribution and composition is undertaken. There is no unified database and therefore available statistical data is not reliable.

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

Monitoring is carried out by Ministry of Environment Protection and Agriculture through Biodiversity and Forestry Department, Agency of Protected Areas, National Environmental Agency.

National Target B.6: By 2020, a national system of sustainable hunting is in place which ensures the viability of game species

Category of progress towards the implementation of the selected target:

☒ Progress towards target but at an insufficient rate

Date the assessment was done:

June, 2019

Additional information

Hunting in Georgia is regulated based on the Georgian Law on Wildlife. Based on the law hunting (except of the migratory birds) is allowed only within the specially designated areas – Hunting Farms. Establishment of

a Hunting farm requires special license, issued by the LEPL National Environmental Agency (NEA) under the Ministry of Environmental Protection and Agriculture, based on the Decree of the of the Government #132.

Currently, the following species are designated for hunting within the hunting farms:

1. Mammals

1. *Myocastor coypus*
2. *Lepus europaeus*
3. *Martes meles*
4. *Martes Martes*
5. *Martes foina*
6. *Canis lupus*
7. *Canis aureus*
8. *Vulpes vulpes*
9. *Nyctereutes procyonoides*
10. *Felis silvestris*
11. *Sus scrofa*
12. *Capreolus capreolus*
13. *Procyon lotor*

2. Birds

1. *Phasianus colchicus*
2. *Alectoris graeca*

Hunting on migratory species:

Hunting on migratory species is allowed based on the receipt of payment of the natural resource fee and permit to carry and use respective hunting gun issued by the Ministry of Internal Affairs. The legislation defines hunting species, hunting methods, daily hinting quotas, hunting areas and hunting period.

Prohibitions:

Hunting is prohibited within the urban areas, strict nature reserves and 500m around, national parks and 250 m around.

It is allowed to use the hunter dogs and trained raptor birds if the latter one is legally owned and the owner presents document of legal acquisition.

It should be mentioned the legislation regulating hunting in Georgia requires significant update. Therefore, the Ministry of Environmental Protection and Agriculture has initiated development of the new legislation. Currently, the zero draft of the law is developed.

NBSAP Objective

B6-o1. Establish a national sustainable hunting system (including legal and institutional frameworks) with the involvement of all stakeholders

In March 2019, Ministry of Environment Protection and Agriculture of Georgia added new responsibilities to a LEPL National Nursery and via ministerial order transformed it into Wildlife Agency. According to the ministerial order, the agency has wide range of responsibilities and sustainable hunting is one of them.

NBSAP Activities

B.6-o1.1. Develop a national sustainable hunting strategy in a participatory manner using international best practices

In 2016, a new hunting concept for Georgia was developed. Based on the concept, Ministry of Environmental Protection and Agriculture of Georgia developed draft law to regulate hunting in Georgia. Public consultations to discuss the draft law were organized by the government. About 700 people attended 11 public meetings were organized by MEPA and in various regions of the country. Public reaction on the draft law was negative and ministry stopped further development of the law.

Later, in 2017, Food and Agriculture Organization (FAO) developed new hunting strategy for Georgia. FAO organized few public discussions at the ministry. MEPA did not adopt the strategy. Hence, no legally adopted document is available that would regulate hunting in Georgia.

MEPA shall continue public consultations on national hunting strategy with the involvement of wide range of stakeholders. The ministry shall adopt the final version of the strategy and use it as a guideline to develop a new hunting law.

Indicators used in this assessment

B.6 - i1. Existence of improved legislative and institutional framework for sustainable hunting

Relevant websites, web links and files

Documents

1. Concept paper on new hunting law of Georgia – conceptual elements and preparation guidelines (March, 2016);
2. Hunting law of Georgia, draft version (June, 2016);
3. Suggestions and recommendations for sustainable management and regulation of hunting sector in Georgia (June, 2017);
4. Results of the working group discussion on sustainable hunting politics and regulation;
5. Ministerial order №2-249 on establishment of the LEPL Wildlife Agency, Ministry of Enviromental protection and Agriculture of Georgia.

Websites
www.sanerge.com

Level of confidence of the above assessment

☒ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above

Various official reports have been analysed during preparation of this assessment. Number of employees and experts from various scientific and governmental institutions has been interviewed. Country's progress toward national target has been discussed during the stakeholder meetings (2 meetings in total has been held).

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target C.1: By 2020, the status of biodiversity has been assessed through the improvement of scientific and baseline knowledge and the establishment of an effective monitoring system

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Assessment date

June, 2019

Additional information

Georgia is developing the national biodiversity monitoring system since 2008. The system involves 26 indicators developed based on the OECD methodology - Pressure/State/Response. The indicators are adopted through the order of the Minister of Environment N262 (18 December, 2012) on indicators of the national biodiversity monitoring system.

National biodiversity monitoring council has been established.

So far methodologies for 12 indicators were developed and tested. Reports for those 12 indicators were published in the form of "Biotrends". These indicators are:
P1: Landscape fragmentation;
P4: Fisheries intensity (Indicator was calculated three times);
P9: Distribution of invasive species (Distribution of main invasive species was assessed within the selected protected areas with support of the GIZ);
P11: Forest deceases and fires;
S1: Area covered with forest (Map of the forest cover was prepared with support of the GIZ);
S7: Awareness;
S3 c:Selected plant species (Population assessment of snowdrop (*Galanthus woronowii*) was conducted. List of endangered plant species was developed;
R1: Area of protected areas (Calculated twice);
R2: Protected areas managed based on the Management Plans;
R5: Rehabilitation of forests (Indicator calculated twice);
R6: Management of agriculture based on the biopharming principles (Indicator was calculated twice);
R7: Financial resources for nature conservation.

At the same time, monitoring of brown bear (*Ursus arctos*) was conducted.

Currently, methodology is being developed and data being collected with support of GIZ for the following indicators:

S5 – Area of the habitats of the special conservation importance. Currently, the methodology is being developed. At the same time, forest indicators (P2, P3, P11) are being integrated.

Monitoring of large mammals was conducted initiated by the Ministry of Environmental Protection in 2012-2014 years. At the same time, in 2014 salmon and bat monitoring was carried out. Monitoring of bird species and cetaceans was also conducted.

Updated list of indicators was developed within the framework of the project Harmonization of information management for improved knowledge and monitoring of the global environment in Georgia implemented by UNDP. Particularly, existing indicators were harmonized with the indicators adopted by the Conference of parties with the decision XIII/28. However, the updated indicators have not been adopted yet.

The biodiversity and forestry department of the Ministry of Environmental Protection and Agriculture is responsible for implementation of the National Biodiversity Monitoring System (NBMS). However, it is necessary to assign the roles among various units of the ministry obliging them to collect the relevant information and participate in the assessment.

The red list of Georgia is adopted by the Decree of the Government N190 dated 20 February 2014 on adoption of the Georgian red list. However, assessment of conservation status of the species listed in the red list has not been undertaken since 2006. Conservation status of the economically valuable species has not been assessed, which would ensure sustainable use of these species.

The red list of Georgia does not contain endemic species of cultivated plants and their wild relatives. Also, currently there is no methodology for assessment of conservation status of these species.

Indicators used in this assessment

The assessment relied on the following indicators set out in the country's NBSAP 2014-2020:

C.1- i1. Existence of defined conservation statuses for all rare and economically important fauna species; existence of the updated national "Red List"
C.1- i2. Existence of widely accepted checklists for major groups of organisms
C.1- i3. Existence of a functional biodiversity monitoring system
C.1- i4. Existence of guidelines on developing a "Red List" of crop landraces, domestic animal landraces and crop wild relatives
C.1.- i5. Existence of a national "Red List" of crop landraces, domestic animal landraces and crop wild relatives

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

Assessment of C.1 national target was based on the desk review, interviews and meetings with various stakeholders, as well as author opinion.

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target C.2: By 2020, the status of species - including 75% of "Red List" species - has been considerably improved through effective conservation measures and sustainable use

Category of progress towards the implementation of the selected target:

☒ No significant change

Date the assessment was done:

June, 2019

Additional information

The red list species status was not considerably improved over the reporting period. Some red list species (brown bear, red deer, eastern tur) populations showing slightly positive trend in some regions of the country. Overall trend of these species throughout the country is still questionable.

Some rare species conservation action plans were developed (Caucasian leopard, red deer, bezoar goat) during the report period, although the government did not adopt any of them. Other red list species conservation management plans were not elaborated, or updated. Various breeding programmes carried out in the country, but they were not a part of the widely adopted conservation management plans.

WWF Caucasus Programme Office initiated goitered gazelle reintroduction programme in 2014. Since then they translocated 63 gazelles from the Azerbaijan and released into the wild. The group of the gazelles are breeding in Georgia and according to current monitoring; we have at least 80 individuals. According to specialists the gazelle population in Georgia is increasing.

Ilia state university developed red deer conservation action plan, but the plan in not adopted by the government yet. Red deer breeding program (as one of the conservation actions) is underway at Tbilisi zoo.

Various research activities identified by the Chiroptera conservation management plan had been implemented. One of the important bat habitats - Ghliana cave is under protection now and got Natural Monument status.

Wildlife Agency, under the Ministry of Environment Protection and Agriculture carried out trout breeding programme. Recently, the agency initiated other economically valuable species breeding programmes such as the common pheasant, chukar and purple swamphen.

Brown bear rehabilitation program is underway at Tbilisi zoo.

Tbilisi zoo and Ilia state university running red deer captive program.

Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Based on the convention regulations, Georgia is regularly undertaking the field surveys of commercially important species and adopts sustainable quota based on the advise of the Scientific Authority. Field surveys of Snowdrop (*Galanthus woronowii*) was undertaken in 2014 and 2018, at the same time Cyclamen (*Cyclamen coum*) surveys were carried out in 2019. Moreover, study to assess impact of harvest on snowdrop populations is being carried out in 2018-2020.

Training on the regulations of the Convention for the representatives of the Customs Service of the Ministry of Finance and the Environmental Supervision Department was carried out with support of the "Fauna and

Flora International" and GIZ. The Embassy of the United States of America has also supported training of 8 enforcement officers in the The International Law Enforcement Academy (ILEA) in Budapest, Hungary.

Study of plants in international trade from Georgia was conducted with support of GIZ in order to identify the species meeting the criteria of listing in the appendices of the Convention.

Based on the amendments of the Georgian Law on the Georgian "Red List" and "Red Data Book" in 2019, the Georgian legislation was placed in the category 1 as defined by CITES legislation that is believed generally to meet the requirements for implementation of CITES.

Currently, main challenges for the implementation of the Convention are capacity building of the scientific institutions on identification of species, disposal of confiscated live specimens and mobilization of financial resources to ensure implementation of the Convention.

Regulation of wild animals and human-wildlife conflict

Regulation of animal populations may be considered to avoid threats to human health, property, cattle and the environment based on the Georgian Law on Wildlife. The regulation activities should be implemented in a humane manner, also excluding damage to other species and ensuring that there is no impact on habitats. It is prohibited to issue rewards for persons implementing regulation activities.

The order of the Minister of the Environment and Natural Resources Protection N146 dated 31 October 2014 is issued to establish the rules and procedures of regulation of animal populations. Based on the document, if the animal imposes the threat to human health or damages their property, it is allowed to kill the animal in the moment of attack and this does not require special permit from the Ministry. However, if it is not possible to kill the animal in process of attack, the regulation activities are implemented by the local authorities based on the authorization issued by the Ministry.

Sale or other form of allocation of the animal obtained through regulation process is prohibited, except of the case, if based on the decision of the Minister, the animal is given to the scientific institution, zoo or animal shelter. Otherwise, the dead animal is destroyed considering the requirements of the legislation, including epidemiological requirements.

This process is controlled by the Environmental Supervision Department.

The animal species involved in human-wildlife conflict

Cases of human-wildlife conflict in Georgia are mostly linked to wolf and jackal attacks. There are rare cases of bear attacks.
It should be mentioned that the implementation of regulation activities is very low compared to authorizations issued by the Ministry. This may be caused by the long procedure to issue the authorization. The attacking animal most probably leaves the area while the authorization is issued.

Reasons for animal attack cases are complex and may be linked to:

- Increase of population size of certain species;
- Release of cattle in the forests and the areas located nearby the forests without relevant guards (shepards, dogs);
- Waste management in a way, when the animals are able to obtain the food easily.
- Lack of awarenese raising activities;
- Absence of animal shelters to place the animals;
- Absence of relevant research and resources.

Considering all the abovementioned, the decision was made to introduce ammendments in the legislation to solve the abovementioned problems.

Indicators used in this assessment

The assessment relied on the following indicators set out in the country's NBSAP 2014-2020:

C.2-i1. Changes in the conservation status of "Red List" species
C.2-i2. Population trends of economically valuable species
C.2-i3. Existence of an effective system for the mitigation of human-wildlife conflicts (through the development and implementation of a mitigation strategy and the identification and assessment of both involved species and the form and extent of conflicts)

Level of confidence of the above assessment

☒ Based on comprehensive evidence

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target C.3: By 2020, forest biodiversity is safeguarded through sustainable management policies and practices

Category of progress towards the implementation of the selected target

☒ On track to achieve target

Date the assessment was done

June, 2019

Other relevant information

The Ministry of Environmental Protection and Agriculture has developed the new draft Forest Code in order to ensure sustainable management of forests. A draft legislation on New Forest Code is developed according to the principles determined by the National Forestry Concept, which was approved by the Parliament of Georgia in 2013 and addresses the existing challenges in this sector. The code is also based on the principles of sustainable development recognized by the The Rio Declaration on Environment and Development, the Agenda 21 and changes approaches to the problematic issues including:

- ✓ Fragmentation and reduction of the forest fund
- ✓ Neglecting multifunctional use and economic potential of forests
- ✓ Prohibition of social logging and moving to organized forest use, which will create new additional rural jobs, and generate effective economic benefits from forest

- ✓ Status of the forest management agencies and development of their capacities
- ✓ Promotion of profession of a forester and social guarantees

Currently, the code is being discussed by the Parliament of Georgia.

Indicators used in this assessment

The assessment relied on the following indicator set out in the country's NBSAP 2014-2020:

C.3 - i1. Existence of newly adopted laws, regulations and standards

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

Results of the desk research, analyses of existing legislative and policy documents, interviews and stakeholder consultations were used for assessing progress to achieve the National Target C.3.

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target C.4. By 2020; at least 12% of the country's terrestrial and inland water areas and 2.5 % of marine areas are covered by protected areas; areas of particular importance for ecosystem services are effectively and equitably managed via an ecologically representative system and other effective conservation measures; development of the protected areas network and its integration into the wider landscape and seascapes is ongoing

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

July, 2019

Additional information

Before 2014, the total PA coverage was only 6.5% for terrestrial and inland water areas. It was significantly increased by the end of 2018 reaching 10.3%. However, no increase was achieved for marine areas. Notably, the process of the establishment of a number of new PAs (both terrestrial and marine) is currently underway. Therefore, it is expected that even only considering PA categories of national designation, Georgia will meet the target 12% for the country's terrestrial and inland water areas and 2.5 % of marine areas by 2020. Thus, in respect of its quantitative component (total PA coverage) the country is "on track to achieve target". Also, considering the newly established Emerald Network and assuming that at least some of the Emerald sites located outside existing PAs will soon also be effectively managed, it is safe to conclude that the country is "on track to exceed target" as far the total coverage component of this target is concerned.

Figure 1. Area of Protected Areas (ha)

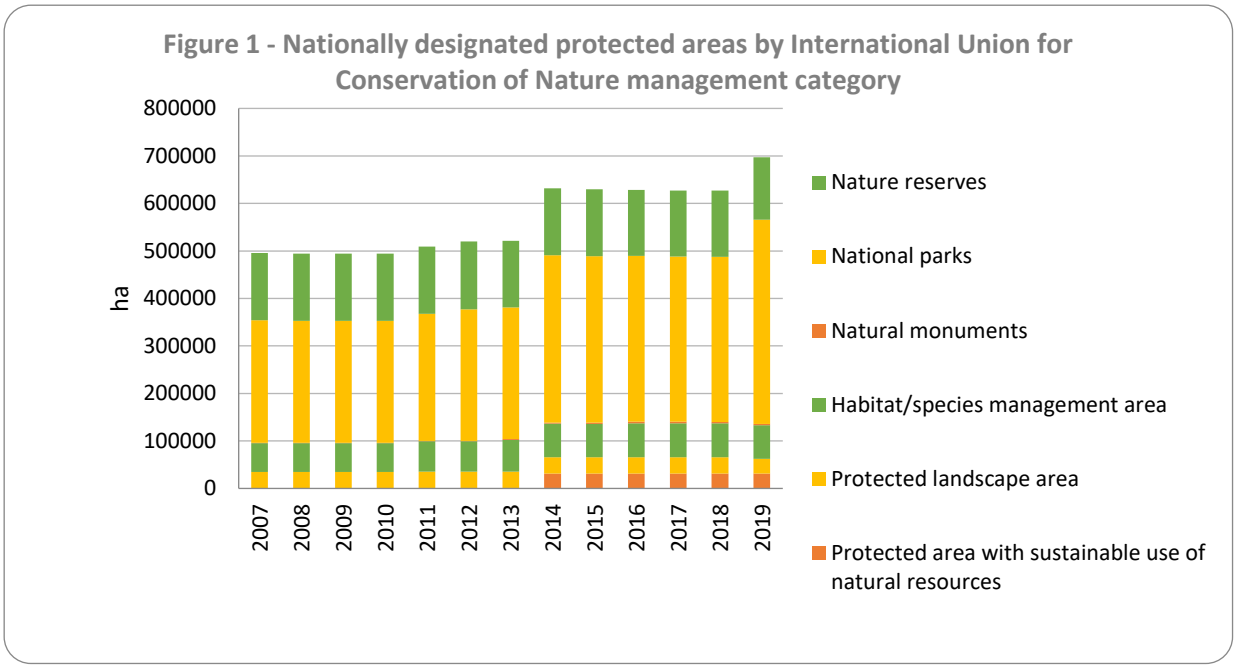
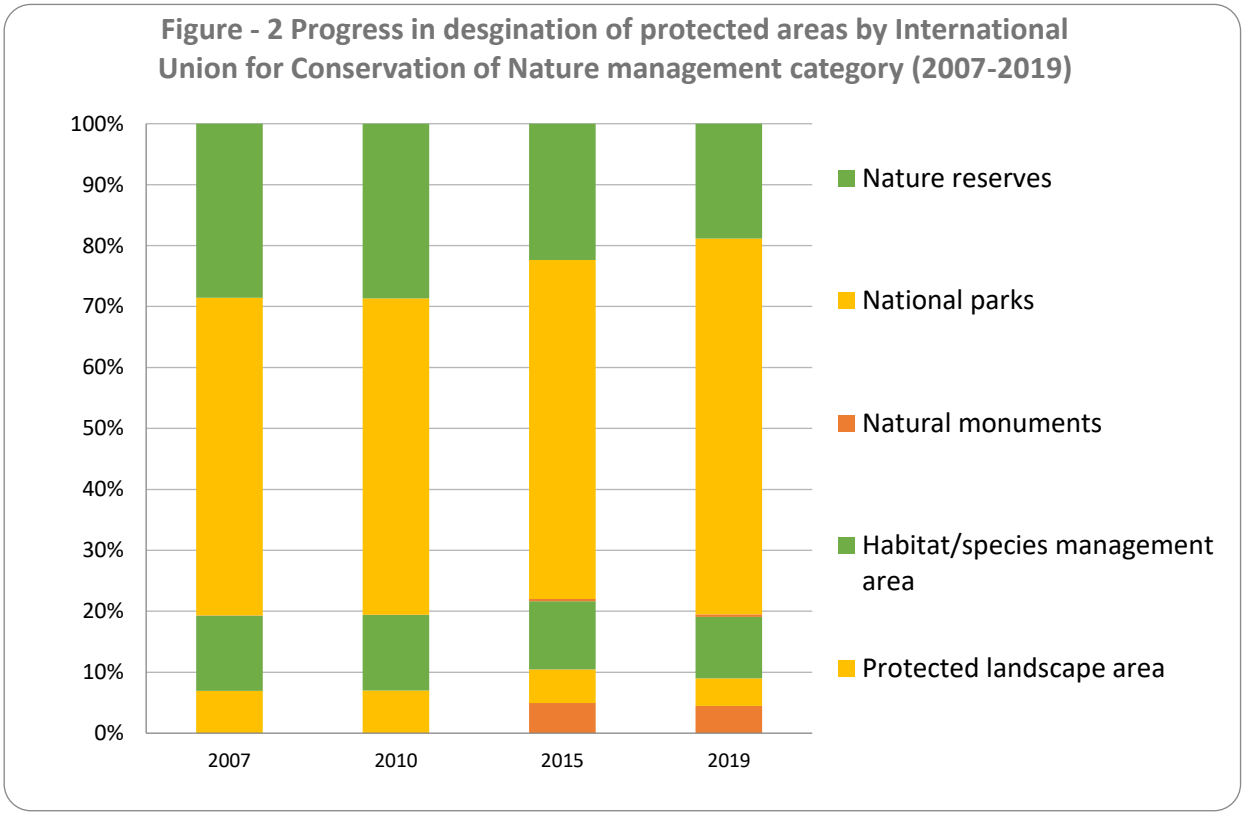


Figure 2. Progress in designation of protected areas by IUCN categories



Map 1: Overlap of PAs with the Emerald Network

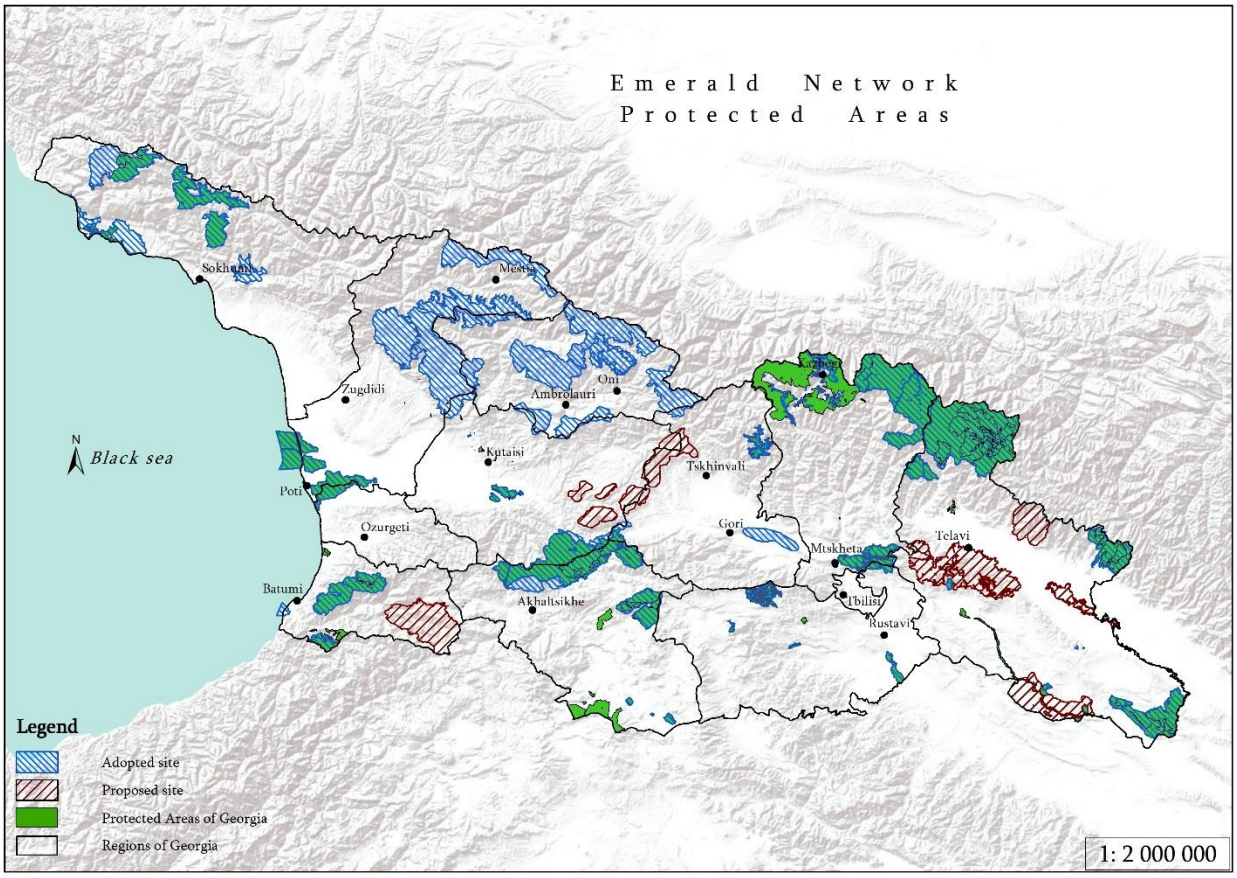
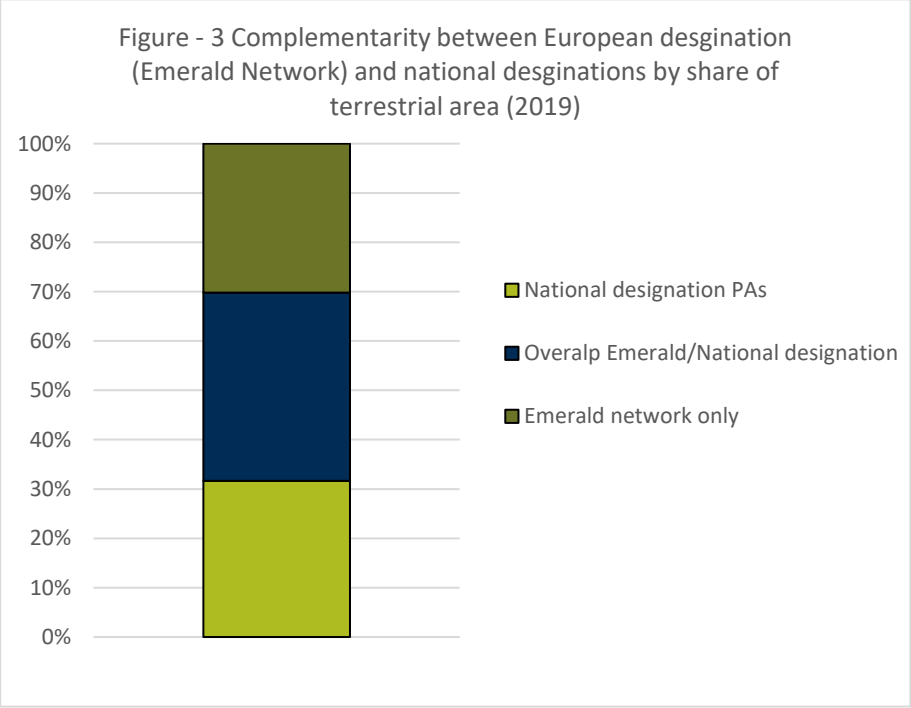


Figure 2. Overlap between the nationally designated protected areas and the Emerald Network sites



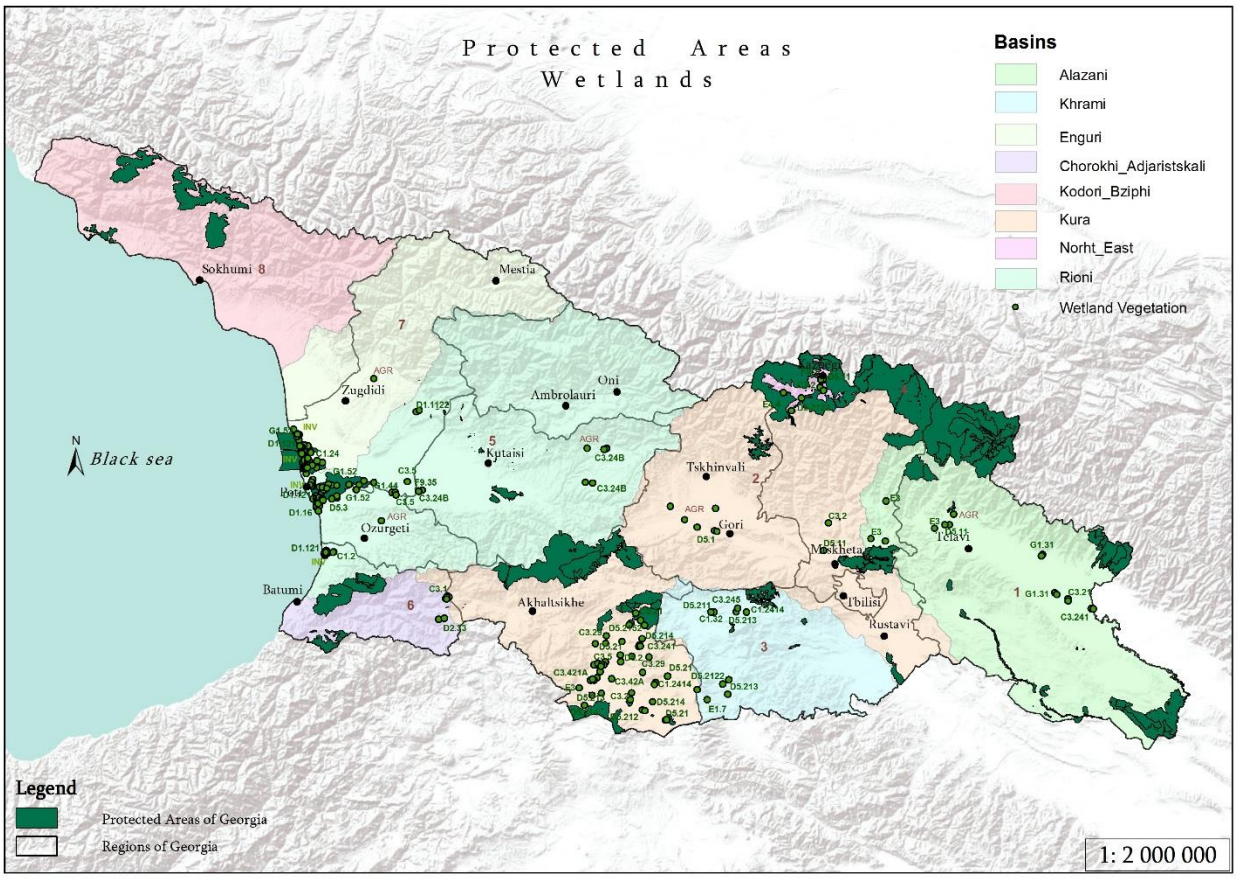
However, the overall progress was relatively modest in relation to the other components of the national target such as those dealing with effective management, ecological representativeness, protected areas network development and their integration into the wider landscape and seascapes. While important steps were made,

which would facilitate further progress in most of these directions, the overall pace of change indicates that the target will be only partially achieved by 2020.

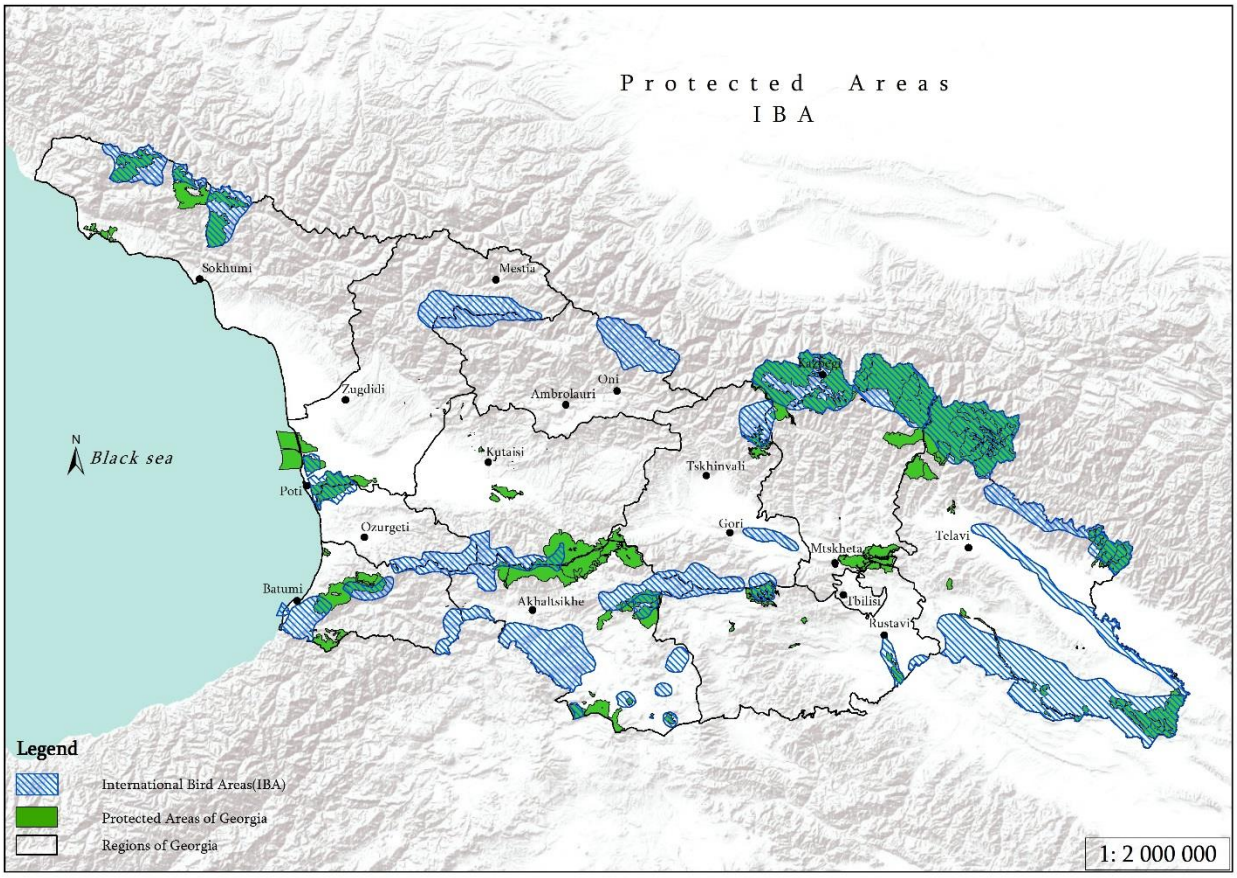
The assessment process of this national target involved stakeholder consultations including individual sessions group meetings and stakeholder workshops.

The Kolkheti and Mtirala National Parks, as well as the colchic forests and wetlands of the Kintrishi and Kobuleti Protected Areas are nominated for inclusion in the UNESCO world heritage sites list.

Map 2: Overlap of PAs with the wetlands



Map 3: Overlap of PAs with the Important Bird Areas (IBA)



Indicators used in this assessment

The assessment relied on the following indicators set out in the country's NBSAP 2014-2020

C.4-i1. The existence of adopted relevant regulations
C.4-i2. Existence of an approved plan of the national protected areas network
C.4-i3. The total area of protected areas
C.4-i4. The number of connected protected areas and ecological corridors
C.4-i5. Number of agreements on transboundary cooperation in PAs management
C.4-i6. Existence of results from a protected areas management effectiveness assessment
C.4-i7. Number of functioning consultation councils of protected areas

Please describe any other tools or means used for assessing progress

In addition to the indicators outlined in Georgia's NBSAP 2014-2020 for this national target, expert opinion and results of stakeholder consultations were also used for assessing progress.

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

The assessment of total PA coverage was based on comprehensive evidence since such data were readily available. Information was insufficient for the assessment of the other components of the national target especially those concerned with management effectiveness and ecological representativeness of the national PA system.

Adequacy of monitoring information to support assessment

☒ Monitoring related to this target is partial

Please describe how the target is monitored and indicate whether there is a monitoring system in place

The current national monitoring system covers only the total PA coverage through the relevant national indicator.

National Target C.5: By 2020, the genetic diversity of farmed and domesticated animals, cultivated plants and of their wild relatives, including other socioeconomically as well as culturally valuable species, is maintained; strategies have been developed and implemented for safeguarding their genetic diversity

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

Although various agricultural projects are being implemented by MEPA, they do not cover agricultural diversity. On the contrary – focus is made more on intensification and introduction of modern varieties.

Agricultural biodiversity inventory has not been conducted and status not determined; statistical data is not collected.

Indicators used in this assessment

For the Assessment the NBSAP indicators have been used.

C.5- i1. In situ conservation status of farmed and domesticated animals and endemic species of cultivated plants and their wild relatives, including other socioeconomically as well as culturally valuable species – not undertaken

C.5- i2. Existence of protected area management plans incorporating issues of agricultural biodiversity
- Progress towards target

C.5- i3. Existence of a list of ex situ collections of national significance and their databases
- On track to achieve target

C.5- I4. Existence of management plans of the ex situ collections of national significance
- On track to achieve target

Also, the following indicator was defined according to the document – "Harmonization of indicators for monitoring and reporting on the biodiversity convention at the national level" elaborated with the UNDP/GEF project in 2016:

S 2 - Development of agricultural biodiversity (change the number of species of domestic animals and agricultural crops in Georgia) - Statistical data is not being collected.

Please describe any other tools or means used for assessing progress

The assessment is based on the desk research, interviews with respective experts and e-mail communication, Experts' meeting held on 12.06.19 (attended by 9 experts).

Level of confidence of the above assessment

☒ Based on partial evidence

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target C.6: By 2020, the pressure of human activities on the Black Sea and inland waters has decreased; the integrity and functioning of the aquatic ecosystem are preserved

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

Assessment of the achievement is based on analysis of implemented projects, official data provided by the Ministry of Environment Protection and Agriculture, as well as official data received from relevant enforcement bodies.

Indicators used in this assessment

Out of the 4 indicators defined in NBSAP, in this report were used:

C.6-i1. Number and abundance of species (biodiversity index) in the Black Sea and inland waters
C.6-i2. Existence of management plans for selected freshwater fish species

Level of confidence of the above assessment

☒ Based on comprehensive evidence

Please provide an explanation for the level of confidence indicated above

The assessment is based on the examination and analysis of all existing relevant documents and consultations

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place

No monitoring system for freshwater ecosystems in place.

National Target D.1: By 2015, the Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (the Nagoya Protocol) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) have been ratified and implemented

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

Georgia has not so far ratified the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. However, considering the importance of the protocol Georgia has undertaken some steps towards the ratification of the protocol as well as development of relevant legislation.

The Ministry of Environmental Protection and Agriculture (MEPA), as the competent authority for the Convention on Biological Diversity, has committed to ensure implementation of the Nagoya Protocol through the National Target D.1. adopted by the National Biodiversity Strategy and Action Plan 2014-2020.

Based on the National Target D.1. Georgia had to assess financial and institutional aspects of ratification of the Nagoya Protocol, ratify the protocol and adopt relevant legislation to ensure implementation of the Nagoya Protocol by 2015.

In order to start ratification process, authentic version of the protocol translated into Georgian was produced.

At the same time, the Ministry with support of the German International Cooperation Society (GIZ) has prepared the draft Law on Biodiversity. The draft law *inter alia* covers topics related to Access and Benefit Sharing and once adopted it will establish legislative framework necessary for implementation of the protocol. It is assumed that Georgia will ratify the Nagoya Protocol once the Law on Biodiversity is adopted.

Georgia is a party to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) since July 2019. Therefore, it is difficult to judge the status of implementation at this early stage.

Indicators used in this assessment

The indicator to assess achievement of the target defined by the NBSAP:

D.1-i1. Ratification documents for - the Nagoya Protocol and ITPGRFA and enacted national legislation for their implementation

Please describe any other tools or means used for assessing progress

Indicator and authors opinion were used to assess progress towards this target

Relevant websites, web links and files

NBSAP 2014-2020
Draft law on Biodiversity

Level of confidence of the above assessment

☒ Based on comprehensive evidence

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

Please describe how the target is monitored and indicate whether there is a monitoring system in place.

Currently, there is no special monitoring system in place in order to monitor progress towards this indicator. The only relevant monitoring opportunity is related to the NBSAP action A.3-o4.3. - Establish a committee for the supervision and monitoring of NBSAP implementation

National Target D.2: By 2020, the impact of climate change on biodiversity is evaluated; ecosystems resilience has been enhanced through relevant environmental policies and activities

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

The National Forest Concept has declared that global warming has already started to affect Georgia's climate. Changes in the climate will have a significant negative impact on Georgia's forests. Doing nothing or delaying the response can put large areas of forest at risk of catastrophic degradation. This will lead to a large reduction in the quantity and quality of the forest recourses and useful functions, on which many people in the country depend. The document, particularly the chapter 5.4.1 has also defined activities aimed at mitigating and adapting to the impacts of climate change on forests:

a) Commissioning a national report on the state of forests, forest recourses, benefits derived from Georgian forests, and on the possible strategies for mitigating the negative impacts and adaptation of Georgian forests to climate change. The report should use the best available information from national and international sources;

b) Conducting national dialogues on possible strategies to mitigate the negative impacts of climate change on Georgian forests;
c) Categorizing forest stands according to forest composition and vulnerability to climate change;
d) Elaborating and adopting sustainable management guidelines and measures, including guidance on the mitigation of negative impacts and adaptation of Georgian forests to climate change, for each forest type;
e) Preparing and implementing mitigation and adaptation plans for forest stands that are vulnerable to climate change;
f) Expansion of protected areas;
g) Reforestation – forest planting, greening urban areas, forest plantations;
h) Providing forest management bodies and forest users with information on the best methods for carrying out vulnerability assessments and the characteristics of the environment where tree species are spread and originate. Implementing research programmes, specifically on the impacts of expected climate change on forests and the forest functions, and on ways to mitigate the negative impacts and adapt Georgian forests to climate change.

Rural Development Strategy of Georgia 2017-2020

Needs were analized in process of development of the Rural Development Strategy considering the impact of climate change on ecosystems and economy. The decision was made to develop relevant actions, which would support rural communities and enhance resiience of environment in context of climate change. Agro ecosystems are the economic basis for agriculture, and the impact of climate change is likely to have serious implications for the development of agriculture and its productivity. Based on the Strategy climate change-related issues should be considered in regional and municipal policy documents with due consideration to the regional and municipal peculiarities.

Therefore, climate change was reflected in priority areas (chapter 4.2.3, priority area: Environmental Protection and Sustainable Management of Natural Resources).
Currently, the Government of Georgia is implementing number of activities based on the Strategy and monitors their results.

Protected Areas and international ecological networks

The Third National Communication of Georgia to the UN Framework Convention on Climate Change (UNFCCC) was prepared in 2012-2015. Development of various scenarios on climate change and its impact on ecosystems and protected areas was important part of the project.

Based on the document the status of protected areas excludes serious anthropogenic impact on natural ecosystems locally, due to which these territories represent the best indicator for determining climate change impact on the processes underway in these ecosystems including, their species and habitats. Impact of the climate change on protected areas was assessed based on the example PAs located in Adjara region. Based on the outcomes, number of proposals were developed, which will support assessment of climate change on biodiversity.

It should be mentioned that according to the document, climate change may have significant impact on ecosystems of the protected areas in Adjara region. According to the document, increase of average temperature by 2-4 C and increase of precipitation by 5-10% is expected by the end of this century. This changes may have significant impact on flora and fauna in Pas. Climate change will probably change the distribution of species in forests. At the same time trout species in rivers may face significant threat. Within the project several proposals were developed against forest deceases and restoration of trout.

Forest and climate change

Information about vulnerability of Georgian forests to climate change and it's potential impact can be found in the Georgia's Third National Communication to the UNFCCC.

Web-sites and files

http://enpard.ge/en/wp-content/uploads/2015/05/Rural-Development-Strategy-of-Georgia-2017-2020.pdf

https://unfccc.int/documents/106898

Indicators used in this assessment

D.2- i1. Existence of a report on the study of climate change impact on biodiversity; recommendations for addressing the most pressing issues
D2-i2. Number of national and local strategic plans in which climate change and biodiversity issues are integrated

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above.

Assessment of the progress towards achievement of the National target D.2. is based on the desk review of the materials, interviews and workshops with the different stakeholders (government bodies, including Ministry of Environmental Protection and Agriculture of Georgia) and author's opinion.

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target E.1: By 2020, knowledge has been enhanced on the values, functioning, status and trends of biodiversity and the consequences of its loss; the corresponding science base has been improved.

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

The achievement assessment is based on information and data provided by the Environmental Information and Education Centre, the Agency of Protected Areas and the National Forest Agency, as well as relevant project executing agencies, Ilia State University and Rustaveli National Science Foundation.

Indicators used in this assessment

E.1-i1. Classification of Georgia's habitats applying the EU guidelines and recommendations

E.1-i2. Existence of a regularly updated database of biodiversity (including priority habitats)

E.1 - i3. Number of trained foresters, rangeland managers, wildlife managers, hunter and fishermen

E.1 – i4. Number of forestry, hunting units and protected areas equipped with modern technologies

E.1 – i5. Existence of updated forestry curricula at appropriate educational institutions

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

Due to the lack of a database of trained rangers, forest guards and other field specialists (forest management, protected areas, hunting and fishing), it is difficult to quantitatively evaluate relevant trends for ensuring qualified personnel.

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target E.2: By 2020, teaching on biodiversity issues is improved in all stages of formal and non-formal education; continuous teaching of biodiversity is ensured and all necessary resources are available

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Indicators used in this assessment

E.2- i1. Existence of a national concept on teaching biodiversity issues
E2-i2. Comprehensiveness of biodiversity-related topics in textbooks/manuals (relevant chapters)
E2-i3. Biodiversity topics integrated in relevant training and professional development programmes for schoolteachers
E2-i4. Improved incorporation of biodiversity issues in the curricula of higher and professional education
E2-i5. Percentage of school and university students and teachers informed on biodiversity issues (results of quantitative and qualitative studies including the gender dimension)
E2-i6. Number (by sector) of training courses in biodiversity provided for people employed in other sectors

E2-i7. Number of biodiversity education programmes and programme participants at school clubs, national parks, museums and libraries

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

Assessment of the progress towards achievement of the National target E.2. is based on the desk review of the materials, interviews and workshops with the different stakeholders (government bodies, including Ministry of Environmental Protection and Agriculture of Georgia) and author's opinions.

Adequacy of monitoring information to support assessment

☒ No monitoring system in place

National Target E.3: By 2020, the interest and traditional knowledge of local people in biodiversity conservation and use are integrated into the legislation and strategies.

Category of progress towards the implementation of the selected target

☒ Progress towards target but at an insufficient rate

Date the assessment was done

June, 2019

Additional information

The assessment of the achievement of the target is based on an analysis of the existing legislative and regulatory norms related to the preservation of traditional biodiversity knowledge, as well as information received from relevant government agencies.

Indicators used in this assessment

NBSAP identifies the following indicators for achieving the E3 National Target:

E.3.- i1:
Existence of enacted relevant legislation and approved guidelines.

Level of confidence of the above assessment

☒ Based on partial evidence

Please provide an explanation for the level of confidence indicated above

Legal and institutional gaps in the protection of traditional knowledge of biodiversity are not clearly identified. Declaring traditional experiences regarding the environment as intangible cultural heritage sites is an important step forward. However, due to the lack of a systematic approach, it is difficult to assess the trend of identifying traditional knowledge and providing respective legal protection.

Adequacy of monitoring information to support assessment

☒ Monitoring is not needed

SECTION IV: DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF EACH GLOBAL AICHI BIODIVERSITY TARGET

Aichi Biodiversity Target 3: Incentives reformed

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description.

Review of the existing incentives and their potential impacts on biodiversity has never been undertaken.

Number of activities are planned to achieve energy efficiency in buildings. Particularly, the GIZ will start a new project focusing on energy efficiency.

Some relevant information could be found in chapter I, description of A.3. national target.

Aichi Biodiversity Target 4: Sustainable production and consumption

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description.

Georgia has been a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1996. Number of Plant and animal species native to Georgia are listed in the Appendices I and II of the convention.

As a party to CITES, Georgia is obliged to allow international trade only in case when the trade is not detrimental to the survival of that species. Resolution Conf. 14.7 (Rev. CoP15) on Management of nationally established export quotas notes that for many Parties, export quotas are used as an essential management tool in the conservation of species of wild fauna and flora. The resolution considers nationally established export quotas for Appendix - II species as important tools to assist in regulating and monitoring wildlife trade to ensure that the use of natural resources remains sustainable. Based on the same resolution a non-detriment finding is made whenever an export quota is established for the first time or revised and reviewed annually.

Resolution Conf. 16.7 (Rev. CoP17) on Non-detriment findings sets the concept and guiding principles to be taken into account in decision-making in NDF process. Also, the resolution states that a non-detriment finding for an Appendix-I or -II species is the result of a science-based assessment that verifies whether a proposed export is detrimental to the survival of that species or not.

Georgian plant species listed in Appendix II involve Galanthus spp., Cyclamen spp., Orchis spp. etc. However, only two species are involved in international trade. Georgia is main exporter of wild-taken Snowdrop (*Galanthus woronowii*) bulbs. Annually 15 mln bulbs are exported for commercial purposes. Cyclamen coum is the second species harvested and exported for commercial purposes. Though, the trade takes place in much lower quantities.

International trade in CITES listed species is currently regulated by the Red List Law of Georgia and the Resolution of the Government of Georgia #21, February 6, 2007 concerning the Rules and Conditions of license

issuing procedure for Harvesting of the Fir Cones and Bulbs of *Galanthus woronowii* and/or the tubers of *Cyclamen coum*. Based on the Red List Law, International trade may take place only in case when such trade is not detrimental for survival of concerned species. Trade is allowed on the basis of the relevant license. At the same time, the Scientific Authority established as required by the Convention is responsible for making non-detrimental findings (NDF) to define annual harvest quotas for CITES species. License is issued only when harvest takes place for export purposes.

Georgian legislation on international trade of wild fauna and flora is placed in Category 2, defined by CITES as legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES. Though, based on recent amendments, it is believed that Georgia will be placed in category 1 - legislation that is believed generally to meet all four requirements for effective implementation of CITES.

In 2008 four companies were awarded the 10 – year license to harvest and export wild-harvested snowdrop bulbs. It is considered that the 10-year license cycle established environment to ensure sustainable use of this species and effective implementation of the Convention. Though, some issues are still due to be addressed, e.g. establish sustainable funding source for field assessments, improve quality of exported bulbs and provide support for local communities to enhance livelihoods.

To ensure that the quotas are defined based on the scientific information, Georgian government is regularly undertaking stock assessments for *Galanthus woronowii*. The assessments were made in 2009, 2014 and 2018. The latest survey was funded by the state budget. Analysis of the field information suggests that measures taken by Georgian CITES Authorities were effective and the species is managed in a sustainable manner.

Several one-year licences were issued in 2012-1018 years authorising harvest and export of *Cyclamen coum* tubers. Annual export quota has not exceeded 250 000 tubers. Georgian CITES Scientific Authority (SA) was able to make a non-detriment findings based on limited available data. Though, since field surveys for the purposes of assessing the *Cyclamen coum* stock have never been conducted, the SA has considered available data as insufficient to establish higher quota. To fill the gaps in existing scientific knowledge, the Ministry of Environmental Protection and Agriculture of Georgia has initiated a project funded by the state budget aiming field assessments of selected wild populations of *Cyclamen coum*.

Georgia was involved in the Development of the "CITES Non-detriment Findings Guidance for Perennial Plants, Version 3.0 (Wolf, D. et alia, BfN- Skripten 440, 2016)" hosting one of the workshops, producing case studies for Galanthus and Cyclamen and translating the guidance into Georgian. Currently, Georgian CITES Authorities are in process of piloting application of the guidance.

At present, none of the animal species listed in CITES appendices are harvested from the wild and exported for commercial purposes.

Basically, it could be concluded that for the species listed in CITES appendices relevant and effective legislation, as well as institutional arrangements are in place to ensure sustainable use of CITES species.

Non-CITES species

There are number of national targets corresponding to Aichi target 4, including target A.3. – "By 2020, sustainable use and the economic values of biodiversity and ecosystem services are integrated into legislation, national accounting, rural development, agriculture, poverty reduction and their relevant strategies; positive economic incentives have been put in place and incentives harmful to biodiversity have been eliminated or reformed". One of the activities designed under A.3. aims to improve legal and institutional arrangements to regulate commercial use of non-timber species. Currently, harvest of non-timber species other than CITES listed species (*Galanthus woronowii* and *Cyclamen coum*) and Caucasian fir (*Abies nordmanniana*) is not regulated by law. Harvest of Caucasian fir cones for export purposes requires license based on the Georgian law on Licenses and Permits. Rules and conditions of issuing the harvest license are defined by the Decree #21 adopted by the Government of Georgia (6.02.2007). Based on the Decree #21, the legal entity of public law National Environmental Agency, under the Ministry of Environmental Protection and Agriculture is

responsible to establish harvest quotas for Caucasian fir cones. However, there is no legal requirement to establish quotas as a result of a field surveys and a science-based assessment.
There is no clear understanding if any of non-CITES plant species are harvested in unsustainable rates. Georgian legislation does not regulate harvest of any plant species other than mentioned above. Based on the review of the phytosanitary certificates, it is clear that trade in plant species is taking place in considerable quantities. For instance, 52 369 kg Liquorice (*Glycyrrhiza glabra*), 157 076 kg *Ruscus hypophyllum,* 45 330 kg Urtica spp. and 14 551 481 kg of dried plant mix (*Glycyrrhiza glabra*, *Ruscus hypophyllum, Leucojum aestivum*, Urtica spp., *Hippophae rhamnoides,* etc.) was exported in 2014-2018 years.

In order to regulate harvest and trade in non-wood plant species, some provisions are included in the new forest code which is currently discussed by the parliament of Georgia. Relevant by-law with detailed management rules will be developed later.

Regulation of plastic bags

In 2019, Georgia has prohibited production, import and sale of plastic bags, at the same time, introduced regulations concerning the production of biodegradable bags. Particularly, it is only allowed to import biodegradable/compostable bags produced according to the standard EN 13432:2000 of the European Standardization Committee. The regulation aims to reduce impact of plastic waste on human health and the environment.

Aichi Biodiversity Target 11

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description:

Georgia has contributed to the achievement of the total PA coverage in respect of terrestrial and inland waters by increasing its national coverage to 10.3% (from 6.5% by 2013) only by national designations; considering the planned and ongoing activities as well as the process of the establishment of the Emerald Network, Georgia will most probably meet the 17% target for terrestrial and inland water areas within its national jurisdiction. However, the country is well behind the target for coastal and marine areas (currently only at 2.4% by national designation and at 2.7% by national and international designations combined) and is unlikely to achieve the 10% threshold by 2020.

It is not possible to precisely assess the country's progress toward ensuring representativeness and overall management effectiveness of the national PA system due to lack of gap analysis, management effectiveness or credible monitoring data at the system level.

Important steps have been made toward the development of "effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures" by achieving progress in the management effectiveness of the expanding national PA system and formally establishing its Emerald Network. While about 44% of the Emerald network overlaps with it, the remaining 56% is outside the existing PA network and therefore will significantly increase the connectivity and overall effectiveness of the PA system. In addition, new approaches – such as contractual nature conservation – have been initiated to enhance ecological corridors between the PAs.

A total of 31 Important bird areas (IBA) have been identified and mapped in Georgia with a total coverage area of 1,432,960 ha. A significant part of the IBAs are currently included in the national PA system or designated Emerald Network; those that still remain outside are considered as potential PAs or Emerald sites.

Aichi Biodiversity Target 16: Nagoya Protocol on ABS

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description:

Georgia has not so far ratified the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. However, considering the importance of the protocol Georgia has undertaken some steps towards the ratification of the protocol as well as development of relevant legislation.

The Ministry of Environmental Protection and Agriculture (MEPA), as the competent authority for the Convention on Biological Diversity, has committed to ensure implementation of the Nagoya Protocol through the National Target D.1. adopted by the National Biodiversity Strategy and Action Plan 2014-2020.

Based on the National Target D.1. Georgia had to assess financial and institutional aspects of ratification of the Nagoya Protocol, ratify the protocol and adopt relevant legislation to ensure implementation of the Nagoya Protocol by 2015.

The Ministry with support of the German International Cooperation Society (GIZ) has prepared the draft Law on Biodiversity. The draft law *inter alia* covers topics related to Access and Benefit Sharing and once adopted it will establish legislative framework necessary for the implementation of the protocol. It is assumed that Georgia will ratify the Nagoya Protocol once the Law on Biodiversity is adopted.

Global target 17: National Biodiversity Strategy and Action Plan (NBSAP)

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description:

Georgia started update of the National Biodiversity Strategy and Action Plan (2014-2020) in 2011 with support of GIZ. All major NGOs and international organizations connected to biodiversity were involved in update process. The decision to involve wider spectrum of society was taken at the initial stage, including private sector, local communities and women groups. The process was coordinated by the Ministry of Environment and Natural Resources Protection though the coordination council.

Situation analysis was prepared at the first stage of the project, followed by strategies for thematic directions.

The final document contains following thematic directions:

- Species and Habitats
- Protected Areas
- Forest Ecosystems
- Agricultural Biodiversity and Natural Grasslands
- Inland Water Ecosystems
- The Biodiversity of the Black Sea
- Communication, Education, Public Awareness and Public Participation
- Cross-cutting Issues and Governance

The National Biodiversity Strategy and Action Plan for 2014-2020 years was adopted through the Decree of the Government N343 dated 8 May, 2014.

It is considered that the process was undertaken in a participatory manner. Number of meetings and interviews were held with participation of the governmental institutions, as well as non-governmental and interational organizations.

Additional information on the update process can be found in the sduty prepared by the IUCN "Stakeholder Participation in the NBSAP Revision Process: Georgia". The study is accessible through the link https://www.iucn.org/sites/dev/files/import/downloads/georgia.pdf

Aichi Biodiversity Target 20: Resource mobilization

Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description:

Background

Resource mobilization has always been acknowledged as a key issue for ensuring conservation of biodiversity in Georgia. Back in 2005, the first NBSAP of Georgia has identified lack of funding and relevant financial mechanisms as one of the key issues affecting biodiversity and conservation. Respectively, one of the strategic goals of the first NBSAP (2005-2015) was related to resource mobilization, namely Strategic Goal H - To ensure appropriate financial and economic programmes are in place in order to support effective conservation of biodiversity, and to ensure the delivery of the NBSAP. However, according to the situation analysis undertaken in process of development of the NBSAP 2014-2020, no actions were undertaken or no significant steps were taken in order to implement the measures outlined to achieve Strategic Goal H set by the NBSAP 2005-2015.

Georgia has adopted its second National Biodiversity Strategy and Action Plan (NBSAP) through the Governmental Decree N343 on 8 May, 2014. Notwithstanding the initial intentions to include financial costing of all actions outlined, the adopted document does not contain neither the costs of the actions or resource mobilization plan. The absence of the Clearing-house mechanism can also be considered as a constraint for resource mobilization, in some cases causing overlaps in donor funding.

The NBSAP (2014-2020) recognizes resource mobilization as a crucial point for ensuring its implementation and resolves that the Resource Mobilization Strategy (RMS) should be developed. Based on the NBSAP (2014-2020) the RMS should consider resources from all sources, including government allocations, contributions from external donors and "innovative" financing, i.e. through partnerships with the private sector. The RMS should consider not only expenditures, but also potential savings and revenues.

2. 1st financial reporting framework

The first attempt to summarize biodiversity expenditures and financial needs was made in order to submit the Financial Reporting Framework: Reporting on baseline and progress towards 2015. However, due to limited capacity and human resources, the report was extremely inaccurate.

The report indicated that accurate calculations were upcoming under the BIOFIN project.

3. BIOFIN initiative

Georgia has joined the Biodiversity Finance Initiative (BIOFIN) in 2016. The first phase of the project implemented from 2016 until July 2019 has greatly contributed to the implementation of the National Biodiversity Strategy and Action Plan, through assessing biodiversity expenditures and financial needs for implementation of NBSAP, as well as the development of the resource mobilization strategy.

Four main documents were developed under the project, namely:

At the same time, piloting of the financial solutions developed under the Biodiversity Finance Plan has started.

4. BIOFIN findings

Based on the Biodiversity Expenditures Review, undertaken by the BIOFIN project, it is clear that even though the environment is declared as a national priority, it is far behind compared to other sectors in terms of funding.

Like most of the developing countries and countries with economies in transition, there are three main sources of biodiversity financing in Georgia.

– Public Sector

– International Donor Organizations and Civil Society

– Private Sector.

It is clear, that the state budget is the largest source of funding for biodiversity. However, increase of funding is observed from all three sources. 60% of the budget spent by the Ministry of Environment was spent on biodiversity-related activities. Moreover, the budgets of other ministries fund several biodiversity-related projects.

Table 1. Total Biodiversity Spending in Georgia (nominal, million USD)

Source	2013	2014	2015	2016	2017
Public sector	7.1	12.1	16.0	17.6	17.2
Donor	3.7	7.3	6.8	6.7	6.7
Private sector *	1.2	1.9	2.6	3.2	4.0
Total	12.0	21.3	25.4	27.5	27.8

** Private spending is an estimate of spending by EIA permit holders on HPPs*

On the other hand, even though, funding from the public sources is the highest, percentage of the biodiversity expenditure is one of the lowest compared to other sectors and comprises maximum 0.4% of the total government budget.

Table 2. Selected Priority and Environmental Sectors Financed from State Budget (Bln GEL)

	2012	2013	2014	2015	2016
Social and Healthcare	1.783	2.126	2.643	2.906	3.265

	22.80%	26.20%	29.30%	29.90%	31.70%
Infrastructure	0.655	0.799	0.905	0.898	0.972
	8.40%	9.90%	10.00%	9.30%	9.40%
Education and Science	0.627	0.676	0.741	0.804	0.948
	8.00%	8.30%	8.20%	8.30%	9.20%
Tourism Development	0.007	0.006	0.012	0.026	0.028
	0.10%	0.10%	0.10%	0.30%	0.30%
Agriculture Development	0.228	0.227	0.266	0.29	0.33
	2.90%	2.80%	2.90%	3.00%	3.20%
Energy	0.279	0.156	0.169	0.15	0.189
	3.60%	1.90%	1.90%	1.5%	1.80%
Environment and NR Protection	0.017	0.021	0.032	0.038	0.042
	0.20%	0.30%	0.40%	0.40%	0.40%

At the same time, based on the BIOFIN findings about 95% of all the funds are used for recurring expenses. Recurring expenses are by definition, expenditures which are incurred in order to sustain the current state of biodiversity, while the investment expenses are aimed at improvement of existing status. The high share of recurring expenditures indicates that currently, budgeted amounts for biodiversity spending are probably not enough to drive positive change in the sector.

Analysis of the collected information shows that the main part of spending covers activities related to forests, protected areas and cross-cutting issues.

At the same time, based on the BIOFIN findings about 95% of all the funds are used for recurring expenses. Recurring expenses are by definition, expenditures which are incurred in order to sustain the current state of biodiversity, while the investment expenses are aimed at improvement of existing status. The high share of recurring expenditures indicates that currently, budgeted amounts for biodiversity spending are probably not enough to drive positive change in the sector.

Analysis of the collected information shows that the main part of spending covers activities related to forests, protected areas and cross-cutting issues.

4. Financial needs assessment

Based on the information gathered through the workshops held with the participation of various stakeholders, the BIOFIN project has estimated that the total funds required to finance all NBSAP actions amounted to USD 95.7 million. USD 18.9 million was spent in 2013-2017, while an additional USD 25 million were budgeted and allocated for 2018-2022 years. The gap therefore amounted to USD 51.8 million, or about 54% of the total need.

Table 3. Finance Needs and Gap by the thematic areas (USD)

FNA	Value of action	Spent	Remaining amount to spend	(Among them) Already allocated (Amount)	GAP	GAP as % of total needs
NBSAP Total	**95,650,535**	**18,894,600**	**76,755,934**	**24,972,497**	**51,783,437**	**54%**
Forest	35,330,482	8,845,551	26,484,931	20,462,760	6,022,171	17%
Agrobiodiversity	20,952,445	2,329,835	18,622,610	286,904	18,335,706	88%
Species and Habitats	17,812,148	2,358,836	15,453,312	1,875,724	13,577,588	76%
Protected Areas	7,489,074	2,081,418	5,407,655	1,679,655	3,728,000	50%
Awareness	4,498,873	2,433,732	2,065,141	41,193	2,023,948	45%
Black Sea	4,525,924	107,559	4,418,365	49,000	4,369,365	97%
Inland Waters	2,897,237	365,198	2,532,038	177,753	2,354,285	81%
Cross-cutting	1,149,298	206,296	943,002	108,215	834,788	73%
Biosafety	995,054	166,174	828,880	291,293	537,588	54%

The Biodiversity needs assessment also revealed gap of 25.2 mln USD for governmental programs, which includes the need for additional employees, salary increase for existing staff, equipment and training for the period of 2018-2022.

5. The Biodiversity Finance Plan and Financial Solutions

The Biodiversity Finance Plan (BFP) was developed as a final step of the first phase of the BIOFIN project. The plan outlines 9 financial solutions, which in the long term should ensure adequate financing is provided for biodiversity from all sources:

- *Improving state budget justification capacity at the Ministry of Environmental Protection and Agriculture (MEPA).*

  The solution aims to develop capacity at MEPA to produce and present well-formulated results-based budgets that meet the requirements of the Ministry of Finance and are supported by powerful socio-economic justifications. This will result in increased state budget allocation to priority biodiversity actions. The solution requires technical assistance, capacity development and research facilitation elements at MEPA.

- *Increasing the financial sustainability of the protected areas system through improved revenue generation from services*

  The aim of this solution is to increase the rate of own revenue growth for protected areas – a particularly important imperative given to government budget constraints – through increased entrance fees and enhanced infrastructure and other tourism services. The solution entails drawing up sustainable tourism infrastructure development plans for key protected areas to be financed by government, donors and, potentially, financial institutions. The new infrastructure will be developed to generate financial returns by capturing entrance and user fees. Revenues will support the entire protected areas system's management goals.

- *Improving quality, expertise and effectiveness of the Environmental Impact Assessment (EIA)*

  This solution aims to ensure adequate assessment and evaluation of biodiversity into the EIA process. The result is avoided loss of biodiversity and reduced future cost of restoration from planned economic activities. The activities would include: (a) Biodiversity specific guidelines for EIA process, (b) Biodiversity checklists for MEPA staff to assess/revise submitted EIA reports and (c) Appropriate capacity building activities

- *Supporting a well-designed, appropriately scaled and enforced system of EIA fines*

  The current system of fines for EIA violations is not effective because the levels of fines are too low for a majority of business sizes and sectors, fines are appealed in court and often require 3-5 years of litigation, and a certain proportion of fines remain unpaid. A well designed system of EIA fines, appropriately scaled and enforced, could deter irresponsible behaviour from Environmental Impact Permit holders. This solution aims to set economically meaningful fine levels, produce a clear and easily enforced mechanism for issuing and collecting fines through amendments to legislation, and implementing the revised system. The result will be a system that acts as a realistic deterrent to potential offenders and incentivises sustainable practices. The specific actions include: (a) reviewing the existing fines system (b) proposing a reformed fine system and amounts (c) implementing and refining the updated system.

- *Creating an effective environmental and biodiversity damage remediation and compensation system*

  This solution will improve the methodology for damage calculation and criminal thresholds and support the completion of the Environmental Liability Law (ELL). These changes will improve the effectiveness of the environmental liability system by retaining more cases in administrative courts (vs criminal courts), increase payment rates and increase the effectiveness of penalties as deterrents for

illegal activities. The specific steps required include finalisation and submission of ELL, revision of damage calculation methods, and changes to thresholds for criminal proceedings.

- *Reviewing and updating existing fees and quota system for the use of natural resources*

  This solution aims to review and revise the system of fees, quotas, and monitoring of renewable natural resources to establish an effective, equitable and sustainable system for commercial natural resource use. The impact of this solution will be increased resources available for monitoring, increased sustainable revenues for local governments, improved sustainability of natural resource use and the ability to track certificates of origin for natural products. The necessary actions include reviewing the current system of fees and quotas, assuring strong scientific background on sustainable harvesting levels, monitoring systems from the Agency of Protected Areas (APA), the National Forest Agency (NFA) and other organisations, revising system structures, fees and quotas, identifying options for retaining fees for improved monitoring, and tracking/verification of commercial use of natural products. It would also seek to ensure that a greater proportion of fee revenues are re-invested in natural resource protection activities by local authorities.

- *Professionalizing the fuelwood industry*

  The aim of this solution is to professionalize the fuel wood industry by converting the informal practice of social cutting into an efficient, sustainable and regulated system that satisfies fuel wood demand. This will result in improved administrative and operational efficiencies, sustainable harvesting levels, and increased capture of fees for the NFA. Required steps include determining key criteria for system (affordable price, equity, etc.), detailed feasibility and options study, proposed structure of system and revision of regulations (if required), piloting and scaling.

- *Improving ecotourism offerings in state forest areas*

  This solution aims to enhance institutional capacity of the NFA for developing sustainable tourism products, to develop and capture appropriate revenues, and to direct such revenues back towards sustainable forest management. The impact of this solution will be an increase in ecotourism destinations and an increase in sustainable financing for forest ecosystems. The required steps include designation of a responsible party at the NFA to oversee this process, a study to identify high value tourist locations and potential products, design of investment plans for priority sites and projects, development of revenue strategy (concession plan, entrance fees, revenue sharing with local communities, etc.), engaging with banks and other finance institutions for financing of pilot sites, and scaling of programme

- *Building country capacity for fundraising for priority nature conservation and management objectives*

  This solution will build country capacity for fundraising that targets a) individuals through crowdfunding and other web-based tools, b) banks and other companies through Corporate Social Responsibility (CSR) programs, and c) these and other "classic" donors and international finance institutions through improved communication and fundraising skills in environmental organisations. The impact of this solution will be increased financial flows to conservation NGOs, government agencies, and other groups. Although this solution will evolve over time, initial actions include the following: develop a pilot program for the Tbilisi Zoo targeting individuals and corporate donors, creating an online donation platform of fundable projects based on NBSAP priorities, and train organizations for developing specific fundraising and PR campaigns for biodiversity conservation actions.

The Biodiversity Finance Plan was adopted on 29 May 2019 by the Order #2-454 of the Minister of the Environmental Protection and Agriculture (MEPA).

It is assumed that in case of implementing all financial solutions, total cumulative net financial gain over a 10 year period would amount 160 mln GEL considering initial investment requirements.

7. **Implementation of the Biodiversity Finance Plan (BFP)**

Even though the Biodiversity Finance Plan was adopted only in May 2019, the BIOFIN project within its first phase piloted several financial solutions.

- The project has supported the Biodiversity and Forestry Department and other units of MEPA in preparing the results-oriented and well-justified budgets meeting the requirements of the Ministry of Finance of Georgia. The trainings for the staff of the Ministry were also carried out. This resulted in budget increased from 100 000 GEL (33 000 USD) to 400 000 GEL (133 333 USD) per year for the Biodiversity and Forestry Department over next 4 year period to be spent on conservation projects, as well as additional 80 000 GEL (27 000 USD) for other units of the Ministry for 2019 year.

  Increased capacity of the Biodiversity and Forestry Department staff allowed the department to continue negotiations with the Ministry of Finance on increasing the budget for future years. However, further capacity building and training is still required.

- Guideline on preparation of the Environmental Impact Assessment for hydropower sector was developed by the project for the Ministry, as well as other stakeholders (e.g. consultancy companies). The guideline is currently being piloted by the relevant departments of the Ministry. It is assumed that application of the guideline will contribute to avoiding future expenditures for biodiversity.

- Eco-tourism Development Action Plan for Borjomi Municipality State Forest Fund was developed by the project. The purpose of the document is to define the areas on the National Forest Agency territories for eco-tourism development in the Borjomi municipality. The document also provides different scenarios how NFA could manage the sites and receive revenue from the regulated tourism activities. The document provides a strong financial evaluation of each tourist destination and product, including the initial investment costs, operation costs, revenue and breakeven assessment. The proposed plan can be replicated for developing the eco-tourism development plans for other regions of Georgia.

  Funding from the British Petroleum (BP) has already been obtained to implement the plan.

- The project has also supported Tbilisi Zoo in fundraising. Particularly, a pilot program was developed to target individuals, as well as private companies in order to mobilize funding for conservation programmes implemented by Tbilisi Zoo.

The second phase of the BIOFIN project (September, 2019-August, 2020) will focus on one of the financial solutions outlined in the Biodiversity Finance Plan. Particularly, existing harvest fees for non-timber forest products will be reviewed and updated for currently regulated species, such as Snowdrop (*Galanthus woronowii*), Cyclamen (*Cyclamen coum*) and Caucasian fir (*Abies nordmanniana*). At the same time, harvest fees will be developed for the species harvest of which is not currently regulated. New regulations will support an effective, equitable and sustainable system for commercial natural resource use.

8. **Assessment of progress**

There is no doubt that Georgia, with support of the BIOFIN initiative has achieved significant progress in terms of resource mobilization. However, at the same time it is clear that the rate of progress is insufficient and further increase of funding from all sources is required to ensure implementation of the Strategic Plan for

Biodiversity 2011-2020, National Biodiversity Strategy and Action Plan 2014-2020, as well as implementation of the Post-2020 strategic framework.

Final documents prepared by the BIOFIN project and other information could be found on the website of the Biodiversity Finance Initiative:

https://www.biodiversityfinance.net/georgia

The Biodiversity Finance Policy and Institutional review

The Biodiversity Expenditure Review

The Financial Needs Assessment

The Biodiversity Finance Plan
Eco-tourism Development Action Plan for Borjomi Municipality State Forest Fund

SECTION V: DESCRIPTION OF THE NATIONAL CONTRIBUTION TO THE ACHIEVEMENT OF THE TARGETS OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION

GSPC Target 1: An online flora of all known plants

NBSAP National Target C1: C.1-o1.3. Create electronic databases of fauna and flora (2014-2020)

Two editions of the National Flora (Flora of Georgia) have been published by the Institute of Botany, Ilia State University (formerly Institute of Botany of the Academy of Sciences of Georgian SSR) in Georgian language. The first edition comprising 8 volumes was published in 1941-1952 (Flora of Georgia, editors: A. Makhashvili, D. Sosnovski. 1941-1952. Publishing House of Academy of Sciences of Georgian SSR. Vol. 1-8). The second edition was initiated in 1971. In total, sixteen (16) volumes have been published to date (Flora of Georgia. 1971-2011. Editors: N. Ketskhoveli, R. Gagnidze. Vol. 1-16). The last volume dedicated to large Family Poaceae (Grasses) is still in preparation.

Two editions of Nomenclature Checklist of Flora of Georgia have been prepared and published by the Institute of Botany, Ilia State University (Institute of Botany) (R. Gagnidze, 2005; Editors G. Nakhutsrishvili, M. Churadze, 2018). The last edition of the checklist contains 4,275 vascular plant species belonging to 1048 genera and 185 families. It is planned to develop a mobile application of the second edition of the above checklist as a joint product of the Institute of Botany and National Botanical Garden of Georgia.

At present Georgian bryophyte flora is composed of 675 species and 152 intra-specific taxa. Key relevant publications are: (1) Flora of Spore-Producing plants of Georgia. (1986). Nakhutsrihvili, I. G. (ed.). Tbilisi, Metsniereba, (2) Chikovani, N., & Svanidze, T. (2004). Checklist of bryophyte species of Georgia. Braun-Blanquetia, 34, 97-116 and (3) Bakalin, V., Tigishvili, K., & Arutinov, G. (2016). A new checklist of the liverworts and hornworts of Georgia (Caucasus). Botanica pacifica, 5(1), 69-78).

In total, 1772 species and 749 intra-specific taxa of algae are recorded in Georgia. Key information is available in the following publications: (1) Flora of Spore-Producing plants of Georgia. (1986). Nakhutsrihvili, I. G. (ed.). Tbilisi, Metsniereba, (2) Barinova, S., Kukhaleishvili, L., Nevo, E., & Janelidze, Z. (2011) Diversity and ecology of algae in the Algeti National Park as a part of the Georgian system of protected areas. Turkish Journal of Botany, 35(6), 729-774).

Up to date 6337 species and 439 intra-specific taxa of fungi have been recorded in Georgia. Key source is Flora of Spore-Producing plants of Georgia. (1986). Nakhutsrihvili, I. G. (ed.). Tbilisi, Metsniereba.

741 species and 249 intra-specific taxa of lichens are known to occur in Georgia ((1) Flora of Spore-Producing plants of Georgia. (1986). Nakhutsrihvili, I. G. (ed.). Tbilisi, Metsniereba, (2) Kupradze, I., Inashvili, T., Batsatsashvili, K., Lachashvili, N., & Gabelashvili, S. (2018). Lichens of the Arid Region of David Gareji, Georgia (South Caucasus). Herzogia, 31(1), 268-276), (3) Burgaz, A. R., Ahti, T. T., Inashvili, T., Batsatsashvili, K., & Kupradze, I. (2018). Study of Georgian Cladoniaceae. Botanica Complutensis).

Bilingual (Georgian and English) Field guide to Plants of Georgia (125 plants) published in 2007 is available online (https://interesi.files.wordpress.com/2013/03/saqartvelos_mcenareebi_plants_of_georgia_2007.pdf). Electronic version of Flowering Plants of Georgia – Illustrated Guide to 800 Species of Georgian Flora (Georgian) compiled by K. Sukhitashvili and published by CENN, 2018 is available online (http://environment.cenn.org/app/uploads/2018/07/mcenareebi-saq-Nata.pdf). Electronic version of Illustrated Field Guide to the Flora of Georgia (South Caucasus) (E. Fischer et al, 2018) is being currently translated into Georgian and Georgian and English versions will be also available online.

Electronic version of the National Flora does not exist. Few volumes have been scanned by a number of Georgian botanists as private initiative and are not officially available. No Georgian institutions participate in the World Flora Online Consortium.

Georgia (Institute of Botany) has contributed to the ongoing project "Flora of the World" (floraoftheworld.org), which aims to document with digital images all the flowering plant families in their native habitats, especially within biodiversity hotspots, and to record botanical garden inventories; 4,714 images of selected plant species and habitats with metada have been contributed.

4,854 images of plants and 666 images of fungi found in Georgia are available at Georgian Biodiversity Database (biodiversity-georgia.net) without any metadata. Majority of images are referenced by genera and species or major plant groups; few are not identified.

The V. Gulisashvili Forestry Institute and the Scientific-Research Centre of the Ministry have conducted inventory and developed database and maps for 7 timber species in Adjara region included in the Georgian red list: Ostrya carpinifolia Scop., Arbutus andrachne L., Betula medwedewii Regel, Rhododendron smirnowii Trautv., Rhododendron ungernii Trautv., Osmanthus decorus Boiss. & Balansa and Taxus baccata L. https://www.researchgate.net/publication/326479853_Inventory_Materials_of_Rare_Woody_Species_of_Adjara_Forest_acharis_tqis_ishviati_merkniani_sakheobebis_inventarizatsiis_masalebi_gamomtsemloba_universali

In conclusion, reliable scientific sources on Flora of Georgia are mostly available in printed format. There have been a number of poorly coordinated efforts to ensure electronic access to selected groups of plants; however, it is unlikely that complete electronic database of Georgian flora will be available by 2020.

Progress towards target at national level but at an insufficient rate

GSPC Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

National Target C.1: C.1-o1.4. Revise the existing list of plant species that are important for conservation and introduce relevant changes to the National Red List (2014-2019)

In total, 817 Georgian and Caucasian endemic plants were assessed using IUCN categories and criteria (Red List of the Endemic Plants of the Caucasus: Armenia, Azerbaijan, Georgia, Iran, Russia and Turkey. (2013): Solomon., J., Shulkina, T. & Schatz, G.E. (eds.). Monographs in Systematic Botany from the Missouri Botanical Garden (MSB) 125. Missouri Botanical Garden Press, Saint Louis) under the Project: "Coordination and development of plant red list assessment for the Caucasian biodiversity hotspot" implemented by IUCN in collaboration with Missouri Botanical Garden, USA, and botanists from six countries of the Caucasus (Armenia, Azerbaijan, Georgia, Russia, Turkey and Iran) in 2005-2009. The project was supported by Critical Ecosystem Partnership Fund (CEPF).

Fifty-six (56) woody plant species of the Georgian flora were assessed using a combination of IUCN categories and criteria and national system to compile a National Red List of Georgia (https://matsne.gov.ge/ka/document/view/2256983?publication=0); the most recent edition was approved on 20/02/2014.

One hundred seventeen (117) herbaceous plants were assessed applying combination of IUCN categories and criteria and national system by Institute of Botany, Ilia State University to amend the existing Red List of Georgia, which currently includes only woody plants. The project: "Elaboration of the Indicators S3 "*Population sizes of selected species"* (Part 1: Flora) and P9 "*Number and distribution of invasive species" - (50 worst alien plant species in Georgia* (2013-2014) was funded by GIZ Office South Caucasus.

At present four hundred (400) plant species recorded in Georgia are included in the IUCN Red List (http://www.iucnredlist.org).

Approximately 52% of the Georgian Flora has been assessed on national and global scales; however, 400 species are published in the IUCN Red List, which constitutes 9% of the national flora.

At present assessment of ten rare and likely threatened species of Georgian flora is ongoing by experts from the Institute of Botany (Institute of Botany) and National Botanical Garden of Georgia as part of the collaborative project "Enhancing rural Caucasian livelihoods through fruit and nut conservation" in partnership with Royal Botanical Gardens, Kew and NGO Nature Heritage, Armenia (https://www.kew.org/science/our-science/projects/enhancing-rural-caucasian-livelihoods-fruit-and-nut-conservation). The project is supported by the Darwin Initiative, UK.

Conservation action plans have been prepared for a number of endangered plant species in close cooperation and under the sponsorship of Botanical Garden Conservation International (BGCI). Conservation target species were Karambi (*Nitraria schoberi*), Georgian almond (*Amygdalus georgica*), Megrelian birch (*Betula megrelica*), Small-fruited cherry (*Prunus microcarpa*) and Kikodze's willow (*Salix kikodseae*) (http://globaltrees.org/projects/supporting-native-plants-conservation-georgia-caucasus/; https://www.bgci.org/where-we-work/georgia/).

Databases and maps were developed for 15 out of 56 timber species by the V. Gulisashvili Forestry Institute and Scientific-Research Centre under the MEPA, particularly: *Ulmus glabra* Huds, *Taxus baccata* L., *Acer ibericum* Bieb., *Pyrus ketzkhovelii* Kuth., *Pyrus sachokiana* Kuth., *Pyrus demetii* Kuth., *Quercus*

pedunculiflora C.Koch., *Quercus imeretina* Stev., *Amigdalus georgica* Desf., *Populus euphratica* Oliv., *Osmanthus decorus* Boiss. & Balansa, *Betula medwediewii* Regel., *Arbutus andrachne* L., *Rhododendron smirnowii* Trautv., *Rhododendron ungernii* Trautv.

In summary, draft list of additional plant species to be included in the national red list has been prepared; however, the amendment of the Red List of Georgia may not be completed in 2019.

On track to achieve target at national level

GSPC Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared

Flora of Georgia has been systematically studied since XVIII century. The surveys intensified in XX century when several scientific-research institutions were established such as Institute of Botany, Batumi Botanical Garden, Department of Botany at Tbilisi State University, Department of Botany at National Museum of Georgia, etc. Large-scale systematic and phytogeographical research resulted in publication of two editions of the Flora of Georgia and two volumes of Key to Identification of Plants of Georgia (1964-1968). Vegetation units occurring in Georgia were described in a series of publications.

New editions of Vegetation of Georgia (South Caucasus) (G. Nakhutsrishvili, 2013) and Nomenclature Checklist of Flora of Georgia (Editors G. Nakhutsrishvili, M. Churadze, 2018) have been published since 2010. Fundamental monograph "Plant Diversity in the Central Great Caucasus" (G. Nakhutsrishvili *et al*, 2017) has been prepared and published in English.

Critical revision of taxonomic structure of Georgian Flora and new findings including invasive species since publication of the first Nomenclature Checklist of Flora of Georgia in 2005 resulted in increase in number of plant species from 4,130 (first edition, 2005) to 4,275 in the second edition (2018).

A number of country-scale and regional studies were carried out to survey flora and vegetation in various parts of Georgia (N. Lachashvili *et al*, 2015. Successions of Post-forest Vegetation in Tbilisi environs; Sh. Shetekauri, D. Chelidze, 2016. High-mountain Flora of Meskheti-Javakheti; Flowering Plants of Georgia – Illustrated Guide to 800 Species of Georgian Flora compiled by K. Sukhitashvili and published by CENN, 2018; E. Fischer *et al*, 2018. Illustrated Field Guide to the Flora of Georgia (South Caucasus), etc). In addition, diversity of some taxonomically complicated plant groups were further assessed (R. Gagnidze *et al*, 2010. Morpho-geographical analysis of species of Genus Rosa of Georgia's Flora. J. Ekhvaia *et al*, 2017. Morphological diversity and phylogeography of the Georgian durmast oak (*Q. petraea* subsp. *iberica*) and related Caucasian oak species in Georgia (South Caucasus), etc).

V. Gulisashvili Forestry Institute has identified high-conservation forest areas. 5 areas were identified beyond the protected areas. One publication was prepared (Goginashvili N, 2019. Identification and management of high-conservation forest areas).

Despite systematic surveys by a number of scientific institutions several regions of Georgia are relatively poorly studied due to a number of reasons. Such regions are mountainous parts of Guria and Imereti and calcareous high mountanous parts of Samegrelo due to difficult terrain. Recent information on plant diversity in breakaway provinces of Abkhasia and Samachablo is not available as these areas are controlled by the central government of Georgia.

At present all plant species found in Georgia are recorded and documented either in herbaria or in published sources.

Georgian herbaria (TBI – National Herbarium of Georgia, Institute of Botany, Ilia State University: 600,000 collections; TGM – Herbarium of National Museum of Georgia: 200,000 collections; BAT – Herbarium of Batumi Botanical garden: 49,555 collections; TB – Herbarium of Department of Botany of Javakhishvili State University: 30,000 collections; TBPH - Herbarium of I. Kutateladze Institute of Pharmacochemistry of Tbilisi State Medical University: 30,000 collections; Herbarium of A. Tsereteli Kutaisi University: 30,560 collections; Herbarium of Institute of Phytopathology and Biodiversity of Batumi State University: 500 collections) contain 940,615 herbarium specimens.

Digitizing of herbarium specimens is in progress only at National Herbarium of Georgia, Institute of Botany. To date 40,986 herbarium specimens have been digitized, which is 4% of all herbarium specimens. Part of the digitized collection (3,106 specimens) is available at www.jstor.org (JSTOR is a digital library for scholars, researchers, and students, which is part of ITHAKA, a not-for-profit organization). 11,784 digitized images are stored at herbarium.univie.ac.at/database/collections.htm (Virtual Herbaria of Institute of Botany, University of Wiena). All digitized collections are available at the National herbarium of Georgia, Institute of Botany, Ilia State University); however, they are not accessible online.

The second edition of the Flora of Georgia was initiated in 1971 and is still ongoing. All taxonomic groups have been and are critically revised to harmonize with current botanical nomenclature. This edition also covers plants described from Georgia and recorded in the country after the publication of the last volume of the first edition of the Flora of Georgia in 1952.

Ex situ propagation techniques (protocols) have been developed for a number of selected conservation-dependent endangered species within the framework of the projects sponsored by BGCI. These projects are as follows:

1. Integrated *ex* and *in situ* conservation of Karambi (*Nitraria schoberi*) (2013-2015) – preparation of Karambi propagation protocol was part of the project.
2. Collaborative action to conserve Georgia's threatened Megrelian birch – *Betula megrelica* (2015-2018) - preparation of Megrelian birch propagation protocol was part of the project; Stone Lane Garden (UK) assisted in the development of the protocol
3. Integrated conservation of *Salix kikodseae* – a Georgian Red List species (2016 -2018) - preparation of Kikodze's willow propagation protocol was part of the project.
4. *In situ* and *ex situ* conservation action for Georgian almond (*Amygdalus georgica*) (2014 – 2016) propagation protocol was developed for this species as part of the project.

Propagation protocols have been developed for forty-six (46) rare and threatened species of Georgian flora at Plant Conservation Department of the National Botanical Garden of Georgia, which includes nine GRL species and one species included in the IUCN Red List.

Resource assesment and sustainable offtake guidelines were developed for snowdrop (*Galanthus wornowii*) – species listed in the CITES Appendix II in 2009 – 2018 (Noel McGough, David Kikodze, Richard Wilford, Lucy Garrett, Grigol Deisadze, Natalie Jaworska, and Matthew J. Smith. 2014. Assessing non-detrimental trade for a CITES Appendix II-listed plant species: the status of wild and cultivated *Galanthus woronowii* in Georgia, in Oryx, The International Journal of Conservation, Cambridge Journals). The project – Wild and Cultivated Resource Assessment of Snowdrop was awarded funding through electronic tender (SPA180002902) by the

Ministry of Environment Protection and Agriculture of Georgia to Institute of Botany, Ilia State University in March, 2018.

Resource assesment for another CITES-listed species – Eastern sowbread (*Cyclamen coum* subsp. *caucasicum*) is currently ongoing; the research is being carried out by the Institute of Botany of Ilia State University under the funding from the Ministry of Environment Protection and Agriculture.

On track to achieve target at national level

GSPC Target 4: at least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration

The Map of Natural Vegetation of Europe and its application to Caucasus ecoregion (U. Bohn, N. Zazanashvili, G. Nakhutsrishvili, 2007, Bulletin of the Georgia Academy of Science) was used in order to evaluate percentage of the vegetation types secured in protected areas. Natural vegetation types, areas occupied and percentage located in the protected areas are summarized below.

Vegetation Type	Total Area in Georgia, ha	Total Area in Protected Areas, ha	% Under Protection
Caucasian open vegetation of lichens and mosses with scattered vascular plants on rocky habitats and on screes	40,798	1,245	3.1%
West Caucasian alpine grasslands on calcareous rocks and small herb communities alternating with scrub, rock and scree vegetation	259,570	-	-
East Caucasian alpine grasslands and small herb communities alternating with scrub, rock and scree vegetation	174,695	70,403	40.3%
North Caucasian alpine grasslands and small herb communities alternating with scrub, rock and scree vegetation	13,821	1,011	7.3%
Southwest Caucasian krummholz and open woodlands, scrub on carbonate rocks, tall-forb communities on carbonate rocks and grasslands on carbonate rocks	415,939	15,776	3.8%
Northeast Caucasian krummholz and open woodlands, scrub, tall-forb communities and grasslands	161,085	92,119	57.2%
Southeast Caucasian krummholz and open woodlands, scrub, tall-forb communities and grasslands	331,950	64,013	19.3%
West Caucasian krummholz and open woodlands, scrub, tall-forb communities and grasslands	115,536	25,967	22.5%
East Caucasian krummholz and open woodlands, scrub), grasslands, forb communities alternating with dry grasslands, true steppes with thorn-cushion mountain vegetation fragments	43,663	1,461	3.3%
West Caucasian fir, spruce-fir and beech-fir forests with evergreen understorey, often alternating with Oriental beech forests	679,937	48,233	7.1%

Vegetation Type	Total Area in Georgia, ha	Total Area in Protected Areas, ha	% Under Protection
Caucasian fir, spruce-fir and beech-fir forests with no evergreen understorey alternating with Oriental beechwood	117,816	2,358	2.0%
Caucasian pine forests alternating with birch forests	63,960	13,454	21.0%
East Euxinian-Caucasian beechwood with Fir, mostly with evergreen understorey	608,054	64,530	10.6%
Caucasian beech forests with Hornbeam, partly with Fir with no evergreen understorey, alternating with oak-hornbeam forests	615,305	34,117	5.5%
East Caucasian submontane to montane hornbeam-maple- beech forests combined with hornbeam-chestnut-oak forests	36,696	357	1.0%
East Euxinian oak and hornbeam-oak forests alternating with hornbeam-chestnut- beech forests with evergreen understorey	632,687	13,606	2.2%
Transcaucasian oak forests, hornbeam-oak forests and hornbeam-oak forests combined with shibliak communities (deciduous shrubbery)	1,027,122	20,436	2.0%
Colchic lowland to submontane mixed oak forests with evergreen understorey alternating with oak and hornbeam-oak forests in the submontane belt	573,661	7,097	1.2%
West Caucasian Bichvinta Pine forests with hornbeam, rockrose and butcher's broom	6,547	2,667	40.7%
Transcaucasian colline-montane open juniper woodlands in combination with open Pistachio tree woodlands	56,429	16,023	28.4%
Transcaucasian altimontane herb-grass- and meadow steppes with thorn-cushion communities and tomillares	291,256	17,660	6.1%
Pre- and Transcaucasian Stipa-steppes alternating with tomillares and thorn-cushion communities	410,230	10,783	2.6%
East Transcaucasian thorn-cushion vegetation and tomillares	11,995	3,537	29.5%
East Transcaucasian wormwood deserts with ephemeroids	77,452	2,703	3.5%
East Transcaucasian saltwort deserts with ephemeroids and wormwood	7,861	2,108	26.8%

Vegetation Type	Total Area in Georgia, ha	Total Area in Protected Areas, ha	% Under Protection
Colchic species-rich tall sedge fens with Sphagnum-mires	14,074	5,585	39.7%
Colchic alder carrs combined with alluvial forests, tall reed vegetation and sedge swamps	104,135	22,830	21.9%
Transcaucasian hardwood alluvial forests combined with poplar and willow alluvial forests and Salt cedar shrubbery	86,544	11,594	13.4%

According to the above Table, approximately 15% of all natural vegetation types are secured in the Georgian protected areas. However, less than 15% of the area occupied by 17 natural vegetation units occur in the protected areas including some important vegetation units such as Caucasian fir, spruce-fir and beech-fir forests (*Abies nordmanniana, Picea orientalis, Fagus sylvatica* subsp. *orientalis*) without evergreen understorey, partly alternating with Oriental beech forests (2%) and Southwest Caucasian krummholz and open woodlands, scrub on carbonate rocks, tall-forb communities on carbonate rocks and grasslands on carbonate rocks (3.8%). It should be noted that unique mixed forests and crookstem woodland are on the decline throughout Georgia.

Minor-scale pilot reforestation projects of Colchic woodland was carried out at Kolkheti national park and Kobuleti state reserve in partnership with "Zelkova" project (Switzerland) in 2015.

Reinforcement of selected wild populations of Karambi (*Nitraria schoberi*) – GRL species was carried out under the project - Integrated *ex* and *in situ* conservation of Karambi (*Nitraria schoberi*) (2013-2015) funded by BGCI. Trial plantings of the target species seedlings were carried out at two selected locations (Chocheti, Kaspi Municipality and site between Aspindza and Rustavi, Aspindza municipality) in September, 2015. A total of 200 Karambi young plants were reintroduced into natural habitat at two selected locations (100 seedlings at each site). The reintroduction sites were marked by installation of information signs. Information on this project is available at https://www.bgci.org/where-we-work/georgia/.

Restoration of extinct population of GRL-listed species – Georgian almond (*Amygdalus georgica*) was carried out as part of the BGCI-supported project – *In situ* and *ex situ* conservation action for the Georgian almond in 2016. Two hundred two-year-old saplings were planted at the classical locality of this species where population became extinct due to road expansion (https://www.bgci.org/where-we-work/georgia/; http://globaltrees.org/projects/supporting-native-plants-conservation-georgia-caucasus/).

National Forestry Agency (NFA) carried out woodland restoration activities in five regions of Georgia in 2013-2018. These regions are Samtskhe-Javakheti, Mtskheta-Mtianeti, Imereti, Guria and Ajara. Woodland restoration was implemented on total of 211.1ha. Some 331,000 saplings of native and introduced deciduous and coniferous species including three GRL species (Common Walnut, Caucasian Oak and Sweet Chestnut) were planted to restore mixed and deciduous woodlands. In addition, NFA implemented a number of activities to facilitate natural regeneration in woodland fragments in five regions of Georgia (Samtskhe-Javakheti, Shida Kartli, Imereti, Guria and Ajara) on total 584ha in 2014-2018. Out of this area, some 63ha were protected via installation of barbed wire fence and augmentation planting of seedlings of native woody plants including canopy trees and shrub species. It is noteworthy that seedlings of two GRL species Imeretian oak and Sweet Chestnut were planted.

17 timber species listed in the Georgian Red List are propagated in the Jigaura base of the Scientific-Research Centre of MEPA. The seed bank of the Centre also contains the seed specimens of the 12 Red List species

The LEPL Wildlife National Agency (Ministry of Environment Protection and Agriculture of Georgia) implemented a number of restoration projects in the vicinity of capital Tbilisi. In total, 47,000 tree saplings were planted in 2016-2019.

Progress towards target at national level but at an insufficient rate

GSPC Target 5: At least 75 per cent of the most important areas for plant diversity of each ecological region protected with effective management in place for conserving plants and their genetic diversity

NBSAP National Target C1: C.1-o1.5. Complete the identification of important plant areas (2014 – 2016)

A workshop on building capacity to identify Important Plant Areas (IPAs) in Georgia was carried out in 2016 organized by Botanic Gardens Conservation International (BGCI) in partnership with Plantlife International and with the technical support of the Rubicon Foundation. Participants at the workshop included representatives from Georgian botanic gardens, Universities, the Institute of Botany, NGOs working in Georgia, the Centre for Biodiversity Conservation and Research (NACRES) and the GIZ Biodiversity Programme for Georgia.

The workshop aimed to introduce the IPA concept and provide training on how to apply the IPA criteria in the Georgian context. As an outcome of this workshop, an initial list of sixteen potential important plant areas was identified, which are as follows:

1. Colchis lowland (wetland, mires, forest, relics)
2. South colchic mountain forest
3. Pontic oak wood (Bakhmaro)
4. Greater Caucasus calcareous complex
5. Relic coastal Pitsunda Pine Forest
6. Imeretian oak woodland
7. Javakheti Plateau
8. Iori, Alazani and Mtkvari basin floodplain forest
9. Open dry woodland
10. Lagodekhi Forest
11. Batsara Babaneuri forests
12. Timberline vegetation
13. Subnival vegetation
14. Surami ridge
15. Tikeri lowland forest
16. Tetrobi complex.

Progress towards target at national level but at an insufficient rate

GSPC Target 6: At least 75 per cent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity

No significant change at national level

GSPC Target 7: At least 75 per cent of known threatened plant species conserved *in situ*

NBSAP National Target C2: C.2-o1.21. Restore at least 10% of the natural populations of threatened plant species (2014 – 2020)

At present only 56 woody plant species are legally protected in Georgia (Georgian Red List). It should be noted that it is essential protected areas support at least several populations in order to ensure sustainability of wild populations of the GRL species.

Four species (*Cistus creticus, Erica arborea, Genista abchasica* and *Pinus pityusa*) are found only in breakaway province of Abkhasia and their current status in the wild is not known.

Nineteen more species are not found in any of the current protected areas including those represented by very few specimens and small populations and assigned critically endangered status in the GRL such as Greek strawberry tree (*Arbutus andrachne*) known from only one location in Ajara and Tigran's elder (*Sambucus tigranii*) represented by few individuals in Samstkhe-Javakheti.

IUCN Red List includes 61 threatened species of Georgian flora. Populations of only eleven plant species are conserved *in situ* in protected area system of Georgia. All known populations of five species are located within the borders of the protected areas. Populations of fifty threatened species are known to occur outside the protected areas.

Detailed surveys on distribution and status of populations were carried out for two threatened trees: (1) Caucasian wingnut (*Pterocarya fraxinifolia*) and (2) Caucasian elm (*Zelkova carpinifolia*) under coordination of Botanic Garden of the University of Fribourg (BGF). Draft *in situ* conservation plans for these target species were developed within the framework of both projects (http://zelkova.ch/sites/default/files/Pterocarya%20and%20Juglandaceae%20web%20version%202018.pdf; http://zelkova.ch/sites/default/files/The%20Red%20List%20of%20Zelkova%202018.pdf).

Emerald site network has been established in Georgia covering areas supporting high number of species and habitats protected by Bern convention. By late 2017 three sites (Lagodekhi, Vashlovani and Batsara managed reserve) out of 58 proposed areas were officially designated as emerald sites by the Georgian government. These sites potentially support threatened plant species of Georgia, which are not legally protected.

Close cooperation of national regulators (Ministry of Environment Protection and Agriculture, National Agency of Protected Areas, National Forestry Agency) with NGOs and academic community facilitate expansion of protected areas, especially proposed ones, to include populations of threatened plants. Example in point is WWF South Caucasus Office initiative to establish Samegrelo National Park in West Georgia. Collaborative research by Institute of Botany of Ilia State University, BGCI and Stone Lane Garden identified that wild populations of threatened Megrelian birch (*Betula megrelica*) occur outside the proposed park area. Following consultations, areas supporting populations of Megrelian birch have been agreed to be included within the boundaries of the proposed, new protected area.

WWF South Caucasus Office implements eco-corridor programme (ECF), which is a financial instrument to support biodiversity conservation in the diverse landscapes of Southern Caucasus through contractual nature conservation. By funding ecologically sustainable land use in selected eco-corridors in the Caucasus the fund is actively contributing to connecting protected areas and enhancing ecological sustainability while ensuring the socio-economic status of the community is not harmed and in many cases is improved. Up to date conservation agreements have been signed with five communities in Samtskhe-Javakheti region of Georgia

with five more agreements being in progress. Future agreements refer to 4 communities in Samtskhe-Javakheti and one in Ajara.
The initiative for nominating Colchis wetlands and forests in Georgia as UNESCO World Heritage Site was launched in 2017 with support of the World Wide Fund for Nature and the Mikhael Zukov Foundation and involved field studies of the areas in question for researching their biodiversity. Protected areas of Kolkheti, Mtirala, Kintrishi and Kobuleti have been nominated for the global roster through a collaboration of Georgian and foreign ecologists.

Batumi Botanical Garden is actively involved in implementation of the Project – Identification and Mapping of High Conservation Value Forests in Ajara, which will form the basis for efficient management of pristine woodland ecosystems in West Georgia.

Progress towards target at national level but at an insufficient rate

GSPC Target 8: At least 75 per cent of threatened plant species in *ex situ* collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes

NBSAP National Target C2:
C.2-o1.18. Ensure the conservation of at least 40% of critically endangered plant species through including them in ex situ collections (2014-2020)
C.2-o1.20. Upgrade existing seed banks so that they include at least 75% of threatened plant species and have seeds from at least 20% of those species readily available to supply species recovery programmes (2014-2020)

The Georgian Red List includes two critically endangered (CR) species Euphrates poplar (*Populus euphratica*) and Tigran's elder *(Sambucus tigranii*). The former species is maintained in the living collections of National Botanical Garden of Georgia while seeds of the latter are stored at the seed bank of the National Botanical Garden of Georgia (Department of Plant Conservation) referred to as Caucasus Regional Seed Bank, which makes 100% of GRL-listed critically endagered species.

The IUCN Red List includes nine critically endangered (CR) species of which seeds of five species are deposited at the National Botanical Garden of Georgia seed bank, which constitutes 55% of all critically endangered IUCN-listed species.

The seed bank of the National Botanical Garden of Georgia maintains seeds of thirty-four GRL species and twenty-six threatened plants included in the IUCN Red List. Seedlings of only one GRL species – Small-fruited cherry (*Prunus microcarpa*) are available for species recovery programs. In summary, seed banks maintain seeds 61% of GRL species and 43% of IUCN Red List plants.

The living collections of the National Botanical Garden of Georgia include specimens of twenty GRL plants and three IUCN Red List species.

Batumi Botanical Garden living plant collections include sixteen GRL species; only two species are (Caucasian wingnut - *Pterocarya fraxinifolia* and Strandzha oak - *Quercus hartwissiana*) available for recovery and restoration programmes.

Ten GRL species are maintained in the living plant collections of Kutaisi Botanical Garden; only three species (Colchic box, Bay laurel, Caucasian wingnut) are available available for recovery and restoration programmes.

Overall, living collections of Georgian botanic gardens support twenty GRL plants and three IUCN Red List species, which constitutes 36% and 5% respectively.

In total, 61% of GRL species and 43% of IUCN Red List plants are available for population restoration or reinforcement activities.

To date five GRL species (*Nitraria schoberi, Amygdalus georgica, Quercus hartwissiana, Pterocarya fraxinifolia* and *Prunus microcarpa*) are part of active recovery programmes; seedlings of the first two species have been planted to reinforce and restore wild populations while seedlings of *Quercus hartwissiana* and *Pterocarya fraxinifolia* have been reintroduced in Kolkheti National Park to facilitate restoration of Colchis lowland forest. *Prunus microcarpa* is currently the target species for conservation action program supported by BGCI (https://www.bgci.org/where-we-work/georgia/) including reinforcement of threatened populations. Recovery activities have been carried out in Euxine and Caucasian provinces (A. Takhtajan, 1986. Floristic Regions of the World).

LEPL Wildlife National Agency maintains a total of 129,500 saplings of 12 GRL species to establish forest stands of GRL species in Tbilisi administrative area (former Krtsanisi dendrological park).

None of Georgian botanic gardens are currently members of the Ecological Restoration Alliance of Botanic Gardens.

On track to achieve target at national level

GSPC Target 9: 70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge

NBSAP National Target C1:
C.1-o1.6. Conduct inventories of plant and animal landraces and CWRs (including plants harvested for food and medicine), of endemic microflora found in traditional products and of related traditional knowledge; assess their statuses and create a relevant red list (2015)
NBSAP National Target C5: By 2020, the genetic diversity of farmed and domesticated animals, cultivated plants and of their wild relatives, including other socioeconomically as well as culturally valuable species, is maintained; strategies have been developed and implemented for safeguarding their genetic diversity
C.5-o1.4. Conduct an inventory of CWRs (incl. wild plants harvested for food and medicine) in protected areas and create maps of their distribution; incorporate their conservation in the management plans of their respective protected areas (2015)

Up to date the seed bank of the National Botanical Garden of Georgia maintains a collection of 33 taxa of crop wild relatives (195 accessions), which was collected jointly by the Institute of Botany and National Botanical Garden of Georgia in 2014-2016 within the framework of the project "Towards a more complete coverage of the diversity of crop wild relatives in *ex situ* collections" supported by the Global Crop Diversity Trust in partnership with Royal Botanic Gardens, Kew. The duplicate seed collection is deposited to the Millenium Seed Bank at Royal Botanic Gardens, Kew (respective data can be sourced via Millennium Seed Bank Partnership Data Warehouse http://brahmsonline.kew.org/msbp).

Seeds of 18 woody crop wild relatives were collected by the Institute of Botany and National Botanical Garden of Georgia in 2015-2018 under the Garfield Weston Global Tree Seed Bank Project (Georgia) supported by Royal Botanic Gardens, Kew. The seed collections are deposited at the Millennium Seed Bank and seed bank of the National Botanical Garden of Georgia (http://brahmsonline.kew.org/msbp).

Additional 84 crop wild relatives (fruit and nut bearing woody plants) will be collected by the Institute of Botany and National Botanical Garden of Georgia under the collaborative project "Enhancing rural Caucasian livelihoods through fruit and nut conservation" in partnership with Royal Botanical Gardens, Kew and NGO Nature Heritage, Armenia (https://www.kew.org/science/our-science/projects/enhancing-rural-caucasian-livelihoods-fruit-and-nut-conservation). The project is supported by the Darwin Initiative, UK.

Ethnobotanical collection of the National Botanical Garden of Georgia includes 66 Georgian varieties of cereals and legumes.

It has been estimated that total number of crop wild relatives comprises some 450 taxa in Georgia. Consequently, crop wild relatives maintained in *ex situ* collections comprise approximately 30% of all such plants recorded in the Georgian flora.

Progress towards target at national level but at an insufficient rate

GSPC Target 10: Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded

NBSAP National Target B.2: By 2020, alien invasive species have been assessed with regard to their status and impact; their pathways have been evaluated and identified, and measures are in place to prevent their introduction and establishment through the management ofthese pathways; no new alien species have been recorded
B.2-o1.1 Identify, assess and prevent the existing and potential pathways of invasive alien species into the country's terrestrial, freshwater and marine ecosystems (2014-2018)
B.2-o1.2. Assess the status and distribution of invasive alien species and conduct a modelling of the threats they pose to native biodiversity and ecosystems (2014-2018)
B.2-o1.3. Develop a legal framework and strategy for the management of invasive alien species (2015-2020)
B2-o1.5. Conduct monitoring of invasive alien species within the framework of the National Biodiversity monitoring System (2014-2016)

The Georgian flora comprises 4,275 native species belonging to 185 families (excluding subspecies and lower taxa). Up to date 380 taxa of alien origin are recorded in the country, which comprises 9% of the Georgian flora (http://sr-sc-8f00.unifr.ch/ecology/groupmueller/assets/files/Final_The%20invasive%20flora%20of%20Georgiared_2010_ver2.pdf).

Recognizing threats associated with invasive plant species, Ministry of Environment Protection and Agriculture and academic community (Institute of Botany of Ilia State University) have engaged with a number of international research institutions and funding agencies to identify invasive plant species present in the country, evaluate their invasion potential and monitor their status at selected protected areas with elevated risk of supporting plant invasions.

Present and future threats associated with invasive alien plants (IAP) in areas of high conservation value in Georgia were assessed by a joint team of Swiss (University of Fribourg, University of Lausanne) and Georgian scientists (Institute of Botany) in 2013-2014 with results published in Biological invasions, 17(4) 2014 (https://www.researchgate.net/publication/271658258). Nine IAPs originating from North America and East Asia were selected based on expert knowledge on their status in other countries and available scoring systems for prioritizing IAP combined with local knowledge on habitat vulnerability and occurrences of endangered endemic plants. The selected IAPs comprised two trees, five shrubs and two herbs naturally occurring in different habitats (woodland, dry grassland and ruderal habitat). All selected IAPs plants are naturalized and produce reproductive offspring, often in very large numbers, at large distances from parental plants and thus have a high potential to spread. The research identified two areas, Tbilisi in East Georgia and Ajara in West Georgia be under the highest threat in terms of IAP invasions due to ecological conditions being suitable for many invasive plants. It has been predicted that Common ragweed, Black locust and Tree of heaven have the largest potential distribution both in protected areas and throughout the country based on habitat suitability analysis for Georgia. This research provides a solid basis for the authorities to prioritize IAPs with the highest spread potential and protected areas most at risk in terms of invasive plant expansion.

A list of 50 worst alien plants threatening biodiversity in Georgia was prepared by Institute of Botany of Ilia State University in 2013-2014 under the framework of the project: "Elaboration of the Indicators S3 "*Population sizes of selected species"* (Part 1: Flora) and P9 "*Number and distribution of invasive species"- (50 worst alien plant species in Georgia* funded by GIZ Office South Caucasus. In addition, monitoring program was carried out to collect baseline data on presence of invasive alien plants and evaluate their expansion rate and impact on biodiversity at five selected protected areas in Georgia (three protected areas in East Georgia and two protected areas in West Georgia). Sampling plots (1 to 3 in each protected area) were selected along

and off the roads, which are regarded as entry points for IAPs. In total, 12 IAP species were recorded with five recorded in three protected areas in East Georgia and eight in two protected areas in West Georgia. Noxious IAP – Common ragweed (*Ambrosia artemisiifolia*) was recorded both in East (Babaneuli state reserve) and West (Kobuleti State Reserve) Georgia.

New alien species – curlycup gumweed (*Grindelia squarrosa*) was recorded by researchers from Institute of Botany, Ilia State University in summer 2013 in the vicinity of Tbilisi (village Karsani). This perennial species from family Asteraceae is native to North and Central America. The recorded population was represented by dense pure stand occupying 100m^2 and demonstrated the ability of sustainable reproduction (L. Jinjolia, N. Shakarishvili, 2014. *Grindelia squarrosa* (Pursh) Dunal - a New Alien Genus and Species for Flora of Georgia, Bulletin of Georgian National Academy of Sciences, vol. 8, no. 3).

Monitoring survey of invasive species was carried out in selected protected areas (Kolkheti national park, Kobuleti protected areas, Mtirala national park and Tbilisi national park) in 2016-2017. Data collected in the field reveal no further expansion of invasive species in Mtirala national park while areas occupied by some invasive plants have increased in Tbilisi national park (Report on Monitoring of Invasive Plant and Animal Species in protected Areas of Georgia based on 2016-2017 data).

Georgia is a full member of Sustainable Management of *Ambrosia artemisiifolia* in Europe (SMARTER; www.cost.eu/actions/FA1203/#tabs|Name:overview). SMARTER - an interdisciplinary network of experts currently involved in the control of ragweed, Non-COST (European Cooperation in Science and Technology) key-experts, health care professionals, aerobiologists, economists, and atmospheric and agricultural modellers, which provides a forum for discussing long-term management and monitoring options and the development of new innovative management solutions, such as a synergy between biological, physical and chemical control measures and vegetation management, and assess their cost-effectiveness in mitigating the effects of invasive alien species(IAS). SMARTER acts as a catalyst for long-term research, provides an information platform and develops best practice manuals for the integrated management of ragweed. It also helps to tackle other IAS, benefit all sectors affected by IAS, promote outstanding R&D, innovation in industry and provide support for policy-makers in the European Research Area (ERA).

Control of Invasive Common Ragweed *Ambrosia artemisiifolia* and Survey of Alien / Invasive Species along the Baku-Tbilisi-Ceyhan (BTC)/South Caucasus Pipeline (SCP) ROW was carried out by a joint team of international experts and Georgian ecologists on behalf of BP – Georgia in 2010 – 2015. A combined management treatment with the aim to primarily prevent seed formation and thus further spread of the invasive Common ragweed was designed and tested in the field. The method involved two subsequent cutting regimes with a first mowing at the beginning of female flowering and a second one at the beginning of seed set. This method significantly reduced cover (by 25%) and species numbers (by 11%) of the dicots only, but not of monocots, thus transforming the vegetation towards dominance of the grasses. These results confirmed that the method maximized effects on *Ambrosia*, increased the competitive ability of the vegetation and minimized negative effects on the species diversity.

Survey of Alien / Invasive Species along the BTC/SCP ROW continued up to date. In total, populations of eight alien species were recorded in the ROW with only two – Common ragweed (*Ambrosia artemisiifolia*) and Black locust (*Robinia pseudoacacia*) being invasive taxa. Majority of the recorded alien species are naturalized annuals; high proportion of annual aliens in certain areas of the RoW should not be regarded as a threat to local biodiversity as at later stages they will be gradually replaced with native perennials.

Invasive plant survey was initiated along South Caucasus Pipeline Expansion Project (SCPX) ROW and Trans-Anatolian Pipeline Connection ROW in 2018 in the first vegetation season after completion of general reinstatement of construction-affected areas. Presence of only one invasive species - Common ragweed

(*Ambrosia artemisiifolia*) was recorded at four locations along SCPX ROW. Other recorded alien taxa are mostly naturalized annual aliens, which are not regarded as harmful to the local biodiversity taking into consideration their absence in natural habitats. Monitoring of alien / invasive species will continue in future.

A bilingual (English and Georgian) leaflet and poster on status of Ambrosia species in Europe was published in 2017 with funding from EU-COST.

On track to achieve target at national level

GSPC Target 11: No species of wild flora endangered by international trade

NBSAP National Target C.2*:*

C.2-o1.17. Establish/strengthen artificial propagation and captive breeding programmes for rare and economically valuable plant and animal species (2014-2020)

C.2-o1.22. Assess the international trade of Georgian flora species (2016-2017)

C.2-o1.23. Increase the capacity of the Georgian CITES Management Authority and the Georgian customs in implementing CITES through institutional strengthening and raising qualifications of its employees (2014-2020)

There is international trade of two CITES-listed species (*Galanthus woronowii* and *Cyclamen coum* subsp. *caucasicum*) in Georgia. The 10-year license process for access to the CITES quota for wild bulbs was established in 2008 in order to manage demand for permits, facilitate sustainable harvest and export, provide a stable environment for trade and provide an income to the Government from the sale of the quota rights.

This income, as is normal in most governments went to the national treasury and did not return to directly support the infrastructure for CITES implementation.

Immediately following the establishment of the quota system, number of the traders in wild bulbs were reduced to a small (and manageable) core, demand for permits dramatically reduced and the overall trade stabilised. However, to maintain an internationally acceptable quota, Project "Improving implementation of CITES for *Galanthus woronowii* and *Cyclamen coum* from Georgia" carried out in 2009 required regular and frequent management and monitoring programmes. Some funding for this was available from departmental budgets but over the years the majority of funding came from GIZ on an annual project - based system. This funding from GIZ proved invaluable as it facilitated the rise of Georgia's profile in CITES. In addition to funding field surveys, attendance of Georgian representatives at the CITES Plants Committee and a meeting of the European Union Scientific Review Group, it supported Georgia hosting a CITES European Regional meeting in 2011, training of enforcement staff, and helping to fund a full CITES Plants Committee meeting in Georgia in 2015. These were critical phases in the development of Georgia within CITES, where it was now seen to be a model Party and described as such by the CITES Secretary General at the opening of the 22nd meeting of the Plants Committee in Tbilisi Georgia in October 2015.

Thus, Georgia developed a high reputation in CITES, through dynamic leadership from the CITES Management Authority, the quality of the scientific advice and research from the Scientific Authority and vital additional funding from GIZ.

Since 2012 Georgia regulates the harvest of snowdrop bulbs from registered cultivated sites. Amendments were effected in Decree of the Georgian Government No. 18, dated 06/02/2007, which details procedure for registration of artificially propagation site to grow CITES-listed plant species. In 2018 amendments were made to the Law of Georgia "On the Red List and Red Data Book of Georgia"to improve CITES implementation in Georgia.

In 2014 and 2018 all known wild sites of snowdrop (*Galanthus woronowii*) were surveyed to inform the quota establishment. Cultivated sites were also surveyed to assess standing stock of *Galanthus woronowii* and establish allowable harvest levels (Sustainable Annual Export Quota for *Galanthus woronowii* funded by GIZ Office South Caucasus; Agreement No. 310106/127 between the Ministry of Environment Protection and

Agriculture and LEPL Ilia State University on assessment of standing stock of *Galanthus woronowii* in wild populations and cultivation sites).
As regards *Cyclamen coum* subsp. *caucasicum*, the survey is currently ongoing in order to evaluate the wild stock and establish annual harvest quota (Agreement No. 310104/93 between the Ministry of Environment Protection and Agriculture and LEPL Ilia State University on assessment of standing stock of *Cyclamen coum* subsp. *caucasicum* in wild populations and cultivation sites).

Another survey to evaluate impacts of bulb collection from the five selected wild populations of *Galanthus woronowii* is in progress (Agreement No. 310104/73 between the Ministry of Environment Protection and Agriculture and LEPL Ilia State University on Assessment of impacts of bulb harvest at five selected wild populations of *Galanthus woronowii*)

Aware of the need to identify possible new species entering international trade Georgia, with GIZ Office South Caucasus funding carried out the project "Georgian Plants in International Trade" in 2015. This projected reviewed plants in international trade from Georgia and assessed species that may require regulation to secure their long-term sustainable use and conservation. The project found no evidence international trade causing likely detriment to native populations. A series of 21 recommendations were made based on the research. Specialist collection was one area that compliance with CBD/Kyoto protocol should be monitored. Given how quickly plant trade patterns can change and evolve the need to repeat this project is being kept under review.

Georgia requires in its legislation (the first CITES Party to do so) that the Non-Detriment Process required by CITES is carried out using the 9 Step process "CITES Non-detriment Findings – Guidance for Perennial Plants Version 3 Wolf, D. *et al.* (2016). BfN-Skripten 440, Bonn, Germany. This guidance has been translated into Georgian and is used by the national CITES Scientific Authority. Georgia was closely involved in the development of the Guidance, hosting a development workshop in Tbilisi in 2015 and testing the then draft guidance against geophytes. Georgia also participated in a side-event on the Guidance at CITES CoP17 in South Africa.

On track to achieve target at national level

GSPC Target 12: All wild harvested plant-based products sourced sustainably

NBSAP National Target C.2-o1.24: Conduct assessments of the wild populations of plant species that are involved in international trade (2014-2020)

In 2013-2014 Batumi Botanical Garden was involved in assessment of two economically important plant species wildsourced in Ajara: (1) Senecio (*Senecio platyphylloides*) and (2) Colchic Butcher's Broom (*Ruscus colchicus*). Taking into consideration survey findings, wild harvest of the above plants was banned for two years to facilitate population renewal and restoration.

In 2015 available data on Georgian plants in international trade was collected from various sources with financial support of GIZ Office South Caucasus (Project "Plant Species in International Trade (CITES) – Scoping Project Georgia") and a report "Georgian Plants in International Trade" was prepared. The trade project included reviewing trade in plants in trade for their products. A unified list of all plant species subject to international trade does not exist; however, Ministry of Environment Protection and Agriculture (Ministry of Environment protection and Natural Resources in 2015) provided a list of economically valuable plant species, which covers 106 wild and cultivated plants, which are likely to be sourced in the wild and plantations.

Sustainable offtake guidelines have been developed only for CITES-listed snowdrop (*Galanthus woronowii*).

One of the main objectives of the collaborative project "Enhancing rural Caucasian livelihoods through fruit and nut conservation" carried out by the Institute of Botany and National Botanical Garden of Georgia in partnership with Royal Botanical Gardens, Kew and NGO Nature Heritage, Armenia with financial support of the Darwin Initiative, UK is identification of key economically important woody species that are a priority for *ex situ* conservation, and training local collectors in sustainable harvesting techniques. Next phase of the project focuses on training local communities to propagate (from cuttings and seeds) important fruit and nut species in a community-led gardening initiative to further alleviate pressures from wild harvesting (http://www.darwininitiative.org.uk/assets/uploads/Darwin-Newsletter-May-19-Fantastic-Flora-FINAL.pdf).

The Institute of Botany and National Botanical Garden of Georgia under the collaborative project "Enhancing rural Caucasian livelihoods through fruit and nut conservation" in partnership with Royal Botanical Gardens, Kew and NGO Nature Heritage, Armenia (https://www.kew.org/science/our-science/projects/enhancing-rural-caucasian-livelihoods-fruit-and-nut-conservation). The project is supported by the Darwin Initiative, UK.

CAUCASCERT Ltd – Georgian company founded in 2005 is the first local organic certification company in the country. Its main purpose is to inspect and certify organic products including wild harvested plants. CAUCASCERT Ltd has been accredited according to ISO-17065 by the German accreditation body DAkkS. It has been included in the list of third-country equivalent organic certification agencies (EC regulation 1330/2016). At present eleven legal entities harvesting wild grown plants hold organic agriculture certificates.

FairWild certification system has not been introduced in Georgia as yet. However, one Georgian company – "Geo-Flower" is a holder of FairWild certificate. It produces dried fruit and medicinal plants without additives. "Geo-Flower" is partner of well-known tea company – Martin Bauer exporting annually some 400 tons of dried fruit to Germany.

Progress towards target at national level but at an insufficient rate

GSPC Target 13: Indigenous and local knowledge innovations and practices associated with plant resources, maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care

A three-year study was carried out by a team of Georgian myco- and lichenologists in 2014-2017 within the framework of the project "Ethnobiology of Georgia's Fungi and Lichens" supported by Shota Rustaveli National Science Foundation, Georgia (FR/631/7-120/13). Data was collected on local uses (food, medicine, tinder, oracle) of up to hundred species of mushrooms based on semi-structured interviews with 800 local residents. As a result of this project a web resource was created (http://fungi.biodiversity-georgia.net/home).

Over the last years, the Department of Ethnobotany at the Institute of Botany, Ilia State University, has started a new effort to document and safeguard Georgian traditional knowledge on plant resources (Bussmann et al. Bussmann, R.W., Paniagua Zambrana, N.Y., Sikharulidze, S., Kikvidze, Z., Kikodze, D., Tchelidze, D., Khutsishvili, M., Batsatsashvili, K., Hart, R.E., Pieroni, A. (2016a). Your poison in my pie – the use of Potato (Solanum tuberosum L.) leaves in Sakartvelo, Georgia (Caucasus) and Gollobordo, Eastern Albania. Economic Botany 70(4), 431-437; Bussmann, R.W., Paniagua Zambrana, N.Y., Sikharulidze, S., Kikvidze, Z., Kikodze, D., Tchelidze, D., Khutsishvili, M., Batsatsashvili, K., Hart, R.E. (2016b). A comparative ethnobotany of Khevsureti, Samtskhe-Javakheti, Tusheti, Svaneti, and Racha-Lechkhumi, Republic of Georgia (Sakartvelo), Caucasus. Journal of Ehnobiology and Ethnomedicine 12:43, DOI: 10.1186/s13002-016-0110-2; Bussmann, R.W., Paniagua Zambrana, N.Y., Sikharulidze, S., Kikvidze, Z., Kikodze, D., Tchelidze, D., Batsatsashvili, K., Hart, R.E. (2016c). Medicinal and food plants of Svaneti and Lechkhumi, Sakartvelo (Republic of Georgia), Caucasus. Medicinal and Aromatic Plants 5:266, DOI: 10.4172/2167-0412.1000266; Bussmann, R.W., Paniagua Zambrana, N.Y., Sikharulidze, S., Kikvidze, Z., Kikodze, D., Tchelidze, D., Khutsishvili, M., Batsatsashvili, K., Hart, R.E. (2017a). Plant and fungal use in Tusheti, Khevsureti and Pshavi, Sakartvelo (Republic of Georgia), Caucasus. Acta Societatis Botanicorum Poloniae 86(2), 3517. https://doi.org/10.5586/asbp.3517; Bussmann, R.W., Paniagua Zambrana, N.Y., Sikharulidze, S., Kikvidze, Z., Kikodze, D., Tchelidze, D., Batsatsashvili, K., Hart, R.E. (2017b). Plants in the spa – the medicinal plant market of Borjomi, Sakartvelo (Republic of Georgia), Caucasus. Indian Journal of Traditional Knowledge 16(1), 25-34; Bussmann, R.W., Paniagua Zambrana, N.Y., Sikharulidze, S., Kikvidze, Z., Kikodze, D., Tchelidze, D., Batsatsashvili, K., Hart, R.E. (2017c). Ethnobotany of Samtskhe-Javakheti, Sakartvelo (Republic of Georgia), Caucasus. Indian Journal of Traditional Knowledge 16(1), 7-24; Paniagua Zambrana, N.Y., Bussmann, R.W., Hart, R.E., Moya Huanca, A.L., Ortiz Soria, G., Ortiz Vaca, M., Ortiz Álvarez, D., Soria Morán, J., Soria Morán, M., Chávez, S., Chávez Moreno, B., Chávez Moreno, G., Roca, O., Siripi, E. (2018a). To list or not to list? The value and detriment of freelisting in ethnobotanical studies. Nature Plants 4:201-204).

In addition to documenting local knowledge, members of the Department of Ethnobotany are also active in promoting ethnobotanical studies around the globe, and in re-structuring the discipline by providing modern methodological tools to assess traditional knowledge on plant use (Bussmann et al. 2018d,e,f; Leonti et al. 2018; Paniagua-Zambrana et al. 2017, 2018a,b).

Important contribution to knowledge on traditional plant resource use in Georgia and Caucasus was publication of a monograph "Ethnobotany of the Caucasus" (Bussmann, R.W. (ed.) (2017). Ethnobotany of the Caucasus. Springer International Publishing XXVII, 746p. (ISBN 978-3-319-49411-1)).

Comprehensive information on Georgian crop varieties and selected economically important plants, their traditional cultivation and use is contained in the recent monograph "Our Daily Bread" (Levan Fruidze, Ineza Maisaia, Shalva Sikharulidze, Maia Tavartkiladze, Book II: Our Daily Bread (Georgia – The Ancient Hub of Agriculture), Tbilisi, „Palitra L.", 2016).

On track to achieve target at national level

GSPC Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

NBSAP National Target E.2: By 2020, teaching on biodiversity issues is improved in all stages of formal and non-formal education; continuous teaching of biodiversity is ensured and all necessary resources are available

E.2-o1.3. Improve the biodiversity teaching component in training programmes for teachers in preschool institutions and schools (2014-2020)

E.2-o1.4. Support the establishment and functioning of eco-clubs in schools to promote teaching of biodiversity-related topics (2014-2020)

E.2-o1.5. Improve the teaching of biodiversity (including of agrobiodiversity and the microbiology of traditional products) in the curricula of relevant professional and higher education institutions and develop relevant information resources (2014-2015)

An eco-club to raise awareness about GRL species and plant conservation was established in one of the public schools at town Chkhorotskhu as part of the collaborative action to conserve Georgia's threatened Megrelian birch – Betula megrelica (BGCI) and with support from Rufford Foundation (2015-2018). Eco-club hosted weekly classes teaching the students about their local environment, the importance of biodiversity and the threats posed by uncontrolled human activities. The aim was to encourage a broadening of attitude among the local population regarding the conservation needs of the region, by enhancing environmental awareness and promoting sustainable management of their resources. As part of these efforts, seedlings of GRL species - *Betula megrelica* were planted by the pupils in the school grounds as an enduring reminder of the project.

National Botanical Garden of Georgia initiated a project "Tbilisi Ecohunter" in 2018 to engage wide public in recording of urban plant diversity. This project is linked to online platform iNaturalist.org.

NGO CENN has initiated a Niko Ketskhoveli Environmental School Award since 2015 with financial contribution from the Austrian Development Cooperation (ADC) and in partnership with the Ministry of Environment Protection and Agriculture, the Ministry of Education, Science, Culture and Sports and the Parliament of Georgia. Over 1,000 schools have participated in the award contest up to date. CENN also runs annual summer camps under the project "Sustainable Forest Management" for beneficiary school children. One of the training programs at the summer camps focuses on plant diversity and plant identification. CENN has also established a number of educational environmental programs for school children such as "Following Niko Ketskhoveli", "Discover Georgia", etc.

Progress towards target at national level but at an insufficient rate

GSPC Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this strategy

Since 2010 the Botanic Garden and Botanical Museum Berlin-Dahlem (BGBM) and the leading botanical institutions from the South Caucasus countries have established the "Caucasus Plant Biodiversity Initiative" to strengthen scientific capacities and collaboration. The following Georgian institutions are partners of this project: (1) National Botanical Garden of Georgia, (2) Institute of Botany, Ilia State University and (3) Batumi Botanical Garden. Overall objectives of the Initiative are: (1) research of selected Caucasian plant groups, (2) Capacity-building in the fields of basic and applied sciences and improvement of scientific infrastructure, (3) Training and education and (4) Development of tools for monitoring and evaluating the Caucasian plant diversity at the molecular, species and ecosystem levels as a basis for conservation and land-use planning. A number of researchers from National Botanical Garden of Georgia, Institute of Botany and Georgian National Museum have been trained in management of herbarium collections.

A total of 32 researchers from the Institute of Botany and National Botanical Garden of Georgia have received training on seed conservation techniques, IUCN Red List Assessment, collection and conservation of tree seeds and plant taxonomy within the frameworks of partnership projects with Royal Botanic Gardens, Kew.

Seven Georgian universities offer 9 programs on Biology / Life Sciences and Environmental Sciences. Eight programs on Ecology and Natural Environment and Wildlife are available at six universities with only two universities having programs on forestry and offering Master programs on biodiversity.

Progress towards target at national level but at an insufficient rate

GSPC Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy

There are no formally established networks of botanical gardens in Georgia. In May, 2019 a National Plant Conservation Network was founded at the initiative of the National Botanical garden of Georgia. A respective collaborative memorandum was signed by 17 parties representing governmental and NGO sectors and scientific-research institutions. Key objective of the network is to facilitate Georgia's contribution towards implementation of GSPC and NBSAP targets.

According to 2019 data, National Botanical Garden of Georgia and Batumi Botanical Garden are members of BGCI.

Progress towards target at national level but at an insufficient rate

Section VII. Updated biodiversity country profile

Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:

The Caucasus is considered by international organizations as one of the distinguished regions of the world in respect of biodiversity. It is within one of WWF's 35 "priority places" (the greater Black Sea basin) and is also part of two of 34 "biodiversity hotspots" (the Caucasus and Iran-Anatolian hotspots) identified by Conservation International as being simultaneously the richest and most threatened reservoirs of plant and animal life.

Georgia is rich in various types of ecosystems, habitats and associated species, including those that are used or are potentially important as food or other essential products. The country's biodiversity thus provides life-sustaining services:

Forest ecosystems:

- provide timber and non-timber products
- provide clean water
- prevent erosion and landslides and mitigate their impacts
- regulate the global carbon cycle
- support recreation and tourism
- provide critical habitats to numerous species
- etc.

Meadows (pastures and hay meadows):

- provide food for livestock
- provide medicinal and culinary herbs
- support a traditional way of life
- support recreation and tourism
- etc.

Wetlands and lakes:

- provide stopovers for birds on their annual migrations
- regulate the global carbon cycle
- are important fresh water reservoirs and provide water quality control
- support recreation (such as sport fishing) and tourism
- support commercial fisheries
- etc.

The Black Sea:

- supports recreation and tourism
- supports commercial fishery
- is an important reservoir of carbon dioxide and methane
- etc.

Glaciers:

- regulate the flow of water into the country's river system
- (and hence) provide water for homes and agriculture
- Etc.

At present, the Red List of Georgia contains 139 animal species and 56 wooded plant species; 43 of the animal species and 20 of the plant species are categorised as endangered or critically endangered; many of the animal species in the list are also considered globally threatened.

It is not possible to provide a precise account of the status of Georgia's biodiversity: information on the condition of ecosystems, habitats and species has not been collected in a systematic way, while the national biodiversity monitoring system is not yet fully operational.

Approximately 60% of the total number of endemic plant species are considered as threatened due to disturbance to their habitats, excessive use, pathogens and other pressures. Among threatened woody plants, chestnut (*Castanea sativa)*, Imeretian oak (*Quercus imeretina)*, Colchic box tree (*Buxus colchica)*, elm (*Ulmus glabra, U. Minor)* are especially noteworthy. Many groups of invertebrates are affected by encroachment of natural and semi-natural habitats and intensified agriculture. Among the Black Sea fishes, all six species of sturgeon (*Acipenser sturio, A. stellatus, A. gueldenstaedti, A. nudiventris, A. persicus* and *Huso huso*) found in Georgian coastal waters and river deltas are threatened and are included in the national Red List. *A. sturio* is also included in the IUCN Red List as Critically Endangered. Due to habitat fragmentation over the last decades, the numbers of the Caucasian salamander (*Mertensiella caucasica*) and the Caucasian viper (*Vipera kaznakovi*), two endemic species, have declined. The latter reptile is included in the Georgian Red List as *Endangered*. At present, 35 avian species are included in the Georgian Red List. Among birds of prey, the most threatened species is the Eastern Imperial eagle (*Aquila heliaca).* Among vultures, the black vulture *(Aegipius monachus)* is the rarest. The black stork *(Ciconia nigra)* is noteworthy as a widespread but uncommon species. Among endemic rodents, Brandt's hamster *(Mesocricetus brandti)* and the long-clawed mole (*Prometheomys schaposchnikowi*) are rare species with very limited ranges that have become fragmented due to agricultural activities such as grazing and excessive use of chemicals. There is a negative trend in populations of Georgian bats caused primarily by habitat degradation and the disturbance of roosting sites. The majority of the large mammals found in Georgia are included in the Red List. Their populations have been affected by uncontrolled and/or illegal hunting and habitat destruction. In the last century, the goitered gazelle (*Gazella subgutturosa*) became extinct in Georgia. The gazelle reintroduction was initiated recently and a small but obviously increasing population has been established in the Samukhi valley near the Vashlovani national park in south-east Georgia, an area bordering on Azerbaijan. For years, there has been no credible report of the presence of the striped hyena (*Heyena heyena*). The Caucasus leopard (*Panthera pardus saxicolor*) was considered virtually extinct in Georgia until one male individual was recorded in Vashlovani national park (SE Georgia) in 2004. Currently, leopards are believed to still remain in the high mountainous areas of the country. Among the ungulates, the wild goat (*Capra aegragus*) is perhaps the most at risk. The only more or less viable population is found in Tusheti Protected Areas. However, the species appears to recolonise parts of its former range in the neighbouring Khevsureti too. Red deer numbers remain extremely low in Georgia, with small, isolated populations occurring only in three protected areas; Lagodekhi PA, Gardabani Managed Reserve and Borjomi-Kharagauli National Park. By recent studies, the Lagodekhi population was estimated at

50-100 and the Borjomi population at 325-500 individuals. Studies as well as sporadic reports have also shown red deer presence in other areas in which the species was considered extinct. Between the two species of tur (*Capra caucasica* and *C. cylindricornis*), the West Caucasus tur has the smallest population size (150 by expert assessment), occurring only in very limited areas of Georgia. The eastern tur is significantly more numerous and may be stable or even slightly increasing. The brown bear (*Ursus arctos*) is included in the Georgian Red List as critically endangered. There are conflicting estimations of the population numbers. However experts agree that the population trend is at least stable. The present status of another threatened mammal species, the river otter (*Lutra lutra*) is unknown. Until recent years this species was believed to be decreasing as a result of a decline in food base and habitat destruction. The Eurasian lynx (*Lynx lynx*) is classified as "Critically Endangered" in the Georgian Red List. However, research conducted in recent years suggests that this species has a larger population size than previously thought. Among the marine mammals found in the Georgian Black Sea waters, the common bottlenose dolphin (*Tursiops truncatus*) is most at risk.

In recent years, at least two new alien invertebrates have been recorded in the Georgian waters of the Black Sea along with 18 new fish species. However, all of the new fish species are native to the Mediterranean Sea.

Main pressures on and drivers of change to biodiversity (direct and indirect)

The loss of Georgia's biodiversity has a number of underlying causes, the effects of which are exacerbated by enabling factors.

The main underlying causes of the pressures on biodiversity are the following:

- the poverty of many, who are driven to use natural resources unsustainably for energy, food and financial gain
- the greed and irresponsibility of a few who take and spoil without regard for their impact on the environment
- ignorance about the importance of biodiversity and the impacts of people's own actions on biodiversity
- the country's drive for economic development, which is essential for raising people out of poverty.

These underlying causes lead to the direct drivers of biodiversity loss: habitat loss, overexploitation of natural resources, pollution, invasive alien species and more lately, climate change.

The main enabling factors are the following:

- insufficient regard paid to the value of biodiversity in policies, strategies and programmes;
- inadequate and in some cases perverse laws regulating the use of biological resources;
- lack of resources to enforce regulations and implement procedures that are designed to safeguard biodiversity

Unsustainable logging and overgrazing as well as poor management practices have resulted in a large part of Georgia's forests being severely degraded. In some places, degradation has led to a complete loss of forest cover and consequently to the decline of the plant and animal communities that depend on it. The ability of the forests to provide life-supporting ecosystem services is being reduced. On the other hand, the decline in livestock numbers in certain mountainous areas have allowed natural reforestation. This process needs to be assessed and both the rate and total increase in coverage should be evaluated.

Intensive grazing in the alpine zones of the Eastern Caucasus has resulted in a decrease in the feeding base and habitat quality of the wild ungulates, particularly for the chamois, east Caucasian tur and red deer. The subsequent decrease in wild ungulate numbers is probably one of the main causes of intensified conflicts between large carnivore species, such as wolves, and local communities. Georgia's semi-arid ecosystems that are used as winter pastures for livestock are under threat due to excessive or disorganized grazing. The

processes of land degradation and erosion which began in the Soviet period have now reached critical levels in some areas; without urgent restoration activities, they may soon become irreversible.

Fresh water ecosystems in Georgia have been intensively modified over many decades as bogs have been drained and water levels in many lakes have been artificially regulated. Excessive use of chemicals in agriculture and in industrial and household wastewater discharge pollute internal waters as well as the Black Sea. Over the past 20 years, pollution from non-industrial sources has increased due to the malfunctioning of water treatment facilities. Monitoring of water quality has been conducted for only a fraction of the country's rivers and lakes. Pollution now threatens many of the species associated with Georgia's wetlands. Pollution by organic substances is causing eutrophication of the Black Sea, resulting in "dead zones". Harmful fishing methods such as bottom trawling are also causing serious damage to the Black Sea ecosystem.

Invasive alien species pose a threat to both terrestrial and aquatic ecosystems. Habitats important for biodiversity are being lost to construction projects, including hydropower generation infrastructure, electricity transmission lines, new roads and railways and industrial and urban development.

There is an obvious lack of information on the ecological condition of the soils. Most of the available data is outdated or incomplete.

Today, it is widely recognized that climate change can be viewed as the fifth key factor contributing to biodiversity loss together with habitat degradation, unsustainable use, environmental pollution and invasive species. The higher temperatures, and the decreased levels of precipitation that are predicted for some parts of Georgia, will severely affect ecosystems – especially those which are at the edge of their natural global range. Major changes will occur in such ecosystems and in the distributions of plant and animal populations that depend on them. Shifts in the vertical ecological zones will have a great impact on Georgia's biodiversity due to its mountainous terrain. Some species may disappear from Georgia because of their inability to adapt to new conditions. Some experts believe that with the changing climate, some plant species such as pine may become more susceptible to certain pathogens. The maintenance of robust ecosystems like forests benefits biodiversity and serves as an important tool for both climate change mitigation through carbon sequestration and climate change adaptation.

Implementation of the NBSAP

Adopted by Government Decree on 8 May 2014, Georgia's NBSAP (2014-2020) was prepared in the light of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Targets. In contrast to Georgia's earlier NBSAP (2005), the new NBSAP addressed implementation from a more holistic, cross-cutting and ecosystem-based perspective. CBD's Gender Plan of Action was also fully considered in the course of its preparation. Twenty-one national targets were set to achieve both the 2030 Vision and the strategic goals and targets of the global agenda and were accompanied by indicators, objectives, critical assumptions, actions, timeframes, responsible implementing bodies, and sources of potential funding.

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.)

After the merger of the Ministry of Environmental Protection and Natural Resources with the Ministry of Food and Agriculture, the new Ministry of Environmental Protection and Agriculture has inherited the leading responsibility for the implementation of NBSAP. As a follow up of that reorganization a new unit, the Department of Biodiversity and Forestry, has been established as a result of merging the two services, the Biodiversity Protection Service and the Forestry Policy Service. Since then, the new department has significantly increased in respect of overall institutional capacity and the number of staff.

The Georgia/European Union Association Agreement (June 2014) includes important commitments for the conservation of species and habitats and the sustainable use of biological resources. A draft Law on Biodiversity is currently under consideration by stakeholders and will be harmonized with the Environmental Directives of the European Union.

The Law on Genetically Modified Living Organisms was adopted in September 2014. The introduction of GMOs into the natural environment in Georgia is banned by this legislation. The application of GMOs for nutritional purposes and fodder as well as for scientific research is permitted. Genetically modified pharmaceutical products are not yet regulated.

The Ecoregion Conservation Plan for the Caucasus is currently being updated.

eiec.gov.ge

info@eiec.gov.ge

+995 32 2 11 20 23