GEORGIA'S FIRST BIENNIAL TRANSPARENCY REPORT

To the United Nations Framework Convention on Climate Change

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MINISTRY OF ENVIRONMENTAL PROTECTION
AND AGRICULTURE OF GEORGIA

LEPL ENVIRONMENTAL
INFORMATION AND
EDUCATION CENTRE

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FOREWORD

The present Biennial Transparency Report (BTR) provides important information on the implementation of climate change policies and measures in Georgia. The document also describes planned activities in the field of climate change. The report also highlights the significant support that Georgia has received from international partners, including capacity-building initiatives for transparency and financial support provided through the Global Environment Facility (GEF) and the United Nations Development Programme (UNDP), including for the development of this report.

On behalf of the Ministry of Environmental Protection and Agriculture of Georgia I extend my sincere gratitude to all government organizations, private sector entities, and stakeholders for their invaluable contributions, dedication, and support, which have ensured the timely completion of this report. The BTR exemplifies Georgia's steadfast commitment to transparency and accountability in the global effort to address climate change.

The first Global Stocktake (GST) report of the UNFCCC of 2023 revealed a significant gap between the current development and the goals of the Paris Agreement. Considering the escalating negative impacts of climate change, it is essential for all countries to act decisively to ensure a sustainable and equitable future.

Climate change poses numerous threats to Georgia, a country characterized by its rich landscape. In recent years, Georgia has experienced severe and widespread impacts of climate change, including devastating floods, landslides, intense storms, and droughts. Additionally, the rate of glacier melting in the Caucasus region has accelerated. Each year, the financial burden of adapting to climate change continues to grow for Georgia. To mitigate these threats, global greenhouse gas emissions must be significantly reduced within this decade.

Although Georgia's contribution to global greenhouse gas emissions is a modest level, the country is actively engaged in the fight against climate change. Various transformative initiatives are being considered to strengthen Georgia's national climate policies. This progress would not be possible without the invaluable support and collaboration of our partners and multilateral development banks (MDBs), whose continued engagement is essential for addressing resource constraints and implementing effective climate policies.

By adopting the Long-Term Low-Emission Development Strategy, Georgia has outlined its pathway to achieving climate neutrality by 2050, contingent on technological advancements and enhanced international cooperation. We have also committed to strengthening the country’s 2030 Nationally Determined Contribution (NDC), both by limiting emissions and increasing climate resilience.

Since then, we have been steadfast in our efforts to implement effective climate policies. During the NDC implementation period, the transformation of transport systems has commenced in Georgia's major cities to promote sustainable urban mobility. Achieving the introduction of zero-emission vehicles requires ongoing and collaborative efforts.

In the land-use sector, we have made significant steps by implementing sustainable forest

management practices on 270,000 hectares and promoting natural forest renewal across 3,153.9 hectares. These efforts are expected to result in the removal of 3,065.3 kilotons CO_2 by 2030. Moving forward, we aim to further increase the carbon sequestration potential of the land-use, land-use change, and forestry (LULUCF) sector by prioritizing the restoration of degraded lands.

At the same time, we are progressing research into low-carbon solutions for agricultural development and promoting the circular economy. These are just a few examples of the wide-ranging measures Georgia has implemented to align with its climate objectives.

While this report highlights the significant progress Georgia has made, we recognize that much more remains to be done. With the continued collaboration of our partners, we will press forward to ensure a greener, more sustainable, and climate-resilient future for generations to come.

David Songulashvili

Minister of the Environmental Protection and Agriculture

of Georgia

ABBREVIATIONS

ADB	Asian Development Bank
NAP	National Adaptation Plan
NACAG	Nitric Acid Climate Action Group
WEM	With existing measures
WWF	World Wildlife Fund for Nature
non-ODA	Non-official development assistance
UNDP	United Nations Development Programme
GEF	Global Environment Facility
LT-LEDS	Long Term-Low Emission Development Strategy
NEAP	National Environmental Action Programme
MEPA	Ministry of Environmental Protection and Agriculture
ODA	Official development assistance
KfW	Kreditanstalt für Wiederaufbau /Credit Institute for Reconstruction
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
LT-LEDS	Georgia's Long-Term Low Emission Developmemnt Stategy
WAM	With additional measures
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
EU	European Union
NECP	Integrated National Energy and Climate Plan
MESD	Ministry of Economy and Sustainable Development
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
WFD	Westminster Foundation for Democracy
CENN	Caucasus Environmental NGO Network
GCPF	Global Climate Partnership Fund
GCF	Green Climate Fund
CSAP	Climate Change Strategy and Action Plan
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank
GEFF	Green Economy Financing Facility

SEAP	Sustainable Energy Action Plan
GGF	Green for Growth Fund
GGFGF	Green for Growth Fund Green Facility
COP	Conference of Parties
CMA	Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement
GDP	Gross Domestic Product
LULUCF	Land use, land-use change, and forestry
MRDI	Ministry of Regional Development and Infrastructure
NEFCO	The Nordic Environment Finance Corporation
ITMO	Internationally Transferred Mitigation Outcomes
eAIMS	e-Aid Information Management System
IPPU	Iindustrial processes and product use
NSO	National Statistics Office of Georgia
FAO	Food and Agriculture Organization
DHW	Domestic hot water
SDC	Swiss Agency for Development and Cooperation
SIDA	Swedish International Development Cooperation Agency
BSTDB	Black Sea Trade and Development Bank
MoF	Ministry of Finance
WOM	Without measures

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SUMMARY

R.1. INFORMATION NECESSARY TO TRACK PROGRESS MADE IN IMPLEMENTING AND ACHIEVING NATIONALLY DETERMINED CONTRIBUTIONS UNDER ARTICLE 4 OF THE PARIS AGREEMENT (PARAGRAPHS 59-103 OF THE MPGS)

R.1.1 NATIONAL CIRCUMSTANCES AND INSTITUTIONAL ARRANGEMENTS

This chapter describes the main national circumstances and institutional arrangements of Georgia under which the national climate change policy is formed and developed. Specifically, the structure of the Georgian government as well as population, geographical, economic, and climate profiles. Moreover, the impact of national circumstances on GHG emissions and removals over time are presented. Information about the existing institutional arrangements, within which the Nationally Determined Contribution (NDC) is formed and implemented, is also provided.

R.1.2 DESCRIPTION OF GEORGIA'S NDC INCLUDING UPDATE

This section provides information on Georgia's NDC, including the target indicators, target year, baseline data, timeframe, coverage, cooperative approaches, and updated data, presented in a tabular format.

Reporting Format: The description of Georgia's NDC, prepared in accordance with Article 4 of the Paris Agreement, includes updated information.

R.1.3 INFORMATION NECESSARY TO TRACK PROGRESS MADE IN IMPLEMENTING AND ACHIEVING THE NDC

This chapter presents the approaches for assessing the NDC goals and the indicators

selected to track their implementation and achievement. In accordance with paragraph 69 of the MPGs, the information provided includes a comparison of the 2022 indicators with their corresponding baseline (1990) indicators. This chapter also explains all the indicators used to assess the performance and achievement of the NDC across sectors not covered by National Greenhouse Gas Inventory Report of Georgia (NIR).

In addition, the chapter describes all the methodologies and assessment approaches used to evaluate the NDC goals, determine baseline indicators, select appropriate indicators, and more. Information on how double counting is avoided and the methodological difference between NIR and the NDC, is also presented.

R.1.4 MITIGATION POLICIES AND MEASURES, ACTIONS AND PLANS, INCLUDING THOSE WITH MITIGATION CO-BENEFITS RESULTING FROM ADAPTATION ACTIONS AND ECONOMIC DIVERSIFICATION PLANS, RELATED TO IMPLEMENTING AND ACHIEVING NDC

This chapter presents the information about the strategies, action plans, activities, and measures by sector that contribute to the implementation of the NDC. These efforts play a significant role in reducing GHG emissions and increasing carbon absorption, including the main source categories identified in the NIR.

According to paragraphs 84 and 85 of the MPGs, the tables include information for each activity on reduced GHG emissions and expected emission reductions. This encompasses mitigation activities that yield co-benefits from adaptation actions and economic diversification plans.

Pursuant to Section 87 of the MPGs, this subchapter describes the withdrawn mitigation measures that were detailed in the previous BTR. As this is the first BTR, information on actions, policies, and measures that are no longer in place will be presented in subsequent reports, along with explanations for their withdrawal.

According to paragraph 88 of the MPGs, this subchapter should include information on measures affecting GHG emissions from international transport activities. To achieve the goals of the NDC, the 2021-2023 Action Plan of Georgia's 2030 Climate Strategy was developed, however, it does not include measures addressing international transport activities. Consequently, each Party should identify its actions, policies, and measures that influence GHG emissions from international transport. Accordingly, any relevant information on this issue will be presented in subsequent reports.

R.1.5 SUMMARY OF GREENHOUSE GAS EMISSIONS AND REMOVALS

This chapter provides an overview of the inventory data on GHG emissions and removals in Georgia for the period of 2018-2022. The data is organized by both sectoral and individual GHGs, with separate breakdowns that include and exclude the LULUCF sector. This information is presented in a clear tabular format, offering a detailed look at the country's GHG dynamics over the specified timeframe.

Georgia conducted GHG emissions and removals inventory, covering the period from 2018 to 2022, with a comparative analysis across five key sectors. In the energy sector, emissions increased from 11,326 in 2018 to 13,218 Gg CO_2 eq. in 2022, showing a total growth

of approximately 14%. In the agriculture sector, emissions decreased from 2,411 in 2018 to 2,310 Gg CO_2 eq. in 2022, reflecting a reduction of about 4%. The IPPU sector experienced minimal change, with emissions increasing slightly from 2,019 in 2018 to 2,571 Gg CO_2 eq. in 2022, resulting in a growth of about 21%. In the waste sector, emissions grew from 1,900 in 2018 to 1,996 Gg CO_2 eq. in 2022, marking an overall increase of approximately 5.1%. For the LULUCF sector, absorptions improved slightly, with emissions changing from -5,884 in 2018 to -5,801 Gg CO_2 eq. in 2022, which corresponds to a reduction in absorption capacity of about 1.4%. This comparison between 2018 and 2022 shows that, the IPPU sector had the most significant increase in emissions, while the agriculture sector experienced the largest reduction in emissions. The LULUCF sector's absorptions slightly weakened over the same period.

R.1.6 GREENHOUSE GAS EMISSIONS AND REMOVALS SCENARIOS

(Paragraphs 92-102 MPGs)

This chapter presents the information on GHG emissions and removals until 2040 according to 3 different scenarios:

1. Scenario without measures (WOM);
2. Scenario with existing measures (WEM);
3. Scenario with additional measures (WAM).

According to MPG paragraph 98, these scenarios utilize the same measurement units as outlined in Georgia's national greenhouse gas inventory report. Furthermore, as stipulated in paragraph 99 of the MPGs, the scenarios are presented alongside the inventory data.

The scenarios for greenhouse gas emissions and removals projected until 2040, in accordance with MPG paragraphs 100 and 101, are displayed in both graphical and tabular formats, with and without the inclusion of the LULUCF sector.

Greenhouse gas emissions and removals scenarios are provided in Georgia's LT-LEDS, prepared by the Government of Georgia as a long-term vision framework document in accordance with the Paris Agreement. The document entered into force on April 24th, 2023.

LT-LEDS defines the estimated national GHG emissions and removals and sets a vision for 2050. This view is based on projections developed for emitting and absorbing sectors, which are summarized in total national emissions.

The LT-LEDS covers various sectors of the economy, including building, industry, transport, energy, agriculture, waste management and LULUCF. The main goal of the concept is to make Georgia carbon neutral by 2050.

Based on existing and future policy documents (including the CSAP), two mitigation measures scenarios were identified: "Existing Measures" (WEM) and "Additional Measures" (WAM); Scenario "Without Measures" (WOM) was also prepared; Ultimately, six scenarios were developed—encompassing both pessimistic and optimistic projections for WOM, WEM, and WAM—which detail the estimated ranges of GHG emissions for the year 2050.

R.2 INFORMATION ON FINANCIAL, TECHNOLOGY DEVELOPMENT AND TRANSFER AND CAPACITY-BUILDING SUPPORT NEEDED AND RECEIVED UNDER ARTICLES 9-11 OF THE PARIS AGREEMENT

R.2.1 CLIMATE FINANCE

Georgia's NDC outlines an estimated financial requirement of approximately 13 billion GEL (5 billion USD) for the implementation of mitigation measures through 2030. This includes 8 billion GEL for unconditional commitments and 5 billion GEL for conditional commitments. Additionally, the cost of adaptation measures for the same period is estimated to range between 3.9 and 5.2 billion GEL (1.5 to 2 billion USD).

To assess financial requirements, the "Climate Action Plan for 2024-2025" and "The Fourth National Environmental Action Programme of Georgia for 2022-2026" were analyzed from a short-term perspective. The analysis revealed a financial resource gap of 56.5 million GEL (approximately 20.9 million USD) necessary to implement the activities required to meet the unconditional target indicators of the Nationally Determined Contributions (NDC) by 2024-2026. The largest portion of this deficit is attributed to forest management (63.2%), followed by land resource protection (14%), water and Black Sea protection (7.2%), and waste management (5.3%). It is important to note that this deficit pertains only to the period 2024-2026; the financial shortfall for implementing the climate initiatives outlined in Georgia's long-term climate policy for 2030 and 2050 is substantially larger.

During the analysis of the received foreign assistance, the Administration of Georgian Government's Electronic Information Management System for International Support was used, which enabled the identification of 78 projects with a total value of 676.7 million USD, marked with the climate change-related Sustainable Development Goals (SDGs). Among them, 53 projects worth 211.5 million USD have already been completed (68%). The largest sources of funding are major financial institutions and the European Union: 43% from the European Bank for Reconstruction and Development (EBRD), 23.4% from the Asian Development Bank (ADB), 7% from the World Bank (WB), and 11% from the European Union (EU). The main areas of funding primarily include: transport (40.54%), emergency management (10.43%), agriculture (9.72%), forestry (8.44%), energy, energy efficiency, and renewable energy (7.94%), and construction and energy efficiency (6.97%).

The information received from state agencies, local governments, non-governmental organizations, and international institutions presents a somewhat different picture of the foreign assistance received. Based on the information provided and after filtering out duplicates to the possible extent, 101 projects were identified with a total value of approximately 1 billion USD. Of these, 39 projects have been completed, and 62 are ongoing. By sector, the largest share of the projects is allocated to: transport (40.5%), emergency management (10.4%), agriculture (9.7%), forestry activities (8.4%), energy (7.9%), construction (7%), and multisectoral projects (7.2%). The share of other sectors is comparatively smaller.

In Georgia, the voluntary qualitative grading of the program budget in relation to climate change began in 2022. This system indicates the connection between a program and climate change but does not specify the financial resources allocated to climate-related

actions. In the near future, the Ministry of Finance plans to introduce quantitative grading in the electronic budget planning system, allowing institutions to voluntarily identify and report direct climate-related costs during budget planning.

Information on financing provided by the private sector is even more fragmented. The data on certain assistance received by non-governmental organizations is also incomplete, particularly regarding "unofficial development assistance" received from international or local investors, financial, or other types of institutions.

The Ministry of Environmental Protection and Agriculture requested detailed information on ongoing climate change-related projects from a wide range of relevant public institutions, international organizations, and representatives from the non-governmental sector. The data collected was carefully reviewed to eliminate duplicates and was subsequently compiled into an annex. The feedback received from stakeholders has yielded valuable insights, although it should be noted that the information cannot be considered fully comprehensive. Despite the Ministry's efforts, certain institutions with an interest in climate issues did not provide the requested data. Moreover, the completeness and accuracy of the information provided were contingent upon the voluntary cooperation of the contributing parties.

The comprehensive identification of climate-related financial resources continues to pose a significant challenge. To address this issue, it is essential to establish a robust monitoring, reporting, and evaluation system, underpinned by an appropriate regulatory framework and supported by effective enforcement mechanisms.

R.2.2 SUPPORT NEEDED AND RECEIVED FOR TECHNOLOGY DEVELOPMENT AND TRANSFER

The country's needs for technology development and transfer are primarily shaped by its national climate policy, particularly the commitments outlined in the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC). These commitments are reflected in Georgia's updated Nationally Determined Contribution (NDC), as well as other strategic climate documents, such as the Long-term Low-Emission Development Strategy (LT-LEDS) and the Climate Change Strategy. Georgia's Third Assessment Report on Technological Needs provides a detailed overview of the country's climate-related technology requirements, covering both mitigation and adaptation needs over a specified period. It also identifies priority sectors and the technologies most relevant to them.

An analysis of existing technologies and local capacities reveals widespread challenges, including outdated technologies across all sectors and a significant lack of local capacity to transition to new, more efficient technologies. This gap presents a major barrier to the introduction and deployment of modern technologies. Several factors contribute to the lack of local capacity, including the slow pace of aligning the legal framework with European regulations, a shortage of adequately qualified technical personnel, limited access to technical materials and services, inadequate technical training and certification systems, and the absence of relevant regulatory acts and standards. Additional challenges include businesses' limited interest in adopting new technologies and the lack of financial support for such initiatives. As a result, the assessment of technological needs places particular emphasis on the importance of strengthening local capacities and enhancing

the availability and deployment of appropriate technologies.

The development, transfer, and implementation of climate-related technologies in Georgia is largely dependent on external assistance. This support is provided through various technical assistance projects, funded by international and bilateral financial and technical aid, most of which is aligned with national and sectoral policies and development programs, as well as Georgia's international climate commitments. The financial component of this assistance is sourced from the financial mechanisms of the UN Climate Convention, the European Union, and development agencies of partner countries. Typically, this assistance encompasses both financial and technical components.

For large-scale and innovative technologies, where there is a lack of existing domestic expertise, technical assistance is especially critical. The limited technical capacity within Georgia presents a significant barrier to the adoption of new technologies. However, several technologies have already been successfully implemented in the country, demonstrating their effectiveness across various sectors.]The analysis of the received information indicates that the assistance provided for the development and transfer of technologies primarily focuses on small-scale and relatively simple technologies. The largest portion of the technology transfer cycle is concentrated in the research, development, and demonstration phases. However, the most significant challenges lie in the operationalization of these technologies and, in particular, their widespread deployment and scaling.

For the successful completion and long-term sustainability of the technology transfer process, it is essential that both the transfer of technologies and the development of corresponding local capacities occur in a consistent and continuous manner. In this context, effective monitoring of the process, along with the regular exchange of information, plays a critical role in ensuring the success and ongoing progress of technology implementation.

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R.2.3 EXISTING NEEDS AND PRIORITIES FOR CAPACITY BUILDING

Despite the country's active efforts to strengthen capacities and raise awareness on climate change, significant gaps remain in areas where both external assistance and domestic efforts are essential. The priorities for capacity development and the corresponding needs are defined within the framework of Georgia's climate policy, which is shaped by the country's international obligations and national climate commitments. These priorities

are further informed by the needs identified through various ongoing projects.

The NDC identifies limited adaptation capacities as one of the key challenges of the country and underscores the importance of enhancing these capacities, particularly for the development of a comprehensive adaptation strategy. This includes strengthening the capabilities of policymakers in adaptation planning. The document also emphasizes the need to build local capacities, especially at the community level, to reduce vulnerability to climate-related risks. Additionally, it highlights the necessity of reinforcing the capacity of national healthcare systems to effectively manage the long-term health risks posed by climate change.

In terms of capacity development, strengthening institutional capacities is essential to enable effective data analysis and a consultation process to the impacts of climate change, including both extreme and progressive events. The goal is to eliminate or, at a minimum, minimize climate-related damage. Building and enhancing capacities and skills at both the national and local/municipal levels is essential for driving more ambitious climate action. The development of technical expertise and institutional capacity is a critical prerequisite for effectively addressing the causes and impacts of climate change, as well as for ensuring the successful implementation of a green transformation. In this context, skill deficiencies are considered to be the major barrier to the development of various sectors. Key sectors with significant capacity development needs include agriculture, forestry, industry, renewable energy and energy efficiency, and waste management.

To fulfill its international and national climate commitments, Georgia has made significant progress in enhancing its capacities compared to the previous reporting period. This improvement is evidenced by a notable increase in the number of implemented climate mitigation and adaptation measures. The strengthening of capacities has been achieved through a combination of the country's own resources and technical assistance projects carried out within the framework of international cooperation.

Almost all programs and specific projects related to the transfer of technologies in Georgia incorporate capacity building as a core component. This ensures that the country gains the necessary experience and skills to effectively utilize the technologies received. The capacity-building process includes raising awareness, conducting targeted educational and training programs, sharing information on best practices, and organizing training sessions on the opportunities and mechanisms for technology transfer. It also focuses on establishing and promoting the adoption of best practices within the relevant sectors.

In the realm of capacity building, non-formal education, and raising awareness, the Environmental Information and Educational Center of the Ministry of Environmental Protection and Agriculture plays a crucial role. As one of the key public institutions in the country for environmental education and capacity development, the center works with a diverse range of target groups, including ministries, local municipalities, the private sector, and other stakeholders. During the reporting period, numerous medium- and large-scale projects were successfully implemented with the support of foreign grants, often carried out through local non-governmental or private organizations. These projects not only facilitate knowledge and experience sharing between countries but also contribute to the development of sector-specific expertise within Georgia.

In terms of capacity development, the following key areas of support can be highlighted:

disaster risk management, forest management, as well as the use of alternative energy sources and energy efficiency.

R.2.4 GENDER MAINSTREAMING IN CLIMATE CHANGE, SUPPORT RECEIVED AND NEEDED

During the reporting period, several significant documents were developed to advance gender mainstreaming in climate policy. Notably, the updated NDC includes specific commitments related to gender and climate change, aiming to enhance the participation of women across various sectors. The document also highlights the need to collect and utilize gender-disaggregated data in national climate reports. A further step toward institutionalizing gender considerations in the climate sector is the adoption of Georgia's LT-LEDS in 2023. This strategy integrates a gender mainstreaming component and seeks to incorporate gender perspectives throughout its implementation. Another key development during the reporting period is the initiation of the Climate Change Law. The "White Paper" prepared for the law's development includes gender justice as a core principle. In this context, gender justice refers to the integration of policies and practices that address gender inequality and promote gender equality within climate policy and legislation. This approach emphasizes capacity building, gender mainstreaming, and alignment with international commitments to ensure equal participation and opportunity in climate actions. Additionally, a significant modification to the electronic budget management system in 2023 mandates that agencies identify policies and programs using grades (classifiers) that account for gender considerations. This change is expected to improve the integration of gender perspectives in climate policy and enhance the monitoring process for gender mainstreaming across sectors.

CHAPTER 1.
INFORMATION NECESSARY TO TRACK PROGRESS MADE IN IMPLEMENTING AND ACHIEVING NATIONALLY DETERMINED CONTRIBUTIONS UNDER ARTICLE 4 OF THE PARIS AGREEMENT (PARAGRAPHS 59-103 OF THE MPGS[1])

1.1 NATIONAL CIRCUMSTANCES AND INSTITUTIONAL ARRANGEMENTS

(Paragraphs 59-63 MPGs)

In this chapter, you will get acquainted with the main national circumstances and institutional arrangements of Georgia under which the national climate change policy is formed and developed. The chapter describes the structure of the Georgian government as well as population, geographical, economic, and climate profiles. Moreover, the impact of national circumstances on GHG emissions and removals over time are presented. In this chapter, you will also find information about the existing institutional arrangements, within which the Nationally Determined Contribution (NDC) is formed and implemented.

1.1.1 GOVERNMENT STRUCTURE

Georgia is a democratic country. The governmental power of the country is divided between legislative, executive, and judicial bodies. The Parliament of Georgia is the supreme representative body of the country, that exercises legislative power. The Parliament defines

1 MPGs / Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. https://unfccc.int/documents/184700

the main directions of the country's domestic and foreign policies, controls the activities of the Government within the scope established by the Constitution. The Government of Georgia is the supreme body of executive power that implements the domestic and foreign policies of the country. The government consists of the Prime Minister and 12 ministers. The judicial power is led by the Constitutional Court of Georgia and the Common Courts of Georgia. The head of the state is the president.[2]

Georgia is an independent, unified and indivisible state as confirmed by the Referendum of 31 March 1991 held in the entire territory of the country, including the Autonomous Soviet Socialist Republic of Abkhazia and the former Autonomous Region of South Ossetia, and by the Act of Restoration of State Independence of Georgia of 9 April 1991.[3] The territory of the country includes 2 autonomous republics - Abkhazia and Adjara, as well as 5 self-governing cities and 64 self-governing regions (municipalities). Currently, Georgian regions – Abkhazia and Tskhinvali - are occupied by the Russian Federation.[4]

Since 1994, Georgia has been a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) (a non-Annex I country of the Convention).[5] In 1999, Georgia acceded to the Kyoto Protocol of the Convention, [6] In 2017, it approved the Paris Agreement, and in 2020, it accepted the Doha Amendment to the Kyoto Protocol.[7]

Article 51 of the Law of Georgia "On Environmental Protection" defines general domestic approaches to climate protection against global changes, [8] while Article 53 of the Law of Georgia "On Ambient Air Protection" defines specific domestic obligations. [9]

Ministry of Environmental Protection and Agriculture of Georgia (MEPA) is authorized to coordinate the implementation of the national policy on climate change and develop Georgia's position for international negotiations within the UNFCCC.

The Climate Change Council, which was established in accordance with the Resolution No. 54 of the Government of Georgia on January 23, 2020, ensures the effective implementation of the requirements of the UNFCCC, the Kyoto Protocol and the Paris Agreement in Georgia. The Climate Change Council consists of the Council, the Coordination Group of the Covenant of Mayors' Signatory Municipalities, the Climate Finance working group and the Climate-Technologies coordination group.

The Climate Finance Working Group prepares recommendations for the Climate Change Council on economic activities and analysis of costs and revenues related to climate change.

Source: Climate Finance Working Group Rules of Procedure

The Coordination Group is an advisory body of the Council on issues of coordination between state and self-governing bodies in the field of climate change. It consists of the mayors of municipalities that are signatories to the Covenant of Mayors, the deputy mayor

2 Constitution of Georgia. https://matsne.gov.ge/ka/document/view/30346?publication=36
3 Constitution of Georgia. https://matsne.gov.ge/ka/document/view/30346?publication=36
4 National Agency of Public Registry. Registry of the Municipalities. http://mreg.reestri.gov.ge/
5 https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=_en
6 https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-a&chapter=27&clang=_en
7 https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-c&chapter=27&clang=_en
8 https://matsne.gov.ge/ka/document/view/33340?publication=33
9 https://matsne.gov.ge/ka/document/view/16210?publication=25

of Tbilisi, and state representatives in regions of the country.[10]

The Climate-Technologies Coordinating Group was created to coordinate issues related to the technologies (climate- technologies) needed to manage climate change processes in Georgia, including climate-technology needs assessment.

Source: Rules of activity of the Climate-Technologies Coordination Group

In addition, the Ministries of Environmental Protection and Agriculture and Economy and Sustainable Development of Georgia are jointly responsible for the coordination of local climate change and sustainable energy-related activities for the Covenant of Mayors signatory municipalities. [11]

1.1.2 POPULATION PROFILE

Urban areas are major contributors to climate change, accounting for 71 to 76 per cent of CO2 emissions from global final energy use.

Source: United Nations Human Settlements Programme

As of 2023, the population of Georgia is 3,736,400. The population density in the country is 65.3 people per square kilometre. 60% of the population lives in cities, and 40% in villages. The population of Tbilisi is 1,241,700, which is more than 30% of the total population. [12] Greenhouse gas emissions from economic activities in Georgian cities constitute the biggest part of the country's emissions. In addition, the high population density in urban areas require unique adaptation strategies for climate change.

In the future, cities will have to take into account both global climate change and the aging of the population. National climate change policies must consider the changing needs of urban populations and the link between the age of the population and climate change.

Source: Oxford Network for the Future of Cities

The share of the population aged 65 and older is 15.6%. This figure is increasing even more. As the impact of climate change on older populations is growing, national climate change strategies should consider older populations and maximize their participation in the development of such documents.[13]

52% of the population are girls and women, and 48% are boys and men. According to the 2014 general population census, Georgians represent 86.8% of the country's national composition, Azerbaijanis 6.3%, Armenians 4.5%, Russians 0.7%, Ossetians 0.4%, Yezidis 0.3%, Ukrainians 0.2%, Greeks 0.1%.[14]

10 Resolution No. 54 of the Government of Georgia of January 23, 2020 "On the Creation of the Climate Change Council". https://www.matsne.gov.ge/ka/document/view/4780380?publication=0

11 Georgia's Updated Nationally Determined Contribution (NDC), P 5. https://eiec.gov.ge/Ge/Documents/Download/532

12 https://www.geostat.ge/ka/modules/categories/41/mosakhleoba

13 Climate Change in an Ageing World. https://www.preventionweb.net/files/47086_cop21helpagepositionpaperfinal.pdf

14 National Statistics Office of Georgia. https://www.geostat.ge/ka/modules/categories/41/mosakhleoba

Considering the Georgia's population growth trends, it is expected that by 2030, the country's population will reach approximately 3.9 million.[15] This trend has been taken into account in determining the mitigation goals of the NDC.

1.1.3 GEOGRAPHIC PROFILE

Georgia is located in the central and western parts of Southern Caucasia. The total length of the country's border is 1,916 km. 16% (308 km) of the total length of the border is maritime, and 84% (1,608 km) is land.[16] As of 2004, 1st of April, the total area of Georgia, including the areas of Abkhazia, Tskhinvali and territorial waters, is 76,284 km^2, of which approximately 91% is land, and 9% is water.[17] Geographically, Georgia is divided into eastern and western parts by a natural divider - the Likhi Ridge. The Likhi Ridge also divides the Intermountain Plains of Georgia into Kolkheti and Iveria Valleys. The land of Georgia is divided into three parts: 1. Agriculture land - 15.8%; 2. Natural-farming area (forest, shrubbery, hay pastures) – 70.6%; 3. Land not used in agriculture - 13.6%.[18]

The geographical coordinates of Georgia are as follows: in the north, 43°07'- 43°35' north latitude and 40°01 -48°44' east longitude, in the south - 41°23'31" north latitude and 40°00 30' east longitude and in the east - 41° 17' north latitude and 46° 44' 31" east longitude.[19]

Georgia is bordered by the Black Sea in the west, the Greater Caucasus Range in the north, the Small Caucasus Mountains in the south, and Alazani Valley in the east. The countries bordering Georgia are the Republic of Azerbaijan, the Republic of Turkey, the Russian Federation and the Republic of Armenia.[20]

Georgia is characterized by a diverse and complex terrain. Mountains, plains, glaciers, swamps, semi-deserts, lakes and rivers are all represented in the country.[21] 54% of the territory is mountains, 33% is foothills, and 13% is plains. 2/3 of the territory is mountainous. 54% of the territory is located 1,000 meters above the sea level.[22]

In Georgia, the vulnerability of highland areas is particularly noticeable, given the fact that most of the mountainous areas of the country, especially the areas 1,500 meters above sea level are greatly affected by extreme weather and related geological events.

15 Georgia's Nationally Determined Contribution (NDC). P. 20. https://mepa.gov.ge/Ge/Files/ViewFile/50125

16 bibliowiki. National Library of the Parliament of Georgia. Last view 2024.03.13. https://www.nplg.gov.ge/wikidict/index.php/%E1%83%A1%E1%83%90%E1%83%A5%E1%83%90%E1%83%A0%E1%83%97%E1%83%95%E1%83%94%E1%83%9A%E1%83%9D

17 Fourth National Communication of Georgia. P. 20. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/undp_ge_env_fourth-national-communication-to-unfccc_2021_geo.pdf

18 National Statistics Office of Georgia. Georgia's natural resources and environmental protection. 2022 year. Statistical publication. p. 12. https://www.geostat.ge/media/58571/Garemo_2022_geo.pdf

19 National Library of the Parliament of Georgia. https://www.nplg.gov.ge/wikidict/index.php/%E1%83%A1%E1%83%90%E1%83%A5%E1%83%90%E1%83%A0%E1%83%97%E1%83%95%E1%83%94%E1%83%9A%E1%83%9D Last view - 2024.03.13.

20 Bibliowiki. National Library of the Parliament of Georgia. Last View - 2024.03.13. https://www.nplg.gov.ge/wikidict/index.php/%E1%83%A1%E1%83%90%E1%83%A5%E1%83%90%E1%83%A0%E1%83%97%E1%83%95%E1%83%94%E1%83%9A%E1%83%9D

21 Fourth National Communication of Georgia. P. 20. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/undp_ge_env_fourth-national-communication-to-unfccc_2021_geo.pdf

22 Fourth National Communication of Georgia. P. 20. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/undp_ge_env_fourth-national-communication-to-unfccc_2021_geo.pdf

The terrain of Georgia ranges from sea level to 5,069 meters (the peak being in Shkhara). Within the territory of Georgia, some peaks of the Caucasus are higher than 5,000 m. More than 1/3 of the country's area is occupied by the Caucasus mountain system. In addition, the Meskheti and Trialeti ridges are a part of the Small Caucasus Mountains. The mountain system of Georgia also includes the volcanic mountain range of South Georgia.[23]

During the last 50 years, the areas of Georgia's glacial basins decreased from 543 km^2 to 337 km^2, and the number of glaciers decreased from 541 to 383.

Due to climate change, as a result of the melting of glaciers in the Caucasus in the 21st century, an increase in the water runoff in the rivers of Georgia is expected, followed by a sharp decrease after the glaciers have melted.

About half a century ago, there were 409 and 132 glaciers in Western and Eastern Georgia respectively, grouped into 12 glacial basins, with a total area of 543 km^2. [24] Western Georgia's glacial basins are: Bzifi, Kelasuri, Kodori, Enguri, Khobistskali and Rioni. The glacial basins of Eastern Georgia are: Liakhvi, Aragvi, Tergi, Asa, Arghuni, Piriqita Alazani. The research conducted using the Satellite Remote Monitoring (SRM) method showed that by 2020, the glacial area in western Georgia decreased by 27.4%, the glaciers number by 21%, while the glacial area in East Georgia decreased by 47.3% and the glaciers number by 54.5%. The rate of glacial retreat in Georgia exhibits regional variation, with the process advancing more rapidly in the eastern part of the country than in the west. This disparity can be attributed to the contrasting climatic conditions between the two regions. Eastern Georgia experiences a continental climate, characterized by lower humidity and more extreme temperature fluctuations, which accelerates the melting of glaciers. In contrast, Western Georgia's humid climate, with significantly higher moisture levels, acts as a moderating factor, decelerating the ice melt compared to the drier conditions of the east.[25]

Some of the main factors causing the negative mass balance on some glaciers in the Caucasus can be:

- increase in ambient air temperature in summer;
- reduced precipitation in winter;
- Sahara desert dust deposition.

Approximately 44.5% of Georgia's territory is a part of the forest fund, highlighting the country's significant potential for enhancing greenhouse gas absorption and bolstering adaptation capacities to climate change. Forests in Western Georgia stretch from sea level, covering plains and foothills up to 500 meters, with Alder groves characterizing swampy lowland areas. At higher elevations, Kolkhi-type forests dominate these foothills. In the drier plains and foothills of Eastern Georgia (Shiraki, Eldari, and Mtskheta territories), arid forests thrive between 400 and 600 meters above sea level. Notably, the vast majority

23 National Statistics Office of Georgia. Georgia's natural resources and environmental protection. P. 5. https://www.geostat.ge/media/13558/saqarTvelos-bunebrivi-resursebi-da-garmos-dacva_2009.pdf

24 L. Shengelia, G. Kordzakhia, G. Tvauri, M. Dzadzamia, Degradation of Georgia's glacial basins due to climate change, STU Institute of Hydrometeorology Scientific Reference Works, UAC 551.50.501.7, Volume 129, 2020.

25 L. Shengelia, G. Kordzakhia, G. Tvauri, M. Dzadzamia, Degradation of Georgia's glacial basins due to climate change, STU Institute of Hydrometeorology Scientific Reference Works, UAC 551.50.501.7, Volume 129, 2020.

of Georgia's forests (97.7%) are located on mountain slopes. In the lower mountain belt, from 500 to 900–1,000 meters, Chestnut and Oak forests prevail, with Chestnut trees particularly common in the more humid regions of both western and eastern Georgia. At higher elevations, the upper mountain belt is dominated by coniferous forests. In Western Georgia, this belt begins at around 1,400 meters, often reaching the upper limit of forest growth, while in Eastern Georgia, it ranges between 1,500 and 2,100 meters. These forests are primarily composed of Eastern Spruce and Caucasian Fir, forming diverse, highly productive ecosystems with both pure and mixed groves.[26]

Water resources in Georgia are naturally unevenly distributed and are mostly concentrated in the western part of Georgia, while the eastern regions often suffer from water shortages. Most of the rivers of Eastern Georgia form a single system of the Mtkvari River and flow into the Caspian Sea, while the rivers of Western Georgia flow independently into the Black Sea. The river runoff in Georgia demonstrates a notable regional disparity, with Western Georgia accounting for a significantly higher runoff of 49.8 km^3, compared to just 16.5 km^3 in Eastern Georgia. This variation is influenced by the contrasting climatic conditions between the two regions.[27] As climate change intensifies, Georgia is expected to experience an increase in river runoff, driven by the accelerated melting of glaciers in the Caucasus. However, this increase is anticipated to be temporary. Once the glaciers have significantly diminished or disappeared, a sharp reduction in river runoff is expected.

The Black Sea belongs to the Atlantic Ocean basin. It is one of the most isolated seas. Its surface area is about 432,000 km^2, the water mass is 547,000 km^3, the average depth is 1,240 meters, and the deepest point is considered to be 2,212 meters. The Black Sea water is divided into layers: the surface layer contains oxygen, and the lower layer does not. The anoxic deep layer created as a result of geological processes contains a large amount of hydrogen sulfide (H_2S), which is why 90% of the Black Sea is lifeless. It can be said that only 10-13% of the Black Sea is suitable for life and supports biodiversity.[28]

The complex terrain of Georgia often contributes to the aggravation of the general circulation processes of the atmosphere and the formation of various types of natural hydrometeorological events. It should be noted that in the last decades, due to climate change, the trend of increase in frequency and intensity of natural hydrometeorological events can be observed on the territory of Georgia. Taking into account the changed climatic parameters and extreme weather data in recent decades, it is notable that the country's mountainous and coastal areas are highly vulnerable to climate change.[29]

26 National Statistics Office of Georgia. Georgia's natural resources and environmental protection. 2022 year. Statistical publication. https://www.geostat.ge/media/58571/Garemo_2022_geo.pdf

27 National Statistics Office of Georgia. Georgia's natural resources and environmental protection. 2022 year. Statistical publication. P. 44. https://www.geostat.ge/media/58571/Garemo_2022_geo.pdf

28 Cognitive collection of the Black Sea - teacher's guide. p. 10-13.

https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/GE_UNDP_EE_Black_Sea_Box_Geo.pdf

29 i. Megrelidze. Assessment of natural hydrometeorological events in Georgia taking into account climate change. p. 8. https://digitallibrary.tsu.ge/book/2021/nov/dissertations/diss/megrelidze-saqartveloshi-stiqiuri-disertacia.pdf

2018 July 5 - The intense melting of glaciers in the Nenskri River basin was accompanied by abundant precipitation. As a result, strong waterfalls and landslides developed in the valley. As a result of the flooding of the Nenskri River in the villages of the Tchuberi community – Sgurishi, Karsi, Devrashi, Lower Margi, Lekalmakhi, and Lakhani - residential houses, highways, and bridges connecting the villages were destroyed and damaged.

2019 September 7 - Heavy rain and wind created problems in three municipalities of the Kakheti region. The village of Anaga was destroyed in Sighnaghi municipality and the village of Akhasheni in Gurjaani municipality

2020 October 2 - In Khelvachauri, in the village of Kvemo Jotcho, 5 people were killed in the disaster caused by heavy rain.

2021 December 2 - The Category 4 storms hit the coastlines of Batumi and Kobuleti, depositing large amounts of sand and gravel across several areas. The intense weather caused significant disruption, damaging parts of the Batumi Boulevard infrastructure.

2022 January 2 - In Shuakhevi municipality, heavy snowfall accumulated to a height of 1 meter, blocking roads leading to several villages. The severe weather also damaged transmission lines, resulting in widespread power outages across most of the affected villages.

2023 August 3 - A devastating landslide struck the Shovi resort in Racha, causing extensive damage and resulting in multiple casualties. According to the preliminary findings from the National Environment Agency, the disaster was triggered by a collapse of rocky mass to the west of the Buba glacier. The rockslide collided with the glacier, causing a partial collapse and likely releasing water trapped beneath it. This sudden release of water created a powerful, fast-moving flow that swept through the area, leading to the tragic outcome.[30]

1.1.4 ECONOMIC PROFILE

Under a small, open, and transitioning market economy, Georgia is a developing country with an upper-middle income level.[31] In 2023, the Gross Domestic Product (GDP) per capita was 8,218.8 USD, and the average annual (real) GDP growth in 2011-2023 was 5.4%. In 2022, Georgia's foreign trade turnover in goods represented about 77% of its GDP. The country's trade profile shows a higher volume of imports compared to exports. In 2023, the amount of foreign direct investment (FDI), the most volatile macroeconomic variable in the economy, was approximately 1.9 million US dollars.[32]

The service sector occupies a leading position in the economy of Georgia. In 2022, its share was about 72% of the total economic activity. For the same year, the share of the manufacturing industry (including construction) and agriculture (including forestry) in the total economic activity (GDP) was approximately 20% and 8%, respectively.[33]

30 National Environmental Agency. Initial assessment of the natural events that occurred on August 3, 2023 in the Bubistskali river valley (Chanchakhi river basin). https://nea.gov.ge/Ge/News/1178?fbclid=IwAR0wSfzNwmuhqfzL541fFRd7KVsHefnMCuqhlkkJV_AMckt36BqjnYfA9sY

31 Charting Georgia's Future, World Bank, 2022. https://documents1.worldbank.org/curated/en/099435012022237049/pdf/P17548605921fd062093cb077bd2d45cd13.pdf

32 National Statistics Office of Georgia. https://www.geostat.ge/ka/modules/categories/23/mtliani-shida-produkti-mshp

33 National Statistics Office of Georgia. https://www.geostat.ge/ka/modules/categories/23/mtliani-shida-produkti-mshp

Over the past 18 years, GHG emissions have grown at an average rate of approximately 4.3%, with a growth rate of 3.3% between 2018 and 2022. The following factors influence GHG emissions in the country: real GDP growth rate, demographics, investments, prices in the energy sector, technological progress, energy consumption rates, behaviours and attitudes, etc. Real GDP growth and energy consumption are the main factors influencing greenhouse gas emissions in Georgia.[34]

It should be noted that many internal (economic recessions, institutional instability) and external factors (global crises, trade embargoes, economic crises in neighbouring countries, price shocks in the energy sector, etc.) are the cause of the instability and high variability of the trend of greenhouse gas emissions in the country. There is a close relationship between the activity of high-emission sectors (transport, industry, energy supply, agriculture, etc.) and real GDP. The rate of activities of high-emission sectors was growing in the last ten years. The average rate of growth of the mentioned activities is 6% during the last decade, which is higher than the average rate of real GDP growth (5.2%).

Significant natural events caused by climate change in Georgia's main partner countries may have a direct economic impact on Georgia. The impact can be expressed in the reduction of exports of goods and services, reduction of direct foreign investments and cash transfers, and others. More frequent and severe natural events caused by climate change may not only have a large fiscal impact in the form of increased government spending, but may also take a significant toll on the private sector. For example, in 2020, the reduced generation of electricity by hydroelectric plants was caused by the lack of water resources. Therefore, it is important to properly assess these types of risks in future Public Private Partnership/Power Purchase Agreement (PPP/PPA) projects. This can mean both slowly progressing risks, such as the effect of steady increase in average temperatures, which reduces productivity and hence budget revenues, as well as risks arising from unexpected natural events, which have an immediate effect on budget parameters and risks associated with growth. In addition, other threats from climate change may involve a combination of both of these types of risks.

The risks of climate change will affect the entire economy of Georgia. The energy sector will be especially vulnerable as the local electricity generation comes mostly from hydropower (about 76%).

The government is taking active steps to manage climate-related risks by integrating climate change into the public investment management framework. A climate Public Investment Management Assessment (PIMA) has been carried out and active steps have been taken to implement key recommendations. A medium-term revenue strategy, productivity-enhancing reforms, and climate change mitigation and adaptation measures could help ease fiscal pressures. The medium-term revenue strategies should address the potential reduction of the existing tax base as a result of economic structural changes caused by climate change. On the expenditure side, the next important step is to identify and measure the fiscal deficit needed to support climate change adaptation measures and productivity enhancing policies which require budgetary funding, for example in the education field. These policies should be assessed based on their long-term impact on enhancing economic resilience to climate change.

34 National Greenhouse Gas Inventory Report of Georgia. https://www.undp.org/ka/georgia/publications/sakartvelos-erovnuli-satburis-gazebis-inventarizatsiis-angarishi-1990-2017

1.1.5 CLIMATE PROFILE

Eastern Georgia experiences a subtropical climate, while western Georgia has a milder climate. The country encompasses a diverse range of climatic zones, with the exception of deserts, steppes, and tropical rainforests.[35]

The country's weather is determined by the Caucasus Mountains, which protects it from cold air masses from the north, and the Black Sea, which moderates temperature fluctuations and contributes to a large amount of precipitation, especially in western Georgia. The amount of annual precipitation in the country ranges from 400 mm to 4,500 mm. [36]

Climatic patterns in Georgia have undergone significant changes. Between 1986 and 2015, the average annual temperature across the country increased noticeably compared to the 1956-1985 period, a trend seen in most regions. During the same period, western Georgia experienced an increase in annual precipitation, while eastern Georgia saw a decline. [37]

Over recent decades, climate change has heightened the urgency of sustainable groundwater management in Georgia. Rising temperatures and decreasing precipitation are particularly impacting groundwater recharge rates, intensifying regional disparities in resource availability. For instance, springs in Eastern Georgia have seen significant declines in discharge due to lower seasonal water input. Climate projections for the mid- to late-21st century anticipate further decreases in precipitation (by up to 10%) and increases in temperature (1.6-3.1°C), trends that could further strain groundwater levels, especially in areas reliant on shallow or unprotected sources.[38]

In the context of climate change, it is evident that the frequency and intensity of natural events—such as floods, landslides, avalanches, strong winds, and droughts—are expected to rise. There has also been an increase in the number and severity of landslides. Additionally, the melting of glaciers in the country has become particularly pronounced.

Winters on the Black Sea coast of Georgia are mild and warm. Precipitation is plentiful at all times of the year. The southern part of Kolkheti is particularly rainy, with more than 2,500 mm of precipitation per year. [39]

Over the past two decades, climate change has led to an uneven distribution of precipitation in the Black Sea coastal zone. Furthermore, there has been an increase in the frequency of storms with a strength greater than 5 on the Beaufort scale. [40]

An assessment of the impact of climate change on the Black Sea has shown that it has several directions: sea level rise, changes in the seasonality and intensity of storms, and changes in the temperature regime of the sea surface water. In particular, there is a sharp increase in the number of storms.

The assessment of Adjara's coastal zone revealed that, in nearly all areas (except for the Batumi cape), the shores experience varying degrees of erosion due to sea activity. In the 21st century, further intensification of erosive processes in the coastal zone is expected

35 Fourth National Communication of Georgia. P. 20.
36 Fourth National Communication of Georgia. P. 20.
37 Fourth National Communication of Georgia. P. 20.
38 Fourth National Communication of Georgia. P. 258
39 National Statistics Office of Georgia. Georgia's natural resources and environmental protection. 2022 year. Statistical publication. P.8. https://www.geostat.ge/media/58571/Garemo_2022_geo.pdf
40 Fourth National Communication of Georgia. P. 341

due to the permanent rise of the sea level at a rate of 2-3 mm/year as a result of climate change and the frequency of strong storms. [41]

The vulnerable and intricate state of the coastal ecosystem in Abkhazia further exacerbates these challenges, threatening not only the health of the entire Black Sea but also posing significant risks to Adjara's already eroding shoreline.

In the context of climate change: (1) rising sea levels have caused the Black Sea to encroach upon previously dry land, resulting in the destruction and damage of infrastructure and homes; (2) the country's economy is harmed due to frequent and intensified floods, landslides and mudslides in mountainous regions and territories; (3) there is a danger of desertification in the regions of Eastern Georgia due to the reduction of rainfall and increased evaporation; (4) frequent and intense heat waves endanger the health of people, especially vulnerable groups; (5) increased temperatures, changes in precipitation, reduced availability of water resources, increased wildfires, parasites/diseases adversely affect the ability and productivity of forests to expand. [42]

The negative effect of climate change is expected to intensify in the future. The most important thing is to develop sustainable approaches to climate and climate change, to improve the country's adaptive capacity, which will alleviate the consequences for the most vulnerable groups to climate change (the elderly, children, women, people below the poverty line, etc.). Georgia is working to integrate climate risks, climate and climate change resilience into development plans and strategies. [43]

1.1.6 SECTOR DETAILS

A key focus of Georgia's climate change policy is to reduce greenhouse gas emissions while enhancing the capacity for carbon absorption. The country's approach to limiting emissions to specific target indicators is informed by an analysis of six key sectors of the economy: Transport, Buildings, Energy Generation and Transmission, Agriculture, Industry, and Waste management. Additionally, Georgia is exploring ways to enhance the capacity of the Land Use and Forestry sector to increase CO_2 absorption.

Transport sector

The economic growth of Georgia largely depends on the effective use of its potential as a transit country. The country's transport system includes five types of transport: road, rail, sea, air and pipelines. [44] According to the most recent greenhouse gas inventory, greenhouse gas emissions from the transport sector account for 22.4% of the country's total emissions.

The transport sector in Georgia, along with the development of road and passenger transport, is growing rapidly.[45] The share of greenhouse gas emissions from road transport

41 Climate Change Strategy of Adjara, p. 160 https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/UNDP_GE_EE_Ajara_CC_2013_geo.pdf
42 Fourth National Communication of Georgia. P. 53
43 Fourth National Communication of Georgia. P. 203
44 Georgia's Long-Term Low Emission Development Strategy. P. 46. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf
45 Georgia's Long-Term Low Emission Development Strategy. P. 44. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

is more than 85% of emissions from the entire sector. [46] Accordingly, from the point of view of reducing greenhouse gas emissions, the development of road transport and its adjacent sub-sectors requires the most effort.

The number of vehicles registered in Georgia is characterized by an increasing trend. The number of vehicles in 2023 has increased by 30% compared to 2018 - according to the latest data, 1.68 million vehicles are registered in the country.[47]

Excess emissions from the road transport sub-sector are caused by an aging fleet of used vehicles. The modernization of Georgia's vehicle fleet is underway; as of 2023, approximately 82% of registered vehicles were over 10 years old, [48] a slight improvement from 87% in 2018. In general, the transition to clean energy in the field of road transport is characterized by a growing trend. [49] During the reporting period (2018-2023)[50], the number of low-emission vehicles has risen, primarily driven by an increase in hybrid car imports. The number of electric cars on the market is still small, with a share of less than 1% of the total passenger cars.

Until 2030, the transport sector plans to increase the share of low- and zero-emission and well-maintained private vehicles in the fleet, reduce demand for fossil fuels and encourage the use of biofuels, develop electric vehicle charging infrastructure, encourage non-motorized means of mobility and public transport, and implement evidence-based innovative initiatives in the transport sector. [51]

As GDP and prosperity increase, the share of comfortable, low-emission vehicles is expected to increase until the mid-21st century, significantly reducing greenhouse gas emissions from road transport.

Additional long-term priorities in the transport sector are:

- Full realization of Georgia's transit potential;
- Development of transport infrastructure;
- Development of logistics centres and value-added services;
- Improvement of security and service level;
- Improvement of pedestrian and bicycle networks;
- Increasing the efficiency of passenger transport by rail transport;
- Encouraging the production of biodiesel. [52]

46 Georgia's Long-Term Low Emission Development Strategy. P. 44. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

47 Vehicle statistics, National Statistics Office of Georgia https://automobile.geostat.ge/ka/automobiles/general-info

48 Vehicle statistics, National Statistics Office of Georgia https://automobile.geostat.ge/ka/automobiles/general-info

49 Vehicle statistics, National Statistics Office of Georgia https://automobile.geostat.ge/ka/automobiles/general-info

50 The reporting period of this document (2018-2023) includes the reporting period (2021-2023) of the Action Plan of Georgia's 2030 Climate Strategy

51 Georgia's 2030 Climate Change Strategy and Action Plan. P.30 https://mepa.gov.ge/Ge/Files/ViewFile/47855

52 Georgia's Long-Term Low Emission Development Strategy. P. 84 https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

By 2030, Georgia's transport sector aims to achieve a reduction in GHG emissions by 15% compared to the reference scenario projections. [53]

Building Sector

The building sector in Georgia is characterized by high energy consumption and severe emissions of greenhouse gases.

The building sector is one of the largest and growing sectors of the country's economy. The building sector includes commercial, public, and residential buildings. According to the most recent Greenhouse Gas Inventory, greenhouse gas emissions from the building sector account for 21.1% of the country's total emissions. [54]

The majority of existing buildings in Georgia were constructed during the Soviet era, from 1921 to 1990. As a result of their age and deterioration, these buildings have significantly reduced energy efficiency. Most buildings constructed in the three decades following the restoration of independence are characterized by low energy efficiency.

With limited capacity, some buildings have very low energy consumption. In such buildings, the energy consumption per 1 m2 throughout the year is about 0.37 MWh.

Source: Climate Change Online Data Management System, https://itf.mepa.gov.ge

Consequently, the building sector is marked by high energy consumption and significant greenhouse gas emissions.[55]

The transition from fossil fuels to clean energy resources is somewhat impeded by the limited capabilities of households and individuals, primarily due to low incomes and high energy demands stemming from the low energy efficiency of residential buildings and appliances. To address these challenges, Georgia is gradually implementing strategies outlined in the European Directive on the Energy Performance of Buildings (EPBD).[56]

In 2020, Georgia adopted the Law on Energy Efficiency of Buildings, committing to the management of energy efficiency in both new and existing structures. This initiative aims to address several challenges within the building sector, including the low energy efficiency of existing buildings, limited awareness of modern renewable energy and energy-efficient technologies among households, and the absence of concessional loans or co-financing programs to support energy efficiency and renewable energy initiatives.[57]

It is important to highlight that demonstration projects focused on building energy efficiency have played a valuable role in raising public awareness about the benefits of energy-efficient structures. To achieve significant reductions in GHG emissions, it is essential to continue and expand these initiatives.

53 Georgia's Nationally Determined Contribution (NDC). P. 30. https://mepa.gov.ge/Ge/Files/ViewFile/50125

54 National Greenhouse Gas Inventory Report of Georgia. https://www.undp.org/ka/georgia/publications/sakartvelos-erovnuli-satburis-gazebis-inventarizatsiis-angarishi-1990-2017

55 Georgia's Long-Term Low Emission Development Strategy. P. 83. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

56 Georgia's Long-Term Low Emission Development Strategy. P. 83 https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

57 Georgia's Long-Term Low Emission Development Strategy. P. 83. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

Under Georgia's current legislation, meeting minimum energy efficiency standards has been mandatory for all newly constructed buildings since 2023. Following a transitional period, these standards will also apply to buildings undergoing major renovations.[58]

The Government of Georgia, as the largest building owner, is committed to ensuring the energy-efficient operation of its facilities. Every year, until 2025, 1% of public buildings should be renovated in order to reach a new norm of energy efficiency with the target shifting to 3% from 2025 onward.[59]

The long-term priorities for low-emission development of the building sector are:

- Maximum thermal insulation of buildings;
- Use of renewable energy (photovoltaics (PV), domestic hot water (DHW) systems, ground heat pumps, etc.);
- Changing the behaviour of citizens by switching to climate-friendly practices. [60]

Energy generation and transmission sector

Minimizing import dependency and increase of energy security is crucial for Georgia.

The development of economic activity and the well-being of the population depend significantly on the energy generation and transmission sector of Georgia.

Due to its location at a relatively low latitude and moderate cloudiness, Georgia receives significant heat from the sun. The average annual duration of sunshine is 1,350-2,520 hours.

Source: „Georgia's Natural Resources and Environmental Protection", National Statistics Office of Georgia.

Source: Natural Resources and Environmental Protection of Georgia. National Statistical Service of Georgia.

The energy generation and transmission sector includes the power industry and fugitive emissions from fuels. According to the most recent Greenhouse Gas Inventory, GHG emissions from the energy generation and transmission sector account for 20% of the country's total emissions.

To harness the country's low-emission, clean, safe, and affordable energy resources and enhance energy security, a comprehensive reform of the energy sector is underway. As part of this reform, efforts are being made to separate energy activities—specifically transmission and distribution—from generation, trade, and supply, thereby promoting free market relations in the sector.[61]

Currently, Georgia meets its electricity demand through both domestically produced

58 Georgia's Long-Term Low Emission Development Strategy. P. 83. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

59 Georgia's Long-Term Low Emission Development Strategy. P. 83. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

60 Georgia's Long-Term Low Emission Development Strategy. P. 84. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

61 Fourth National Communication of Georgia. P. 137.

and imported electricity. However, the existing deficit in the electrical system and future projections indicate a clear need for energy facilities that can reduce reliance on imports and enhance the overall quality of energy security.[62]

As a result, significant emphasis is placed on the optimal utilization of existing renewable energy sources. This approach enables the country to meet its electricity demand while employing technologies that address global challenges related to environmental protection and climate change, as well as fulfilling international commitments in this area.[63]

The development of the energy generation and transmission sector is accompanied by several challenges, including: 1) postponement and non-implementation of large energy projects;[64] 2) Low efficiency of existing old thermal power plants.

In recent years, two combined cycle stations have been integrated into the energy system, and plans were made to replace the inefficient older stations with new ones. However, due to rising electricity demand and delays in the development of new hydropower plants, the older facilities have not yet been taken off grid. It is important to note that the majority of electricity generation now occurs in the new stations, with the old stations operating at lower loads. Plans are still in place to add two additional combined cycle stations and fully decommission the older facilities, which is expected to positively impact emissions in the energy generation and transmission sector.[65]

Georgia has been a full member of the Energy Community since July 1, 2017, which means that the country's national legislation must be harmonized with the EU energy legislation within a strictly defined time frame.[66]

In its efforts to mitigate climate change, Georgia places significant importance on fulfilling commitments related to the promotion and development of energy efficiency and renewable energy sources. To support these initiatives, the country has adopted several key laws, including: "On Energy and Water Supply", "On Energy Efficiency", "On Energy Efficiency of Buildings", and "On Promoting the Generation and Consumption of Energy from Renewable Sources."

In accordance with Article 7, Paragraph 3 of the Law of Georgia "On Energy and Water Supply", the energy policy includes the National Energy and Climate Plan (NECP). The formulation of the National Energy and Climate Plan occurred simultaneously with the development of the CAP and the NDC. It has been approved by the parliament of Georgia, on 27th June, 2024.[67] The country's long-term vision in this field envisages the decarbonization of the sector with maximum use of renewable energy and improving energy efficiency in all sectors of the economy. [68]

62 Development Strategy of Georgia - Vision 2030. P. 137. https://www.gov.ge/files/428_85680_321942_khedva-2030-saqarthvelos-ganvitharebis-strategia-1.pdf

63 Development Strategy of Georgia - Vision 2030. P. 138. https://www.gov.ge/files/428_85680_321942_khedva-2030-saqarthvelos-ganvitharebis-strategia-1.pdf

64 Georgia's Long-Term Low Emission Development Strategy. P. 81. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

65 Fourth National Communication of Georgia. P. 137-138.

66 Fourth National Communication of Georgia. P. 136. https://www.undp.org/ka/georgia/publications/sakartvelos-meotkhe-erovnuli-shetqobineba-klimatis-tsvlilebis-shesakheb-gaeros-charcho-konventsiisadmi

67 Fourth National Communication of Georgia. P. 138.

68 Georgia's Long-Term Low Emission Development Strategy. P. 80. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

The long-term priorities in the energy generation and transmission sector are:

- Construction and development of renewable energy generation facilities;
- Significantly increasing the consumption of renewable energies in the overall energy balance;
- Carrying out large-scale energy-efficient measures in the building sector;
- Finding additional investments to introduce low-carbon technologies.

Georgia's Long-Term Low Emission Development Strategy (LT-LEDS) categorizes the transport, building, and energy generation and transmission sectors as integral components of the energy landscape. The Strategy outlines emission reduction scenarios in a comprehensive manner across these sectors. Accordingly, by 2050, the projected emissions of greenhouse gases by the energy sector will be 5,191 Gg CO_2 eq. [69]

Agriculture sector

According to the data of 2023, 16.5% of the employed are working in the agriculture sector[70] and it makes up about 7.0% of the GDP. According to the 2021-2027 strategy of agriculture and rural development of Georgia, agriculture remains a priority sector for the country in terms of contribution to GDP and economic growth. [71]

According to the data of the National Statistics Office of Georgia (Geostat), the output of agricultural products continues to increase year by year. In 2022, the output of agricultural products in Georgia was comprised of 47% from animal husbandry, 47% from horticulture, and 6% from agricultural services.[72]

According to Geostat's 2014 agricultural census, agricultural land accounts for approximately 11.3% of Georgia's terrestrial area. This includes 377,445 hectares of arable land, 109,567 hectares dedicated to perennial crops, and 300,004 hectares of meadows and pastures. Out of the 642,209 agricultural holdings, 68.9% possess agricultural land. Among these, 19.1% own between 1 and 5 ha, while only 1.3% own more than 5 ha. The remaining 77.1% and other lands are calculated solely from the holdings that own agricultural land, totalling 574,077 according to the 2014 census. [73]

According to the GHGI, greenhouse gas emissions from the agriculture sector account for 11.8% of the country's total emissions. Based on the latest report of the National Greenhouse Gas Inventory in Georgia, Georgia's agriculture sector as a source of GHG includes three subcategories: enteric fermentation, manure management, and agricultural soils. According to the IPCC classification, other categories - rice cultivations and savannah

69 Georgia's Long-Term Low Emission Development Strategy. P. 81; P72 https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

70 National Statistics Office of Georgia. Distribution of employed person according to types of economic activity (Nace rev. 2). https://www.geostat.ge/ka/modules/categories/683/dasakmeba-umushevroba

71 Agriculture and Rural Development Strategy of Georgia, 2021-2027. https://mepa.gov.ge/Ge/PublicInformation/20395

72 National Statistics Office of Georgia. Agriculture of Georgia 2022. Statistical publication. P. 19-20. https://www.geostat.ge/media/54292/soflis_meurneoba_2022.pdf

73 National Statistics Office of Georgia. Agricultural Census 2014. https://www.geostat.ge/ka/modules/categories/752/natsili-2-meurneobebis-sargeblobashi-arsebuli-mitsa

burning - are not typical for Georgia and, therefore, are not considered. [74]

The agriculture sector is essential for ensuring the availability of safe, secure, and affordable food for the population.[75] The current conditions in the global agri-food market have underscored the importance of developing the agricultural value chain in Georgia. [76]

For the development of the value chain in the agri-food sector, special attention is paid to stimulating the utilization of agricultural lands and creating greenhouses. [77] The agriculture sector faces significant challenges, including a lack of capital, land fragmentation, insufficient access to modern technologies, and poverty in rural areas. Addressing these issues is vital for improving the efficiency of agricultural production and reducing greenhouse gas emissions in the environment.[78]

It should be taken into account that the implementation of agricultural programs/projects, the main goal of which is to increase the production of agricultural products, may lead to an increase in emissions[79]. Accordingly, the need and opportunity for the development of advanced technologies are gradually emerging in the agriculture sector. In order to increase access to advanced technologies and facilitate production processes, support to entrepreneurs continues. At the same time, the level of awareness of farmers in terms of climate-smart agriculture and climate change is improving.

The country's long-term priority is the technological transformation of the sector, which includes the development of technologies and innovations aimed at the following processes:

- Stopping the degradation of agricultural lands, restoring them and increasing their efficiency;
- Increasing the yield of agricultural crops, intensifying their processing and achieving market and export quality;
- Manure processing with the introduction of modern technologies;
- Increasing production of dairy and meat-producing livestock;
- Expand the processing of dairy and meat products and improve the processing technologies.[80]

According to Georgia's LT-LEDS, by 2050, the projected GHG emissions by the agriculture sector will be 1,868 Gg CO_2 eq.[81]

According to the NDC, the target of the agriculture sector's GHG emissions by 2030 has not

74 National Greenhouse Gas Inventory Report of Georgia. P. 117. https://www.undp.org/ka/georgia/publications/sakartvelos-erovnuli-satburis-gazebis-inventarizatsiis-angarishi-1990-2017

75 Georgia's Long-Term Low Emission Development Strategy. P.87

76 Agriculture and Rural Development Strategy of Georgia, 2021-2027. P. 24. https://mepa.gov.ge/Ge/PublicInformation/20395

77 Development Strategy of Georgia - Vision 2030. P. 155. https://faolex.fao.org/docs/pdf/geo215987.pdf

78 Fourth National Communication of Georgia. P. 32.

79 Fourth National Communication of Georgia. P. 166. https://www.undp.org/ka/georgia/publications/sakartvelos-meotkhe-erovnuli-shetqobineba-klimatis-tsvlilebis-shesakheb-gaeros-charcho-konventsiisadmi

80 Georgia's Long-Term Low Emission Development Strategy. P. 97-88. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

81 Georgia's Long-Term Low Emission Development Strategy. P. 72. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

been determined. However, it is planned to reduce emissions from the agriculture sector through the activities presented in the Climate Action Plan of Georgia.[82]

To address the challenges in the sector, according to the NDC, Georgia supports the development of low-carbon approaches in the agriculture sector by promoting climate-smart agriculture and agritourism.[83]

Industry sector

In terms of value creation, the industry sector outperforms many other sectors of the Georgian economy. In 2022, the added value of the processing industry accounted for 11% of the GDP.[84] Industrial products also represent a significant portion of the country's exports, with ferroalloys and fertilizers ranking among the top five exported goods from Georgia that year.[85]

JSC "Rustavi Azoti" is a member of the Nitric Acid Climate Action Group (NACAG), which focuses on developing strategies to reduce N2O emissions from the nitric acid production.

The industry sector includes industrial processes and product use (IPPU), manufacturing, and construction. According to the GHG Inventory, greenhouse gas emissions from the industry sector account for 20.2% of the country's total emissions.

Although production declined to a minimum due to economic crisis in the first decade following Georgia's independence,[86] the past two decades have shown a trend of sustainable growth. From 2012 to 2018, Georgia's industry competitiveness index improved by 4 points and has ranked 96th among the countries of the world with the status of other developing economies.[87]

It is important to note that the chemical and physical processing of raw materials in this sector results in the release of substantial amounts of CO_2 and other greenhouse gases into the atmosphere during the technological processes. At this stage, non-energy emissions of greenhouse gases can be reduced in the following three sectors: cement production, ammonia production, and nitric acid production.

The industry sector is characterized by limited competitiveness, including the problem of insufficiently trained human resources, which is a limiting factor for the low-carbon development of direct foreign investments in this sector. Therefore, there is a high risk that GHG emissions will increase along with the economic development of the sector.

In order to overcome the mentioned challenges and reduce the risks, alongside the measures and initiatives supporting the industry sector, the following are considered: strengthening competitive market practices, promoting the growth of small and medium enterprises (SMEs), creating conditions for entering international markets, and attracting

82 Georgia's 2030 Climate Change Strategy and Action Plan. P. 26. https://mepa.gov.ge/Ge/PublicInformation/32027
83 Georgia's Nationally Determined Contribution (NDC). P. 30. https://mepa.gov.ge/Ge/Files/ViewFile/50125
84 https://www.geostat.ge/ka/modules/categories/23/mtliani-shida-produkti-mshp Viewed: 08.03.2024
85 https://www.geostat.ge/ka/modules/categories/637/eksporti Viewed: 08.03.2024
86 National Greenhouse Gas Inventory Report of Georgia,1990-2017. P. 4-79. https://eiec.gov.ge/Ge/Documents/ViewFile/519
87 Competitive Industrial Performance Report 2020, P.24. https://stat.unido.org/content/publications/competitive-industrial-performance-report-2020

foreign investments.[88]

The long-term priorities for the development of Georgian industry are:[89]

- Consumption of energy-efficient devices and development of technologies;
- Consumption of alternative energy resources;
- Transfer of innovative technologies and know-how, including identification of low-carbon solutions.

According to Georgia's LT-LEDS, the projected non-energy GHG emissions by the industry sector by 2050 will be 2,140 Gg CO_2 eq.[90]

Georgia plans to reduce GHG emissions in the industry sector by 5% by 2030, compared to the reference scenario projections.[91]

Waste sector

In 2021, 1,104,952 tons of municipal waste was generated in Georgia, 69% of which came from the cities and 31% from the villages. Despite existing legal regulations, illegal landfills persist in Georgia, and littering in various areas continue. In addition to environmental pollution, illegal landfills pose a significant threat to human health.[92]

According to the GHGI, greenhouse gas emissions from the waste sector account for 9.9% of the country's total emissions.

A large-scale reform of the waste sector focused on prevention and recycling is underway in Georgia.[93] The waste sector is developed by taking into account the principles of separation and circular economy and encouraging innovative low-carbon technologies and services.[94]

Despite the reforms carried out, GHG emissions in the waste sector continue to increase. Solid waste emissions within the sector account for 84% of greenhouse gas emissions, with the remaining 16% coming from domestic and industrial wastewater.

For the transformation of the waste sector, it is important to adopt the similar systems of the most developed countries of the world. The major challenges in the sector are as follows: outdated landfills and dumping a significant part of municipal waste on landfills.[95]

Accordingly, in Georgia, the closure of uncontrolled landfills and the construction of 8 new regional landfills are in progress. Until 2030, it is planned to install a gas recovery

88 Georgia's Long-Term Low Emission Development Strategy. P. 85. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

89 Georgia's Long-Term Low Emission Development Strategy. P. 86. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

90 Georgia's Long-Term Low Emission Development Strategy. P. 70. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

91 Georgia's Nationally Determined Contribution (NDC). P. 20. https://mepa.gov.ge/Ge/Files/ViewFile/50125

92 Amendment to the National Waste Management Strategy of Georgia 2016-2030. https://matsne.gov.ge/ka/document/view/3242506?publication=0

93 The National Waste Strategy and Action Plan 2022 – 2026. P. 21. https://rec-caucasus.org/wp-content/uploads/2022/12/PRINT-narchenebis-marthvis-erovnuli-strategia-6.pdf

94 Georgia's Updated Nationally Determined Contribution (NDC). P.31. https://mepa.gov.ge/Ge/Files/ViewFile/50125

95 The National Waste Strategy 2016 - 2030 and Action Plan 2016 - 2020, P.18. https://mepa.gov.ge/Ge/Files/Download/1358

(extraction) system at the existing Tbilisi landfill, methane gas recovery (extraction) from 5 new regional landfills, construction of 7 new wastewater treatment facilities and gas extraction from new treatment facilities.[96] According to the National Waste Management Strategy and Action Plan, all illegal landfills in the country should be closed by the end of 2026, in parallel with the construction of new waste disposal facilities.

This allows the country to develop the waste sector using technologies that directly respond to environmental requirements and international commitments made in this regard.

The long-term priorities for low-emission development of the waste sector are:

- Increasing the potential of methane extraction from methane extraction landfills;
- Increasing fractional recycling of municipal solid waste;
- Expansion of municipal solid waste composting with organic fractions;
- Removal of nitrogen from wastewater sludge;
- Use of solid waste as an alternative source of energy in cement production.[97]

According to Georgia's LT-LEDS, the projected GHG emissions gases by the waste sector will be 740 Gg CO_2 eq. by 2050.[98] Based on the revised NDC document, the target rate of emissions from the waste sector by 2030 has not been determined. However, it is planned to reduce emissions from the waste sector with the measures presented in the Climate Action Plan of Georgia.

Forest sector

The forest is a natural resource of special value for the country and an important basis for its ecological, social, and economic development. The forests of Georgia are managed through the sustainable management system, which ensures the improvement of the quantitative and qualitative indicators of the forest, the protection of its biodiversity, the rational use of its economic potential, the ecological value of the forest, the participation of the community in forest management and the availability of forest resources.[99]

According to the most recent GHG inventory, GHG absorption from the mentioned sector accounts for 28.9% of the country's total emissions.

Forests in Georgia are the main source of CO_2 absorption. According to the most recent GHG inventory, GHG absorption from the mentioned sector accounts for 28.9% of the country's total emissions.

The forest sector faces several challenges, including a shortage of qualified personnel for forest management and monitoring agencies, a lack of modern technologies for effective forest monitoring and supervision, and outdated or malfunctioning equipment.

96 Georgia's Long-Term Low Emission Development Strategy. P. 192. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

97 Georgia's Long-Term Low Emission Development Strategy. P .227. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

98 Georgia's Long-Term Low Emission Development Strategy. P. 72 https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

99 Law of Georgia, Forest Code of Georgia. https://matsne.gov.ge/ka/document/view/4874066?publication=6

Additionally, underdeveloped forestry infrastructure, such as forest roads and business yards, contributes to these issues. The sector is also negatively impacted by climate change and natural events. Despite the increasing use of gas for heating, firewood remains the primary heating source in rural areas, leading to over-cutting and degradation of the country's forest resources. [100]

To address the challenges mentioned above, Georgia aims to increase the carbon absorption capacity of its forest sector by 10% by 2030, relative to the levels recorded in 2015. [101]

According to the Fourth National Environmental Action Programme of Georgia 2022-2026, the legal basis for forest management is the "Forest Code of Georgia", which entered into force on January 1, 2021. The law is based on internationally recognized principles of sustainable forest management and modern approaches, which together with ecological sustainability ensure the growth of the role of forests in the social and economic development of the country. [102]

By 2030, management plans will be developed for the entire forest area under the management of the National Forestry Agency. To maintain the ecological balance of the forests, forest restoration, and planting measures will be implemented, which will be primarily aimed at creating a forest ecosystem close to the natural one in the degraded areas. By 2030, forest restoration and planting measures will be implemented in the territory of up to 2000 ha of forest. [103]

The long-term development priorities in the forest sector are:

- Introduction of sustainable forest management principles throughout the country;
- Maintaining and improving the quantitative and qualitative indicators of the forest;
- Restoration of degraded soils;
- Implementation of sustainable pasture management practices. [104]

According to Georgia's LT-LEDS, the projected absorption of greenhouse gases by the forest sector by 2050 will be -10,740 Gg CO_2 eq.[105]

The forest sector is a key focus of Georgia's 2030 Climate Change Strategy, which outlines the country's commitments under its NDC. One of the goals of the strategy is to increase the carbon absorption capacity of the forest sector by 10% by 2030 compared to the level recorded in 2015.

100 The Fourth National Environmental Action Programme of Georgia 2022-2026. P. 95, 98-99, 110. https://mepa.gov.ge/Ge/PublicInformation/34047

101 Georgia's Nationally Determined Contribution (NDC). P.31. https://mepa.gov.ge/Ge/Files/ViewFile/50125

102 The Fourth National Environmental Action Programme of Georgia 2022-2026. P. 93. https://mepa.gov.ge/Ge/PublicInformation/34047

103 Development Strategy of Georgia - Vision 2030. P. 168-169. https://faolex.fao.org/docs/pdf/geo215987.pdf

104 Georgia's Long-Term Low Emission Development Strategy. P. 89. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

105 Georgia's Long-Term Low Emission Development Strategy. P. 72. https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

1.1.7 NATIONAL CIRCUMSTANCES AND HOW THEY AFFECT GHG EMISSIONS AND REMOVALS OVER TIME

GHG emissions and removals are affected by the following national circumstances over time:

1. **Change in the country's economic model** - Between 1990 and 2001, Georgia's GHG decreased by 80%, primarily due to the collapse of the pre-independence economic model and the transition to a free market system. The largest reduction occurred in the energy sector, where emissions dropped by 34,763 Gg CO_2 eq., while the smallest decrease was seen in the waste sector, at 378 Gg CO_2 eq. In the forest sector, restrictions on fossil fuel consumption led to increased reliance on forest wood, which caused a decline in GHG absorption by approximately 1,702 Gg CO_2 eq. by 2004, a trend that persisted until 2022;[106]
2. **The impact of the country's economic processes -** Real GDP growth and energy consumption are the primary drivers of GHG emissions in Georgia. Emissions are closely linked to various economic factors such as GDP growth rates, investments, changes in energy prices, energy consumption levels, and technological advancements. Additionally, internal factors like economic recessions and institutional instability, along with external influences such as global crises, trade embargoes, and energy price shocks, contribute to the volatility of emission trends. There is a strong correlation between high-emission sectors—such as transport, industry, energy supply, and agriculture—and real GDP. Over the past decade, the activities of these sectors grew at an average rate of 6%, outpacing the average real GDP growth of 5.2%. Correspondingly, GHG emissions from high-emission sectors, particularly energy and agriculture, have also been on the rise during this period.
3. **Electricity grid emission factor** - The primary source of electricity generation in Georgia is hydropower, a renewable resource. As a result, the country's grid emission factor is relatively low, at 0.1[107] tons of CO_2 eq. per MWh.[108] However, six thermal power stations also contribute to electricity generation, primarily to address energy deficits, especially during the winter months when Georgia relies on electricity imports. Climate change poses a significant threat to this crucial renewable resource. According to future projections, glacier melt in the Caucasus will lead to a continued seasonal increase in river water flow in Georgia during the current century. However, once the glaciers have largely melted, river flow is expected to decline sharply, potentially leading to a substantial reduction in available water resources for hydropower generation.
4. **Micro and small-scale land farming** - The dissolution of collective farms and the redistribution of land to individual farmers played a significant role in the rise of micro and small-scale land farming in Georgia. Initially, these changes contributed to challenges in local agricultural production capacity. However, as reforms

106 National Greenhouse Gas Inventory Report of Georgia, 1990-2017, P. 2-21.

107 Biennial Update Report, 2019. P. 89 https://undp.org/georgia/publications/georgias-second-biennial-update-report-unfccc-2019

108 Mtkvari Energy, Tbilsresi, Jipower, Gardabani Thermal Power Plant 1, Gardabani Thermal Power Plant 2, Tkibuli Thermal Power Plant

progressed, private companies and, later, large-scale farmers began to emerge, helping to modernize the sector. This transition initially resulted in a reduction of greenhouse gas emissions by 1,974 Gg CO_2 eq.

5. **CO_2 absorption in the forest sector** - for Georgia, the forest is the main source of CO_2 absorption. According to the analysis of the GHGI, the annual carbon absorption potential of the country's forest sector ranges from 28.9% of greenhouse gas emissions[109]. This trend has been maintained for the last 2 decades.
6. **Emissions from the outdated car fleet** - Excess emissions from the land transport sub-sector in Georgia are primarily attributed to the outdated fleet of used vehicles. As GDP and overall prosperity have increased, so has the number of cars on the road. As of 2022, there were 418 cars for every 1,000 people in the country[110]. In 2022, GHG emissions from the road transport sub-sector amounted to 3,830 Gg CO_2 eq., resulting in an average emission of approximately 0.024 Gg of CO_2 eq. per vehicle.[111]
7. **Low energy efficiency of buildings** - Most existing buildings in Georgia were constructed during the Soviet era, between 1921 and 1990. As a result of their aging and deterioration, these buildings exhibit significantly reduced energy efficiency. Additionally, many structures built in the three decades following the restoration of independence are also characterized by low energy efficiency. Consequently, the building sector experiences high energy consumption and substantial GHG emissions. This sector encompasses commercial, public, and residential buildings, and according to the GHGI, emissions from the building sector account for 21.1% of the country's total GHG emissions.[112]
8. **Limited data from the occupied territories** - Currently, Georgian regions – Abkhazia and Tskhinvali - are occupied by the Russian Federation.[113] This occupation hampers the accurate assessment of GHG emissions, as the data collection and monitoring processes at the state level are significantly constrained.
9. **Limited low-carbon development of the industry sector** - Investment in low-carbon development within the industry sector remains limited. Without proactive measures to reduce GHG emissions, the sector's growth will inevitably lead to higher emission levels. According to LT-LEDS, by 2040, according to the without measures (WOM) scenario[114], the projected rate of GHG in the industry sector will be 4,121 Gg CO_2 eq., and under the existing mitigation scenario (WEM) [115] - 3,016 Gg CO_2 eq. Accordingly, without the implementation of mitigation measures, GHG emissions will be 36.6% higher.[116]

109 National Greenhouse Gas Inventory Report of Georgia, 1990-2017. P. 5-153 – 5-159 https://eiec.gov.ge/Ge/Documents/ViewFile/519
110 Vehicle statistics, National Statistics Office of Georgia https://automobile.geostat.ge/ka/automobiles/general-info
111 Vehicle statistics, National Statistics Office of Georgia https://automobile.geostat.ge/ka/automobiles/general-info
112 National Greenhouse Gas Inventory Report of Georgia https://www.undp.org/ka/georgia/publications/sakartvelos-erovnuli-satburis-gazebis-inventarizatsiis-angarishi-1990-2017
113 National Agency of Public Registry. Registry of the Municipalities. http://mreg.reestri.gov.ge/
114 WoM Pessimistic scenario. Georgia's LT-LEDS.
115 WeM Pessimistic scenario. Georgia's LT-LEDS.
116 Georgia's Long-Term Low Emission Development Strategy. P. 68-71 https://www.undp.org/sites/g/files/zskgke326/files/2023-07/leds_geo_web1.pdf

10. **Unmanaged landfills and dumpsites** - Currently, there are more than 31 operational landfills and dumpsites in Georgia. In 2022, the waste sector contributed approximately 9.9% of Georgia's total national GHG emissions, amounting to 1,996 Gg CO_2 eq. In 2022, solid waste emissions represented 84% of the sector's total GHG emissions. The country is in the process of closing and replacing small, unmanaged landfills and dumpsites with modern regional landfills equipped with advanced facilities, including gas recovery systems.

1.1.8 INSTITUTIONAL ARRANGEMENTS FOR TRACKING THE PROGRESS MADE IN IMPLEMENTING AND ACHIEVING NATIONALLY DETERMINED CONTRIBUTION (NDC)

According to the decision of the Government of Georgia, MEPA coordinates the climate change policy in the country. For the coordinated implementation of the climate change policy in Georgia, an inter-agency Climate Change Council has been created, whose obligation is to (1) discuss the issues of preparation and implementation of the "Nationally Determined Contribution" (NDC) document defining the country's commitment to achieving the goals established by the "Paris Agreement", (2) In case of approval of the completed document of NDC, an appeal to the Government of Georgia with a recommendation to approve these documents and submit them to the UNFCCC Secretariat, (3) Review of the Measurement, Reporting, and Verification (MRV) inter-agency national system within the framework of the "Enhanced Transparency Framework" for the implementation of the "Paris Agreement" in Georgia and, if approved, initiation of the issue for decision-making by the Government of Georgia.[117]

The implementation of Georgia's NDC follows the "Rules for Development, Monitoring, and Evaluation of Policy Documents," approved by Government Resolution No. 629.[118] In line with these rules, 2030 Climate Change Strategy and the 2021-2023 Action Plan were developed to guide the country's climate change mitigation efforts and achieve NDC targets. These documents outline specific strategies and actions for NDC implementation, bringing together stakeholders from public agencies, private companies, and international organizations to collaborate on a unified approach. Each responsible agency must report on the progress of their activities every six months.

Thus, the Government of Georgia reviews and approves climate change policy development documents, including Georgia's NDC, 2030 Climate Change Strategy and the 2021-2023 Action Plan, and Georgia's Long-Term Low Emission Development Strategy (LT-LEDS).

MEPA coordinates the implementation of the activities defined by these documents. In addition, it assesses the impact of the activities carried out in each sector in terms of the amount of GHGs emitted from the sector. This information is presented in the Biennial Transparency Report (BTR) and Climate Action Plan Implementation Reports. [119]

The agencies and organizations included in the Action Plan ensure the implementation of the activities and periodic reporting on the progress of these activities through the

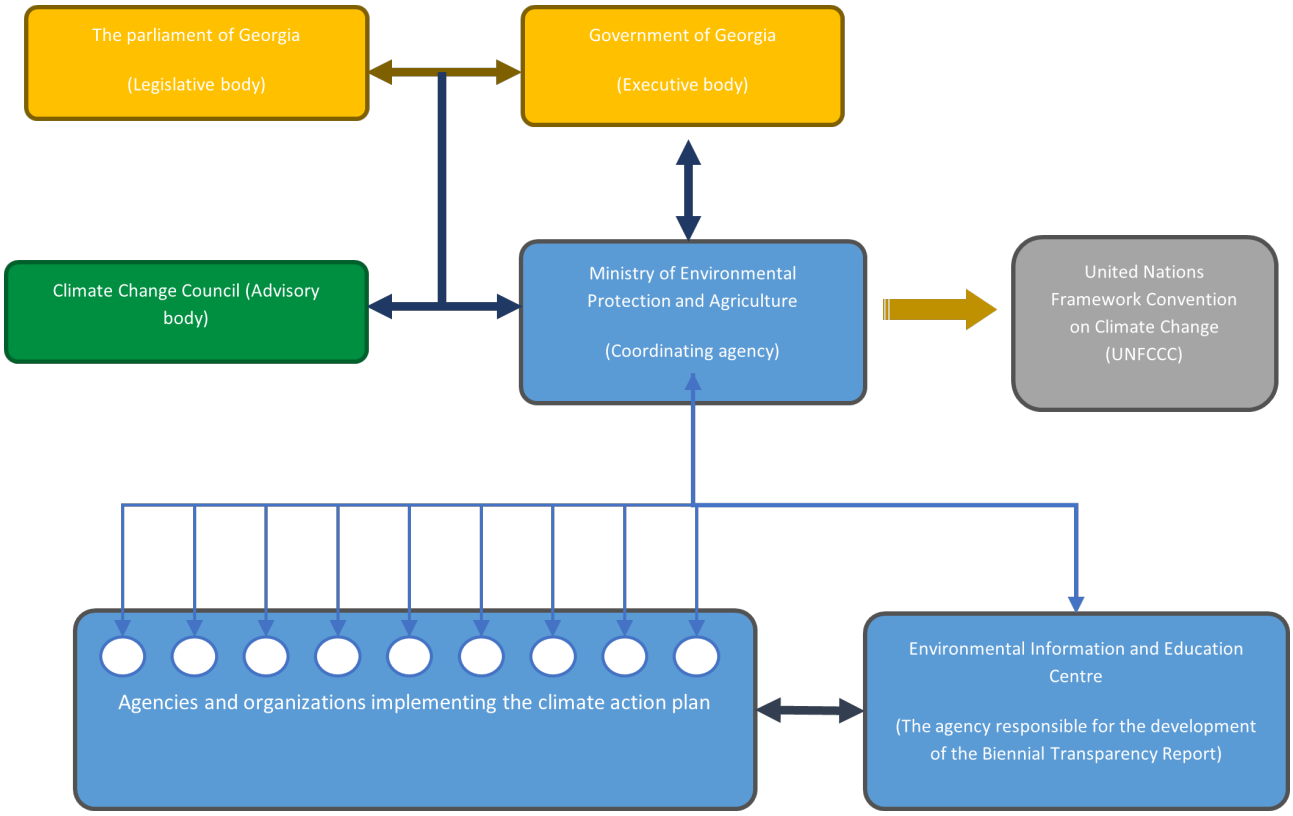
117 Resolution No. 54 of the Government of Georgia of January 23, 2020 "On the Creation of the Climate Change Council". https://www.matsne.gov.ge/ka/document/view/4780380?publication=0

118 Decree of the Government of Georgia #629 (December 20, 2019) on Approval of the Rules of Policy Planning, Monitoring and Evaluation. https://matsne.gov.ge/ka/document/view/4747283?publication=0

119 An implementation report prepared to assess the mid-term targets of the Climate Action Plan.

Climate Change Online Data Management System created by MEPA. [120]

FIGURE 1. INSTITUTIONAL FRAMEWORK FOR MONITORING NDC PROGRESS IN GEORGIA



1.1.9 INSTITUTIONAL ARRANGEMENT FOR THE USE OF ITMOS BY GEORGIA

For the implementation of Nationally Determined Contribution (NDC) in accordance with Article 6 of Paris Agreement

Georgia is actively exploring bilateral agreements with highly developed and industrialized nations to enhance its climate change mitigation efforts and support the fulfilment of international obligations. These agreements aim to leverage mechanisms under the United Nations Framework Convention on Climate Change (UNFCCC), allowing countries to trade reduced GHG emissions.

Over the past five years, Georgia has strengthened its cooperation with Japan, Switzerland, and South Korea in the area of greenhouse gas emission trading. Bilateral agreements have already been signed with Japan and the Swiss Confederation, while negotiations with the Republic of South Korea are ongoing.

Agreement between the Swiss Confederation and Georgia regarding the implementation of the Paris Agreement:

Mitigation Outcomes shall originate from activities that: a. Do not lead to an increase in global emissions; b. Are in line with the low-emission development strategy of each Party; c. Foster the transition to low emission development, in accordance with net zero carbon emissions by 2050; d. Do not include activities based on nuclear energy and avoid

120 Climate Change Online Data Management System. https://itf.mepa.gov.ge/

locking in levels of emissions, technologies, or carbon-intensive practices incompatible with the achievement of the long-term goal of the Paris Agreement, in particular, any activities based on the continued use of fossil fuels; e. Promote enhanced climate action and safeguard against incentives for low ambition by the Parties involved; f. Mitigate the risk of carbon leakage; g. Are based on conservativeness in baseline setting, including consideration of the lower end of projected emission development; h. Take into account all existing and planned national policies, including legislation; i. include consideration of other factors for incentivizing enhanced climate action by the Transferor; j. Apply attribution of the Mitigation Outcomes to the sources of finance, where adequate; and k. Prevent any negative environmental and social impacts, including on air quality and biodiversity, social inequality, and the discrimination of population groups based on gender, ethnicity, or age.

The purpose of the agreement signed between Georgia and the Swiss Confederation on October 18, 2021, is to create a legal framework for the transfer of Mitigation Outcomes that can be utilized for achieving NDC targets or for other mitigation efforts. In this context, both Parties will work to promote sustainable development while ensuring environmental integrity and transparency, which includes strong governance and accurate accounting practices to prevent double counting.[121]

In terms of environmental integrity, Georgia and Switzerland, within the framework of this agreement, agreed that climate change mitigation outcomes should be real, verified, and complementary to other outcomes.

The parties also agreed that a monitoring report should be created and verified for each mitigation action. In addition, each party shall ensure public access to information and publish inspection and monitoring reports.

Each Party is required to provide the Secretariat of the Paris Agreement with annual quantitative data on Mitigation Outcomes that have been transferred, acquired, held, cancelled, and utilized. This submission should include details about the purpose of the usage and provide unique identifiers for the Internationally Transferred Mitigation Outcomes (ITMOs). Additionally, information regarding the Transferor or Acquiring Entity, the origin, Vintage year[122], and references to the corresponding Monitoring and Verification Reports must be included.

MEPA represents Georgia as the authorized body responsible for implementing this agreement, while Switzerland is represented by the Federal Department of the Environment, Transport, Energy and Communications.

Memorandum of Cooperation between the Government of Japan and the Government of Georgia on the Joint Credit Mechanism (JCM):

The Joint Credit Mechanism (JCM) aims to facilitate the spread of leading decarbonization technologies, products, systems, services, and infrastructure, as well as the implementation of mitigation actions, which will ensure the reduction/absorption of greenhouse gas emissions and sustainable development in Georgia, as well as the implementation of the Nationally Determined Contribution of Georgia and Japan. This memorandum will help

121 Implementing Agreement to The Paris Agreement Between Georgia and The Swiss Confederation.

122 "Vintage Year" is the year in which a Mitigation Outcome has taken place.

Japan to fulfil its obligations under the Paris Agreement, and Georgia - to attract climate-friendly technologies and investments.

It is also worth noting that this memorandum encourages the preparation and implementation of joint projects of Georgian and Japanese companies in such areas as renewable energies, waste management, transport, and energy efficiency. [121]

Accordingly, the main goals of the joint credit mechanism of Georgia and Japan are the decarbonization of sectoral technologies, products, services, systems, and infrastructure, including the implementation of mitigation measures (which help capture greenhouse gases or reduce emissions) and sustainable development.

Within the framework of the joint credit mechanism, Georgia and Japan have established a joint committee that will create rules and guidelines for the project cycle (development, methodologies, project design, documentation, monitoring, verification, and other project management issues).

1.1.10 LEGAL, INSTITUTIONAL, ADMINISTRATIVE, AND PROCEDURAL ARRANGEMENTS FOR MONITORING AND REPORTING OF IMPLEMENTING AND ACHIEVING NATIONALLY DETERMINED CONTRIBUTION

Decree No. 629 of the Government of Georgia on the approval of "Rules for Development, Monitoring, and Evaluation of Policy Documents" was adopted on December 20, 2019.

The planning and coordinating system of policies in Georgia, including climate change policy is based on the "Rules for Development, Monitoring, and Evaluation of Policy Documents" approved by the government decree. The system is built on three main principles of good governance:

1. Evidence-based Policy-Making;
2. Results-based management;
3. Whole of Government. [123]

In the process of climate change policy planning and implementation, the Government of Georgia leads the way in the development, monitoring and evaluation of state policy documents. The purpose of the mentioned rule is to establish a unified approach to policy planning and to introduce quality control mechanisms.[124]

A policy document is the result of the policy planning process. It defines ways to solve the problem of climate change and further develop the climate field. In Georgia, policy documents are classified according to two main criteria: **general characteristics and level of influence**.[125]

123 Policy Planning, Monitoring and Evaluation Handbook, 2019. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/e2c485b778752b5f422075b85e83785de91b6aa24c6ddf07feea9eff11c82c38.pdf

124 Policy Planning, Monitoring and Evaluation Handbook, 2019. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/e2c485b778752b5f422075b85e83785de91b6aa24c6ddf07feea9eff11c82c38.pdf

125 Policy Planning, Monitoring and Evaluation Handbook, 2019. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/e2c485b778752b5f422075b85e83785de91b6aa24c6ddf07feea9eff11c82c38.pdf

Concept	A general national or sectoral policy document that defines the need, vision, key principles and priorities for strategy development. The validity period of the concept is determined directly by the agency approving the document. However, in most cases, the concept ceases to function after the strategy based on it is approved.
Strategy	Government policy for a specific area is generally presented in a strategy document. The duration of strategy documents is determined depending on the characteristics of the problem. The recommended duration of the strategy document is a period of 4 to 10 years.
Action plan	An operational planning policy document that contains specific activities to achieve the strategy goals and objectives and achieve the results proposed in the strategy. The minimum and maximum duration of the action plan is 1 to 3 years. However, in special cases it is possible to approve six-month or quarterly action plans.

According to general characteristics, **policy documents** are divided into 3 types of documents:

The classification of a policy document is determined by its impact, and it is organized according to the following hierarchy:

1. **National** policy documents;
2. **Sectoral** policy documents;
3. **Institutional** policy documents. [126]

The Climate Change Strategy and Action Plan (CSAP) is a mechanism for planning, implementing and coordinating efforts to achieve national climate change mitigation goals defined by the NDC.

According to the 167th decree of the Government of Georgia, on April 8, 2021, the NDC, the Climate Change Strategy and Action Plan were approved.

Since the NDC defines the climate change commitments of Georgia, it is a **national policy document**. To implement the goals of the NDC, a Climate Change Strategy and Action Plan (CSAP) are prepared in coordination with MEPA. The documents are discussed by the Climate Change Council. In accordance with Article 3, subparagraph "c" of the Resolution of the Government of Georgia No. 54, the Council, in case of approval, will make a recommendation to the Government of Georgia regarding the approval of the NDC document and its submission to the UNFCCC Secretariat.[127] MEPA ensures the coordination of the execution of the mentioned documents.

The Climate Action Plan for 2021-2023 includes the country's 66 mitigation activities.

The Climate Change Strategy defines short-, medium-, and long-term goals and objectives to meet the NDC commitments. To achieve these goals and objectives, the strategy is

126 Policy Planning, Monitoring and Evaluation Handbook, 2019. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/e2c485b778752b5f422075b85e83785de91b6aa24c6ddf07feea9eff11c82c38.pdf

127 Climate Change Council Minutes No. 1, February 25, 2021.

accompanied by a Climate Action Plan (CAP) that includes mitigation activities.[128]

According to the "Rules for Development, Monitoring, and Evaluation of Policy Documents", the monitoring and evaluation framework presents:

- Monitoring and evaluation calendar in accordance with the standards specified in the manual;
- Agencies responsible for reporting and data collection.

The responsible agencies and organizations outlined in the plan carry out the activities. In line with the "Rules for Development, Monitoring, and Evaluation of Policy Documents," the implementation also involves a monitoring process. The purpose of this monitoring is to assess the achievement of results based on policy tasks and activities, identify any gaps, and provide recommendations for improvement.[129]

As of December 2023, based on the results of monitoring the Climate Action Plan, six progress and three annual reports were generated.

In order to prepare the mentioned reports, MEPA, with the financing of the Global Environment Facility (GEF), developed a Climate Change Online Data Management System (hereinafter "the system").[130]

The Climate Change Online Data Management System was developed with the support of the project "Integrated Transparency Framework" (CBIT I). The project was implemented by the Regional Environmental Centre for the Caucasus (REC Caucasus) with the initiative of the Ministry (MEPA). The project was financed by the Global Environment Facility (GEF), and implemented by the United Nations Environment Programme (UNEP).

The system serves as a tool for monitoring the implementation of Georgia's NDC. Every six months, responsible agencies and organizations update the system with information on the progress of actions outlined in the CAP. This data is used to generate semi-annual and annual monitoring reports for the CAP. In accordance with the 'Rules for Development, Monitoring, and Evaluation of Policy Documents,' a **final evaluation report** of the CAP is published within six months after the policy document's validity period ends.[131]

The system also **archives** NDC monitoring information for each reporting period. The system administrator, MEPA has access to the consolidated information on the performance of the activities uploaded and stored in the system. The system provides access to archived information for all reporting periods, separately and combined, sorted by year.[132]

1.1.11 STAKEHOLDER CONSULTATIONS

Georgia's 2030 Climate Change Strategy and Action Plan, designed to achieve the country's

128 Decree of the Government of Georgia #629 (December 20, 2019) on Approval of the Rules of Policy Planning, Monitoring and Evaluation. https://matsne.gov.ge/ka/document/view/4747283?publication=0

129 Policy Planning, Monitoring and Evaluation Handbook, 2019. https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/e2c485b778752b5f422075b85e83785de91b6aa24c6ddf07feea9eff11c82c38.pdf

130 Climate Change Online Data Management System. https://itf.mepa.gov.ge/

131 Climate Change Online Data Management System. https://itf.mepa.gov.ge/

132 Climate Change Online Data Management System. https://itf.mepa.gov.ge/

NDC goals, was developed under the coordination of MEPA with the active participation of diverse stakeholders. Representatives from various sectors of the Georgian economy, including both the private sector and civil society organizations (CSOs), contributed to the process. While the Climate Change Strategy and Action Plan does not provide direct mandates for the private sector, it aims to strengthen and encourage their involvement in climate action.[133]

On September 18, 2018, MEPA organized the "First Climate Change Conference of Georgia". The event gathered around 100 representatives from government, non-governmental organizations, international bodies, and the private sector. The conference aimed to engage stakeholders in the preparation process for the NDC and encourage their active participation. Following the event, intensive bilateral meetings and technical working group sessions were held with sectoral stakeholders to define and agree on sectoral priorities, measures, and indicators. Once the draft Climate Change Strategy and Action Plan was completed, it was shared with the technical working group members and relevant public agencies. Stakeholders were given a two-week period to submit their feedback. Some suggestions were incorporated, while responses were provided for any feedback not included. The final stage included a public consultation event held on December 24, 2020, via an online platform.[134]

The goals, objectives, and activities for the priority sectors of the Climate Change Strategy and Action Plan were developed through the active involvement of diverse stakeholders. Sectoral priorities, along with their goals, objectives, target indicators, and a logical framework, were defined through technical working groups and stakeholder meetings coordinated by the Secretariat of the Climate Change Council.[135]

During the implementation of the Strategy, the Climate Change Council, along with its advisory bodies—the Coordination Group of the Covenant of Mayors Signatory Municipalities and the working groups—served as key platforms for stakeholder engagement.[136]

The monitoring and evaluation phase of NDC implementation continued with active stakeholder participation. Annual, interim, and final evaluation reports were published. Both in-person meetings and virtual platforms were utilized to ensure stakeholder involvement throughout the monitoring and evaluation process.[137]

1.2 DESCRIPTION OF GEORGIA'S NATIONALLY DETERMINED CONTRIBUTION UNDER ARTICLE 4 OF THE PARIS AGREEMENT, INCLUDING UPDATES

(Paragraph 64 MPGs)

This chapter provides information on the target indicators of the NDC, including the target year, baseline data, time frame, coverage, cooperative approaches, and updated data,

133 Georgia's 2030 Climate Change Strategy and Action Plan. P. 8. https://mepa.gov.ge/Ge/Files/ViewFile/47855
134 Georgia's 2030 Climate Change Strategy and Action Plan. P. 9. https://mepa.gov.ge/Ge/Files/ViewFile/47855
135 Georgia's 2030 Climate Change Strategy and Action Plan. P. 43. https://mepa.gov.ge/Ge/Files/ViewFile/47855
136 Georgia's 2030 Climate Change Strategy and Action Plan. P. 97 https://mepa.gov.ge/Ge/Files/ViewFile/47855
137 Georgia's 2030 Climate Change Strategy and Action Plan. P. 106. https://mepa.gov.ge/Ge/Files/ViewFile/47855

presented in both narrative and tabular formats. [138]

1.2.1 GEORGIA'S MITIGATION COMMITMENTS UNDER ITS NDC

In accordance with paragraph 2b[139] of Decision 1/CP.19 of the 19th Conference of the Parties (COP) and paragraph 9[140] of Decision 1/CP.20 of the COP20 to the UNFCCC, on 25 September 2015, the Government of Georgia, by Decree No. 2082[141], approved the Intended Nationally Determined Contribution (INDC) document and submitted it to the Convention Secretariat.

As stipulated in Article III, paragraph 22 of Decision 1/CP.21 from the COP21 to the Convention, any country that submitted an INDC prior to joining the Paris Agreement would have INDC recognized as its first Nationally Determined Contribution (NDC) upon ratification, unless the country opted otherwise.[142]

Furthermore, as outlined in paragraph 24 of Decision 1/CP.21 from the COP21[143], any country that has submitted an INDC covering the period up to 2030 may either prepare a new document or update its existing submission.

On June 7, 2017, the Paris Agreement officially entered into force for Georgia[144], thereby automatically converting its INDC into its first NDC.[145]

The Government of Georgia utilized the provision outlined in paragraph 24 of Decision 1/CP.21 from the COP21 to update its first NDC, titled *Georgia's Updated Nationally Determined Contribution (NDC)*. This updated document was approved by Decree No. 167 of the Government of Georgia on April 8, 2021[146], and subsequently submitted to the UNFCCC Secretariat on May 5, 2021.[147] Therefore, *Georgia's Updated Nationally Determined Contribution (NDC)* represents an updated submission of the country's first NDC.

Unconditional target:

Georgia is fully committed to an unconditional target of reducing its total domestic greenhouse gas emissions by 35% below 1990 levels by 2030.

Conditional target:

Georgia has committed to reducing its total greenhouse gas emissions by 50-57% by 2030 compared to 1990 levels, contingent on international support.

138 Each Party shall provide a description of its NDC under Article 4, against which progress will be tracked. The information submitted includes the information defined in paragraph 64(a) of the MPG, including updates to previously submitted information.

139 https://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=3

140 https://unfccc.int/resource/docs/2014/cop20/eng/10a01.pdf#page=2%22

141 https://matsne.gov.ge/ka/document/view/3019939?publication=0

142 https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf#page=2

https://unfccc.int/news/bringing-the-paris-agreement-into-force

https://unfccc.int/sites/default/files/registry_for_nationally_determined_contributions%28ndcs%29.pdf

143 https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf#page=2

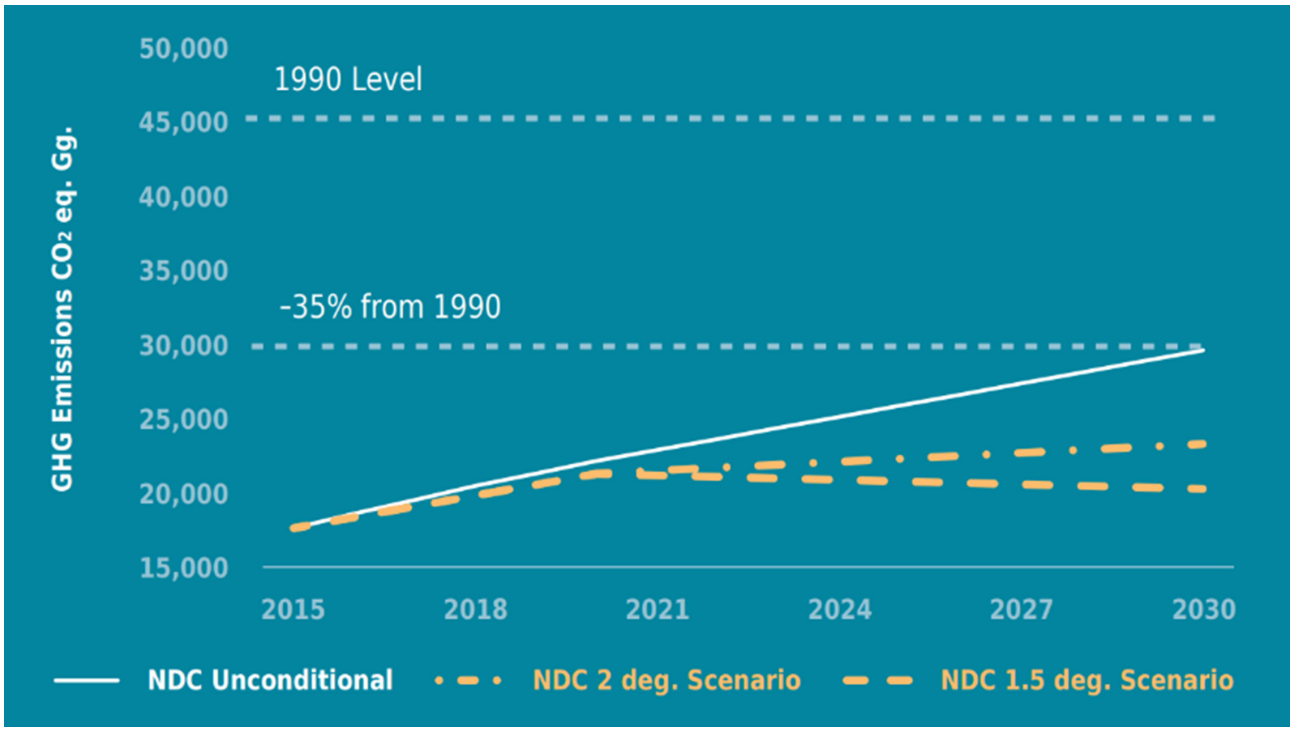
144 https://mepa.gov.ge/ge/PublicInformation/25717

145 https://crsreports.congress.gov/product/pdf/R/R46945

146 https://matsne.gov.ge/ka/document/view/5147380?publication=0

147 https://unfccc.int/NDCREG

FIGURE 2 NDC TARGET INDICATORS



Georgia's NDC outlines the country's commitment to addressing the global challenge of climate change and contributing to the goals of the Paris Agreement. On April 8, 2021, the Government of Georgia approved the NDC document, along with the 2030 Climate Change Strategy and the 2021-2023 Action Plan.[148] Georgia's NDC outlines one unconditional and two conditional commitments to limit greenhouse gas emissions. The conditional commitments are dependent on international support and the Global Stocktake report. The unconditional commitment excludes emissions/removals from land use, land-use change, and forestry (LULUCF).[149] By 2030, total national emissions, excluding LULUCF, must not exceed 29,250 (30,274)[150] Gg CO_2 eq.

For the conditional commitments, by 2030, national emissions excluding LULUCF should not exceed 23,300 (23,287)[150] Gg CO_2 eq. under a 2°C global temperature rise scenario, and 20,300 (20,027)[150] Gg CO_2 eq. under a 1.5°C scenario (Figure 2).[151]

1.2.2 SECTORAL MITIGATION OBJECTIVES IN GEORGIA'S NDC

The vision for Georgia's NDC by 2030 aims for a 35% absolute reduction in greenhouse gas emissions across all key sectors of the economy compared to 1990 levels. The targets outlined for each sector in the country's NDC are presented below, with corresponding indicators provided in the Annex[152]:

1. By 2030, a **15% reduction** of greenhouse gas emissions in the **energy generation**

148 Resolution of the Government of Georgia No. 167 on the approval of the "Georgia's Updated Nationally Determined Contribution (NDC) of Georgia", Climate Change Strategy 2030 and Action Plan for 2021-2023, 2021 April 8. https://www.matsne.gov.ge/ka/document/view/5147380?publication=0

149 Georgia's Nationally Determined Contribution (NDC). P. 8-9. https://mepa.gov.ge/Ge/Files/ViewFile/50125

150 Recalculated based on the most recent NIR.

151 Georgia's Nationally Determined Contribution (NDC). P. 8-9. https://mepa.gov.ge/Ge/Files/ViewFile/50125

152 Georgia's 2030 Climate Change Strategy and Action Plan. P. 34 https://mepa.gov.ge/Ge/Files/ViewFile/47855

and transmission sector compared to the baseline scenario projections;

2. By 2030, a **15% reduction** of greenhouse gas emissions in the transport sector compared to the projections provided in the base scenario;
3. **Fostering the development of low-carbon approaches in the building sector** by encouraging climate-smart and energy-efficient technologies and services; [153]
4. **Fostering the low-carbon development of the agricultural sector** by encouraging climate-smart and energy-efficient technologies and services; [153]
5. **By 2030, to reduce greenhouse gas emissions by 5% compared to the baseline scenario projections, fostering the development of low-carbon approaches** in the industry sector by encouraging climate-smart and energy-efficient technologies and services;
6. **Fostering the low-carbon development of the waste sector** by encouraging climate-friendly and energy-efficient technologies and services; [153]

Although the LULUCF sector is not a part of Georgia's unconditional commitment, in order to maintain and develop the carbon capture potential of the forest sector, a relevant target indicator has been defined:

7. By 2030, **increasing the carbon-capturing capacity of the forest sector by 10%** compared to the level recorded in 2015. [154]

1.2.3 ADAPTATION COMMITMENTS IN GEORGIA'S NDC

Adaptation Commitment:

Georgia is committed to continue studying its adaptive capacity of different economic sectors to the negative effects of climate change, as well as to plan and implement the respective adaptation measures by mobilising domestic and international resources for the sectors particularly vulnerable to climate change.

According to Georgia's NDC and in alignment with the global adaptation goal outlined in Article 2, paragraph 1(b) of the Paris Agreement, Georgia commits to ongoing research into adaptation opportunities across various sectors of its economy. The country will also plan and implement essential adaptation measures, including the mobilization of local and international resources for sectors that are particularly vulnerable to the impacts of climate change.[155]

1.2.4 SECTORAL ADAPTATION GOALS IN GEORGIA'S NDC

Georgia has outlined the following adaptation measures to be implemented as part of the National Adaptation Plan, in order to meet the commitments established in its NDC:[156]

153 Non-quantitative targets are defined for the given sectors.
154 Georgia's Nationally Determined Contribution (NDC). P. 31. https://mepa.gov.ge/Ge/Files/ViewFile/50125
155 Georgia's Nationally Determined Contribution (NDC). 2021. P. 9. https://mepa.gov.ge/Ge/Files/ViewFile/50125
156 Georgia's Nationally Determined Contribution (NDC). 2021. P. 34-35. https://mepa.gov.ge/Ge/Files/ViewFile/50125

1. Georgia plans to assess the effects of climate change on coastal zones, mountain ecosystems, and ecosystem services. Also, to study the impact of climate change on glaciers, the economic situation of mountainous and coastal regions and the living standards of the local population, with the aim of sustainable management of these regions.
2. Georgia plans to develop adaptation capacities for vulnerable winter and summer resorts.
3. Georgia plans to assess and develop adaptation opportunities for those agricultural productions that have the largest shares in GDP (e.g. grapes, hazelnuts, tangerines) and/or for the production of unique products of the country (e.g., such as Georgian honey, non-timber forest products). The process will be carried out by assessing the probability of change of climate parameters and the spread of infections in order to ensure the conservation of species and food security.
4. Georgia plans to assess the effects of climate change on the availability of underground and surface-level water resources for their sustainable use in agriculture (irrigation systems), energy generation, and domestic purposes in the long term.
5. Georgia plans to promote the conservation of endemic species, species that are under the Red List, and aboriginal varieties important for food and agriculture.
6. Georgia plans to study the most vulnerable forest areas in pre-selected territories.
7. Georgia plans to assess the effects of climate change on human health by conducting interdisciplinary research on the interactions between social, economic, biological, ecological, and physical systems.
8. Georgia plans to promote the implementation of measures aimed at reducing losses and damages caused by extreme weather events.
9. Georgia's NDC document addresses gender considerations and outlines the plans to collect, manage, present, and archive gender-disaggregated data as part of national climate change mitigation and adaptation reports. Additionally, it emphasizes the importance of gender analysis, capacity building, and knowledge sharing within climate change-related projects.

Georgia is initiating the preparation of a National Adaptation Plan, which will outline adaptation measures as defined in Article 4, Paragraph 7 of the Paris Agreement, while also highlighting the co-benefits of mitigation. This project is funded by the Green Climate Fund (GCF), with the United Nations Environment Programme (UNEP) overseeing its implementation and the Environmental Information and Education Centre (EIEC) serving as the executing agency. The period for preparing the National Adaptation Plan is set from 2025 to 2027.[157]

157 https://www.greenclimate.fund/document/building-capacity-advance-national-adaptation-plan-process-georgia

1.2.5 STRUCTURED SUMMARY

Georgia's NDC establishes the goals and objectives of its climate change policy, addressing both mitigation and adaptation strategies, with a deadline of 2030 for achieving these targets. The mitigation target focuses on achieving an absolute reduction in greenhouse gas emissions, using 1990 as the baseline year. The NDC encompasses a wide range of economic sectors[158] identified in the GHG inventory and addresses all greenhouse gases recognized by the UNFCCC. A structured summary of this information is provided in the annex. [159]

1.3 INFORMATION NECESSARY TO TRACK PROGRESS MADE IN IMPLEMENTING AND ACHIEVING ITS NDC UNDER ARTICLE 4 OF THE PARIS AGREEMENT

(Paragraphs 65-79 MPGs)

In this chapter, you will learn about the approaches for assessing the NDC goals and the indicators selected to track their implementation and achievement. In accordance with paragraph 69 of the MPGs, the information provided includes a comparison of the 2022 indicators with their corresponding baseline (1990) indicators. This chapter also explains all the indicators used to assess the performance and achievement of the NDC across sectors not covered by National Greenhouse Gas Inventory Report of Georgia (NIR).

In addition, this chapter describes all the methodologies and assessment approaches used to evaluate the NDC goals, determine baseline indicators, select appropriate indicators, and more.

This chapter provides information on how double counting is avoided and the methodological difference between NIR and the NDC.

1.3.1 INDICATORS OF THE NATIONALLY DETERMINED CONTRIBUTION

In Georgia, the NDC is implemented in accordance with the "Rules for Development, Monitoring and Evaluation of Policy Documents" approved by the Decree No. 629 of the Government of Georgia. Based on the decree, Georgia's 2030 Climate Change Strategy and 2021-2023 Action Plan (CSAP) were adopted to address climate change mitigation. Both documents define the mitigation objectives, activities, and indicators necessary to achieve the NDC targets. The implementation of the activities is assessed by measuring the mentioned indicators. Below is a description of the main NDC indicator and quantitative indicators for the following sectors: energy generation and transmission, transport, industry, and forest. The agriculture, waste, and building sectors do not yet have a quantitative target. Quantitative targets will be formulated as part of the future climate policy planning process.

Main NDC indicator

158 Excluding the LULUCF sector

159 Georgia's Nationally Determined Contribution (NDC). 2021. https://mepa.gov.ge/Ge/Files/ViewFile/50125

Greenhouse gas emissions in Georgia from the energy generation and transmission, transport, buildings, industry, agriculture, and waste sectors, excluding the LULUCF sector.

In the baseline year (1990), the GHG emissions excluding the LULUCF sector was 46,575 Gg CO_2 eq. The indicator figure in the last inventory document (2022) reached 20,096 Gg CO_2 eq. The medium-term targets of the indicator (2024 and 2028) are 21,888 (22,654)[160] and 25,577 (26,472)[160] Gg CO_2 eq., respectively. The projection for the year 2030, according to the baseline scenario, is 30,795 (30,976)[160] Gg CO_2 eq. However, if the mitigation measures are implemented, the final target will be less than 29,250 (30,274)[160] Gg CO_2 eq. The indicator's validity is based on the corresponding year's National Greenhouse Gas Inventory Report.

Sectoral indicators

The amount of GHG emissions from the energy generation and transmission sector

In the baseline year (1990), GHG emissions from the energy generation and transmission sector totalled 21,900 Gg CO_2 eq. The indicator figure in the last inventory document (2022) was 3,594 Gg CO_2 eq. The medium-term targets for this indicator (2024 and 2028) are 4,425 (4,045)[160] and 5,212 (4,749)[160] Gg CO_2 eq. respectively. According to the baseline scenario, the forecast for 2030 is 6,691 (4,916)[160] Gg CO_2 eq. However, if the mitigation measures are implemented, the final target will be 5,687 (4,178)[160] Gg CO_2 eq., which is 15% less than the figure in the baseline scenario for the year 2030. The indicator's validity is based on the corresponding year's National Greenhouse Gas Inventory Report.

The amount of GHG emissions from the transport sector

In the baseline year (1990), the GHG emissions from the transport sector amounted to 6,528 Gg CO_2 eq. The indicator figure in the last inventory document (2022) was 4,500 Gg CO_2 eq. The medium-term targets of the indicator (2024 and 2028) are 4,563 (4,777)[160] and 5,257 (5,625)[160] Gg CO_2 eq. respectively. The forecast in 2030 under the baseline scenario is 7,110 (6,154)[160] Gg CO_2 eq. However, if the mitigation measures are implemented, the final target will be < 6,044 (<5,231)[160] Gg CO_2 eq., which is 15% less than the baseline scenario for the year 2030. The indicator's validity is based on the corresponding year's National Greenhouse Gas Inventory Report.

The GHG emissions of the industry sector

In the baseline year (1990), the GHG emissions from the Industry sector was 9,252 Gg CO_2 eq. The indicator figure in the last inventory document (2022), was 4,366 Gg CO_2 eq. The medium-term targets of the indicator (2024 and 2028) are 4,474 (4,363)[160] and 5,289 (4,502)[160] Gg CO_2 eq. respectively. The projection for the year 2030, according to the baseline scenario, is 5,986 (5,731)[160] Gg CO_2 eq. However, if the mitigation measures are implemented, the final target will be < 5,690 (<5,445)[160] Gg CO_2 eq., which is 15% less than the baseline scenario for the year 2030. The indicator's validity is based on the corresponding year's National Greenhouse Gas Inventory Report.

Carbon capture potential of forests

In the baseline year (2015), the rate of carbon capture by forests was -6,252 Gg CO_2 eq. The indicator figure in the last inventory document (2022) was 6,694 Gg CO_2 eq. The medium-term targets for this indicator (2024 and 2028) are -5,950 (-6,739)[160] and -6,000 (-6,831)[160] million CO_2 eq., respectively. The projection for 2030, according to the baseline scenario, is

160 Recalculated based on the most recent NIR.

-5,931 (-6,189)[160] Gg CO_2 eq. However, if the mitigation measures are implemented, the final target will be more than -6,183 (-6,877)[160] Gg CO_2 eq. (+10%). The indicator's validity is based on the corresponding year's National Greenhouse Gas Inventory Report.

TABLE 1. STRUCTURED SUMMARY: DESCRIPTION OF SELECTED INDICATORS[161]

Indicators selected to track progress [a]	Description
Greenhouse gas emissions in Georgia excluding the LULUCF sector (Gg CO_2 eq.)	This indicator is calculated as the sum of emissions from the following direct greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Emissions are measured in gigagrams (Gg) of CO_2 equivalent, using Global Warming Potentials (GWP) over a 100-year time horizon, as specified in the IPCC 5th Assessment Report applied for the target. The sectoral scope includes all emission sources outlined in the IPCC 2006 Reporting Guidelines, covering the categories of energy, industrial processes and product use (IPPU), waste, agriculture, forest, and other land use (AFOLU), excluding emissions/removals from forestry and other land use.
Baseline	45,785 Gg of CO_2 eq. (1990)
Updates in accordance with any recalculation of the GHG inventory, as appropriate [b]	The indicator was updated to reflect data from Georgia's latest National GHG Inventory, covering up to 2022. The previous estimate was based on data from the 2015 National GHG Inventory. Recalculated data for 1990: 46,575 Gg of CO_2 eq. Difference between the original and recalculated data of 1990: +790 Gg of CO_2 eq. Recalculation reason: Improvements in activity data sources, improved methodologies, and formulation of country-specific coefficients and parameters.
Relation to NDC[c]	This indicator is directly aligned with the Party's NDC target, as it tracks national GHG emissions (excluding the LULUCF sector) and serves as the most suitable measure for assessing progress toward this target.

161 Georgia's Nationally Determined Contribution (NDC). 2021. https://mepa.gov.ge/Ge/Files/ViewFile/50125

Indicators selected to track progress [a]	Description
The amount of GHG emissions from the energy generation and transmission sector (Gg CO_2 eq.)	This indicator is calculated as the sum of emissions from the following direct greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O). Emissions are measured in gigagrams (Gg) of CO_2 equivalent, using Global Warming Potentials (GWP) over a 100-year time horizon, as specified in the IPCC 5th Assessment Report applied for the target. The sectoral scope includes all emission sources outlined in the IPCC 2006 Reporting Guidelines, covering Energy Industries (1.A.1) and Fugitive Emissions From Fuels (1. B) categories of the energy sector.
Baseline	The baseline scenario projection for 2030: 6,691 Gg of CO2 eq.
Updates in accordance with any recalculation of the GHG inventory, as appropriate[b]	The indicator was updated to reflect data from Georgia's latest National GHG Inventory, covering up to 2022. The previous estimate was based on data from the 2015 National GHG Inventory. Recalculated data for the baseline scenario projection 2030: 4,916 Gg of CO2 eq. Difference between the original and recalculated data for the baseline scenario projection 2030: -1,775 Gg of CO2 eq. Recalculation reason: Improvements in activity data sources, improved methodologies, and formulation of country-specific coefficients and parameters.
Relation to NDC[c]	This indicator is directly aligned with the Party's energy generation and transmission sector NDC target, as it tracks the sector's GHG emissions and serves as the most suitable measure for assessing progress toward this target.
The amount of GHG emissions from the energy generation and transmission sector (Gg CO_2 eq.)	This indicator is calculated as the sum of emissions from the following direct greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O). Emissions are measured in gigagrams (Gg) of CO_2 equivalent, using Global Warming Potentials (GWP) over a 100-year time horizon, as specified in the IPCC 5th Assessment Report applied for the target. The sectoral scope includes all emission sources outlined in the IPCC 2006 Reporting Guidelines, covering Energy Industries (1.A.1) and Fugitive Emissions From Fuels (1. B) categories of the energy sector.

Indicators selected to track progress [a]	Description
Baseline	The baseline scenario projection for 2030: 6,691 Gg of CO2 eq.
Updates in accordance with any recalculation of the GHG inventory, as appropriate[b]	The indicator was updated to reflect data from Georgia's latest National GHG Inventory, covering up to 2022. The previous estimate was based on data from the 2015 National GHG Inventory. Recalculated data for the baseline scenario projection 2030: 4,916 Gg of CO2 eq. Difference between the original and recalculated data for the baseline scenario projection 2030: -1,775 Gg of CO2 eq. Recalculation reason: Improvements in activity data sources, improved methodologies, and formulation of country-specific coefficients and parameters.
Relation to NDC[c]	This indicator is directly aligned with the Party's energy generation and transmission sector NDC target, as it tracks the sector's GHG emissions and serves as the most suitable measure for assessing progress toward this target.
The amount of GHG emissions from the transport sector (Gg CO_2 eq.)	This indicator is calculated as the sum of emissions from the following direct greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O). Emissions are measured in gigagrams (Gg) of CO_2 equivalent, using Global Warming Potentials (GWP) over a 100-year time horizon, as specified in the IPCC 5th Assessment Report applied for the target. The sectoral scope includes all emission sources outlined in the IPCC 2006 Reporting Guidelines, covering transport (1.A.3) category of the energy sector.
Baseline	The baseline scenario projection for 2030: 7,110 Gg of CO2 eq.

Indicators selected to track progress [a]	Description
Updates in accordance with any recalculation of the GHG inventory, as appropriate[b]	The indicator was updated to reflect data from Georgia's latest National GHG Inventory, covering up to 2022. The previous estimate was based on data from the 2015 National GHG Inventory. Recalculated data for the baseline scenario projection 2030: 6,154 Gg of CO2 eq. Difference between the original and recalculated data for the baseline scenario projection 2030: -956 Gg of CO2 eq. Recalculation reason: Improvements in activity data sources, improved methodologies, and formulation of country-specific coefficients and parameters.
Relation to NDC [c]	This indicator is directly aligned with the Party's transport sector NDC target, as it tracks the sector's GHG emissions and serves as the most suitable measure for assessing progress toward this target.
The GHG emissions of the industry sector (Gg CO_2 eq.)	This indicator is calculated as the sum of emissions from the following direct greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Emissions are measured in gigagrams (Gg) of CO_2 equivalent, using Global Warming Potentials (GWP) over a 100-year time horizon, as specified in the IPCC 5th Assessment Report applied for the target. The sectoral scope includes all emission sources outlined in the IPCC 2006 Reporting Guidelines, covering the Manufacturing Industries and Construction (1.A.2) category of the energy sector and Industrial Processes and Product Use (CRF sector 2) sector.
Baseline	The baseline scenario projection for 2030: 5,986 Gg of CO2 eq.

Indicators selected to track progress [a]	Description
Updates in accordance with any recalculation of the GHG inventory, as appropriate[b]	The indicator was updated to reflect data from Georgia's latest National GHG Inventory, covering up to 2022. The previous estimate was based on data from the 2015 National GHG Inventory. Recalculated data for the baseline scenario projection 2030: 5,731 Gg of CO2 eq. Difference between the original and recalculated data for the baseline scenario projection 2030: -255 Gg of CO2 eq. Recalculation reason: Improvements in activity data sources, improved methodologies, and formulation of country-specific coefficients and parameters.
Relation to NDC[c]	This indicator is directly aligned with the Party's industry sector NDC target, as it tracks the sector's GHG emissions and serves as the most suitable measure for assessing progress toward this target.
Carbon capture potential of forests **(Gg CO_2 eq.)**	This indicator is calculated as the sum of emissions from the following direct greenhouse gases (GHGs): carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O). Emissions are measured in gigagrams (Gg) of CO_2 equivalent, using Global Warming Potentials (GWP) over a 100-year time horizon, as specified in the IPCC 5th Assessment Report applied for the target. The sectoral scope includes all emission sources outlined in the IPCC 2006 Reporting Guidelines, covering the categories of forestry, and other land use.
Baseline	(Year 2015): -5,484 Gg CO2 eq.
Updates in accordance with any recalculation of the GHG inventory, as appropriate[b]	The indicator was updated to reflect data from Georgia's latest National GHG Inventory, covering up to 2022. The previous estimate was based on data from the 2015 National GHG Inventory. Recalculated data for 2015: -6,252 Gg of CO2 eq. Difference between the original and recalculated data of 2015: -768 Recalculation reason: Improvements in activity data sources, improved methodologies, and formulation of country-specific coefficients and parameters.
Relation to NDC[c]	It does not contribute to the fulfilment of the unconditional commitment of the NDC at the national level.

Notes: (1)

Pursuant to para. 79 of the MPGs, each Party shall report the information referred to in paras. 65–78 of the MPGs in a narrative and common tabular format, as applicable. (2) A Party may amend the reporting format (e.g. Excel file) to remove specific rows in this table if the information to be provided in those rows is not applicable to the Party's NDC under Article 4 of the Paris Agreement, in accordance with the MPGs. (3) The Party could add rows for each additional selected indicator and related information.

[a] Each Party shall identify the indicator(s) that it has selected to track progress of its NDC (para. 65 of the MPGs).

[b] Each Party shall provide the information for each selected indicator for the reference point(s), level(s), baseline(s), base year(s) or starting point(s), and shall update the information in accordance with any recalculation of the GHG inventory, as appropriate (para. 67 of the MPGs).

[c] Each Party shall describe for each indicator identified how it is related to its NDC (para. 76(a) of the MPGs).

1.3.2 ALIGNMENT OF NDC SECTORS AND INDICATORS WITH THE NATIONAL GREENHOUSE GAS INVENTORY REPORT

According to the NDC, limiting emissions to specific target figures includes and is based on the analysis of 7 sectors of the country's economy: **transport, buildings, energy generation and transmission, agriculture, industry, waste and forest**.[162] However, following the Intergovernmental Panel on Climate Change (IPCC) methodology, the National Greenhouse Gas Inventory Report (NIR) of Georgia covers 5 sectors: **Energy, Industrial Processes and Product Use (IPPU), Agriculture, Land Use, Land-use Change and Forestry (LULUCF) and Waste**.

The sectors described in the NDC and the NIR of Georgia have some similarities and differences:

The transport sector according to the NIR is listed in the energy sector under the title "**Transport**" and has the code **1.A.3** assigned to it. Emissions from the transport sector in the inventory report were calculated using the Tier 1 approach of the 2006 IPCC Guidelines. These indicators are also used in the NDC document to establish sectoral target indicators for 2030.

The building sector's targets, as outlined in the NDC, are determined using GHG emissions data from the **commercial/institutional (1.A.4.a)** and **residential (1.A.4.b)** subsectors in the inventory report. Emissions were calculated using the "Tier 1" approach of the 2006 IPCC Guidelines.

The target indicators for the **energy generation and transmission sector**, as described in the NDC, are calculated using GHG emissions data from the **energy industries (1.A.1), Non-specified (1.A.5)** and **fugitive emissions from fuel (1.B)** subsectors in the inventory report. Emissions were calculated using the "Tier 1 and 2" sectoral approach from the 2006 IPCC Guidelines.

The target indicators for the **agricultural sector**, as outlined in the NDC, are calculated using agricultural energy and non-energy emissions data from the inventory report, specifically from the **Agriculture/Forestry/Fishing/Fish Farms (1.A.4.c)** subsector and **the agriculture (CRF Sector 3)** category. Emissions were calculated using the "Tier 1 and 2" sectoral approaches from the 2006 IPCC Guidelines.

The target indicators for the **industry sector**, as described in the NDC, are determined using the energy and non-energy emissions data from the inventory report, specifically

162 The forest sector does not participate in the fulfilment of the unconditional commitment.

from the **industrial processes and product use sector (CRF Sector 2)** and the **Manufacturing Industries and Construction (1.A.2)** subsector. Emissions were calculated using the "Tier 1, 2, and 3" sectoral approaches from the 2006 IPCC Guidelines.

The waste sector, assigned as **CRF Sector 5** in the NIR of Georgia, had its emissions calculated using the "Tier 1 and 2" approaches from the 2006 IPCC Guidelines. This indicator is utilized in the NDC document to establish the sectoral target indicators for waste management by 2030.

TABLE 2. STRUCTURED SUMMARY: DEFINITIONS NEEDED TO UNDERSTAND NDC [163]

	Definitions[a]
Definitions needed to understand each indicator:	
The amount of GHG emissions from the energy generation and transmission sector (Gg CO_2 eq.)	The baseline indicators for the mitigation activities described in the NDC energy generation and transmission sector are based on data from several sub-sectors of the energy sector in the NIR.
The amount of GHG emissions from the transport sector (Gg CO_2. eq.)	The baseline indicators for the mitigation activities described in the transport sector of the NDC are based on data from the transport sub-sector in the NIR.
The amount of GHG emissions from the building sector (Gg CO_2 eq.)	The baseline indicators for the mitigation activities described in the building sector of the NDC are based on data from several sub-sectors of the energy sector in the NIR.
The GHG emissions of the industry sector (Gg CO_2 eq.)	The baseline indicators for the mitigation activities described in the industry sector of the NDC are based on data from several sub-sectors of the energy and IPPU sectors in the NIR.
The GHG emissions of the agricultural sector (Gg CO_2 eq.)	The baseline indicators for the mitigation activities described in the NDC's agriculture sector are based on data from several sub-sectors of the energy sector and the agriculture sector in the NIR.
The GHG emissions of the waste sector (Gg CO_2 eq.)	The baseline indicators for the mitigation activities described in the NDC waste sector are determined according to the waste sector data in the NIR.
Carbon capture potential of forests (Gg CO_2 eq.)	The baseline indicators for the mitigation activities described in the forest sector of the NDC are determined according to the LULUCF sector in the NIR.
A sector or category defined differently than in the national inventory report:	

163 Georgia's Nationally Determined Contribution (NDC). 2021. https://mepa.gov.ge/Ge/Files/ViewFile/50125

	Definitions[a]
Energy generation and transmission sector	The energy generation and transmission sector in the NDC corresponds to the energy industries (1.A.1), Non-specified (1.A.5)[164]and fugitive emissions from fuels (1.B) in the NIR. Emissions were calculated using the "Tier 1 and 2" sectoral approach from the 2006 IPCC Guidelines. According to the NDC and the NIR, GHG emissions are estimated in Gg CO_2 equivalent.
Building sector	The indicator for the building sector in the NDC corresponds to the commercial/institutional (1.A.4.a) and residential (1.A.4.b) subsectors in the NIR. Emissions were calculated using the 'Tier 1' approach from the 2006 IPCC Guidelines. According to the NDC and the NIR, GHG emissions are estimated in gg CO_2 equivalent.
Industry sector	The industry sector in the NDC corresponds to the sub-sector 1.A.2 - Manufacturing Industry and Construction, and the Industrial Processes and Product Use sectors (CRF Sector 2) in the NIR. The IPCC "Tier 1, 2, and 3" sectoral approaches were used to calculate emissions. According to the NDC and the NIR, GHG emissions are estimated in Gg CO_2 equivalent.
Agriculture sector	The agricultural sector in the NDC corresponds to the sub-sector 1.A.4.c - Agriculture/Forestry/Fisheries/ Fish Farming and the Agriculture Sector (CRF Sector 3) in the NIR. The IPCC "Tier 1 and 2" sectoral approaches was used to calculate emissions. According to the NDC and the NIR, GHG emissions are estimated in Gg CO_2 equivalent.
Forest sector	The forest sector in the NDC corresponds to the Land use, Land-use Change and Forestry sector (CRF Sector 4) in the NIR. The IPCC "Tier 1 and 2" sectoral approaches was used to calculate emissions. According to the NDC and the NIR, GHG emissions are estimated in Gg CO_2 equivalent.
Definition needed to understand mitigation co-benefits of adaptation actions and/or economic diversification plans:	

164 Emissions in the 1.A.5 category have been recorded since 1990. However, GHGs have not been emitted in this category since 2012

	Definitions[a]
NO	The NDC document's Climate Change Strategy and Action Plan focuses solely on the country's mitigation measures. The adaptation measures will be presented in the National Adaptation Plan of Georgia, which is currently under preparation.
Any other relevant definitions:	
...	

Notes: (1)

Pursuant to para. 79 of the MPGs, each Party shall report the information referred to in paras. 65–78 of the MPGs in a narrative and common tabular format, as applicable. (2) A Party may amend the reporting format (e.g. Excel file) to remove specific rows in this table if the information to be provided in those rows is not applicable to the Party's NDC under Article 4 of the Paris Agreement, in accordance with the MPGs. (3) The Party could add rows for each additional sector, category, mitigation co-benefits of adaptation actions and/or economic diversification plans, indicator and any other relevant definitions.

[a] Each Party shall provide any definitions needed to understand its NDC under Article 4, including those related to each indicator identified in para. 65 of the MPGs, those related to any sectors or categories defined differently than in the national inventory report, or the mitigation co-benefits of adaptation actions and/or economic diversification plans (para. 73 of the MPGs).

1.3.3 METHODOLOGY FOR DEVELOPING AND MANAGING CLIMATE POLICY

Methodology of the Situation Analysis

In the development of the NDC and CSAP the first step was to identify problems, also known as situation analysis. A comprehensive baseline study was also conducted to analyse the situation. In the situation analysis section, the main findings are presented in a structured way, specifically highlighting the key problems and their causative factors, supported by relevant data.

Logical Framework Development Methodology

The Climate Change Strategy document includes a logical framework. The logical framework brings together the vision, sectoral priorities, goals, and objectives in one place. Special attention is given to the first and second levels of results [165]:

1. First Level - **the goal** - long-term period;
2. Second Level – **the task –** mid-term period.

Result Indicators

All three levels of the NDC and CSAP results are measured by indicators. Accordingly, the system includes three types of indicators: 1) Output indicator; 2) Outcome indicator; 3) Impact indicator.

At the situation analysis stage, an outline of impact and Outcome indicators was developed, which was filled with relevant (baseline and target) indicators at the next stage.

165 The third level - activity level - is presented in the action plan

Indicators are both quantitative and qualitative. Quantitative indicators are represented by numerical data, while qualitative indicators are reflected in categorical data (e.g., yes/no, compliance, extent of, degree of, etc.).

Methodology for development of the Technical Note of Indicator

The technical note for the indicators should include detailed information about each one. A technical note was developed for each impact and outcome indicator.

Action plan development methodology

Several policy alternatives were identified. Determining these alternatives involves considering various methods and approaches necessary for implementing the policy. While defining the policy alternatives in the given policy documents, the following methods were used:

- Analysis of data obtained from the monitoring and evaluation of current or completed policy documents;
- Review of existing studies and recommendations;
- Analysis of the experience of other countries;
- Proposals from international and local organizations;
- Consultations with stakeholders.

Actions, Policies, and Measures as Types of Instrument

Policy instruments were classified by dividing them into 12 categories that combine similar types of activities. These categories are: 1) regulatory; 2) administrative; 3) informative; 4) institutional; 5) economic; 6) educational; 7) research; 8) fiscal; 9) voluntary agreement; 10) planning; 11) social; 12) other.

Methodology of coordination mechanism development

According to the decree, policy documents within the policy planning and coordination system, that address different sectoral directions and involve two or more responsible agencies, must be approved by the government, and the reporting shall be conducted to the government. Consequently, MEPA has been designated as the coordinating body of the NDC and CSAP.

The implementation of national and sectoral policies, which includes the involvement of two or more agencies and the fulfilment of assumed responsibilities according to the plan, requires the process to be conducted in a coordinated manner. The coordination mechanism for these policy documents includes both horizontal and vertical components.

The **horizontal** coordination mechanism includes:

- Coordinating agency;
- Responsible agencies;
- Partner agencies;
- Stakeholders.

The vertical coordination mechanism comprises both the **political** and **technical** levels,

along with the corresponding **secretariat**.

According to the government's decision, MEPA was determined as the **coordinating body** for the activities outlined in the aforementioned documents.

Political level

At the political level, the regulation of advisory bodies is governed by the Law of Georgia "On the Structure, Powers and Rules of Operation of the Government of Georgia."

The Climate Change Council is an advisory body with political responsibility. It serves as an instrument to ensure the transparent implementation of climate policy in order to achieve the emission targets set out in this document.

Technical level

The working group is a technical level advisory body. The working group is created by the decision of the Council and is accountable to the Council.

The Secretariat is a body with technical and administrative functions, assisting both the Council and the Working Group (if applicable) in fulfilling their functions and objectives.

Monitoring Methodology

The monitoring process begins simultaneously with the implementation of the policy. Alongside the implementation, the responsible agencies collect and organize information and evidence regarding the activities they undertake.

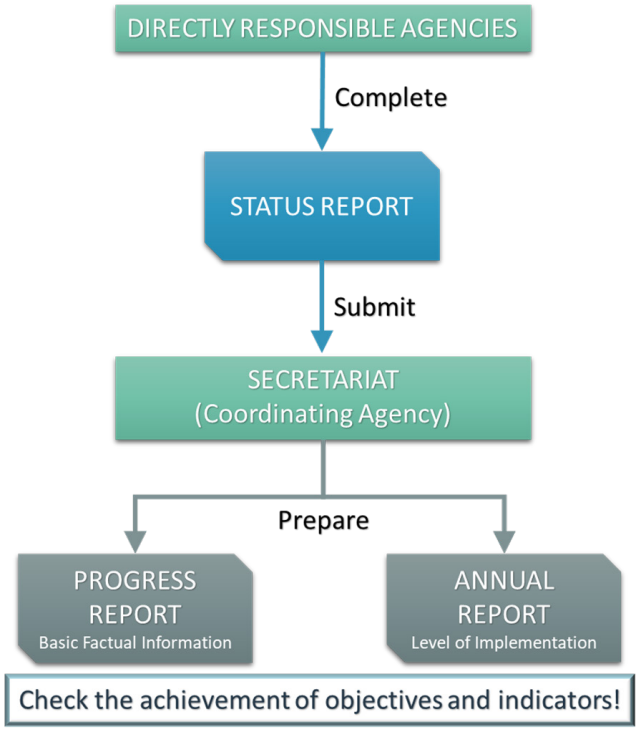
In accordance with the guidelines, two types of monitoring reports are created: 1) Progress report and 2) Annual report.

The coordinating agency (Secretariat) uses status reports to develop the monitoring reports. These status reports are completed by the responsible agencies and submitted to the Secretariat. The Secretariat then collects the status reports and writes the progress and annual reports.[166] Consolidated status reports are also presented as an appendix to both types of reports. The progress report includes essential factual information, while the annual report provides details on activities and **the level of implementation**[167].

166 In the case of annual reports, the responsible agencies also complete the annual report template, which provides information on progress toward the tasks and related task result indicators.

167 Please see the Mid-Term Evaluation Report of Georgia's 2030 Climate Change Strategy. https://mepa.gov.ge/Ge/Files/ViewFile/54094 Please see the Report on the Implementation of the 2021-2023 Action Plan of the 2030 Climate Change Strategy of Georgia. https://mepa.gov.ge/Ge/Files/ViewFile/54001

FIGURE 3 POLICY MONITORING PROCESS IN GEORGIA



1.3.4 INDICATORS ASSESSMENT METHODOLOGY

The main indicator of Georgia's NDC is **the amount of greenhouse gas emissions of the country excluding the LULUCF sector.** Since the emissions and absorptions of greenhouse gases in the country are assessed only through the national inventory, the assessment of the main indicator is carried out using the data from the same inventory report.

Accordingly, the methodology for estimating the main indicator follows the approaches outlined in the 2006 IPCC Guidelines, which are described in the latest inventory report. In addition to the main indicator, the NDC also includes several sectoral indicators. Each indicator is evaluated using Tier 1, 2, and/or 3 approaches.

The Tier 1 approach to calculating emissions typically uses default IPCC emission factors and requires the most basic and general activity data. In contrast, the higher Tier 2 and Tier 3 approaches employ more complex calculation techniques and emission factors that are specific to emission sources, technologies, region and/or countries. Higher Tier approaches often rely on measurements and require more detailed activity data. [168]

NDC sectoral indicators include **the amount of GHG emissions from the energy generation and transmission sector, the carbon capture potential of forests, the amount of GHG emissions from the transport sector, and the GHG emissions of the industry sector.**

GHG emissions are estimated according to the 2006 IPCC Guidelines across sectors. For the energy generation and transmission sector[169], the "Tier 1 and 2" approaches are applied to category 1.A.1, with both "Tier 1 and 2" approaches used for category 1.B.[170]

For the forest sector, the "Tier 1" approach is applied to category 3.C.1, with both "Tier 1 and 2" approaches used for category 3.B.1.[170]

168 https://unfccc.int/resource/docs/publications/09_resource_guide3.pdf

169 Emissions in the 1.A.5 category have been recorded since 1990. However, GHGs have not been emitted in this category since 2012.

170 See the GHG inventory report for more information.

In the transport sector, emissions are calculated using the "Tier 1" approach for category 1.A.3.[170] For the industry sector, Tier 1, Tier 2, and Tier 3 approaches are employed for the CRF 2 category, alongside the "Tier 1" method for category 1.A.2, (See Table 3).[170]

TABLE 3. IPCC SECTORAL APPROACHES USED FOR THE CATEGORIES

Sectoral Indicator	2006 IPCC Guidelines Sectors and Categories	Sectoral Approaches
The amount of greenhouse gas emissions from the energy generation and transmission sector171	1.A.1 1.B	Tier 1 and 2 Tier 1 and 2
The amount of greenhouse gas emissions from the transport sector	1.A.3	Tier 1
Greenhouse gas emissions from the industry sector	CRF 2 1.A.2	Tier 1, 2 and 3 Tier 1
The carbon capture potential of forests	3.B.1 3.C.1	Tier 1 and 2 Tier 1

TABLE 4. STRUCTURED SUMMARY: METHODOLOGIES AND ACCOUNTING APPROACHES – CONSISTENCY WITH ARTICLE 4, PARAGRAPHS 13 AND 14, OF THE PARIS AGREEMENT AND WITH DECISION 4/CMA.1

Reporting requirement	Description or reference to the relevant section of the BTR
For the first NDC under Article 4 [a]	
Accounting approach, including how it is consistent with Article 4, paragraphs 13–14, of the Paris Agreement (para. 71 of the MPGs)	The anthropogenic emissions and removals presented in the NDC are estimated in accordance with the guidelines of the IPCC and the decisions taken by the (COP), using a unified measurement system. The same reporting approaches have been used in the development and implementation of the NDC, ensuring methodological consistency. All categories specified in Georgia's NDC are documented throughout the implementation period. From the categories presented in the NIR, NDC's main goal excludes the CRF 3 sector (FOLU).[172] To avoid double counting of emissions, the NDC accounts for overlapping activities.
For the second and subsequent NDC under Article 4, and optionally for the first NDC under Article 4: [b]	

171 Emissions in the 1.A.5 category have been recorded since 1990. However, GHGs have not been emitted in this category since 2012.

172 Corresponds to LULUCF described in the NDC

Reporting requirement	Description or reference to the relevant section of the BTR
Information on the accounting approach used is consistent with paragraphs 13–17 and annex II of decision 4/CMA.1 (para. 72 of the MPGs)	The accounting approach used in Georgia's first Biennial Transparency Report (BTR) is in accordance with paragraphs 13-17 of Article 4 of the Paris Agreement and Annex II of Decision 4/CMA.1. The Ex-Ante Carbon-balance Tool (EX-ACT) was used to quantify emissions in the forest sector and to estimate the emissions reduction impact of the proposed measures in both, the forest and the agriculture sectors. EX-ACT is an appraisal system developed by the Food and Agriculture Organization of the United Nations (FAO) providing estimates of the impact of agriculture and forest development projects, programmes and policies on the carbon-balance. The calculations are carried out with the method of so-called 'C Stock Changes', by observing the changes identified from comparing the carbon stocks for various periods of time. EX-ACT takes into consideration the Guidelines for National Greenhouse Gas Inventories from the IPCC (2006). In line with those guidelines, the calculations in the forest sector include five reservoirs of carbon: above-ground biomass, below-ground biomass, litter, deadwood and soil organic carbon. EX-ACT uses geographic, climate and agri-ecological variables for processing information related to land use and agriculture methods. EX-ACT's computation logic is based on comparing the results of planned measures with the results of a reference scenario without these measures. EX-ACT by default uses emission coefficients for first-level computations according to the IPCC methodology. For the agriculture sector national-level emission coefficients in line with Georgia's NIR were entered in Georgia's 2030 Climate Change Strategy.
Explain how the accounting for anthropogenic emissions and removals is in accordance with methodologies and common metrics assessed by the IPCC and in accordance with decision 18/CMA.1 (para. 1(a) of annex II to decision 4/CMA.1)	Anthropogenic emissions and removals are accounted for using the approaches given in the 2006 IPCC Guidelines, which are described in the latest inventory report. Anthropogenic emissions and removals are estimated using Tier 1, 2 and/or 3 approaches. **The amount of GHG emissions from the energy generation and transmission sector**[173] is estimated according to the IPCC 2006 Guidelines, using the "Tier 1 and 2" sectoral approach for category 1.A.1 and the "Tier 1 and 2" approaches for category 1.B [174] **The amount of GHG emissions from the transport sector** is estimated according to the IPCC 2006 Guideline, using the 'Tier 1' sectoral approach for category 1.A.3.[174] **GHG emissions of the industry sector** have been estimated using the 2006 IPCC Guidelines, employing Tier 1, 2, and 3 approaches for the CRF 2 sector, as well as the 'Tier 1' sectoral approach for category 1.A.2. [174] Anthropogenic emissions and removals of greenhouse gases are accounted for in Gg CO_2 eq., and the global warming potential for each greenhouse gas is taken from the IPCC 5th Assessment Report (AR5).

173 Emissions in the 1.A.5 category have been recorded since 1990. However, GHGs have not been emitted in this category since 2012.

174 See the inventory report for more information.

Reporting requirement	Description or reference to the relevant section of the BTR
Explain how consistency has been maintained between any GHG data and estimation methodologies used for accounting and the Party's GHG inventory, pursuant to Article 13, paragraph 7(a), of the Paris Agreement, if applicable (para. 2(b) of annex II to decision 4/CMA.1))	Since the NDC uses indicators that correspond to the categories given in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the quantitative indicators in the NIR represent the performance indicators of Georgia's NDC for a specific year.
Explain how overestimation or underestimation has been avoided for any projected emissions and removals used for accounting (para. 2(c) of Annex II to the decision 4/CMA.1)	Since the indicators of NDC for a particular year correspond to the results of the NIR in the respective categories, any additional overestimation or underestimation has been avoided. Any such discrepancies, if present, are related only to violations of the accuracy principle in the NIR.
For each NDC under Article 4: [b]	
Accounting for anthropogenic emissions and removals in accordance with methodologies and common metrics assessed by the IPCC and adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement:	
Each methodology and/or accounting approach used to assess the implementation and achievement of the target(s), as applicable (para. 74(a) of the MPGs)	A common approach is used to assess the achievement of NDC targets. For the given sectors (energy generation and transmission, transport, industry, forest), a result indicator (both baseline and target) is selected, which will be compared with future real indicators to evaluate the achievement of the goals.
Each methodology and/or accounting approach used for the construction of any baseline, to the extent possible (para. 74(b) of the MPGs)	Baseline indicators of mitigation activities across all sectors are determined using data from several sub-sectors of the respective sector in the NIR, with 1990 selected as the baseline year. To create the baseline scenario, the LEAP model was used to estimate energy emissions, EX-ACT for estimating absorptions in the forest sector, and other mathematical methods for estimating emissions in the industry, waste, and agriculture sectors. Refer to the methodology used for the scenarios.

Reporting requirement	Description or reference to the relevant section of the BTR
If the methodology or accounting approach used for the indicator(s) in table 1 differ from those used to assess the implementation and achievement the target, describe each methodology or accounting approach used to generate the information generated for each indicator in table 4 (para. 74(c) of the MPGs)	The methodology used for the indicators in Table 1 is consistent with the approach used to assess implementation and goal achievement.
Any conditions and assumptions relevant to the achievement of the NDC under Article 4, as applicable and available (para. 75(i) of the MPGs)	NA
Key parameters, assumptions, definitions, data sources and models used, as applicable and available (para. 75(a) of the MPGs)	**Main parameters**: GWP AR5[175]; EX-ACT parameters – dominant climate (moist) and dominant type of soil (HAC soils); LEAP parameters - Population; GDP; Energy intensity. **Assumptions**: the scenarios are based on the assumptions of: population and GDP growth rates; International support for the transfer of innovative, high-cost, low-emission technologies; Additionally, the potential scale of tourist influx is considered in several cases. **Definitions**: According to the NDC: 1) transport sector includes category 1.A.3 (transport), excluding 1.A.3.ai and 1.A.3.di, 2) energy generation and transmission sector Includes categories 1.A.1 (Energy industry), 1,A,5 (Non-specified)[176] and 1.B (Fugitive emissions from fuel), 3) industry sector includes CRF sector 2 (IPPU) and category 1.A.2 (Manufacturing Industries and Construction). For details, please refer to the chapter "Alignment of NDC sectors and indicators with the National Greenhouse Gas Inventory Report". **Models used**: EX-ACT used to quantify emissions in the forest sector is based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The impact of the measures proposed in both the forest and agriculture sectors on reducing emissions will be calculated using the C Stock Changes method. For more detailed information refer to „Information on the accounting approach used is consistent with paragraphs 13–17 and annex II of decision 4/CMA.1 (para. 72 of the MPGs)" **Sources**: National Greenhouse Gas Inventory Report and information published by the National Statistics Office of Georgia.

175 In the LEAP model used to determine the NDC mitigation scenarios, the parameter GWP AR2 was initially applied. However, as the latest NIR uses the updated GWP AR5 parameter, the NDC indicators in this document have been recalculated to align with the new standard.

176 Emissions in the 1.A.5 category have been recorded since 1990. However, GHGs have not been emitted in this category since 2012.

Reporting requirement	Description or reference to the relevant section of the BTR
IPCC Guidelines used, as applicable and available (para. 75(b) of the MPGs)	Estimates of emissions of Georgia's NDC are based on the approaches given in the 2006 IPCC guidelines (Tier 1, 2 and/or 3).
Report the metrics used, as applicable and available (para. 75(c) of the MPGs)	Gigagram carbon dioxide equivalent unit (Gg CO_2 eq.) and GWP AR5 are used to measure national and sectoral GHG emissions.
For Parties whose NDC cannot be accounted for using methodologies covered by IPCC guidelines, provide information on their own methodology used, including for NDCs, pursuant to Article 4, paragraph 6, of the Paris Agreement, if applicable (para. 1(b) of annex II to decision 4/CMA.1)	NA
Provide information on methodologies used to track progress arising from the implementation of policies and measures, as appropriate (para. 1(d) of annex II to decision 4/CMA.1)	The methodology for emission reductions is given in the ***1.4.3 Methodology and assumptions for* assessing mitigation effects** chapter. Additionally, the methodologies use to track progress of NDC implementation is illustrated in ***Figure 3 Policy monitoring process in Georgia***.
Where applicable to its NDC, any sector-, category-or activity-specific assumptions, methodologies and approaches consistent with IPCC guidance, taking into account any relevant decision under the Convention, as applicable (para. 75(d) of the MPGs)	NA

Reporting requirement	Description or reference to the relevant section of the BTR
For Parties that address emissions and subsequent removals from natural disturbances on managed lands, provide detailed information on the approach used and how it is consistent with relevant IPCC guidance, as appropriate, or indicate the relevant section of the national GHG inventory report containing that information (para. 1(e) of annex II to decision 4/CMA.1, para. 75(d)(i) of the MPGs)	NA
For Parties that account for emissions and removals from harvested wood products, provide detailed information on which IPCC approach has been used to estimate emissions and removals (para. 1(f) of annex II to decision 4/CMA.1, para. 75(d)(ii) of the MPGs)	NA
For Parties that address the effects of age-class structure in forests, provide detailed information on the approach used and how this is consistent with relevant IPCC guidance, as appropriate (para. 1(g) of annex II to decision 4/CMA.1, para. 75(d)(iii) of the MPGs)	NA
How the Party has drawn on existing methods and guidance established under the Convention and its related legal instruments, as appropriate, if applicable (para. 1(c) of annex II to decision 4/CMA.1)	NA
Any methodologies used to account for mitigation co-benefits of adaptation actions and/or economic diversification plans (para. 75(e) of the MPGs)	NA

Reporting requirement	Description or reference to the relevant section of the BTR
Describe how double counting of net GHG emission reductions has been avoided, including in accordance with guidance developed related to Article 6 if relevant (para. 76(d) of the MPGs)	Georgia's Quality Assurance/Quality Control (QA/QC) process for GHG inventory is designed to ensure Transparency, Accuracy, Consistency, Comparability, and Completeness (TACCC) in line with IPCC guidelines. The process begins with the development of a Quality Control and Assurance Plan, which specifies procedures, roles, and responsibilities for both QC and QA. General and sectoral quality control involves routine checks by coordinators and sector experts to maintain data consistency and sector-specific accuracy. Quality assurance is conducted by independent experts who review key data points and methodologies to confirm accuracy and prevent double counting. Further details are provided in the National Inventory Document (NID). Georgia has established a straightforward approach to avoid double counting in mitigation activities involving the development of policy documents, by-laws, or legislation aimed at implementing interconnected mitigation measures. For example, one activity may involve drafting national legislation to retrofit all public buildings with energy-efficient upgrades, while another may focus on a policy document detailing specific activities to renovate certain public buildings for energy efficiency. Since the national legislation already encompasses these specific activities, counting the GHG emission reductions from both the overarching legislation and the specific measures would result in double counting. To prevent this, the BTR includes only the GHG emission reduction impacts from the specific activities in the policy document, excluding the effects of the national legislation. Emissions trading under Article 6 is not yet operational in Georgia; therefore, any current risk of double counting in this area is eliminated.
Any other methodologies related to the NDC under Article 4 (para. 75(h) of the MPGs)	NA
Ensuring methodological consistency, including on baselines, between the communication and implementation of NDCs (para. 12(b) of the decision 4/CMA.1):	

Reporting requirement	Description or reference to the relevant section of the BTR
Explain how consistency has been maintained in scope and coverage, definitions, data sources, metrics, assumptions and methodological approaches including on baselines, between the communication and implementation of NDCs (para. 2(a) of annex II to decision 4/CMA.1)	**Scope and Coverage**: the greenhouse gas emissions excluding the LULUCF sector. **Definitions**: For details, please refer to the chapter „1.3.2 Alignment of NDC sectors and indicators with the National Greenhouse **Gas Inventory Report**" **Data sources**: National Greenhouse Gas Inventory Report and information published by the National Statistics Office of Georgia. **Metric systems**: Gg CO_2 eq., GWP AR5. **Assumptions**: the scenarios are based on the assumptions of: population and GDP growth rates; International support for the transfer of innovative, high-cost, low-emission technologies; Additionally, the potential scale of tourist influx is considered in several cases.
Explain how consistency has been maintained between any GHG data and estimation methodologies used for accounting and the Party's GHG inventory, pursuant to Article 13, paragraph 7(a), of the Paris Agreement, if applicable (para. 2(b) of annex II to decision 4/CMA.1) and explain methodological inconsistencies with the Party's most recent national inventory report, if applicable (para. 76(c) of the MPGs)	Since the NDC employs indicators that align with the categories specified in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the quantitative indicators presented in the NIR reflect the performance indicators of Georgia's NDC for a specific year.
For Parties that apply technical changes to update reference points, reference levels or projections, the changes should reflect either of the following (para. 2(d) of annex II to decision 4/CMA.1):	
Technical changes related to technical corrections to the Party's inventory (para. 2(d)(i) of annex II to decision 4/CMA.1)	In the agriculture, industry, and waste sectors, the assessment methodology has been enhanced for certain source categories. Details can be seen in NID chapter 10.
Technical changes related to improvements in accuracy that maintain methodological consistency (para. 2(d)(ii) of annex II to decision 4/CMA.1)	NA

Reporting requirement	Description or reference to the relevant section of the BTR
Explain how any methodological changes and technical updates made during the implementation of their NDC were transparently reported (para. 2(e) of annex II to decision 4/CMA.1)	For details, refer to *Table 1*
Striving to include all categories of anthropogenic *emissions or removals in the NDC and, once a source, sink or activity is included, continuing to include it (para. 3 of annex II to decision 4/CMA.1):*	
Explain how all categories of anthropogenic emissions and removals corresponding to their NDC were accounted for (para. 3(a) of annex II to decision 4/CMA.1)	All NDC-compliant categories (1.A.1, 1.A.2, 1.A.3, 1.A.4.a, 1.A.4.b, 1.A.4.c, 1.B, CRF Sector 2, CRF Sector 3, and CRF Sector 5) for anthropogenic GHG emissions and removals were calculated according to the 2006 IPCC guidelines.
Explain how Party is striving to include all categories of anthropogenic emissions and removals in its NDC, and, once a source, sink or activity is included, continue to include it (para. 3(b) of annex II to decision 4/CMA.1)	According to paragraph 8 of the NDC, the document addresses seven sectors: transport, building, energy generation and transmission, agriculture, industry, waste and forest. Emissions and absorptions for the entire period of NDC implementation are ensured to be accounted in the CSAP.
Provide an explanation of why any categories of anthropogenic emissions or removals are excluded (para. 4 of annex II to decision 4/CMA.1)	From the categories given in the national inventory report, the NDC does not include only the CRF 3 sector (FOLU). Emissions in this category have been recorded since 1990. After 2012, greenhouse gases will no longer be emitted in this category, which is the reason for not taking it into account in the NDC. The NDC also does not include GHG emissions from the 1.A.3.ai international aviation and 1.A.3.di International water-borne navigation categories, as these categories are recorded separately and do not contribute to the national emissions.
Each Party that participates in cooperative approaches that involve the use of ITMOs towards an NDC under Article 4, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC	

Reporting requirement	Description or reference to the relevant section of the BTR
Provide information on any methodologies associated with any cooperative approaches that involve the use of ITMOs towards an NDC under Article 4 (para. 75(f) of the MPGs)	The Joint Crediting Mechanism (JCM), under which Georgia and Japan cooperate on climate change mitigation issues such as decarbonization of the economy and reduction of greenhouse gases, has not yet been implemented. This mechanism aims to contribute to achieving the goals outlined in both countries' NDC documents.
Provide information on how each cooperative approach promotes sustainable development, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	Agreements, including memorandums and contracts, between Georgia and developed countries such as the Swiss Confederation and Japan, will facilitate the preparation and implementation of joint projects by private companies in areas such as renewable energy, waste management, transport, forest management, and energy efficiency. However, these agreements have not yet been implemented.
Provide information on how each cooperative approach ensures environmental integrity consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	NA
Provide information on how each cooperative approach ensures transparency, including in governance, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	NA
Provide information on how each cooperative approach applies robust accounting to ensure, inter alia, the avoidance of double counting, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	NA
Any other information consistent with decisions adopted by the CMA on reporting under Article 6 (para. 77(d)(iii) of the MPGs)	NA

Notes: (1)

Pursuant to Article 79 of the MPGs, each Party shall submit the information referred to in Articles 65-78 of the MPGs in narrative and common tabular format (CRT), as required. (2) A Party may modify the reporting format (eg Excel file) to remove specific rows of this table if the information in those rows is inconsistent with Article 4 of the Paris Agreement and MPGs of the Party's NDC.

[a] Under Article 4, for the first NDC, each Party must clearly state and provide information on its calculation approach, including its compliance with Article 4, paragraphs 13–14 of the Paris Agreement (Article 71 of the MPGs).

[b] *For the second and subsequent NDCs under Article 4, each Party shall submit the information specified in Chapters III.B and C of the MPGs in accordance with Decision 4/CMA.1. Each party must clearly indicate the extent to which its reporting complies with Decision 4/CMA.1 (Article 72 of the MPGs). Each Party may choose to provide information on its first NDC calculations in accordance with Decision 4/CMA.1 (Article 71 of the MPGs).*

Table 5. Structured summary: Tracking Progress Made in Implementing and Achieving NDC under Article 4 of the Paris Agreement [a] presents an overview of the progress made in implementing Georgia's Nationally Determined Contribution (NDC). It includes detailed information on indicators relevant to Georgia's climate commitments and serves as the primary tool for tracking NDC progress.

Georgia has selected specific indicators, such as total greenhouse gas (GHG) emissions and removals, to monitor its NDC progress and meet commitments. Additionally, the contribution of emissions and removals from the land use, land-use change, and forestry (LULUCF) sector is tracked for each year of the NDC target period. The table also presents data on Internationally Transferred Mitigation Outcomes (ITMOs), reflecting Georgia's current status in cooperative approaches and its contribution to NDC goals.

The structured summary provides important information gathered over several years of NDC implementation. For each indicator, the table details the baseline years, baseline values, target levels, and Georgia's progress over time. Given data is compared with base years to assess the implementation level of NDC targets, ensuring a transparent representation of all aspects of Georgia's climate performance.

TABLE 5. STRUCTURED SUMMARY: TRACKING PROGRESS MADE IN IMPLEMENTING AND ACHIEVING NDC UNDER ARTICLE 4 OF THE PARIS AGREEMENT [A]

	Unit, as applicable	Baseline	Implementation Period			Target Level [b]		Target Year or Period	Progress Made
		1990/2015/2030	2021	2022	2030				
Indicator(s) selected to track progress of the NDC or portion of NDC under Article 4 of the Paris Agreement (paras. 65 and 77(a) of the MPGs):									
Greenhouse gas emissions in Georgia excluding the LULUCF sector	***Gg CO_2 eq.***	46,575 (1990 yr.)	18,797	20,096	30,274	Georgia is fully committed to an unconditional target to reduce its domestic GHG emissions by 35% below 1990 levels by 2030, excluding LULUCF emissions/ removals. This goal translates to a maximum emissions level of 30,274 Gg of CO_2 eq. by 2030. The target is supported through domestically implemented mitigation measures and policies.	Georgia is committed to a conditional target to reduce its total GHG emissions by 50-57% below 1990 levels by 2030 (excluding LULUCF emissions/removals), contingent upon international support. Achieving a 50% reduction aligns with a global pathway to limit warming to 2°C, translating to a maximum emissions level of 23,287 Gg CO_2 eq. To limit warming to 1.5°C, a 57% reduction would be required, capping emissions at 20,027 Gg CO_2 eq. by 2030.	2030	57% below base year level
Amount of greenhouse gas emissions from the energy generation and transmission sector	***Gg CO_2 eq.***	4,916 (2030 yr.)	3,421	3,594	4,178	By 2030 Georgia plans to mitigate the GHG emissions from the energy generation and transmission sector by 15% from the baseline level, with a target indicative amount of 4,178 Gg CO_2 eq.		2030	27% below baseline level
Greenhouse gas emissions from the transport sector (Gg CO_2 eq.)	***Gg CO_2 eq.***	6,154 (2030 yr.)	4,256	4,500	<5,231	By 2030, Georgia's transport sector aims to achieve a reduction in greenhouse gas emissions by 15% with a target indicative amount of <5,231 Gg CO_2 eq. compared to baseline projections.		2030	27% below baseline level.
Greenhouse gas emissions from the industry sector (Gg CO_2 eq.)	***Gg CO_2 eq.***	5,731 (2030 yr.)	3,602	4,366	<5,445	Georgia plans to reduce GHG emissions in the industry sector by 5% by 2030, with a target indicative amount of <5,445 Gg CO_2 eq. compared to the baseline forecast.		2030	24% below baseline level.

	Unit, as applicable	Baseline	Implementation Period			Target Level [b]		Target Year or Period	Progress Made
		1990/2015/2030	2021	2022	2030				
Carbon capture potential of forests (Gg CO_2 eq.)	***Gg CO_2 eq.***	-6,252 (2015 yr.)	-6,853	-6,694	-6,877	Georgia plans to increase the carbon absorption capacity of the forest sector by 10% by 2030, with a target indicative amount of -6,877 Gg CO_2 eq. compared to the level recorded in 2015		2030	7% above baseline level.
{Parties can add rows for each additional indicator and supporting information for each indicator, e.g., baseline values, baseline for the portion of NDC, target values, mitigation effects of policies and measures, etc.}									
Where applicable, total GHG emissions and removals consistent with the coverage of the NDC (para. 77(b) of the MPGs)	***Gg CO_2 eq.***	46,575	18,797	20,096	30,274	Georgia is fully committed to an unconditional target to reduce its domestic GHG emissions by 35% below 1990 levels by 2030, excluding LULUCF emissions/ removals. This goal translates to a maximum emissions level of 30,274 Gg of CO_2 eq. by 2030. The target is supported through domestically implemented mitigation measures and policies.	Georgia is committed to a conditional target to reduce its total GHG emissions by 50-57% below 1990 levels by 2030 (excluding LULUCF emissions/removals), contingent upon international support. Achieving a 50% reduction aligns with a global pathway to limit warming to 2°C, translating to a maximum emissions level of 23,287 Gg CO_2 eq. To limit warming to 1.5°C, a 57% reduction would be required, capping emissions at 20,027 Gg CO_2 eq. by 2030.	2030	57% below base year level
Contribution from the LULUCF sector for each year of the target period or target year, if not included in the inventory time series of total net GHG emissions and removals, as applicable (para. 77(c) of the MPGs)	***Gg CO_2 eq.***	-8,179	-6,011	-5,801	NA	NA	NA	NA	NA

	Unit, as applicable	Baseline	Implementation Period			Target Level [b]		Target Year or Period	Progress Made
		1990/2015/2030	2021	2022	2030				
Each Party that participates in cooperative approaches that involve the use of ITMOs towards an NDC under Article 4 of the Paris Agreement, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of the NDC, shall provide (para. 77(d) of the MPGs):	NA	NA	NA	NA		NA		NA	NA
If applicable, an indicative multi-year emissions trajectory, trajectories or budget for its NDC implementation period (para. 7(a)(i), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
If applicable, multi-year emissions trajectory, trajectories or budget for its NDC implementation period that is consistent with the NDC (para. 7(b), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
Annual anthropogenic emissions by sources and removals by sinks covered by its NDC or, where applicable, from the emission or sink categories as identified by the host Party pursuant to paragraph 10 of annex to decision 2/CMA.3 (para. 23(a), annex to decision 2/CMA.3) (as part of para. 77 (d)(i) of the MPGs)	NA	NA	NA	NA		NA		NA	NA
Annual anthropogenic emissions by sources and removals by sinks covered by its NDC or, where applicable, from the portion of its NDC in accordance with paragraph 10, annex to decision 2/CMA.3 (para. 23(b), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
If applicable, the annual level of the relevant non-GHG indicator that is being used by the Party to track progress towards the implementation and achievement of its NDC and was selected pursuant to paragraph 65, annex to decision 18/CMA.1 (para. 23(i), annex, decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA

	Unit, as applicable	Baseline	Implementation Period			Target Level [b]		Target Year or Period	Progress Made
		1990/2015/2030	2021	2022	2030				
Annual quantity of ITMOs first transferred (para. 23(c), annex to decision 2/CMA.3) (para. 77(d)(ii) of the MPGs)	NA	NA	NA	NA		NA		NA	NA
Annual quantity of mitigation outcomes authorized for use for other international mitigation purposes and entities authorized to use such mitigation outcomes, as appropriate (para. 23(d), annex to decision 2/CMA.3) (para. 77(d)(ii) of the MPGs)		NA	NA	NA		NA		NA	NA
Annual quantity of ITMOs used towards achievement of the NDC (para. 23(e), annex to decision 2/CMA.3) (para. 77(d)(ii) of the MPGs)	NA	NA	NA	NA		NA		NA	NA
Net annual quantity of ITMOs resulting from paras. 23(c)-(e), annex to decision 2/CMA.3 (para. 23(f), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
If applicable, the cumulative amount of ITMOs, divided by the number of elapsed years in the NDC implementation period (para. 7(a)(ii), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
Total quantitative corresponding adjustments used to calculate the emissions balance referred to in para. 23(k)(i), annex to decision 2/CMA.3, in accordance with the Party's method for applying corresponding adjustments consistent with section III.B, annex to decision 2/CMA.3 (Application of corresponding adjustments) (para. 23(g), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
The cumulative information in respect of the annual information in para. 23(f), annex to decision 2/CMA.3, as applicable (para. 23(h), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
For metrics in tonnes of CO2 eq. or non-GHG, an annual emissions balance consistent with chapter III.B (Application of corresponding adjustment), annex, decision 2/CMA.3 (para. 23(k)(i), annex to decision 2/CMA.3) (as part of para. 77 (d)(ii) of the MPGs)	NA	NA	NA	NA		NA		NA	NA

	Unit, as applicable	Baseline	Implementation Period			Target Level [b]		Target Year or Period	Progress Made
		1990/2015/2030	2021	2022	2030				
For metrics in non-GHG, for each non-GHG metric determined by participating Parties, annual adjustments resulting in an annual adjusted indicator, consistent with para. 9 of chapter III.B (Corresponding adjustments), annex to decision 2/CMA.3, and future guidance to be adopted by the CMA (para. 23(k)(ii), annex to decision 2/CMA.3)	NA	NA	NA	NA		NA		NA	NA
Any other information consistent with decisions adopted by the CMA on reporting under Article 6 (para. 77(d)(iii) of the MPGs)	NA	NA	NA	NA		NA		NA	NA
Assessment of the achievement of the Party's NDC under Article 4 of the Paris Agreement (para. 70 of the MPGs):	NA	NA	NA	NA		NA		NA	NA
Restate the target of the Party's NDC:	NA	NA	NA	NA		NA		NA	NA
Information for reference point(s), level(s), baseline(s), base year(s), or starting point(s):	NA	NA	NA	NA		NA		NA	NA
Final information for the indicator for the target year/period, including the application of the necessary corresponding adjustments consistent with chapter III, annex, decision 2/CMA.3 (Corresponding adjustments) and consistent with future decisions from the CMA (para. 23(l), annex to decision 2/CMA.3):	NA	NA	NA	NA		NA		NA	NA
Comparison:	NA	NA	NA	NA		NA		NA	NA
Achievement of NDC: {yes/no, explanation}	NA	NA		NA		NA		NA	NA

Notes: (1)

Pursuant to para. 79 of the MPGs, each Party shall report the information referred to in paras. 65–78 of the MPGs in a narrative and common tabular format, as applicable. (2) A Party may amend the reporting format (e.g. Excel file) to remove specific rows in this table if the information to be provided in those rows is not applicable to the Party's NDC under Article 4 of the Paris Agreement, in accordance with the MPGs. (3) The Party could add rows for each additional selected indicator.

a This table could be used for each NDC target in case Party's NDC has multiple targets.

b Parties may provide information on conditional targets in a documentation box with references to the relevant page in their biennial transparency report

1.4 MITIGATION POLICIES AND MEASURES, ACTIONS AND PLANS, INCLUDING THOSE WITH MITIGATION CO-BENEFITS RESULTING FROM ADAPTATION ACTIONS AND ECONOMIC DIVERSIFICATION PLANS, RELATED TO IMPLEMENTING AND ACHIEVING NDC UNDER ARTICLE 4 OF THE PARIS AGREEMENT

(MPG Paragraphs 80-90)

In this chapter, you will find information about the strategies, action plans, activities, and measures by sector that contribute to the implementation of the NDC. These efforts play a significant role in reducing GHG emissions and increasing carbon absorption, including the main source categories identified in the NIR.

According to paragraphs 84 and 85 of the MPGs, the tables include information for each activity on reduced GHG emissions and expected emission reductions. This encompasses mitigation activities that yield co-benefits from adaptation actions and economic diversification plans.

Pursuant to Section 87 of the MPGs, this subchapter describes the withdrawn mitigation measures that were detailed in the previous BTR. As this is the first BTR, information on actions, policies, and measures that are no longer in place will be presented in subsequent reports, along with explanations for their withdrawal.

According to paragraph 88 of the MPGs, this subchapter should include information on measures affecting GHG emissions from international transport activities. To achieve the goals of the NDC, the 2021-2023 Action Plan of Georgia's 2030 Climate Strategy was developed, however, it does not include measures addressing international transport activities. Consequently, each Party should identify its actions, policies, and measures that influence GHG emissions from international transport. Accordingly, any relevant information on this issue will be presented in subsequent reports.

According to Article 89 of the MPG, the country should, to the extent possible, provide information about how its actions, policies and measures are modifying longer-term trends in GHG emissions and removals.

According to paragraph 90 of the MPG, the country is encouraged to provide detailed information, to the extent possible, on the assessment of economic and social impacts of response measures.

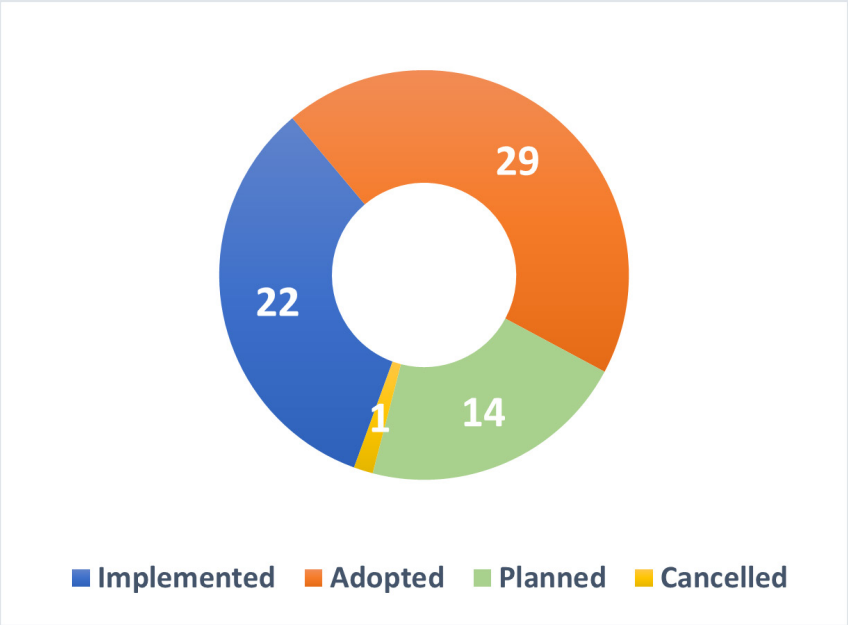
1.4.1 ACTIONS, POLICIES AND MEASURES THAT SUPPORT THE IMPLEMENTATION AND ACHIEVEMENT OF NATIONALLY DETERMINED CONTRIBUTION

The Climate Strategy and Action Plan (CSAP) is a national climate change policy, sectoral/ multi-sectoral policy, and institutional policy documents approved by the Government of Georgia.

The CSAP offers the tools for planning and implementing coordinated efforts to achieve national climate change mitigation goals. Both the strategy and the action plan integrate the country's mitigation measures until 2030 and they were created for the implementation of the NDC.

As of the end of 2023, out of 66 activities of 7 sectors (energy generation and transmission, transport, building, industry, agriculture, waste, forest) presented in the CAP of Georgia, 22 activities were implemented, 29 were adopted, 14 activities are planned and 1 activity has been cancelled. It should be noted that adopted activities are in progress and are being implemented, while planned activities have not been started yet.

GRAPH 1 STATUS OF CAP ACTIVITIES AS OF 2023



According to the CAP, the Ministry of Economy and Sustainable Development (MESD) of Georgia planned to undertake the following activities in the **energy generation and transmission** sector during 2021-2023:

1. Technical and procedural support for wind power (WP) generation;
2. Technical and procedural support for solar power (SP) generation;
3. Technical and procedural support for hydro power (HP) generation;
4. Implementation of technical work at thermal power plants;
5. Implementation of Ten-year network development plan of Georgia for electricity distribution companies;

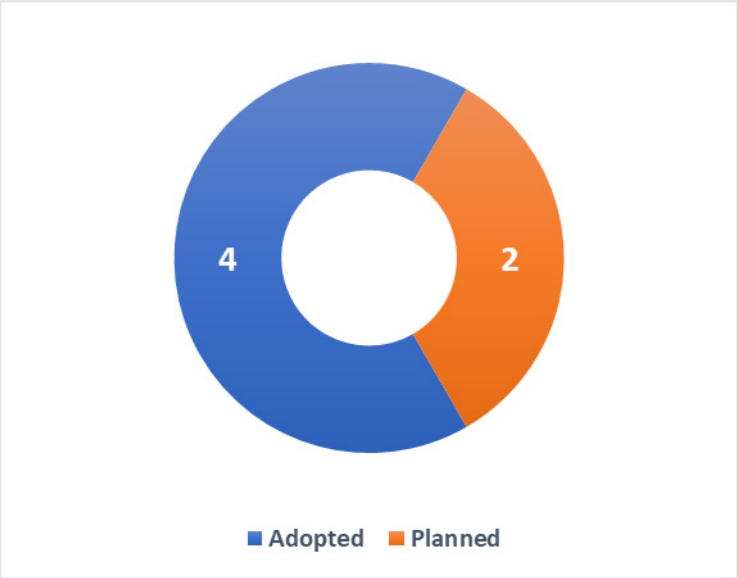
6. Development of a long-term comprehensive multisectoral strategy document for Georgia's energy policy. [177]

Out of 6 activities of the energy generation and transmission sector, 4 have been adopted and 2 are planned.

According to the adopted activities, greenhouse gas emissions from the energy generation and transmission sector were reduced by 2.89 Gg CO_2 eq. in 2021-2023. If all 6 activities are implemented, the annual emission reduction by 2030 will be 0.79[178] Gg CO_2 eq., and the total will be 8.42 Gg CO_2 eq. for the period of 2021-2030.[179] Specifically, 9 wind, 7 solar, and 10 hydropower plants are being built, and approximately 1,650 MW electrical substation is being constructed/renovated. The power substation and approximately 490 km of transmission lines are being integrated into the grid of approximately 435 MW of total installed capacity of wind and solar power plants.

A detailed description of the implemented, adopted, and planned mitigation measures in the energy generation and transmission sector is presented in the table below.

GRAPH 2 STATUS OF CAP ACTIVITIES IN THE ENERGY GENERATION AND TRANSMISSION SECTOR AS OF 2023



177 2021-2023 Action Plan of Georgia's 2030 Climate Strategy.
178 From 2024 onwards.
179 These numbers are the sum of the mitigation effects estimated in the energy generation and transmission sector methodology and assumptions table (See 1.4.3 Methodology and assumptions for assessing mitigation effects).

TABLE 6 IMPLEMENTED, ADOPTED AND PLANNED MITIGATION MEASURES IN THE ENERGY GENERATION AND TRANSMISSION SECTOR OF GEORGIA

Name	Description [180]	Objectives	Instrument type	Status	Gases affected[181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. Technical and procedural support for wind power (WP) generation	**As part of the activity, the following will be built:** Imereti wind power station -104 MW; Rikoti-Fona wind power station - 20 MW; Tbilisi wind power station - 54 MW; Dirbula wind power station - 21 MW; Ruiz wind power station - 12.6 MW; Samgori wind power station - 8 MW; Zestafoni wind power station - 50 MW; Nigoza wind power station - 50 MW;[182] Kaspi wind power station - 54 MW. **What has been done until the reporting period:** At the stations Imereti 1, Rikoti, Tbilisi, Kaspi, and Nigoza, the main studies have been completed and construction contracts are being signed. Samgori - construction contract has been signed and construction works are underway. The Dirbula wind power station project has been cancelled, after which an agreement was signed with another company on the same territories for the development of one large United Ruisi wind power station (206 MW). A feasibility study is being carried out at the Ruisi wind power station.	9 wind power stations have been built until 2024.	other A research Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	2,178,000,000.0 GEL	Development of infrastructure, Stimulation of local economy, Creation of jobs, Development/ creation of renewable energy sources	NO
2. Technical and procedural support for solar power (SP) generation	**As part of the activity, the following will be built:** SPP Udabno - 5 MW; Unspecified SPP - 1 MW; Plavi 7 MW; SPP Gardabani 50 MW (EBRD); SPP Marneuli - 20 MW; SPP Geosolar - 9 MW; SPP Sagarejo 25 MW. **What has been done until the reporting period:** Projects are in various stages of development: Udabno - Installed capacity has increased to 6.1 MW; the contract was signed; Technical and economic research is being carried out; Plavi - the project has been cancelled. Gardabani (EBRD) - The project has been prepared; Contract negotiations are underway for the joint project of the new Samgori Solar Power Plant (96 MW). Marneuli - basic studies have been completed and construction contracts are being signed; The installed capacity has increased to 68 MW. Geosolar - negotiations on contractual issues are underway; Sagarejo - the project is suspended.	7 solar power plants (SPP) have been built until 2024.	other	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	209,880,000.0 GEL	Development of infrastructure, Stimulation of local economy, Creation of jobs, Development/ creation of renewable energy sources	NO

180 The first year indicated in the description column corresponds to the original deadline determined by the CAP (2021-2023), and the year indicated in parentheses is the updated information about the deadline for the completion of the work.

181 CH_4 and N_2O emissions are negligible, hence they are not considered.

182 The environmental decision has not yet been issued at the Nigoza station (status: 24.02.2021)

Name	Description [180]	Objectives	Instrument type	Status	Gases affected[181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
3. Technical and procedural support for hydro power (HP) generation	**As part of the activity, the following will be built (with a capacity of more than 13 MW):** Kirnati HP plant - 51.3 MW. Khobi HP plant - 46.7 MW. Mtkvari HP plant - 53 MW. Mestiachala 1 HP plant - 20.0 MW. Stori 1 HP plant - 20.0 MW. Samkuristskali 2 HP plant - 26.3 MW. Metekhi 1 HP plant - 36.7 MW. Ghebi HP plant - 14.3 MW. Chiora HP plant - 14.2 MW. Zoti HP plant - 44.3 MW. **What has been done until the reporting period**: Kirnati - Construction is finished, and additional works are underway. Khobi 2 - Under construction. Mtkvari - is being built. The installed capacity has increased to 54.1 MW. Mestiachala 1 – Came into operation. Stori 1 - Under construction. The installed capacity has increased to 33.6 MW. Samkuristskali 2 - Construction stopped. Metekhi 1 - Under construction. Ghebi - Is being built. Chiora (26.1 MW) - Under construction. Zoti - Construction stopped.	By 2024, 10 hydropower plants (HP plants) have been constructed. (Due to changes in the ten-year development plan of Georgia's transmission network, the project's commissioning deadline has been extended to December 31, 2025.)	other	Adopted	CO2	-2.89	-5.53	See Table 23	2021	Ministry of Economy and Sustainable Development	1,980,000,000.0 GEL	Development of infrastructure, Stimulation of local economy, Creation of jobs, Development/ creation of renewable energy sources	NO
4. Implementation of technical work at thermal power plants	**As part of the activity, the following will be implemented:** Efficiency improvement works will be carried out at all existing thermal power plants, and new combined cycle thermal power plants will be equipped with advanced technologies to double their energy efficiency. By 2023, Gardabani 3, a combined cycle gas-fired thermal power plant, will be constructed.	In order to double the energy efficiency, work will be carried out on all existing thermal power plants to increase efficiency, and new combined cycle thermal plants will be equipped with new technologies.	other	Planned	CO2	NA	NA	See Table 24	2021	Ministry of Economy and Sustainable Development	531,200,000.0 GEL	Increased energy efficiency, Cost savings, Environmental benefits, Technological innovation	NO

Name	Description [180]	Objectives	Instrument type	Status	Gases affected[181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
5. Implementation of Ten-year network development plan of Georgia for electricity distribution companies	**As part of the activity, the following will be implemented:** Until 2024 construction and/or renovation of approximately 1,650 MW of substations, construction and/or renovation of approximately 490 kilometres of power transmission lines, integration of approximately 435 MW of total installed capacity into the grid of wind and solar power plants. **What has been done until the reporting period**: The works of 220/110 KW substation Lajanuri are in progress, the construction works of 220/110 KW substation Ozurgeti are in progress, and the detailed project of expanding Akhaltsikhe substation with 500 KW and 400 KW wings is being prepared. Construction works of 500 Kilowatt substation Tskaltubo are in progress. The works of 330/220 KW, 400 MW substation in Gardabani have been completed. Completed work: tying the 500 KW power transmission line "Kavkasioni" to "Jvari 500/220" electrical substation - 16 km (2x8 km); 220 KW power transmission line "Jvari-Khorga" - 2x56.5 km; Tying the 220 KW power transmission line "Alaverdi" to substation Marneuli - 2x16.7 km; Arrangement of two 220 kilowatt cells; Rehabilitation of part of 220 KW power transmission line "Alaverdi" (Alaverdi 3) (from thermal station 2 to the cutting site of Alaverdi) - 7.5 km; 330 KW power transmission line Gardabani-Agstafa double chaining - 2x18.5 km (to the border); Rehabilitation (83%) of 220 KW power transmission line "Kolkhida-1" - 66 km, waiting for construction permit; 220 KW power transmission line Aragvi double chaining (30%) - 34 km, the tying work has started at the substation. They are waiting for the construction permit.	The purpose of the activity is to strengthen the infrastructure of the national electricity transmission systems, solve existing problems, respond to future challenges and realize network opportunities, including the integration of renewable energy sources into the network.	other	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	771,804,000.0 GEL	Development of infrastructure, Encouragement of local economy, Development of renewable energy sources	Connection with activities 1, 2 and 3: work carried out within the activity enables the integration of renewable energy sources into the network.
6. Development of a long-term comprehensive multisectoral strategy document for Georgia's energy policy	**As part of the activity, the following will be implemented:** Establish a long-term (by 2030) and comprehensive state energy policy strategy document, which will become the basis for developing short-, medium- and long-term strategies, with a specific focus on the use of renewable energy resources by Georgia. **What has been done until the reporting period**: The Integrated National Energy and Climate Plan (NECP) has been adopted by the Parliament of Georgia on 27th of June 2024	Formation of a long-term (by 2030) and comprehensive state energy policy strategy document, which will become the basis for the development of short-, medium- and long-term strategies, with a specific focus on the use of renewable energy resources by Georgia.	Regulatory Instrument	Planned	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	198,000.0 GEL (Grant)	Development of the legal framework and convergence with international standards	NO

As outlined in the CAP, the following activities were planned for implementation in the **transport sector** during 2021-2023:

1. Implementing changes in existing regulation related to the technical inspection of vehicles;
2. More efficient execution of fines foreseen under the Administrative Offences Code of Georgia in terms of technical inspection of the vehicles;
3. Control of the exhaust fumes from the vehicles on the roads;
4. For the promotion of electric vehicles, identification of optimal tax incentive alternatives based on the cost-benefit analysis;
5. Improve infrastructure for electric vehicles in Tbilisi;
6. Discussion on the possibility of increase in import tax for old vehicles based on (economic) feasibility study;
7. Emission standards on the import of vehicles based on the cost-effectiveness analysis (EUR4 / EUR5);
8. Discuss the increase in taxes for fuels;
9. Support and encouragement of the biodiesel production;
10. Implement the measures included in Tbilisi's Green Transport Policy Plan;
11. Implement the measures listed in Batumi's Sustainable Urban Mobility Plan (SUMP);
12. Develop international climate finance proposals for the improved public, intercity, and non-motorized transport means;
13. Develop cost-benefit analysis and feasibility study to identify best options for shifting road freight to rail.[183]

Out of 13 activities of the transport sector, 7 have been implemented, 5 are ongoing, [184] **and 1 is planned.**

According to the implemented activities, GHG emissions from the transport sector were reduced by 260.41 Gg CO_2 eq. in 2021-2023. If all 13 activities are implemented, by 2030 the reduction of annual GHG emissions will be 249.89[185] Gg CO_2 eq., and the total reduction for the period of 2021-2030 will be 2,009.7 Gg CO_2 eq.

The following activities have been implemented: (1) it became mandatory to include periodic technical inspection (PTI) centres in a unified electronic database, which will reduce the tendency to bypass inspections; (2) for effective enforcement of fines, 559 License Plate Recognition (LPR) cameras were installed, amendments were made to the article of the law dealing with non-inspected vehicles. Committing the same act for the second, third, and fourth time was defined as aggravating circumstance. According to the amendment, corresponding fines were also imposed; (3) control of vehicle emissions on

183 2021-2023 Action Plan of Georgia's 2030 Climate Strategy

184 The term "ongoing" corresponds to the term "Adopted" in the relevant chapter of the Biennial Transparency Report (BTR).

185 These numbers are the sum of the mitigation effects estimated in the transport sector methodology and assumptions tables (See 1.4.3 Methodology and assumptions for assessing mitigation effects)

roads was introduced; (4) an economic feasibility study was conducted on increasing the import tax on old light vehicles; (5) a cost-benefit analysis document for vehicle emission standards was published, technical regulations on the introduction of the Euro 5 standard of vehicle emissions at the national level was approved; (6) a study was conducted on the increase of the tax on fuel; (7) measures included in the Sustainable Urban Mobility Plan of Batumi were implemented.

The following activities are ongoing: (1) cost-benefit analysis on the identification of additional optimal tax incentive alternatives to encourage the use of electric cars; (2) improvement of the infrastructure for electric cars in Tbilisi; (3) promotion and encouragement of biodiesel production; (4) implementation of measures included in the Tbilisi transport policy; and (5) developing proposals for international climate finance to improve public, intercity and non-motorized transportation.

It is planned to prepare a cost-benefit analysis and feasibility study to identify the best opportunities for shifting road freight to rail.

A detailed description of the implemented, ongoing, and planned mitigation measures in the transport sector is presented in Table 7.

GRAPH 3 STATUS OF CAP ACTIVITIES IN THE TRANSPORT SECTOR AS OF 2023

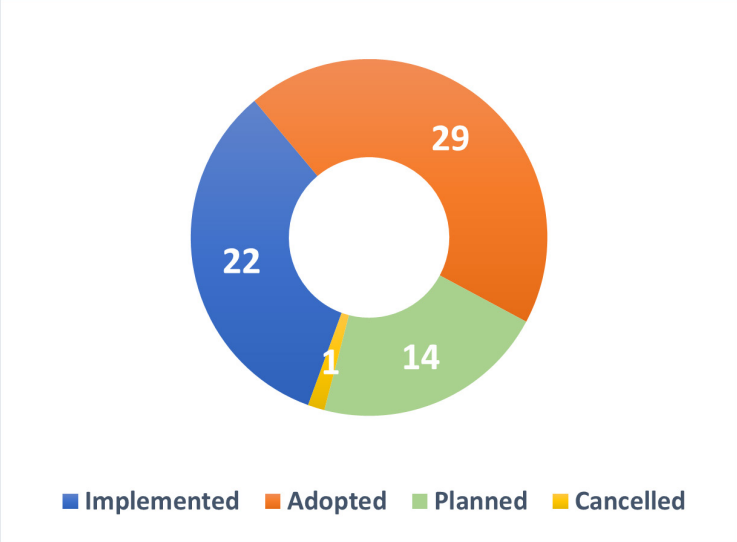


TABLE 7. IMPLEMENTED, ADOPTED AND PLANNED MITIGATION MEASURES IN THE TRANSPORT SECTOR OF GEORGIA

Name	Description	Objectives	Instrument type	Status	Gases affected [sn]	Estimates of GHG emission reductions achieved (gg CO_2 eq.)	Estimates of GHG emission reductions expected (gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. Implementing changes in existing regulation related to the technical inspection of vehicles.	**What has been done until the reporting period**: From April 2021, it became mandatory to include periodic technical inspection (PTI) centres in a single electronic database, which will contribute to greater transparency of the PTI process and reduce the tendency to bypass inspections.[186]	Implementation of legislative and administrative measures to reduce the tendency to bypass technical inspections.	Regulatory Instrument	Implemented	CO2	-37.82	-96.25	See Table 14	2021	Ministry of Economy and Sustainable Development	Administrative expense	Reduced number of administrative offenses	NO
2. More efficient execution of fines foreseen under the Administrative Offences Code of Georgia in terms of technical inspection of the vehicles.	**What has been done until the reporting period**: For effective enforcement of fines, 559 LPR cameras were installed. On March 22, 2023, with the active participation of the Ministry of Internal Affairs and the initiative of members of the Parliament of Georgia, amendments were made to Article 118 of the Administrative Offences Code of Georgia, which refers to driving a vehicle that has not undergone periodic technical inspection. Committing the same act for the second, third, and the fourth time was defined as aggravating circumstance. The corresponding fines were also determined by the change to the article. The legal regulations for periodic technical inspection of the vehicle were refined with the legislative amendments.	The goal of the activity is to increase referrals for technical inspections, remove the least efficient vehicles from the roads/ market, and renew the fleet, which will increase its average efficiency.	Regulatory Instrument	Implemented	CO2	NA	NA	NA	2021	Ministry of Internal Affairs	Administrative expense	Establishing a safe transport system, Reducing the number of administrative offenses	Connection with activity 1: By including the centres in the unified electronic database, the effectiveness of LPR cameras has increased.
3. Control of the exhaust fumes from the vehicles on the roads.	**What has been done until the reporting period**: With the active participation of the Ministry of Internal Affairs and the initiative of the Ministry of Environmental Protection and Agriculture of Georgia, the Resolution No. 348 of the Government of Georgia of September 1, 2023 approved the "Rule of checking vehicle emission norms and emissions of vehicles with visible emissions on the road", which entered into force on September 4, 2023, and began to determine the compliance of vehicle emissions with the established norms. In addition, with the amendments made to the Administrative Offences Code of Georgia, a fine was introduced for driving a vehicle with visible emissions.	The purpose of the activity is to introduce and implement a technical mechanism for controlling the level of emissions from vehicles on the street in real-time.	Regulatory Instrument	Implemented	CO2	-0.00005	-0.00084	See Table 15	2021	Ministry of Environment Protection and Agriculture	Administrative expense	Reduction of air pollution, Maintained vehicle fleet	NO
4. For the promotion of electric vehicles, identification of optimal tax incentive alternatives based on the cost-benefit analysis.	**As part of the activity, the following will be implemented:** Conduct a cost-effectiveness analysis to determine how much additional tax incentives for electric vehicles (in addition to the excise tax) will increase the rate of their entry into the market, to gradually replace the existing fleet and determine the fiscal effect. **What has been done until the reporting period**: In the second half of 2023, the Ministry of Finance of Georgia learned that the NDC Partnership was not able to secure donor funding for CSAP's deficit activities, which included conducting relevant research. Accordingly, in the second half of 2023, the Ministry of Finance of Georgia began seeking alternative funding sources for the research related to these activities. In October 2023, USAID was identified as a partner, and the research will now be conducted under the framework of its Economic Governance Program.	Conducting a cost-effectiveness analysis to determine to what extent imposing additional tax incentives for electric vehicles (in addition to excise duty) will increase the rate of their entry into the market in order to gradually replace the existing fleet and determine the fiscal effect.	Research Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Finance	administrative expense	Infrastructure development, Determination of fiscal effect.	NO

186 Technical Regulations approved by the Resolution No. 511 of the Government of Georgia dated December 1, 2017 (change - Resolution No. 113 of the Government of Georgia dated March 19, 2021).

Name	Description	Objectives	Instrument type	Status	Gases affected [181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
5. Improve infrastructure for electric vehicles in Tbilisi.	**As part of the activity, the following will be implemented:** the establishment of charging stations, parking lanes, and other supporting infrastructure for electric vehicles. **What has been done until the reporting period:** A total of 65 parking lots have been designated for electric vehicle charging, with 28 lots allocated from zonal parking areas and 37 from municipal parking spaces. As of December 31, 2023, a total of 1,809 parking lots have been designated within Tbilisi's zonal-hourly parking system, offering free parking for electric vehicles. An additional 1,691 spaces are yet to be allocated.	The goal of this activity is to establish charging stations, parking lanes, and other supporting infrastructure for electric vehicles.	Planning Instrument	Adopted	CO2	NA	NA	NA	2021	Tbilisi Municipality City Hall	Administrative expense	Promoting environmentally sustainable behaviour among the population, Encouragement to purchase electric cars	NO
6. Discussion on the possibility of increase in import tax for old vehicles based on (economic) feasibility study	**What has been done until the reporting period:** Research was conducted under the GIZ projects CDCPIII and Mobility4Cities, and the studies have been successfully completed.	A study to examine whether it is economically feasible to impose a progressive import tax on vehicles aged 5 years and under, 6 to 10 years and 10 years and over.	Research Instrument	Implemented	CO2	NE[187]	NE	See Table 16	2021	Ministry of Finance	300,000.0 GEL	Establishing an updated, safe transportation system	NO
7. Emission standards on the import of vehicles based on the cost-effectiveness analysis (EUR4 / EUR5)	**What has been done until the reporting period:** With the support of the United Nations Environment Programme (UNEP) and the Caucasus Environmental NGO Network (CENN), a document on cost-benefit analysis of vehicle emission standards was prepared, presented to stakeholders and published.[188] A technical regulation was developed and approved by the Georgian government's resolution N238 of June 28, 2023 - "On the effective introduction of the marginally permissible norms of emission from vehicles and other mechanic motor vehicles polluting the atmospheric air with harmful substances in the territory of Georgia". The technical regulation envisages the introduction of the Euro 5 vehicle emission standard at the national level. The restrictions stipulated by the regulation for cars and minibuses will come into force from January 1, 2024, and for buses and trucks - from January 1, 2025.	A cost-effectiveness analysis document will be published until 2024; Regulations corresponding to the (engine) EUR4 / EUR5 standard will be introduced and implemented.	Regulatory Instrument	Implemented	CO2	NE[189]	NE	See Table 17	2021	Ministry of Environment Protection and Agriculture	1,203,840.0 GEL	Reducing the quality of air pollution, Stimulating the economy	NO
8. Discuss the increase in taxes for fuels	**What has been done until the reporting period:** Research was conducted under the GIZ projects CDCPIII and Mobility4Cities, and the studies have been successfully completed.	Exploring and preparing the possibility of increasing fuel taxes to reduce the use of gasoline and diesel vehicles, encouraging a shift among drivers toward using public transportation as their primary mode of travel.	Fiscal Instrument Research Instrument	Implemented	CO2	NE[190]	NE	NA	2021	Ministry of Finance	300,000.0 GEL	Increasing use of public transport, Reducing the use of unsustainable and inefficient vehicles, Improving air quality	NO

187 Greenhouse gas emissions will not be significantly reduced by increasing import taxes

188 http://environment.cenn.org/downloads/cost-benefit-analysis-of-applying-a-euro-5a-emissions-policy-on-imports-of-car/

189 Euro 3,4 and 5 car engines do not cover energy efficiency, therefore the impact on emissions is insignificant

190 The study does not include information on the reduction of emissions (study of the feasibility of introducing a progressive taxation system on the import of light vehicles and increasing the tax on fuel)

Name	Description	Objectives	Instrument type	Status	Gases affected [181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
9. Support and encouragement of the biodiesel production	**As part of the activity, the following will be implemented:** A database for biodiesel production was not established. The necessary information is being sourced from the existing database of oil producers. **What has been done until the reporting period**: A brochure and an informational video about biodiesel have been prepared.	This activity aims to reduce CO2 emissions by promoting biodiesel production, collecting data on biodiesel production and sales, and observing industry trends. Additionally, an informational brochure on biodiesel will be prepared to encourage its consumption.	Economic Instrument Informative Instrument Research Instrument	Adopted	CO2	NO	-32	See Table 18	2021	Ministry of Environment Protection and Agriculture	Administrative expense	Waste recycling, Increased recycling, Reduced environmental pollution, Enhanced national energy security, Reduced dependence on imported fossil fuels	NO
10. Implement the measures included in Tbilisi's Green Transport Policy Plan	**As part of the activity, the following will be implemented:** Sustainable Urban Mobility Plan (SUMP) is developed; Bus fleet is upgraded; At least 3500 parking lots are added within the system of zonal-hour parking; In accordance with the principles of multimodal planning, at least one street is rehabilitated. **What has been done until the reporting period**: The work on the Sustainable Urban Mobility Plan (SUMP) has been completed. The Tbilisi bus fleet has undergone a comprehensive renovation. In 2021, 180 units of 8-meter ISUZU buses were purchased. Additionally, under a contract signed in 2023, 50 units of 18-meter MAN buses were added to the city's bus fleet. Further purchases of additional buses of the same brand and capacity are planned for 2024-2025. To encourage public transport use in Tbilisi, nine streets have been organized according to the principles of multimodal planning. As for the zonal-hourly parking system, it has been implemented at 52%. Within this system, 1,809 parking lots have been designated, offering free parking for electric vehicles.	The purpose of the activity is to develop a Sustainable Urban Mobility Plan (SUMP); renovation of the bus park; addition of parking lots in the zonal-hourly parking system; Metro modernization and capacity increase; construction of a ropeway; introduction of a smart transport system; introduction of zonal-hourly parking; Rehabilitating streets to incorporate multimodal planning principles.	other	Adopted	CO2	-222.59	-1,559.04	See Table 19, Table 20, Table 21	2021	Tbilisi Municipality City Hall	1,762,200,000.0 GEL	Urban development, Economic stimulation, Transport system development, Infrastructure development	NO
11. Implement the measures listed in Batumi's Sustainable Urban Mobility Plan (SUMP)	**What has been done until the reporting period:** For the reporting period, more than 20% of the measures envisaged by Batumi's Sustainable Urban Mobility Plan (SUMP) have been implemented. In 2020, 8 electric buses were purchased as part of the Batumi Buses Project (Phase 2). Within the framework of the United Nations Development Programme (UNDP) project - "Green Cities: Development of Integrated Sustainable Transport Systems for the City of Batumi and the Region of Adjara", hourly parking spaces have been organized and are already functioning at 7 locations in Batumi.	The purpose of the activity is to improve the efficiency of bus routes; increasing bus capacity and number of passengers; introduction of zonal-hourly parking in central areas; plan and implement reduced vehicle activity; Purchase of diesel meeting the modern standard (euro 5) and fully electric buses, renewal of the fleet of the municipal transport company with new adapted buses, which will contribute to environmental protection and the smooth operation of the municipal transport system.	other	Implemented	CO2	NA	NA	NA	2021	Batumi Municipality City Hall	8,800,000.0 GEL	Economic growth, Transport system development, Urban development, Infrastructure development	NO

Name	Description	Objectives	Instrument type	Status	Gases affected [181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
12. Develop international climate finance proposals for the improved public, intercity, and non-motorized transport means	**As part of the activity, the following will be implemented:** Project proposal will be developed for at least one measure; The project proposal will be presented to three potential donors. **What has been done until the reporting period**: One project proposal was prepared. The project proposal "Inter-municipal sustainable transport in Georgia" was submitted to the NAMA Facility in 2021. The project proposal was not selected for funding, an additional donor is being sought.	Attract financial resources to implement specific new policies and measures under the next version of the CAP.	A planning tool	Adopted	CO2	NO	-62	See Table 22	2021	Ministry of Environment and Agriculture (Department of Environment and Climate Change)	178,200.0 GEL	Development of sustainable urban transport system, Promotion of social inclusion, Improved ambient air quality, Approximation to international standards	NO
13. Develop cost-benefit analysis and feasibility study to identify best options for shifting road freight to rail.	**As part of the activity, the following will be implemented:** At least one technical analysis document will be developed within the activity. **What has been done until the reporting period**: The donor and implementing organization were selected, the project's terms of reference was prepared.	The aim of the activity is to prepare a cost-benefit analysis that can help identify the most attractive measures subject to inclusion in the next version of the CAP.	A research tool	Planned	CO2	NA	NA	NA	2021	Ministry of Environment and Agriculture (Department of Environment and Climate Change)	257,400.0 GEL	Attracting foreign investments, Developed infrastructure, Improved ambient air quality.	NO

In line with the CSAP, the Ministry of Economy and Sustainable Development of Georgia planned to carry out the following activities in the **building sector** during 2021-2023:

1. Elaborate the methodology for certification of buildings;
2. Elaborate, approve, and implement secondary legislation on the energy efficiency of buildings;
3. Development of standards, norms, and labelling schemes for appliances;
4. Implementation of energy efficiency awareness-raising programmes for the public;
5. Implementation of information campaign about incandescent bulbs;
6. implementation of information campaigns for solar water heater systems in buildings;
7. Introducing tax regulations on incandescent bulbs;
8. Installation of energy efficient lighting in buildings owned/used by public institutions;
9. Establish energy efficiency information systems for public buildings;
10. Improvement of exterior enclosure of school buildings, installation of energy-efficient bulbs, retrofit/replacement of solid fuel heaters;
11. Elaboration of financial incentives mechanism for installation of solar water heater systems in buildings;
12. Encourage using of energy-efficient firewood stoves;
13. Development of qualification, accreditation, and certification schemes for energy sector experts;
14. Development of educational programs and trainings for energy consultants.[191]

Out of 14 activities of the building sector, 3 have been implemented, 7 are ongoing, and 4 activities are planned.

According to the Climate Action Plan 2021-2023, greenhouse gas emissions from the buildings sector have not decreased, despite the implementation of three activities. Activities 9, 12, and 13 listed in the table are primarily informative and educational, meaning the greenhouse gas reduction effects of these initiatives extend beyond the specified reporting period. If all 14 activities are carried out, annual emissions are projected to decrease by 766.7[178] Gg CO_2 eq. by 2030, resulting in a total reduction of 5,366.95 Gg CO_2 eq. over the 2021-2030 period.[192]

The following activities are ongoing: (1) in accordance with the Law of Georgia on Energy Efficiency, the creation of a registry of buildings used by administrative bodies has begun, (2) activities have been conducted to promote the use of energy-efficient wood stoves, and (3) qualification, accreditation, and certification schemes for experts in the energy sector have been developed. A methodology to promote building energy efficiency is

191 2021-2023 Action Plan of Georgia's 2030 Climate Strategy

192 These numbers are the sum of the mitigation effects estimated in the building sector methodology and assumptions tables (See 1.4.3 Methodology and assumptions for assessing mitigation effects)

being developed, (2) the development, approval, and implementation of secondary legislation regarding buildings energy efficiency is underway, (3) standards, norms, and labelling schemes required for devices are being established, (4) tax regulations related to incandescent light bulbs are being introduced, (5) energy-efficient lighting is being installed in buildings owned or used by public institutions, (6) the external enclosing structures of school buildings are being improved, energy-efficient lights are being installed in schools, and solid fuel heaters are being upgraded or replaced, (7) educational and training programs for energy consultants are being developed.

The following activities are planned: to (1) implement programs to raise public awareness about energy efficiency, (2) conduct an information campaign about "Incandescent" lamps, (3) conduct information campaigns about solar water heating, (4) provide financial incentives for the installation of solar water heating systems in buildings Mechanism development.

A detailed description of the implemented, ongoing, and planned mitigation measures in the buildings sector is presented in the table below.

GRAPH 4 STATUS OF CAP ACTIVITIES IN THE BUILDING SECTOR AS OF 2023

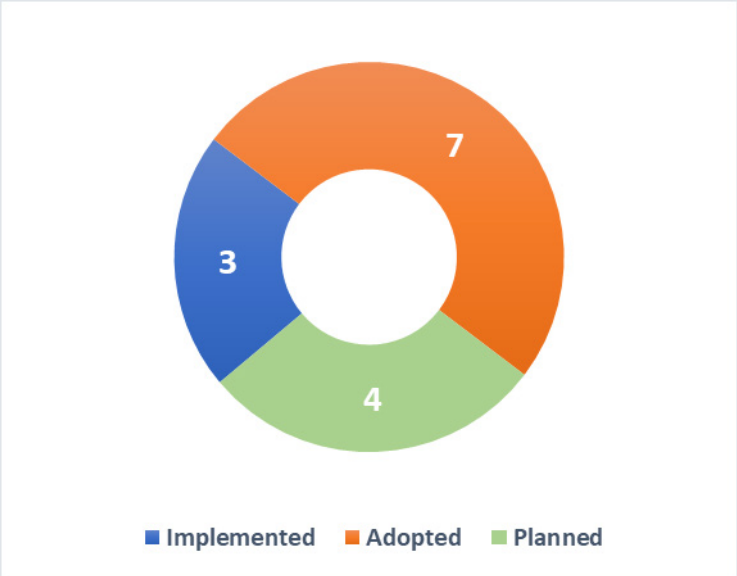


TABLE 8. IMPLEMENTED, ADOPTED AND PLANNED MITIGATION MEASURES IN THE BUILDING SECTOR OF GEORGIA

Name	Description	Objectives	Instrument type	Status	Gases affected [tm]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. Elaborate the methodology for certification of buildings	**As part of the activity, the following will be implemented:** A methodology promoting the energy efficiency of buildings will be developed in consultation with environmental and energy non-governmental organizations, as well as construction companies, and will fully comply with the 2010/31/EU European Directive. **What has been done until the reporting period:** For the development of the methodology necessary for the certification of buildings, the minimum energy efficiency requirements for buildings, building parts or building elements,[193] and the national methodology for calculating the energy efficiency of buildings[194] have already been approved. The energy efficiency calculation program has been launched in test mode and is generating the necessary declarations of conformity to determine compliance with the minimum requirements. The working version of the "Rules for Energy Efficiency Certification of Buildings" has been developed. In 2024, the rule will be submitted to the government for approval.	The development of the methodology necessary for the certification of buildings will enable the state, in accordance with energy efficiency standards and considering different climatic conditions across regions, to create exemplary construction projects for the thermal insulation of external building enclosures and make the results accessible to the general public.	Regulatory Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	88,715,880.0 GEL	Compliance with European energy efficiency standards, Increased stakeholder engagement, Enhanced energy efficiency, Strong legislative framework	Connection with Activity 2: In order to develop the methodology necessary for the certification of buildings, the minimum requirements for energy efficiency were determined by the subordinate normative acts on the energy efficiency of buildings.
2. Elaborate, approve, and implement secondary legislation on the energy efficiency of buildings.	**As part of the activity, the following will be implemented:** Relevant by-law normative acts will be developed and approved. **What has been done until the reporting period:** National methodology for calculating energy efficiency of buildings was approved in 2021. Minimum energy performance requirements for buildings, building parts or building elements - approved in 2021. The rule came into force on July 1, 2023. Comparative methodology for calculating cost-optimal levels of minimum energy efficiency requirements - a working version of the rule has been prepared. The procedure for developing one or several energy efficiency calculation programs and their use was approved in 2023. A working version of the rules for the total energy efficiency of engineering and technical systems in both existing and new buildings, including the selection, installation, regulation, and management of technical systems, has been prepared.	Creating and approving relevant by-law normative acts.	Regulatory Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	33,264,000.0 GEL	Reduction of energy consumption and therefore costs, Effective regulatory acts, Compliance with European energy efficiency standards	NO

193 Resolution N354 of the Government of Georgia of July 13, 2021.

194 Resolution N449 of the Government of Georgia of September 7, 2021.

Name	Description	Objectives	Instrument type	Status	Gases affected [181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
3. Development of standards, norms, and labelling schemes for appliances.	**As part of the activity, the following will be implemented:** Schemes supporting appliances will be developed in alignment with EU Directive 2010/30/EU, incorporating approaches from NGOs and private companies; By 2024, the market share of labelled energy-efficient products will reach 100% of all appliances, based on the established energy efficiency scheme. By September 30, 2021, 16 technical regulations will be adopted. **What has been done until the reporting period:** 51% of the available schemes have been created for the energy efficiency of household appliances, which take into account the opinions of non-governmental organizations and private companies and are fully compliant with the 2010/30/EU European Directive. According to the scheme developed for the energy efficiency of household appliances, 100% of the products on the market were labelled with energy efficiency ratings. Instead of 16, a total of 14 technical regulations must be approved. Currently, draft technical regulations for 9 of these have been fully prepared, and 3 regulations have already been approved.	The aim of the activity is to translate and adopt the relevant European (European Committee for Standardization (CEN)) and international standards for energy efficiency testing of selected household appliances. The introduction of the energy labelling regulations package should be accompanied by an information campaign on energy labelling.	Regulatory Instrument Informative Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	411,840.0 GEL	Reduced risk of malfunctions and accidents related to electrical circuits, Improved quality in products	NO
4. Implementation of energy efficiency awareness-raising programmes for the public.	**As part of the activity, the following will be implemented:** Public opinion research conducted before and after the campaign shows that awareness among the target audience has increased by at least 50%. **What has been done until the reporting period:** The preparation and execution of the campaign are planned under the ongoing technical assistance project, "Implementation of the Legislative Framework for Energy Efficiency," funded by the European Union and KfW.	Providing information to the public about cost-effective and easily achievable changes in energy usage, as well as disseminating information about energy-efficient measures, will enable consumers to make informed choices when selecting energy-efficient household appliances.	Educational Instrument Informative Instrument Research Instrument	Planned	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development Annual Report	299,376.0 GEL	Encouraging energy-efficient behaviour in society, Stimulating the economy	Connection to Activities 2 and 3: Familiarization with building energy efficiency by-laws, standards, norms, and labelling for equipment schemes as part of the awareness-raising program.
5. Implementation of information campaign about incandescent bulbs.	**As part of the activity, the following will be implemented:** Based on a public opinion survey conducted before and after the information campaign within this activity, awareness of energy-efficient lamps among the target audience is increased by at least 30%. **What has been done until the reporting period:** The preparation and execution of the campaign are planned under the ongoing technical assistance project, "Implementation of the Legislative Framework for Energy Efficiency," funded by the European Union and KfW.	An information campaign will be conducted regarding incandescent lamps, with the goal of ensuring that, starting from 2023, all newly purchased lamps for residential and commercial buildings are 100% energy-efficient.	Educational Instrument Informative Instrument Research Instrument	Planned	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	Administrative expense	Facilitating the switch to energy-efficient lighting options, raising awareness, encouraging energy efficiency	Connection to Activity 3: Familiarization with the circuit standards, norms, and labelling requirements for devices as part of the awareness program.
6. Implementation of information campaigns for solar water heater systems in buildings.	**As part of the activity, the following will be implemented:** According to the public opinion research conducted before and after the implementation of the information campaign within the activity, the awareness of the target audience about solar water heating will increase by at least 50%. **What has been done until the reporting period:** The preparation and execution of the campaign are planned under the ongoing technical assistance project, "Implementation of the Legislative Framework for Energy Efficiency," funded by the European Union and KfW.	Implementation of information campaigns on solar water heating and energy efficiency, which will raise consumer awareness.	Educational Instrument Informative Instrument Research Instrument	Planned	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	Administrative expense	Facilitating the switch to energy-efficient lighting options, Raising awareness, encouraging energy efficiency	Connection to Activity 3: Familiarization with the circuit standards, norms, and labelling requirements for devices as part of the awareness program.

Name	Description	Objectives	Instrument type	Status	Gases affected [189]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
7. Introducing tax regulations on incandescent bulbs.	**As part of the activity, the following will be implemented:** Tax regulations regarding incandescent lamps will be introduced. The aim of this activity is to ensure that, by 2023, all new purchases of lamps for residential and commercial buildings are 100% energy-efficient. **What has been done until the reporting period:** The regulation for the creation of the registry of buildings in use, as required by the Law of Georgian on Energy Efficiency, was prepared within the framework of the EU/KfW technical assistance project and approved by Order No. 1-1/335 of the Minister of Economy and Sustainable Development of Georgia. Based on this regulation, the creation of the registry has commenced, reflecting information about at least 70% of public buildings, which has been published on the Ministry's website. The activity is ongoing, and it should be noted that the registry is planned to be updated annually, resulting in the addition and revision of information.	The introduction of tax regulations for incandescent lamps aims to ensure that, after the implementation of this measure, all new purchases of lamps for residential and commercial buildings by 2023 will be 100% energy-efficient.	Regulatory Instrument Fiscal Instrument	Adopted	CO2	NA	-68.95	See Table 25	2021	Ministry of Economy and Sustainable Development	Administrative expense	Reduced consumption of non-energy efficient lighting means, Promoting economic development	Connection to Activity 5: Show the feasibility of introducing a tax regulation on incandescent lamps via an information campaign.
8. Installation of energy efficient lighting in buildings owned/used by public institutions.	**As part of the activity, the following will be implemented:** As part of the activity, the share of energy-efficient lamps in new purchases for all public buildings will increase to 100% by 2023. **What has been done until the reporting period:** Discussions on the draft technical regulation of eco-design with interested parties began in the first half of 2023. Currently, the final stage of the agreement with the donor regarding the preparation of the Regulatory Impact Assessment (RIA) is underway.	The activity focuses on the long-term perspective of 2023, aiming to achieve a 100% share of energy-efficient lamps in all new public buildings purchased after the launch of the activity.	Other	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	621,720.0 GEL	Facilitating the transition to energy efficient energy device options, Encouraging energy efficiency	Connection to Activity 7: Increasing the share of energy-efficient lamps in new lamps purchased for public buildings within the framework of the introduction of the tax regulation on incandescent lamps.
9. Establish energy efficiency information systems for public buildings.	**What has been done until the reporting period:** The regulation for the creation of the registry of buildings in use by the public sector, as mandated by the Georgian law on energy efficiency, was developed within the framework of the EU/KfW technical assistance project and has been adopted.[195] In accordance with the regulation, the registry development has commenced.	Collection of information on building characteristics and energy consumption for national and municipal public sector buildings, excluding schools and kindergartens.	Information Instrument	Implemented	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	178,200.0 GEL	Increased transparency, increased access to information, Establishment of a common system	Connection to Activity 7: Based on the regulation, the production of the registry has already begun, reflecting information on at least 70% of public buildings.
10. Improvement of exterior enclosure of school buildings, installation of energy-efficient bulbs, retrofit/replacement of solid fuel heaters.	**As part of the activity, the following will be implemented:** Annually 10% of schools implement at least one out of three initiatives of energy efficiency – improvement of exterior enclosure, installation of energy-efficient bulbs, retrofit/replacement of solid fuel heaters. **What has been done until the reporting period:** Between 2021 and 2022, 237 public schools were fully or partially rehabilitated. From 2019 to present, the construction and rehabilitation of 106 public schools in different regions of the country have been completed, bringing the total number of rehabilitated schools to 337, where the exterior enclosure construction has been improved.	Improvement of exterior enclosure of school buildings, installation of energy-efficient bulbs, retrofit/replacement of solid fuel heaters.	Other	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	9,808,920.0 GEL	Encouraging energy efficiency	Connection to Activity 7: Installation of energy-efficient lamps within the framework of introduction of the tax regulation on incandescent lamps.

195 Order No. 1-1/335 of the Minister of Economy and Sustainable Development of Georgia.

Name	Description	Objectives	Instrument type	Status	Gases affected [181]	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
11. Elaboration of financial incentives mechanism for installation of solar water heater systems in buildings	**As part of the activity, the following will be implemented:** A financial incentive mechanism will be introduced. **What has been done until the reporting period:** The ongoing technical assistance project funded by the European Union and KfW - "Implementation of the legislative framework of energy efficiency" envisages the development of various schemes encouraging the development of energy efficiency. To carry out the mentioned activity, it is necessary to recruit additional experts and conduct research from the donor's side, which will require more time.	Develop financial incentive mechanisms for utilizing solar energy for water heating, which will alleviate pressure on forests and provide a more energy-efficient alternative.	Voluntary agreement	Planned	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	178,200.0 GEL	Promotion of sustainable energy consumption, Promotion of renewable energy, Long-term financial benefits	Connection to Activity 3: Develop different schemes to encourage energy efficiency development for appliances.
12. Encourage using of energy-efficient firewood stoves.	**What has been done until the reporting period:** In 2023, the implementation of the voucher program began. Five informational meetings were held in Guria, Kakheti, and Mtskheta-Mtianeti regions to introduce information about energy-efficient stoves and financial support programs. Two information campaigns were conducted from January 1 to December 31, 2023. A voucher program event in Guria attracted 250 stakeholders, while demonstration spaces showcasing energy-efficient stoves were set up in eight target municipalities, drawing 5,000 visitors.	Until 2027, a financial incentive mechanism will be developed and implemented by the state and financial institutions, and information campaigns will be held to encourage the use of energy-efficient stoves, which will reduce pressure on forests and provide a more energy-efficient alternative.	Educational Instrument Informative Instrument	Implemented	CO2	NA	-5,298	See Table 26	2021	Ministry of Economy and Sustainable Development	33,660,000.0 GEL	Encouraging energy efficiency, Reducing air pollution levels, Improving the use of residual biomass, Reducing pressure on forests	NO
13. Development of qualification, accreditation, and certification schemes for energy sector experts.	**What has been done until the reporting period:** In the fall of 2021, accreditation was granted to the Technical University of Georgia, which announced the admission to the certification training course in November 2022. The first and second courses of this program were successfully completed by the stakeholders.	Development of a certification system for service providers, auditors, managers, and developers in the energy sector, focusing on the installation of energy equipment in the building sector.	Educational Instrument	Implemented	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	1,073,160.0 GEL	Developed certification system, Trained personnel, Development of the energy sector	Connection to Activity 14: Development of qualification, accreditation, and certification schemes for experts in the energy sector within the framework of the development of educational and training programs for energy consultants
14. Development of educational programs and trainings for energy consultants.	**As part of the activity, the following will be implemented:** At least two educational and professional training programs will be developed and approved in Tbilisi and the surrounding regions, with the involvement of stakeholders. **What has been done until the reporting period:** Draft programs were prepared under the technical assistance project funded by EU/KfW.[196] In addition, "rules for the certification of energy auditors, independent experts issuing building energy efficiency certificates and inspection of heating and air conditioning systems in buildings and inspection and verification of building energy efficiency certificates, heating and air conditioning systems inspection reports" have been developed.[197]	Development of a certification system for service providers, auditors, managers, and developers in the energy sector, focusing on the installation of energy equipment in the building sector.	Educational Instrument Regulatory Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Economy and Sustainable Development	administrative expense	Improving the skills and competence of energy engineers, Energy audit companies, and service providers	NO

196 Law of Georgia on Energy Efficiency, Article 14.
197 Law of Georgia on Energy Efficiency.

According to the 2021-2023 Action Plan of Georgia's 2030 Climate Change Strategy, the following activities were planned for implementation in the **industry sector** in 2021-2023:

- Substitute wet with the dry method in cement production;
- Supporting the low-emission production of Nitric Acid;
- Develop individual emission factors per production.

2 out of 3 activities of the industry sector have been implemented and 1 activity is planned.

According to the implemented activities, greenhouse gas emissions from the industry sector in 2021-2023 were reduced by 868.46 g CO_2 eq. If all three activities are implemented, the annual emission reduction by 2030 is expected to reach 852.21[178] Gg CO_2 eq., resulting in a total reduction of 6,833.97 Gg CO_2 eq. for the period of 2021-2030.[198]

Specifically, (1) the wet method of cement production was replaced by the dry method, (2) the relevant individual emission factors of production were established.

It is planned to (1) promote the production of nitric acid with low greenhouse gas emissions.[199]

A detailed description of the implemented, adopted, and planned mitigation measures in the industry sector is presented in the table below.

Graph 5 Status of CAP Activities in the Industry sector as of 2023

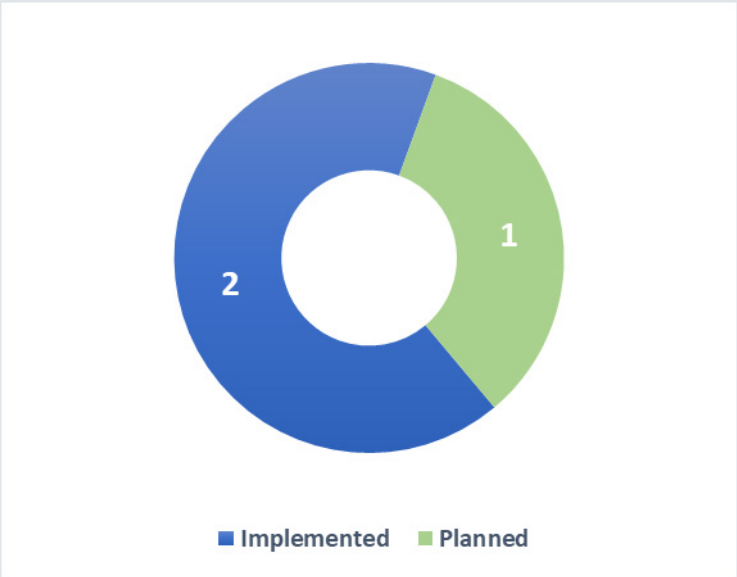


TABLE 9. IMPLEMENTED, ADOPTED, AND PLANNED MITIGATION MEASURES IN THE INDUSTRY SECTOR OF GEORGIA

198 These numbers are the sum of the mitigation effects estimated in the industry sector methodology and assumptions tables (See 1.4.3 Methodology and assumptions for assessing mitigation effects)

199 Preliminary works have started.

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. Substitute wet with the dry method in cement production	**What has been done until the reporting period:** A new technology has been introduced that has reduced energy consumption by 20%. 100% of cement production is carried out using the new technology.	Replacing the wet cement production method with a dry method.	Other	Implemented	CO2	-478.44	-1,674.54	See Table 27	2021	"Heidelberg" LLC	15,687,936 GEL	Waste reduction, Technological development, Increased energy efficiency	NO
2. Supporting the low-emission production of Nitric Acid	**As part of the activity, the following will be implemented:** It is planned that Georgia, in cooperation with the Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety of Germany, has joined an initiative aimed at equipping nitric acid production companies in member countries with technology to absorb nitrogen oxides that contribute to climate change. **What has been done until the reporting period:** The implementation of this project, in collaboration with JSC "Rustavi Azoti" is set to begin in the near future.	Equipping the enterprise with new technology that emits at least 95% less N_2O; Production of 100% nitric acid with new equipment.	Voluntary Agreement	Planned	N2O	NO	-1,560.79	See Table 28	2021	"Rustavi Azoti" LLC	17,820,000 GEL	Technological development, Increase in market competitiveness	NO
3. Develop individual emission factors per production.	**What has been done until the reporting period:** In order to calculate and determine the emissions and mitigation potential of the sector, individual emission factors were established for two main enterprises (JSC Heidelberg Cement, JSC Rustavi Azoti).	Establishing emission factors specific to at least two major industries.	Research Instrument	Implemented	CO2, CH4, N2O	-390.02	-2,730.178	See Table 29	2021	Ministry of Environmental protection and Agriculture (Climate Change Division)	99,600 GEL	Increasing the quality of public reporting	The results of the above activities are integrated into the development of individual emission factors based on production processes.

According to the 2021-2023 Action Plan of Georgia's 2030 Climate Change Strategy, MEPA planned to implement the following activities in the **agricultural sector** in 2021-2023:

1. In order to reduce the emissions generated by enteric fermentation of the cattle, develop a methodology for changing the feed for the cattle and run a recommendation campaign;
2. Develop legislation and prepare a project proposal with the aim of increasing the quality of livestock nutrition and conservation of pasture biodiversity;
3. Rehabilitation and transformation of windbreaks to minimize climate-related land degradation;
4. Develop cost-benefit analysis and feasibility study to identify best options to increase further change in livestock feed for the next iteration of the Climate Action Plan;
5. Develop cost-benefit analysis and feasibility study to identify best options in which manure management systems can be implemented;
6. Support existing and emerging cooperatives to implement sustainable pasture management practices and replicate the success factors of successful cooperatives for other cooperatives;
7. Research and consultation processes to define economic and socially feasible Climate Smart Agriculture (CSA) actions in the context of Georgia;
8. Promoting the introduction of climate friendly agricultural practices through extension and awareness raising campaigns.

Out of the 8 activities of the agricultural sector, 5 have been implemented, 1 has been adopted and 2 are in the planning stage.

According to the 2021-2023 Action Plan, greenhouse gas emissions from the agricultural sector have not been reduced, despite the implementation of 5 activities. Activities 4, 5, and 8, as outlined in the table, are primarily informative, research-based, and educational in nature. As a result, the impact of these activities on greenhouse gas reductions will extend beyond the specified reporting period. Additionally, while activities 2 and 3 are regulatory in nature, the adopted legislative initiatives have not yet been implemented. If all 8 activities are carried out, the projected annual emission reduction by 2030 will be 195.47[178] gg CO_2 eq., with a total reduction of 1,368.32 gg CO_2 eq. for the period of 2021-2030.[200]

Specifically, (1) legislation was developed and a project proposal was prepared to improve livestock nutrition and maintain grassland biodiversity, (2) the law on legislative regulation of windbreaks was adopted, (3) a cost-benefit analysis and a feasibility study was conducted to improve livestock feed for the next climate action plan, (4) a cost-effectiveness and feasibility study was conducted to identify the best ways to implement manure management systems in the context of Georgia, (5) extension and awareness-raising activities were conducted to promote the implementation of climate-smart agricultural practices through campaigns.

200 These numbers are the sum of the mitigation effects estimated in the agriculture sector methodology and assumptions tables (See 1.4.3 Methodology and assumptions for assessing mitigation effects).

(1) Guidelines and documents are being prepared to define economically and socially relevant climate-smart agricultural activities for Georgia.

A detailed description of the implemented, adopted and planned mitigation measures in the agricultural sector is presented in the table below.

GRAPH 6 STATUS OF CAP ACTIVITIES IN THE AGRICULTURE SECTOR AS OF 2023

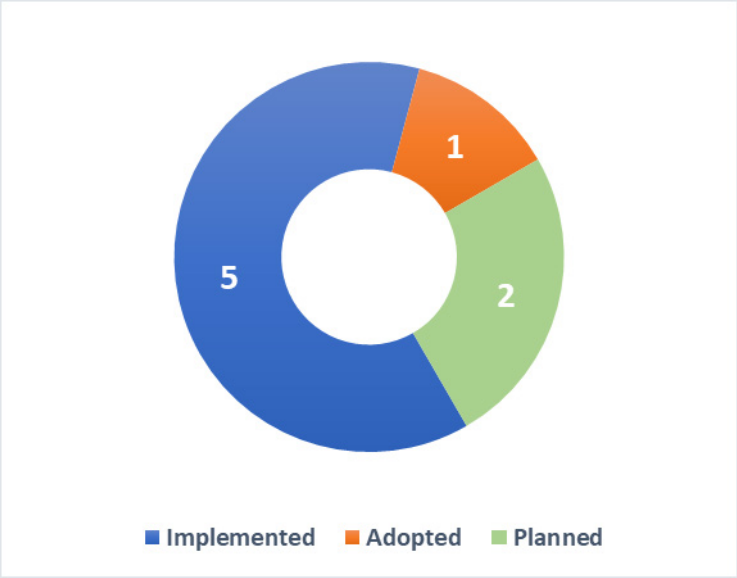


TABLE 10. IMPLEMENTED, ADOPTED, AND PLANNED MITIGATION MEASURES IN THE AGRICULTURAL SECTOR OF GEORGIA

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. In order to reduce the emissions generated by enteric fermentation of the cattle, develop a methodology for changing the feed for the cattle and run a recommendation campaign	**As part of the activity, the following will be implemented:** It is planned to improve the quality of feed for 20% of cattle, which will lead to a reduction in greenhouse gas emissions caused by enteric fermentation.	Development of a methodology agreed with stakeholders; Conduct at least one recommendation campaign in all regions with at least 50 farmers in each region.	Research Instrument Informative Instrument	Planned	CH4	NO	-101.8	See Table 34	2021	Ministry of Environmental Protection and Agriculture (Department of Environment and Climate Change; Department of Agriculture, Food and Rural Development;)	574,200.0 GEL	Increasing the income and welfare of farmers, encouraging sustainable agriculture, technology development	NO
2. Develop legislation and prepare a project proposal with the aim of increasing the quality of livestock nutrition and conservation of pasture biodiversity	**What has been done until the reporting period:** A draft law on pasture management has been developed. A project proposal on sustainable pasture management was prepared and presented to the international donor.	Development of the project concept and request for international financing for its implementation; Development of pasture management legislation.	Regulatory Instrument	Implemented	CO2	NO	-15.6	See Table 37	2021	Ministry of Environmental Protection and Agriculture (Department of Hydro melioration and Land Management; Department of Environment and Climate Change; Department of Agriculture, Food and Rural Development)	237,600.0 GEL	Conserving and promoting biodiversity (genetic resources), Increasing farmers' incomes, and raising welfare	NO
3. Rehabilitation and transformation of windbreaks to minimize climate-related land degradation.	**What has been done until the reporting period:** Work is underway with IFAD and GCF on the project proposal. The law on legislative regulation of windbreaks was adopted in 2022.	Submitting a project proposal for the rehabilitation of windbreaks to the donor for financing; Preparation/adoption of legislative regulation on windbreaks.	Regulatory Instrument	Implemented	CO2	NO	-10.92	See Table 35	2021	Ministry of Environmental Protection and Agriculture (Department of Hydro melioration and Land Management)	498,000.0 GEL	Protecting soil from degradation (wind erosion), Protecting biodiversity (genetic resources), Increasing production, Increasing farmers' income, and Improving welfare	NO
4. Develop cost-benefit analysis and feasibility study to identify best options to increase further change in livestock feed for the next iteration of the Climate Action Plan.	**What has been done until the reporting period:** An analytical document titled "Climate-smart agriculture practices in the context of Georgia's climate mitigation efforts" has been prepared and published. This document includes information on the analysis and potential costs associated with optimizing animal nutrition.	Prepare a technical analysis report that will analyse at least two new alternatives for improving livestock nutrition.	Informative Instrument Research Instrument	Implemented	CH4	NO	IE[201]	NA	2021	Ministry of Environmental Protection and Agriculture Department of Environment and Climate Change; Department of Agriculture, Food and Rural Development	237,600.0 GEL	Increase in production, Increase in income and welfare of farmers, Optimization of costs	NO

201 See Activity 1

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
5. Develop cost-benefit analysis and feasibility study to identify best options in which manure management systems can be implemented.	**What has been done until the reporting period:** The project "Capacity Development for climate policy in the countries of South East, Eastern Europe, the South Caucasus and Central Asia, Phase III" was implemented by GIZ. A Manure Management Practices and Cost Benefit Analysis document was developed and published.	Prepare a technical analysis report that will analyse at least two new manure management alternatives.	Research Instrument	Implemented	CH4	NO	-1,240	See Table 36	2021	Ministry of Environmental Protection and Agriculture (Department of Environment and Climate Change; Department of Agriculture, Food and Rural Development;)	237,600.0 GEL	Conservation and promotion of biodiversity (genetic resources), Cost optimization	NO
6. Support existing and emerging cooperatives to implement sustainable pasture management practices and replicate the success factors of successful cooperatives for other cooperatives.	**As part of the activity, the following will be implemented:** A project proposal will be prepared, that includes the introduction of sustainable pasture management principles for farmers.	The activity includes the preparation of a project proposal for the implementation of the principles of sustainable pasture management.	Research Instrument	Planned	CO2	NA	NA	NA	2021	Ministry of Environmental Protection and Agriculture (Rural Development Agency)	996,000.0 GEL	Protection of soil from degradation (water and wind erosion), Protection of biodiversity (genetic resources), Rehabilitation of pastures for the local population and increase in production	Connection to Activity 2: The development of legislation to conserve pasture biodiversity will support the introduction of sustainable pasture management practices.
7. Research and consultation processes to define economic and socially feasible Climate Smart Agriculture (CSA) actions in the context of Georgia	**As part of the activity, the following will be implemented:** Good agricultural practice guidelines will be prepared for at least 5 agricultural crops by 2024. FAO and the World Bank developed a vision document for the country's climate-smart agriculture. **What has been done until the reporting period:** An analytical document - "Climate-smart agriculture practices in the context of Georgia's climate mitigation efforts" has been prepared, providing recommendations on the most promising measures for the implementing climate-smart agriculture (CSA) practices; Two meetings were held in 2023;	Research on economically and socially relevant climate-smart agriculture activities for Georgia to implement Climate-Smart Agriculture (CSA) practices.	Educational Instrument	Adopted	CO2, CH4, N2O	NA	NA	NA	2021	Ministry of Environmental Protection and Agriculture (Department of Environment and Climate Change; Department of Agriculture, Food and Rural Development)	356,400.0 GEL	Improvement of soil and ecosystem, Production of higher quality products, Increase in food safety, Increase in nutritional value of products	NO
8. Promoting the introduction of climate friendly agricultural practices through extension and awareness raising campaigns.	**What has been done until the reporting period:** 10 practical training sessions were held to raise awareness about climate-smart agriculture practices and support their implementation; The Environmental Information and Education Centre conducted workshops for 12 agricultural colleges.	Conduct at least 12 awareness-raising events.	Research Instrument Educational Instrument	Implemented	CO2, CH4, N2O	NA	NA	NA	2021	Ministry of Environmental Protection and Agriculture	356,400.0 GEL	Improvement of soil and ecosystem, Production of higher quality products, Increase in food safety, Increase in the nutritional value of products	NO

According to the 2021-2023 Action Plan of Georgia's 2030 Climate Change Strategy, the following activities were planned to be implemented in the **waste sector** in 2021-2023:

1. Closing official (unauthorized) non-hazardous landfills;
2. Closing dumpsites;
3. Construction of regional non-hazardous landfills;
4. Renovation and improvement of Tbilisi landfill;
5. Utilization of landfill gas in Batumi's non-hazardous waste landfill;
6. Introduction of the practice of separating paper waste at the source by the municipalities and encourage paper recycling;
7. Biodegradable (organic and garden waste) recycling by the municipalities;
8. Education and awareness-raising on waste management;
9. Construction of municipal wastewater treatment plants;
10. Capture and recovery of GHGs in Tbilisi's wastewater treatment plants;
11. Capture and recovery of GHGs in Batumi's wastewater treatment plants;
12. Capture and recovery of GHGs in Kobuleti's wastewater treatment plant;
13. Establishing a consolidated process for collecting and updating data for the waste sector;
14. Utilization of landfill gas in Kutaisi's non-hazardous waste landfill.

Out of 14 waste sector activities, 2 have been implemented, 7 have been adopted, 4 are planned and 1 has been cancelled.

According to the implemented activities, greenhouse gas emissions from the waste sector were reduced by 0.023 Gg CO_2 eq. in 2021-2023. If all 13 activities are implemented, the annual emission reduction by 2030 will be 46.96[178] Gg CO_2 eq., with a cumulative total reduction of 328.76 Gg CO_2 eq. for the period of 2021-2030.[202]

Specifically, (1) knowledge and awareness-raising activities on waste management were conducted, and (2) the production of waste-related statistics began. Data on municipal waste were published on the website of the National Statistics Office of Georgia (Geostat). The NIR is based on the data and sources published by Geostat.

On-going activities include (1) closure of official (unauthorized) non-hazardous landfills and (2) spontaneous landfills, (3) establishment of regional non-hazardous landfills, (4) renovation and improvement of the Tbilisi landfill (5) activities by municipalities to introduce paper waste separation[203] at the source and encourage paper recycling, (6) recycling of biodegradable (organic and garden) waste by municipalities, (7) construction of urban wastewater treatment facilities.

It is planned to (1) set up a greenhouse gas collection and processing system at Batumi

202 These numbers are the sum of the mitigation effects estimated in the waste sector methodology and assumptions tables (See 1.4.3 Methodology and assumptions for assessing mitigation effects).

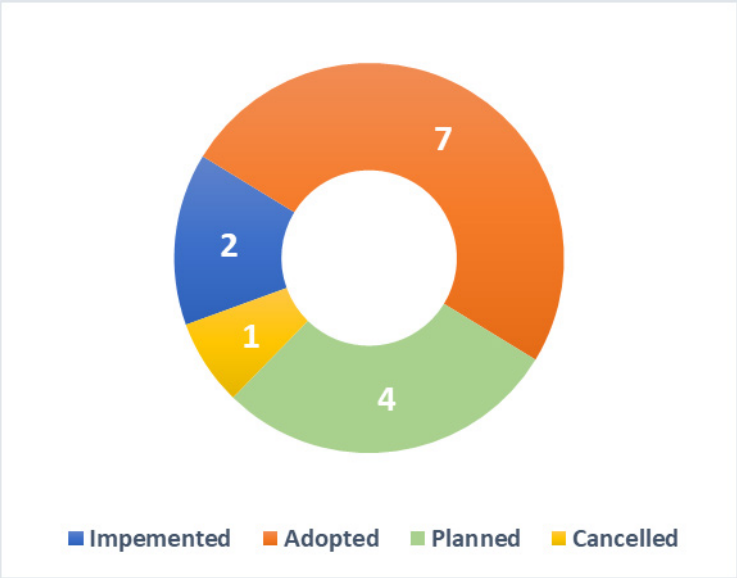
203 The collection of waste, where a waste stream is kept separately by type and nature to facilitate further treatment of waste

non-hazardous waste landfill (2) Implement the collection and processing of greenhouse gases at the urban wastewater treatment facilities in (3) Tbilisi, (4) Batumi and (5) Kobuleti.

In the waste sector, according to the final report of the 2021-2023 Action Plan of Georgia's 2030 Climate Change Strategy, one planned activity (6.1.5) was cancelled: Setting up a gas management system at the Kutaisi non-hazardous waste dump. [204]

A detailed description of the implemented, adopted and planned mitigation measures in the waste sector is presented in the table below.

Graph 7 Status of CAP Activities in the Waste sector as of 2023



204 Implementation report of the 2021-2023 action plan of the 2030 strategy of climate change of Georgia. https://mepa.gov.ge/Ge/Files/ViewFile/54001

TABLE 11. IMPLEMENTED, ADOPTED, AND PLANNED MITIGATION MEASURES IN THE WASTE SECTOR OF GEORGIA

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. Closing official (unauthorized) non-hazardous landfills	**As part of the activity, the following will be implemented:** Until 2024 at least 4 landfills are closed. **What has been done until the reporting period:** The plan for closing 2 landfills (Rustavi and Tianeti) has been prepared and agreed upon with MEPA, with construction works scheduled to take place in 2024; The closing projects for 2 landfills in Batumi/Adli and Kobuleti have been prepared and agreed upon with the donor, EBRD. Following approval from MEPA, the closure activities are set to begin in 2026-2027.	Closing at least 4 landfills by 2024.	Other	Adopted	CH4	NA	-70	See Table 30	2021	Ministry of Regional Development and Infrastructure Government of Autonomous Republic of Adjara	6,520,000.0 GEL	Reduced environmental pollution	NO
2. Closing dumpsites	**As part of the activity, the following will be implemented:** Until 2024 100% of dumpsites are closed. **What has been done until the reporting period:** Within the framework of the "Clean up" Georgia project, 1315 natural dumpsites were identified, of which approximately 1000 dumpsites were cleaned.	100% closure of dumpsites by 2024.	Other	Adopted	CH4	NA	-29	See Table 31	2021	City halls of the municipalities	2,800,000.0 GEL	Reduced environmental pollution	NO
3. Construction of regional non-hazardous landfills	**As part of the activity, the following will be implemented:** By the end of 2030, 7 regional non-hazardous landfills will be established according to the standards (Adjara, Kvemo Kartli, Samegrelo, Imereti, Kakheti, Central, Georgia - 2). **What has been done until the reporting period:** A new landfill has already been set up in Adjara, and construction works for new landfills in Samegrelo-Zemo Svaneti and Kvemo Kartli will begin in 2024 due to the pending environmental decision-making process.	Arrangement of 3 new landfills (Adjara, Kvemo Kartli, Samegrelo) by 2024.	Other	Adopted	CH4	NA	-229	See Table 32	2021	Ministry of Regional Development and Infrastructure	47,520,000.0 GEL	Technological development, Development of waste management, Establishment of an effective management system	Connection to Activities 1 and 2: Closure of official (unauthorized) non-hazardous landfills and dumpsites is a prerequisite for the establishment of regional non-hazardous landfills.

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
4. Renovation and improvement of Tbilisi landfill	**As part of the activity, the following will be implemented:** A gas collection and leaked water management system is installed in the Tbilisi landfill that fully complies with the technical regulation on "landfill construction, operation, closure, and further maintenance" approved by the Government of Georgia. **What has been done until the reporting period:** A technical and economic study was conducted regarding the arrangement of the gas collection system; As part of the activity, it is planned to purchase waste collection trucks to update the existing fleet, to modernize the existing solid waste transfer stations, to improve the Tbilisi landfill leak management system, to arrange a gas collection and capture system at the Tbilisi landfill; In the 1st quarter of 2024, it is planned to present the most beneficial scenarios for the city, after which, with the help of the EBRD, the consultant will be selected for the implementation of the project and the tender request will be developed; A tender for the improvement of the leak treatment system at the landfill is planned to be held at the end of the 1st quarter of 2024.	Arrangement of a gas collection and leak management system at the Tbilisi landfill, which is fully compliant with the technical regulations "On the arrangement, operation, closure and further maintenance of the landfill" approved by the Government of Georgia.	Regulatory Instrument Research Instrument Other	Adopted	CH4	NA	NA	NA	2021	Tbilisi City Hall	4,000,000.0 GEL	Technological development, Development of waste management, Reduced environmental pollution	NO
5. Utilization of landfill gas in Batumi's non-hazardous waste landfill.	**As part of the activity, the following will be implemented:** Setting up a gas collection and processing system at the Batumi landfill. **What has been done until the reporting period:** At the moment, the international consulting company ICT with the support of the EBRD is carrying out research on the landfill in the city of Batumi, based on which measures will be developed to close the landfill and arrange gas collection systems in accordance with European standards.	Arrangement of a gas collection and processing system at the Batumi landfill, which is fully compliant with the technical regulations "On the arrangement, operation, closure and further maintenance of the landfill" approved by the Government of Georgia.	Regulatory Instrument Research Instrument Other	Planned	CH4	NA	NA	NA	2021	Relevant municipality	4,000,000.0 GEL	Technological development, Development of waste management, Reduced environmental pollution	NO
6. Introduce the practice of separating paper waste at source by the municipalities and encourage paper recycling.	**As part of the activity, the following will be implemented:** It was decided that municipalities would separate one of the biodegradable streams of municipal waste at the source. To achieve the paper recycling rate, information about paper recycling will be collected, and an information brochure will be prepared. **What has been done until the reporting period:** Paper source separation has partially started in Kutaisi, Tbilisi, Zugdidi, and Batumi. Information on quantities is not available, despite the existence of a waste database; Currently, there are no plans to start preparing the information brochure.	The amount of paper waste recycled annually should be at least 30% of the generated paper waste; Implementation of paper source separation practices in at least 2 municipalities; Preparation of an information brochure.	Informative Instrument Other	Adopted	CH4	NA	NA	NA	2021	Ministry of Environment Protection and Agriculture	Administrative expense	Increased awareness, technological development, economic stimulation, new jobs	Link to Activity 9: By increasing knowledge and awareness of waste management, municipalities should implement source separation practices for paper waste and encourage paper recycling.

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
7. Biodegradable (organic and garden waste) recycling by the municipalities.	**As part of the activity, the following will be implemented:** Composting organic and garden waste in the municipalities of Kutaisi and Marneuli, using municipal composting enterprises. **What has been done until the reporting period:** As of 2023, the total amount of biodegradable organic and garden waste processed in Kutaisi municipality is 132 tons. As of 2023, the total amount of compost produced in Kutaisi municipality is 12.50 tons.	The amount of biodegradable organic and garden waste processed annually should be 600 tons; The amount of produced compost should be 40 tons.	Other	Adopted	CH4 N20	-0.023	-0.74	See Table 33	2021	Relevant municipalities	1,188,000.0 GEL	Technological development, Economic stimulation, New jobs	NO
8. Education and awareness-raising on waste management.	**What has been done until the reporting period:** Within the framework of 5 information campaigns, an awareness-raising meeting was held with 10 schools, a brochure on extended producer responsibility was printed, and a manual on waste management was produced. An information campaign about extended producer commitment was carried out on social media, 2 training sessions were held and 1,800 teachers were trained.	Conduct at least 5 awareness-raising campaigns.	Educational Instrument	Implemented	CH4	NA	NA	NA	2021	Municipalities	118,800.0 GEL	Increased awareness	NO
9. Construction of municipal wastewater treatment plants.	**As part of the activity, the following will be implemented:** By 2024 6 municipal treatment stations will be constructed; By 2024 project procurement for the construction of 7 stations will be announced. **What has been done until the reporting period:** Current construction works: Poti; Marneuli Gudauri; Mestia Abastumani. Planned construction works: Kutaisi, Khashuri, Kvareli , Mukhrani, Martvili, Dusheti, Zhinvali, Pasanauri. The construction progress of the Abastumani wastewater treatment plant is 100%. The Poti treatment plant is 80% complete, while the Gudauri treatment plant is at 61% and the Marneuli treatment plant is at 62%. Design work has been completed for the Mukhrani, Dusheti, Pasanauri, Zhinvali, Kvareli, and Martvili treatment plants. Currently, construction is planned for the Kvareli and Martvili treatment plants.	Construction of nine municipal wastewater treatment plants by 2024; An announcement for project procurement for the construction of six stations is planned for 2024.	Other	Adopted	CH4	NA	NA	NA	2021	LTD "United Water Supply Company of Georgia"	183,120,618.0 GEL	Technological development, Urban development, Infrastructure development, Promotion of sustainable development, Ecosystem improvement	NO
10. Capture and recovery of GHGs in Tbilisi's wastewater treatment plants.	**As part of the activity, the following will be implemented:** Setting up a gas collection and processing system at Tbilisi's urban wastewater treatment plants.	Arrangement of gas collection and processing systems at the Tbilisi urban wastewater treatment plant, which are fully compliant with the European Council Directive 91/271/EEC.	Other	Planned	CH4	NA	NA	NA	2021	LTD "Georgian Water and Power"	21,000.0 GEL	Technological development, Infrastructure development, Economic stimulation	NO

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
11. Capture and recovery of GHGs in Batumi's wastewater treatment plants.	**As part of the activity, the following will be implemented:** Setting up a gas collection and processing system at the Batumi urban wastewater treatment plant. **What has been done until the reporting period:** Within the V and VI phases of KFW's new investment program, wastewater treatment measures, particularly wastewater collection and municipal wastewater treatment, are being developed in full compliance with EU directives. Biofilters for gas and odour emissions are also planned for implementation, with the project scheduled for completion in 2026, over a 27-year period.	Arrangement of gas collection and processing systems at the Batumi urban wastewater treatment plant, which are fully compliant with the European Council Directive 91/271/EEC.	Other	Planned	CH4	NA	NA	NA	2021	Ltd Batumi Water	17,500.0 GEL	Technological development, Infrastructure development, Economic stimulation	NO
12. Capture and recovery of GHGs in Kobuleti's wastewater treatment plant.	**As part of the activity, the following will be implemented:** Arrangement of gas collection and processing systems at the Kobuleti wastewater treatment plant.	Arrangement of gas collection and processing systems at the Kobuleti treatment plant, which are fully compliant with the European Council Directive 91/271/EEC	Other	Planned	CH4	NA	NA	NA	2021	Ltd Kobuleti Water	17,500.0 GEL	Technological development, Infrastructure development, Economic stimulation	NO
13. Establish a consolidated process for collecting and updating data for the waste sector.	**What has been done until the reporting period:** The production of waste statistics has begun, with data on municipal waste published on the website. Work is ongoing to assess the feasibility of producing additional waste indicators. The NIR is based on sources and data published by the Geostat.	Start of production of waste statistics by the Geostat; Emissions reports should be based on sources and data (including incineration and composting).	Informative Instrument	Implemented	CH4	NA	NA	NA	2021	National Statistics Office of Georgia (GEOSTAT)	62,500.0 GEL	Transparent reporting process	NO

Out of 8 forest sector activities, 3 were implemented and 5 activities were adopted.

According to the 2021-2023 Action Plan of Georgia's 2030 Climate Change Strategy, MEPA planned to implement the following activities in the forest sector in 2021-2023:

1. Restoration of 625 ha of degraded forest area (including fire-sites) through forestation;
2. Restoration of the degraded forest through supporting natural restoration;
3. Introduction of sustainable forest management practice through the implementation of sustainable forest management plans;
4. Introduction of sustainable forest management practice through supervision and capacity development;
5. Promoting sustainable management of forests by supporting the multifunctionality of forests, raising public awareness, and supporting public involvement in the forest reform processes;
6. Develop emerald network management plans for the territory of the forest of Georgia within the approved emerald network sites;
7. Protection and/or sustainable management of forest areas within the new protected territories;
8. Integration of the climate change issues, including mitigation into management plants of the protected areas.

Out of 8 activities of the forest sector, 3 have been implemented and 5 activities are ongoing.

As a result of the implemented activities, CO_2 absorption from the forest sector increased by 176.4 Gg CO_2 in 2021-2023. If all 8 activities are implemented, the annual CO_2 absorption by 2030 will reach 414.2[178] Gg CO_2, with a cumulative total of 3,075.8 Gg CO_2 for the period of 2021-2030.[205]

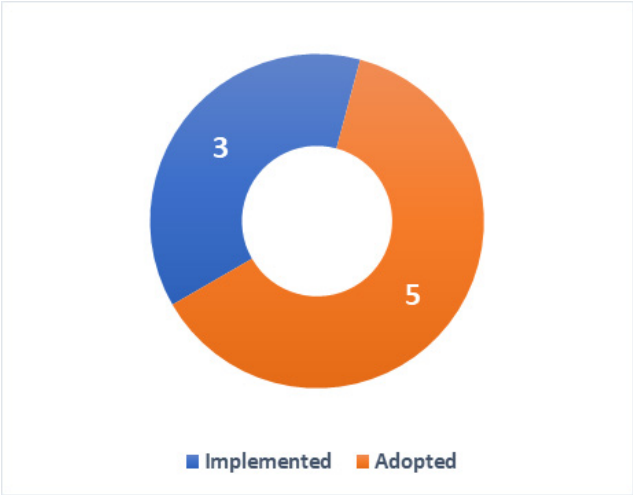
Specifically, (1) measures to promote natural forest renewal were implemented on 3,153.9 ha of the country's territory, (2) business yards were organized, supervision activities based on the principles of sustainable forest management practices were implemented on 270,000 ha of the country's territory. Adequate equipment, techniques, and personnel have been acquired to ensure supervision, (3) Emerald network management plans have been prepared.

Ongoing activities include (1) restoration of 625 ha of degraded forest areas (including those damaged by fire) through afforestation, (2) implementation of sustainable forest management practices in accordance with sustainable forest management plans, (3) promotion of sustainable forest management by supporting the multi-functionality of forests, raising public awareness and encouraging community participation in forest reform processes, (4) protecting and/or sustainably managing the forest areas included in new protected areas and (5) integrating climate change issues, including mitigation, into

205 These numbers are the sum of the mitigation effects estimated in the forest sector methodology and assumptions tables (See 1.4.3 Methodology and assumptions for assessing mitigation effects)

protected area management plans.

GRAPH 8 STATUS OF CAP ACTIVITIES IN THE FOREST SECTOR AS OF 2023



A detailed description of the implemented, adopted and planned mitigation measures in the forest sector is presented in the table below.

TABLE 12. IMPLEMENTED, ADOPTED, AND PLANNED MITIGATION MEASURES IN THE FOREST SECTOR [206]

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
1. Restoration of 625 ha of degraded forest area (including fire-sites) through forestation.	**As part of the activity, the following will be implemented:** Within the scope of the activity, 250 ha[207] and 375 ha of degraded forest areas (including burned forests) will be restored by afforestation in 2021-2023 (125 ha annually); Exact areas are selected at the end of each year. **What has been done until the reporting period:** As of now, forest restoration measures have been completed on 150.2 hectares. In the Samtskhe-Javakheti region, 144 ha of burned area were restored, 4.9 ha of forest were planted, and 1.3 ha of forest crops were planted in the Samegrelo-Zemo Svaneti region.	The aim of the activity is to restore the degraded forest area through afforestation.	Other	Adopted	CO2	-3.6	-26.6	See Table 38	2021	Ministry of Environmental Protection and Agriculture	6,585,000 GEL	Awareness raising, Ecosystem improvement, Sustainable forest development, Economic growth	NO
2. Restoration of the degraded forest through supporting natural restoration.	**What has been done until the reporting period:** As of 2022, measures to promote natural restoration have been implemented on 3153.9 ha, of which the National Forestry Agency restored 1472.9 ha in 2022, while the Forestry Agency of Adjara restored 190 ha. The measures were implemented on an area of 1714.6 ha.	The restoration of degraded areas will be carried out by various administrative bodies responsible for the management of the forest sector by promoting natural restoration.	Other	Implemented	CO2	-31.5	NA	See Table 39	2021	Ministry of Environmental Protection and Agriculture	4,758,260 GEL	Awareness raising, Ecosystem improvement, Sustainable forest development, Economic growth	NO
3. Introduction of sustainable forest management practice through the implementation of sustainable forest management plans.	**As part of the activity, the following will be implemented:** Within the framework of the activity, a sustainable forest management plan will be developed and approved in at least 7 municipalities (Lanchkhuti, Chokhatauri, Dedoplistskaro-Sighnaghi, Adigeni, Lentekhi, Lagodekhi, Akhmeta). In 2022, Lanchkhuti, Chokhatauri, Lagodekhi forest management plans were approved. In 2023, Lentekhi Forest Management Plan was approved. In the territory of Akhmeta, Dedoplistskaro-Sighnaghi and Adigeni forests, a forest inventory was conducted and field work was completed. **What has been done until the reporting period:** A total of 269,954 hectares of forest area will be sustainably managed in the municipality. Currently, the program is in a testing phase, during which technical parameters are being specified and adjusted. Forest management plans will be developed as part of this program.	The objective of the activity is to introduce sustainable forest management practices through the implementation of sustainable forest management plans.	Planning Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Environmental Protection and Agriculture	12,512,960.0 GEL	Awareness raising, Ecosystem improvement, Sustainable forest development, Economic growth	NO
4. Introduction of sustainable forest management practice through supervision and capacity development.	**What has been done until the reporting period:** From January 1 to December 31, 2023, 23 (twenty-three) business yards were organized, bringing the total number of business yards in Georgia to 54. According to the data from January 1 to December 31, 2023, the National Forestry Agency has completed the works in the village Shemokmedi of Ozurgeti, Chokhatauri, and village Kvenobani of Lanchkhuti. In Kakheti, business yards were established in Akhmeta (village Khodasheni), Telavi - Kavtiskhevi, Pshaveli, and Eniseli. In Mtskheta-Mtianeti municipality, business yards were arranged in Tianeti-Kanatia, Khevsurtsofeli, and Kudro. Construction of additional business yards is currently underway in Tchikaani village of Kvareli. Based on the principles of sustainable forest management practices, supervision activities were implemented across the entire 270,000-hectare area. To ensure effective supervision, appropriate equipment (such as high-terrain vehicles, photo traps, and drones) was acquired, and personnel, including quick response workers and forest inspectors, were trained.	Establishment and staffing of 14 business yards; Supervision of 270,807 ha of forest area based on the principles of sustainable forest management practices.	Planning Instrument	Implemented	CO_2	NA	-1,324.4	See Table 40	2021	Ministry of Environmental Protection and Agriculture	411,123.0 GEL	Awareness raising, Ecosystem improvement, Sustainable forest development, Economic growth	NO

206 2021-2023 Action Plan of Georgia's 2030 Climate Strategy.

207 Out of this, 125 ha are under the rural development action plan.

Name	Description	Objectives	Instrument type	Status	Gases affected	Estimates of GHG emission reductions achieved (Gg CO_2 eq.)	Estimates of GHG emission reductions expected (Gg CO_2 eq.)	Assumptions and methodology	Start year of implementation	Implementing entity or entities	Cost	Non-GHG mitigation benefits	How the mitigation action interacts with other mitigation actions
5. Promoting sustainable management of forests by supporting the multifunctionality of forests, raising public awareness, and supporting public involvement in the forest reform processes.	**As part of the activity, the following will be implemented:** The annual amount of cases of illegal logging and use of timber by the population in the target areas will reduce by 30%; By 2024, at least 10 permits will be issued for the use of non-timber resources, and at least 3 permits for the use of recreational resources; A public awareness campaign plan will be developed. **What has been done until the reporting period:** As of 2022, a total of 14 recreational use permits have been issued, along with 27 permits for the use of non-timber resources - 4 by the Forestry Agency of Adjara and 23 by the National Forestry Agency for the production of non-timber forest resources. No recreational use permits were issued during the reporting period. The Forestry Agency of the State of Adjara issued 16 recreational permits and 8 permits for the use of non-timber products. A public awareness campaign plan has been developed by the Environmental Information and Education Centre. The annual number of cases of illegal cutting of forest timber and its use as material by the population in the target areas is expected to be reduced by 30%.	The annual Amount of cases of illegal logging and use of timber by the population in the target areas is reduced by 30%; By 2024, at least 10 permits have been issued for the use of nontimber resources, and at least 3 permits for the use of recreational resources; A public awareness campaign plan will be developed.	Regulatory Instrument Educational Instrument	Adopted	CO2	NA	-889	See Table 41	2021	Ministry of Environmental Protection and Agriculture	1,445,400.0GEL	Awareness raising, Sustainable forest management, Economic growth, Increased community involvement	NO
6. Develop emerald network management plans for the territory of the forest of Georgia within the approved emerald network sites.	**What has been done until the reporting period:** As of the IV quarter of 2023, 19 management plans have been developed for areas of the Emerald Network located outside protected areas, covering more than 200,000 hectares of Georgia's forest area.	By 2024, emerald network management plans have been developed for at least 100,000 ha of emerald network forest area.	Planning Instrument	Implemented	CO2	-141.3	-329.7	See Table 42	2021	Ministry of Environmental Protection and Agriculture	60,000.0 GEL	Encouraging sustainable forest management	NO
7. Protection and/ or sustainable management of forest areas within the new protected territories.	**As part of the activity, the following will be implemented:** Protecting and/or sustainably managing 162,895 ha of forest territory included in the new protected areas until 2030; **What has been done until the reporting period:** The following protected areas have been established and are sustainably managed, covering a total of 107,462 ha of forest area: Erusheti National Park - 7,216 ha (forest), Ratcha National Park – 16,684 ha (forest), Tana Nature Reserve - 10,926.9 ha (forest), Kvereti Nature Reserve – 14,711.5 ha (forest), Aragvi Protected Landscape – 41,736 ha (forest), Matchakhela Protected Landscape - 3,326 ha (forest), and Tana Tedzami Protected Landscape - 12,862 ha (forest).	Protected/sustainably managed forest area within the newly established territories amounts to 150,000 ha.	Other	Adopted	CO2	NA	-329.7	See Table 43	2021	LEPL "Agency of Protected Areas"	185,845.0 GEL	Encouraging sustainable forest management	NO
8. Integration of the climate change issues, including mitigation into management plants of the protected areas.	**As part of the activity, the following will be implemented:** Discussing, developing and gradually integrating climate change issues and mitigation strategies into the management plans of protected areas to ensure their sustainable management. **What has been done until the reporting period:** As of 2023, 12 out of the 26 approved management plans address climate change issues, representing 42% of the total number of management plans. In 2023, two new protected landscapes were created, the number of governing bodies increased, at the expense of which the result of the indicator did not increase.	By 2024, climate change mitigation will be integrated into more than 50% of the management plans for protected areas.	Planning Instrument	Adopted	CO2	NA	NA	NA	2021	Ministry of Environmental Protection and Agriculture	administrative expense	Encouraging sustainable forest management	Connection to Activity 7: Ensuring the protection and sustainable management of the forest area included in the new protected areas

1.4.2 NATIONALLY DETERMINED CONTRIBUTION FROM GENDER PERSPECTIVE

Georgia's 2030 Climate Change Strategy and its Action Plan (CSAP) play a vital role in advancing the country's Nationally Determined Contribution (NDC). There is growing potential to strengthen the integration of gender commitments within these policy documents. Recognizing gender equality as a key component of sustainable development presents an opportunity to develop a comprehensive approach for implementing the gender commitments outlined in Georgia's NDC through its mitigation actions.

Gender considerations are actively addressed in two key objectives of Georgia's Climate Action Plan (CAP). First, sustainable forest management plans are designed to be gender-sensitive, acknowledging the distinct roles and needs of women and men in forest use and management. Second, Sustainable Development Goal (SDG) 5, which emphasizes gender equality, is incorporated in the objective of raising consumer awareness about energy efficiency. While these steps mark progress, they also underscore an opportunity to further expand gender integration across the strategic framework of the Climate Action Plan.

This section of the document provides an overview of the current integration of gender in the Climate Action Plan, identifying areas for enhancement and recommending approaches for improvement. It seeks alignment with the Lima Work Program on Gender (LWPG) to ensure that gender considerations are reflected across all sectors. Strengthening these efforts will support Georgia in making its climate policies more inclusive and impactful.

Connections to Enhanced Lima Work Program on Gender (ELWPG) in CSAP

Goal 1: Reducing greenhouse gas emissions in the energy generation and transmission sector

The objective to reduce GHG emissions by 15% in the energy generation and transmission sector compared to reference scenario projections by 2030 presents a valuable opportunity to promote gender equality within the field. Currently, women are underrepresented in the energy sector, but proactive measures can shift this trend toward greater inclusivity. Addressing this gap by implementing comprehensive educational campaigns can help dismantle stereotypes and encourage women to pursue careers in energy, particularly in leadership roles, aligning with the Enhanced Lima Work Program on Gender (ELWPG) priority area B.

Georgia's Long-Term Low Emission Development Strategy (LT-LEDS) highlights the importance of inclusive mitigation measures that support equal workforce participation. By fostering mentorship programs, flexible working arrangements, and targeted recruitment initiatives, the sector can better support women's career advancement and create a pathway to leadership. Aligning these efforts with Georgia's national gender strategy and international agreements will help embed gender equality across all sectors.

These initiatives, combined with continuous evaluation and adaptation, will strengthen progress toward gender parity in the energy sector. By fostering a culture of inclusivity and equality, Georgia can unlock the full potential of a diverse workforce, driving innovation and sustainable growth in the energy sector.

Goal 2: Reducing greenhouse gas emissions in the transport sector

The objective to reduce greenhouse gas emissions by 15% in the transport sector by 2030 is a vital part of Georgia's climate strategy and presents a significant opportunity to foster gender inclusivity. Currently, women encounter more challenges than men in accessing low-emission vehicle options due to income disparities and access to financial resources. By designing subsidies for clean technologies to be equally accessible to both women and men, and tailoring outreach programs to effectively communicate the benefits and availability of these technologies, Georgia can support a more balanced uptake of sustainable transport options.

Recognizing the distinct needs of women and men in public transportation planning further strengthens this approach. Women, who tend to rely more on public transit, often prioritize safety, accessibility, and convenience. For example, accessible buses and sidewalks are essential for parents with baby carriers and individuals with mobility constraints. Mapping these needs and incorporating them into transport planning can greatly enhance inclusivity and service quality.

A key step is collecting gender-disaggregated data on traveller needs and behaviours. This data will inform gender-sensitive planning, implementation, monitoring, and evaluation in line with the Enhanced Lima Work Program on Gender (ELWPG) priorities D and E. By integrating gender considerations into transport policies, Georgia can create a more equitable and effective approach to emission reduction, advancing a sustainable and inclusive transport system for all.

Goal 3: Promoting Low-Carbon Development in the Building Sector

The objective of supporting low-carbon development in the building sector is pivotal for achieving climate goals, particularly through the adoption of energy-efficient technologies and services. Women play a crucial role in this sector as they are the primary consumers of energy within households and have the potential to become significant energy producers, or "prosumers." This dual role underscores the importance of integrating gender considerations into energy policies and practices.

Donor-funded projects on rural energy have successfully showcased the transformative impact of engaging women in energy initiatives, setting inspiring benchmarks for best practices. These initiatives demonstrate that empowering women in energy management contributes to more efficient energy use and accelerates the adoption of sustainable technologies. However, expanding this positive impact requires a broader integration of gender perspectives across all activities in the building sector.

To bridge the existing gap, it is vital to adopt a gender-sensitive approach in all household energy-related activities, recognizing the unique insights and contributions women bring to energy management. Women's active involvement is not just valuable—it is essential for achieving lasting, sustainable change and ensuring the success of low-carbon development efforts.

In Georgia, some progress has been made toward gender integration in the energy sector, but there is room for improvement. This includes advancing policies that directly address gender disparities, providing training and resources to support women's participation in energy initiatives, and cultivating an inclusive environment that encourages women's leadership in energy-related decision-making. These steps will enable Georgia to leverage the full potential of its population, promote gender equality, and more effectively achieve

its climate goals.

Goal 4: Promoting Low-Carbon Development in the Industry Sector

Supporting low-carbon development in the industry sector is essential for achieving a 5% reduction in emissions by 2030, compared to a baseline scenario. This ambitious goal emphasizes the adoption of climate-friendly technologies and services, which are crucial for transitioning to a more sustainable industrial model. An integral part of this transition is ensuring that women are equally represented and empowered within the industry sector, which has traditionally been male-dominated.

Addressing this gender imbalance requires proactive measures to promote gender equality, enabling women to fully participate in and benefit from the shift to a low-carbon economy. Creating accessible pathways for women to enter and advance in the industry sector is key—through education and training programs focused on green skills, as well as mentorship and networking opportunities that help women build confidence and connections to thrive in this field.

Georgia's Long-Term Low Emission Development Strategy (LT-LEDS) envisions a WaM scenario that recognizes the importance of equitable participation across genders. By implementing policies that actively support the recruitment and advancement of women—especially in leadership and decision-making roles—the strategy aims to build a truly inclusive sector. Establishing gender-specific targets and tracking progress will foster accountability and contribute to a more equitable, innovative, and sustainable future in the industry sector.

Furthermore, fostering an inclusive workplace culture that values diversity and addresses gender biases is essential for creating an environment where women can succeed. This involves implementing family-friendly policies, such as flexible working arrangements and parental leave, which can help balance work and family responsibilities.

By taking these comprehensive steps, the industry sector can not only achieve its emissions reduction targets but also contribute to broader social goals of gender equality and economic empowerment. This approach aligns with international commitments to sustainable development and ensures that the benefits of a low-carbon economy are shared equitably across society.

Goal 5: Supporting the low-carbon development of the agriculture sector through encouraging climate-smart agriculture technologies and services

In Georgia, while women currently own less land than men, they play a vital role in small-scale agriculture, actively contributing to this essential sector. Their involvement, especially in low-income farming, highlights their resilience and adaptability, though it also underscores the importance of supporting women as they face challenges from market fluctuations and climate impacts.

To address these vulnerabilities, it is crucial to implement gender-sensitive approaches in all agricultural activities. This involves recognizing the unique challenges faced by women in agriculture and ensuring that they have equal access to resources, training, and technologies that can enhance their resilience and productivity. Climate-smart agriculture technologies, such as improved irrigation systems, drought-resistant crops, and sustainable waste management practices, should be tailored to meet the specific

needs of women farmers.

Moreover, integrating gender considerations into agricultural policies and programs is essential for achieving equitable outcomes. This includes involving women in decision-making processes at all levels, from local community planning to national policy development. By doing so, women's voices and perspectives can be incorporated into strategies that aim to mitigate the impacts of climate change and promote sustainable agricultural practices.

Activities related to agriculture should align with all priority areas of the LWPG, which emphasize the importance of gender-responsive implementation and the empowerment of women in climate-related sectors.

Goal 6: Promoting the low carbon development of the waste sector through encouraging climate-smart agriculture technologies and services.

There is an opportunity to enhance the integration of gender considerations within the waste activities of the Climate Action Plan (CAP). By recognizing and addressing this gap, we can significantly improve the effectiveness of waste management strategies, as men and women often have different roles and responsibilities at the household level.

To foster a more inclusive approach, it is essential to adopt a gender-sensitive framework in all waste management activities and plans. This involves understanding how women and men uniquely interact with waste and tailoring communication strategies to reflect these differences. Women, in particular, play a vital role in household waste management and can significantly contribute to waste separation and recycling efforts. Therefore, communication campaigns should actively engage women, providing them with the information and resources they need to participate effectively in waste management initiatives.

Furthermore, gender-sensitive communication should go beyond simply sharing information. It should encourage participatory approaches that empower both women and men to be involved in decision-making processes related to waste management. Community workshops, focus groups, and other interactive platforms can facilitate dialogue and collaboration, ensuring that everyone's voice is heard and valued in shaping waste management strategies.

Goal 7: Increasing carbon capture capacity of forests by 10% by 2030 compared to 2015

It is crucial to recognize the different ways in which women and men utilize land and forest resources. Women often engage in the collection of non-timber forest products, such as berries and medicinal plants, which are vital for both household sustenance and local economies. In contrast, men are typically responsible for harvesting firewood, their main means of heating homes.

To effectively integrate these diverse roles and interests, forest management plans and the management of protected areas must be inclusive and gender-sensitive. Grassroot women organizations often show interest in protected areas management. It involves ensuring that both women's and men's perspectives are considered in decision-making processes, thereby promoting equitable resource management. Equal representation in forest management decision-making, as emphasized in LWPG priority D, is fundamental to achieving the goals set forth in the Climate Action Plan (CAP) on forestry.

Moreover, effective communication strategies are essential to facilitate collaboration and understanding among stakeholders. This includes providing platforms for dialogue and knowledge exchange, where women and men can share their experiences and insights.

Incorporating gender considerations into forest management not only supports low-carbon development but also aligns with broader objectives of gender equality and empowerment.

TABLE 13 ANALYSIS OF MITIGATION / NDC ACTIVITIES RELATED TO THE LIMA WORK PLAN ON GENDER AND ITS ACTION PLAN

Activity	Description	LWPG Category	LWPG Sub-category	Comment

2.3.1. Implement the measures included in Tbilisi's Green Transport Policy Plan	The international consulting firm AETS apave collaborates with "Tbilisi Transport Company" LLC, providing gender equality consulting services.
	Tbilisi Transport Company, as part of this initiative, has implemented various measures:
	• Action Plan and Statement
	  ◦ Developed an Action Plan for the Implementation of the Equal Opportunities Policy.
	  ◦ Formulated a statement and slogan reflecting the commitment to equal opportunities.
	• Training and Employment
	  ◦ Trained over 50 women as bus drivers.
	  ◦ Employed 42 women as bus drivers in Tbilisi.
	• Recruitment and Workplace Policies
	  ◦ Introduced a gender-friendly recruitment application form.
	  ◦ Designed new work forms for bus drivers, conductors, and controllers with a focus on equal opportunity policies.
	• Employee Engagement:
	  ◦ Developed a questionnaire for employees to enhance equal opportunities, improve the working environment, and raise awareness.
	  ◦ "Tbilisi Transport Company" LLC is dedicated to cultivating a diverse work environment that fosters equal opportunities for all employees, irrespective of age, gender, ethnicity, or religious affiliation. The company aims to showcase and maximize the potential of every individual, emphasising the importance of inclusivity and equality in the workplace.
		A	A1	Tbilisi Transport Company: https://ttc.com.ge/ka/equal-abilities
				https://ttc.com.ge/ka/news/528

Activity	Description	LWPG Category	LWPG Sub-category	Comment
2.3.2. Implement the measures listed in Batumi's Sustainable Urban Mobility Plan (SUMP)	• Weak gender mainstreaming in Initial Planning: According to the evaluation report, the Integrated Sustainable Urban Mobility Plan (ISUMP) addresses gender, but also lacked explicit attention to gender-related considerations during its initial design phase. • Missed Opportunities for Mainstreaming: Despite recognizing that facilitating public transport could benefit female mobility, the ISUMP missed the opportunity to comprehensively review its potential to enhance living conditions for women and other vulnerable groups. • Household Mobility Survey Findings: While the ISTBAR project provided relevant information on social and gender issues through tools like the household mobility survey, this data was not effectively integrated into the preparation of the ISUMP in Batumi. Consequently, the plan lacked actions or recommendations addressing gender or vulnerable groups' issues. • Root Cause in ISUMP Weakness: The poor performance in gender aspects is attributed to the weakness of the Batumi ISUMP in addressing gender and vulnerable groups. The ISUMP provided some gendered data but it was not translated into actionable measures.	D	D7	Green Cities: Integrated Sustainable Transport for Batumi and the Achara Region (ISTBAR): https://www.gefieo.org/sites/default/files/documents/projects/tes/5468-terminal-evaluation.pdf
3.1.1. Elaborate the methodology for certification of buildings	Gender is not mentioned, although its donors have gender and public participation policies			EBRD gender considerations: https://www.ebrd.com/gender-tools-publications.html
3.1.2. Elaborate, approve, and implement secondary legislation on the energy efficiency of buildings.	Gender is not mentioned, however, civil society was involved in the development of the law on energy efficiency.			

Activity	Description	LWPG Category	LWPG Sub-category	Comment
3.2.2. Implementation of energy efficiency awareness raising programmes for the public.	Gender is not mentioned			GOPA Intec, within the framework of the European Union-supported project "Georgian Energy Sector Reform Program (GESRP)", announces a selection competition for Tbilisi schools to participate in the international campaign: https://www.economy.ge/?page=news&nw=2212&s=romeo-miqautadzem-kampaniis-gaxade-sheni-skola-energoefeqturi-gaxsnit-gonisdziebashi-miigo-monawileoba-
3.2.4. implementation of information campaigns for solar water heater systems in buildings.	Gender is not mentioned in the CAP, but in the Gender Sensitive NAMA on sustainable rural energy.			CENN's communication campaign supported by UNDP and EU: https://www.undp.org/sites/g/files/zskgke326/files/migration/ge/undp_ge_enpard_simple-solar-water-heater_brochure_geo.pdf WECF has developed a gender-sensitive NAMA on solar water heaters, which did not get funded. Currently, negotiations with KLIK are underway to promote Solar Water Heaters in a gender-sensitive way, implemented by WECF
3.4.2. Encourage using of energy-efficient firewood stoves.	Women are recognized as being the main target group of the activity, as the main caregivers at home and primary handlers of fuelwood. • Gender impact assessment of the viability of financing schemes for stoves to ensure that loans and micro credits are accessible for women, especially women-led households and single parents. • Strengthening financial literacy in target regions and municipalities, anchoring respective activities (e. g. financial literacy workshop within the context of International Women's Day) in municipal action plans through the advocating power of the gender councils and gender focal points. • Use of Women's Rooms in municipalities for relevant activities	Priority Areas: A and D	Activities: A1 (with a focus on municipalities), A5, D1, D2, D3, D5 with a focus on municipalities	Gender Action Plan available: https://www.giz.de/en/downloads/giz2022-en-gender-action-plan-GA.pdf

Activity	Description	LWPG Category	LWPG Sub-category	Comment
5.2.3. Support existing and emerging cooperatives to implement sustainable pasture management practices and replicate the success factors of successful cooperatives for other cooperatives.	• The document highlights critical gender disparities in decision-making, ownership, and resource access, particularly within the livestock sector. • Despite women's active involvement, their contributions often go unrecognized, impacting both their social status and inclusion in decision-making processes. • The document stresses the importance of inclusive policies, proposing initiatives such as the formation of pasture users' associations with substantial female representation, gender-responsive infrastructure planning, and revised criteria for pasture leases to improve women's access to credit resources. • Addressing these gender dynamics is deemed essential for the successful implementation of sustainable and equitable rangeland management practices in the country.	A	A1, A4, D3	National Policy Concept for Sustainable Rangeland Management in Georgia: https://mepa.gov.ge/Ge/Files/ViewFile/53687
7.2.1. Introduction of sustainable forest management practice through the implementation of sustainable forest management plans.	• 100% Gender sensitive forest management plans that address the needs of women and men by 2027. • Ensure women's participation in planning and decision-making Including gender in training on forest management. • Collecting gender disaggregated data	A, D	A1, A4, D5, D7	https://www.giz.de/en/worldwide/100952.html See project GAP and GA.
7.2.2. Introduction of sustainable forest management practice through supervision and capacity development.	Ongoing work with municipalities gender councils: • The overall training system for the Department of Environmental Supervision (DES) includes one training component for DES staff on gender equality and the specificities in the forest sector. • Gender expert revises SOPs, and training modules to ensure they are gender-sensitive in terms of language and content. • DES trainer pool receives training on gender-equitable and sensitive training and management • Encourage hiring female forest patrollers and inspectors in DES	A	A1	
7.2.3. Promoting sustainable management of forests by supporting the multifunctionality of forests, raising public awareness, and supporting public involvement in the forest reform processes.	• Local information points for forest sector reform and municipal gender focal points should establish working relations to ensure the flow of information and to reach women. • Advocacy and information campaigns organized and led by women's organizations, to increase women's visibility and generate knowledge within the community on the key role women play for the successful implementation of EE-AF solutions. • Household advisory services for EE/AF should specifically focus on women-headed and vulnerable households. • All knowledge and information materials are gender mainstreamed • National campaigns are gender mainstreamed.	A, D	A1, A5, D2, D3 (partly)	

1.4.2.1 Gender in Georgian Climate Policies, strategies and actions

Introduction

Climate action is not a gender-neutral process. Women and men, across diverse identities, have different contributions to make, hold different interests and experience varied access to benefits from mitigation actions (LT-LEDS, 2023). Climate mitigation actions impact women and men differently as they do not tend to take into account the different effects actions have on women and men, in Georgia's case on the division of labour (LEDS, 2030).

In Georgia, women are still underrepresented in decision making positions, the pay gap remains high, and stereotypes – alongside a lack of role models – still prevent girls from choosing careers in Science, Technology, Engineering and Mathematics (STEM). According to the LEDS, men will benefit most from the jobs expected to be created in the desirable scenario of a low carbon economy.

An intersectional perspective is essential when analysing access to resources and decision making power and overall impact. Following analysis aims to consider different factors that influence access and impact along with gender, such as ethnicity, disability, socio-economic status, language, migration status, and rural or Urban residency.[208]

Therefore, it is crucial for climate policies to be gender responsive. The following chapter will analyse existing climate policies, highlight both shortcomings and best practices, and provide a comprehensive analysis aligned with the LWPG and its GAP.

Gender in Georgian climate Policies - an overview

The following section provides an overview of how gender has been integrated in Georgia's primary policies and strategies relevant for Mitigation and the NDC.

Georgia's updated NDC includes a dedicated section on gender and climate change with goals to mainstream gender, further equal participation, empower women, build capacity, and develop gender-responsive climate policies. Additionally, the NDC addresses SDG 5, which aims to eliminate gender inequality and discrimination against women and girls by means of their economic, political and social empowerment. However, following the nationalisation of the SDGs, the NDC excludes target 5c of SDG 5, that underlines the importance of taking legislative measures to achieve gender equality. In addition, the NDC highlights an influential role of women as educators, decision-makers and agents of change, their active involvement in the education system, and their unique position to increase energy efficiency in households. It also recognizes women as a vulnerable group to climate change.

However, It should be noted that further discussion on how women's empowerment can be achieved through their involvement in decision-making processes or measures to implement any of the other gender aims needs to be fostered. Additionally, measurable targets, gender indicators or a specific budget for gender activities should be formulated. The International Labour Organization's (ILO) Guidelines for a just transition towards environmentally sustainable economies and societies for all" encourage countries to include such approaches in their (I)NDCs and some other countries[209] have taken such measures.

208 https://unfccc.int/sites/default/files/resource/Background note-Gender-responsive JT.pdf

209 https://ndcpartnership.org/sites/default/files/2024-02/supporting-gender-responsive-ndcsinsight-brief-feb-2022.pdf

As mentioned earlier in the document, although there is a separate chapter on gender in the NDC, further mainstreaming of gender considerations into other chapters is needed. In addition, the document takes a binary view on women and men, not considering the many factors that may influence their experiences, such as the existing inequalities between rural and urban population and the different experiences of ethnic minorities. These factors influence how climate mitigation actions are experienced and what capacities women and men have to participate in a meaningful way in climate actions.

The CSAP is intended to implement the NDC, however, gender is only to a very limited extent integrated on action plan level. A strategy on implementing the gender commitments of the NDC in Georgia's mitigation actions has not yet been developed.

The Low Emission Development Strategy (LEDS), adopted in 2018, acknowledges that gender equality is anchored in Georgian law, and recognizes prevailing inequalities in employment, equal pay and under representation of women in decision making positions. Gender considerations are:

- Equal participation across all sectors, including industry and traditionally male-dominated sectors.
- Increasing the involvement of more women in needs assessment and climate policy and action development.
- Recognizing that projected 200.000 additional jobs created by 2050 under the WAM scenario will mostly benefit the technology sectors that are traditionally dominated by men. Without additional measures, only 17% of these new jobs will be filled by women by 2050, posing a significant challenge to a just transition.[210]

Georgia's second Biannual Update Report (BUR)[211] and Fourth National Communication[212] include gender considerations, such as the gender sensitive Nationally Appropriate Mitigation Action (NAMA) on sustainable rural energy in the BUR. . This initiative adopts a comprehensive gender-transformative and intersectional approach across all levels of implementation.

The White Paper on the Climate Change Law of Georgia illustrates a holistic approach to gender considerations. While explicitly addressing gender justice, the paper seamlessly integrates an intersectional gender perspective across climate targets, governance, adaptation, just transition, and public participation. This inclusion recognizes the diverse impacts of climate change on women and men, highlighting the importance of gender-responsive approaches throughout all facets of climate action. Specifically, within the adaptation section, the White Paper underscores the need for NDC and mitigation actions to be inclusive and gender-responsive. It advocates for prioritizing the specific needs, challenges, and priorities of vulnerable groups, such as women, adolescents, internally displaced people, and ethnic minorities. By fostering inclusive engagement with diverse stakeholders, including marginalized communities and civil society organizations, the White Paper aims to promote empowerment and resilience-building among these groups. This approach not only aligns with global agreements like the Paris Agreement but also

210 For detailed information please see the LT-LEDS, P.77
211 https://unfccc.int/sites/default/files/resource/2019.06.13_BUR2_2019_Eng.pdf
212 https://unfccc.int/sites/default/files/resource/4 Final Report-English202030.03_0.pdf

reflects Georgia's commitment to advancing social justice and gender equality in its mitigation efforts.[213]

The National Sustainable Energy Action Plan refers to gender as[214]:

- Women as a vulnerable group.
- Women as beneficiaries of improved access to sustainable energy.
- Gender sensitive indicators developed in line with the SDGs.
- The importance of women's empowerment for sustainable development and how access to energy can contribute to it.

Use of the term "housewife" in relation to energy management within households, which could be updated to more gender-sensitive language. Alternatives such as "women in the household," "caregivers," or "women as energy managers in the household" are suggested to better reflect gender inclusivity.

"**The Medium-Term Action Plan** (2023-2026) - development and management of regional and infrastructure development policies" outlines a comprehensive approach to regional development, infrastructure, and tourism, with a particular focus on integrating gender considerations into various programs and sub-programs. Under the priority of "development and management of regional and infrastructure development policies (program code - 25 01)," the plan emphasizes the promotion of "gender equality" as a fundamental principle in the decentralization strategy. The program aims to ensure the active participation of women and men in the decentralization and self-government processes, with expected results including the development of regional development policies that explicitly account for gender aspects. Additionally, the plan addresses gender-sensitive policies in the "water supply infrastructure restoration and rehabilitation (program code - 25 04)" and "solid waste management program (program code - 25 05)." In these initiatives, the focus is on creating gender-responsive infrastructure, considering the interests of women and men, and ensuring equal conditions for employment in waste management. The plan further extends its commitment to gender inclusivity in the construction-rehabilitation of general education and preschool institutions (program code - 25 07), where efforts are made to promote girls' educational levels, social inclusion, and accessibility for persons with disabilities. The sub-program "Measures to improve tourism infrastructure (program code - 25 08)" also underscores the importance of urban renewal and development, explicitly considering gender aspects in creating attractive spaces and rehabilitating various structures. Overall, the Medium-Term Action Plan demonstrates a proactive approach to integrating gender considerations across diverse sectors, reflecting a commitment to inclusive and equitable development.

While gender perspectives play an essential role in climate policies, strategies, and actions, the reviewed annual budgets for MEPA, MRDI, and MESD currently do not indicate specific measures or allocations addressing gender-related aspects within broader climate initiatives. This suggests an opportunity to enhance the inclusivity and effectiveness of these budgetary frameworks in fully integrating gender dimensions within Georgia's

213 https://web-api.parliament.ge/storage/files/shares/Komitetebi/garemo/White-Paper-WDF-ENG.pdf
214 https://unece.org/fileadmin/DAM/project-monitoring/unda/16_17X/E2_A2.3/NSEAP_Georgia.pdf

climate response.

The 11 published **SECAPs** refer to gender as "An important element for awareness-raising campaigns is the collection and processing of gender-specific data. This type of information makes it possible to see the differences between women's and men's needs, use of resources, and distribution of roles and responsibilities, to plan activities accordingly."

The Tbilisi Green City Action Plan (2017 - 2030) mentions the need to stratify data on gender when surveying households.[215]

None of the documents currently incorporates an intersectional perspective. This presents an opportunity to consider a more comprehensive approach that integrates the impact of climate change on gender and related issues.

Analysis to the Lima Work Plan for Gender and its Action Plan

Georgian climate policies and actions address all three relevant priority areas A, B and D, as priority Area C and E are solely addressed at the UNFCCC secretariat. 9 out of 15 relevant activities are partly addressed from the relevant priority areas in Georgia.

Priority Area A. Capacity-building, knowledge management and communication

A1. Strengthen Capacity Building for Mainstreaming Gender

There is a general and recognized lack of capacity for mainstreaming gender in climate policies. Noteworthily, during the development of the current documents a training on gender for stakeholders took place. Gender was a part of a training for municipalities.

Several NGOs are implementing initiatives to build capacity to mainstream gender in climate policies, such as the Westminster Foundation, Women Engage for a Common Future and Green Alternative. A conference on the similar topic took place in 2022 organized by REC.

A3. Enhance Capacity Building for Sex-Disaggregated Data

GeoStat is collecting gender disaggregated data to a limited extent.

Data on employment and payment is collected by gender.

A4. Strengthen Evidence and Research on Differentiated Impacts and Women's Roles

The LEDS has included an analysis of the impact of a low carbon development model on the gender balance of future employment (jobs). See adaptation chapter for more details.

A5. Communicate about the LWPG and GAP

MEPA, in cooperation with the German Corporation for International Cooperation (GIZ) (Regional Programme for "Capacity Development for Climate Policy in the Countries of Southeast, Eastern Europe, the South Caucasus and Central Asia, Phase III", CDCPIII) and REC Caucasus have hosted the **"Tbilisi Climate Change and Gender Conference: addressing gender gaps in climate change in Georgia"** on December 2, 2022.

The NGO Women Engage for a Common Future (WECF) with the support of BMZ implements a project on integrating gender in climate change in Georgia (2023 - 2025), that included stakeholder interviews and communication.

An article was published in Caucasus Digest analysing gender integration in Georgian

215 https://tbilisi.gov.ge/img/original/2017/10/20/GCAP - ENG.docx

Climate policies.[216]

Another article was published on gender sensitive energy cooperative promoting climate friendly technologies.[217]

Priority Area B. Gender balance, participation and women's leadership

B1. Promote and build capacity of Women's Leadership in Negotiation

Georgia's governmental delegation has seen a reasonable gender balance (from 33% - 67% from 2017 – 2023) at the UNFCCC COPs and Intersessions, and in 6 out of 10 meetings a woman was the head of delegation

B2. Provide travel funds for women delegates and grassroots participants to the negotiations

The Georgian delegations are mostly small and well gender balanced. Women representatives of CSOs and grassroots participants have received funding occasionally from International NGOs such as WECF, CAN, but no data is available.

B3. Collaborate with the Local Communities and Indigenous Peoples Platform Facilitative Working Group

N/A

Priority Area D. Gender-responsive implementation and means of implementation

D1. Support Capacity-Building on Gender Budgeting

CSOs are implementing capacity building on gender budgeting in general, but these programs are not targeted at the climate related projects.

D2. Raise awareness of the financial and technical support available for promoting the strengthening of gender integration into climate

N/A

D3. Promote Gender-Responsive Technology

Most SEAPs and the CAP promote solar water heaters and energy efficient stoves, which are generally recognized as gender responsive technologies, as they benefit women and men differently. They reduce the unpaid labour burden for women and men and improve health, comfort and indoor air quality.

D4. Collect Information on Gender and Climate Change Expertise

N/A

D5. Engage Women's Groups in Climate Policy and Action

N/A

D6. Exchange Information on Parties' Gender and Climate Work

N/A

D7. Make Sex-Disaggregated Data Available

All available data is public on Geostat.

216 https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/CAD124.pdf#page=11

217 https://energy-democracy.net/cooperatives-promote-gender-equality-and-combat-energy-poverty-in-rural-georgia/index.html

1.4.3 METHODOLOGY AND ASSUMPTIONS FOR ASSESSING MITIGATION EFFECTS

The tables below detail the methodology and assumptions used to assess the mitigation effects of the 2021-2023 Action Plan of Georgia's 2030 Climate Strategy activities. Additionally, the tables estimate the achieved reduction of greenhouse gas emissions from 2021 to 2023, as well as the expected reduction until 2030.

TABLE 14. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.1.1 OF THE TRANSPORT SECTOR

2.1.1. Activity	Implementing changes in existing regulation related to the technical inspection of vehicles
Status	Implemented
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	37.82
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	96.25
Assumptions and Methodology	The implementation of the change in the regulation results in a reduction of greenhouse gas emissions generated by in-service defective vehicles. **Assumption 1:** The total number of prohibited vehicles operating from April 2021 to December 2023 was evenly distributed over 33 months. **Assumption 2:** A 5-year average of CO_2 emissions per vehicle is used to calculate the amount of reduced emissions. **Assumption 3:** Traffic-prohibited vehicles are no longer in service.
Evaluation	

2.1.1. Activity	Implementing changes in existing regulation related to the technical inspection of vehicles

The reduction of emissions caused by vehicles by changing the existing regulations on technical inspection of vehicles is calculated by the following formulas:

1. One vehicle - Averaged emissions (Gg CO_2 eq.)

$$E_{per}=(\Sigma_n E_i)/n$$

Where,

E_{per} - Averaged emissions of one vehicle (Gg CO_2 eq.);

ΣE_i – Total greenhouse gas emissions per vehicle by year;

n – Number of years.

2. Amount of reduced carbon dioxide emissions (Gg CO_2 eq.)

$$CO_2 \text{ Emission Reductions}=FN\times C_k$$

Where,

CO_2 Emission Reductions - Amount of reduced carbon dioxide emissions (Gg CO_2 eq.)

FN - Number of prohibited vehicles;

C_k - Carbon dioxide emissions reduction coefficient;

Period	Number of vehicle (unit)	Amount of carbon dioxide emissions (Gg CO_2 eq.)	Amount of CO_2 emitted per vehicle (Gg CO_2 eq.)	Average emissions of one vehicle (Gg CO_2 eq.) 2013-2017.
	A	B	C	D
			B/A	Average C
2013	906,700	3,103	0.0034	
2014	999,100	3,500	0.0035	
2015	1,081,400	3,912	0.0036	
2016	1,167,200	4,427	0.0038	
2017	1,228,100	3,941	0.0032	0.0035

2.1.1. Activity			Implementing changes in existing regulation related to the technical inspection of vehicles			
Period	Number of prohibited cars (unit)	Coefficient of reduction of carbon dioxide emission	Amount of reduced carbon dioxide emissions (Gg CO_2 eq.)	Amount of reduced carbon dioxide emissions per month (Gg CO_2 eq.)	The operation period of the law (number of months)	Amount of reduced carbon dioxide emissions per year (Gg CO_2 eq.)
	A	B	C	D	E	F
			A*B	C/33		D*E
04.2021 - 12.2023	10,778	0.00351	37.82	1.15		
2021					9	10.31
2022					12	13.75
2023					12	13.75
2024-2030					84	96.25

TABLE 15. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.1.3 OF THE TRANSPORT SECTOR

2.1.3. Activity	Control of the exhaust fumes from the vehicles on the roads
Status	Implemented
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	0.00005
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	0.0007
Assumptions and Methodology	**Assumption 1:** Individuals fined for visible exhaust fumes have repaired their vehicles within the statutory time limit and eliminated excess emissions. **Assumption 2:** Each penalized vehicle travelled an average of 10,300 kilometres per year. [218] **Assumption 3:** Each year, there will be a 10% reduction in the number of vehicles fined.

218 https://www.odyssee-mure.eu/publications/efficiency-by-sector/transport/distance-travelled-by-car.html

2.1.3. Activity	Control of the exhaust fumes from the vehicles on the roads
Evaluation	The emissions reduction resulting from the 2,983 fined vehicles was negligible.

Carbon dioxide emissions reduced as a result of on-road control of exhaust fumes are calculated by the following formula:

$$CO_2 \text{ Emission Reduction} = ((CB \times 365)/10^9 \times n) \times E_{CB}$$

Where,

CO_2 Emission Reduction - Amount of reduced carbon dioxide emissions (Gg CO_2 eq.)

CB – Carbon Black produced by one vehicle (mg*km);

n - The number of fined vehicles (unit);

E_{CB} - Carbon dioxide emission coefficient during Carbon Black formation (Gg CO_2/t of Carbon Black produced).

Period	Number of penalized vehicles (unit)	Carbon dioxide emission coefficient during Carbon Black formation (Gg CO2/t of Carbon Black formed).	Carbon Black produced by one vehicle (mg*km);	Carbon Black produced by one vehicle per year (t)	Carbon Black produced by fined vehicles per year (t)	Amount of reduced carbon dioxide emissions (Gg CO2 eq.)
	A	B	C	D	E	F
				C*365/10^9	A*D	B*E
09.2023 - 12.2023	2,983	0.00066	66	0.000024	0.072	0.00005
01.2024 - 12.2030	42,016	0.00066	66	0.000024	1.01	0.0007

TABLE 16. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.1.6 OF THE TRANSPORT SECTOR

2.1.6. Activity	Discussion on the possibility of increase in import tax for old vehicles based on (economic) feasibility study
Status	Implemented
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NO

2.1.6. Activity	Discussion on the possibility of increase in import tax for old vehicles based on (economic) feasibility study
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	NO
Assumptions and Methodology	NA
Evaluation	Increasing the import tax will not lead to a significant reduction in GHG emissions.

TABLE 17. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.1.7 OF THE TRANSPORT SECTOR

2.1.7. Activity	Emission standards on the import of vehicles based on the cost-effectiveness analysis (EUR4 / EUR5)
Status	Implemented
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NO
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	NO
Assumptions and Methodology	NA
Evaluation	Euro 3, 4 and 5 car engines do not cover energy efficiency, therefore the impact on emissions is insignificant.

TABLE 18. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.2.2 OF THE TRANSPORT SECTOR

2.2.2. Activity	Support and encouragement of the biodiesel production
Status	Adopted
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NO
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	32
Assumptions and Methodology	NA

2.2.2. Activity	Support and encouragement of the biodiesel production
Evaluation	Georgia's 2030 Climate Change Strategy and Action Plan, along with the 2021-2023 Climate Action Plan, call for the production and sale of biodiesel, emphasizing a gradual increase in the proportion of biodiesel blends, specifically B5 and B7.

TABLE 19. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.3.1 OF THE TRANSPORT SECTOR

2.3.1. Activity	Implement the measures included in Tbilisi's Green Transport Policy Plan
Status	Adopted
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NO
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	NO
Assumptions and Methodology	NA
Evaluation	Replacing old buses with new ones does not automatically result in the removal of the old buses from service, changes in passenger flow, or variations in fuel consumption, as the replacement process can be either complete or partial.

TABLE 20 METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.3.1 OF THE TRANSPORT SECTOR

2.3.1. Activity	Implement the measures included in Tbilisi's Green Transport Policy Plan
Status	Adopted
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	1,558.13

2.3.1. Activity	Implement the measures included in Tbilisi's Green Transport Policy Plan
Assumptions and Methodology	18-meter buses will replace 12-meter buses on specific routes. **Assumption 1**: the vehicle-to-population ratio in Tbilisi is calculated using car ownership statistics from across Georgia.[219] As a result of this activity, the number of public transport users increased by 278,830. **Assumption 2:** New public transport users will decrease car usage by 50%, leading to reduced emissions. **Assumption 3:** New public transport users each year will maintain their current behaviour, thus the reduction in emissions will be maintained.
Evaluation	

The reduced emissions resulting from the addition of 50 units of 18-meter MAN buses to the capital's bus system are calculated using the following formulas:

1. Average emissions per vehicle (Gg CO_2 eq.)

$$E_{per}=(\Sigma_n E_i)/n$$

Where

E_{per} - Average emissions per vehicle (Gg CO_2 eq.);

ΣE_i – The sum of greenhouse gas emissions of one vehicle by years;

n - Number of years;

2. Amount of reduced carbon dioxide emissions (Gg CO_2 eq.)

$$CO_2 \text{ Emission Reductions}=((A_{12}+A_{18})\times R_c)/1000\times C_k/2$$

Where,

CO_2 Emission Reductions - Amount of reduced carbon dioxide emissions (Gg CO_2 eq.)

A_{12} and A_{18} - number of passengers in 12m and 18m buses;

R_c - Number of vehicles (per 1000 people);

C_k - Carbon dioxide emission reduction coefficient (Gg CO_2 eq./1 vehicle);

219 https://automobile.geostat.ge/ka/automobiles/general-info

2.3.1. Activity	Implement the measures included in Tbilisi's Green Transport Policy Plan

Period	Number of vehicles (unit)	Amount of carbon dioxide emissions (Gg CO2 eq.)	Amount of CO2 emitted per vehicle (Gg CO2 eq.)	Average emissions per vehicle (Gg CO2 eq.) 2013-2017.
	A	B	C	D
			B/A	Average C
2013	906,700	3,103	0.0034	
2014	999,100	3,500	0.0035	
2015	1,081,400	3,912	0.0036	
2016	1,167,200	4,427	0.0038	
2017	1,228,100	3,941	0.0032	0.0035

Bus length (m)	Number of passengers	Change in the number of passengers	Number of vehicles (per 1000 people)	Number of vehicles replaced by buses (unit)	Carbon dioxide emission reduction coefficient (Gg CO2 eq./1 vehicle)	Amount of reduced carbon dioxide emissions (Gg CO2 eq.)	Expected carbon dioxide emission reduction (Gg CO2 eq.)
	A	B	C	D	E	F	G
				B*C/1000		D*E/2	F*7
		278,830	455	126,868	0.0035	222.59	1,558.13
12	1,169,039						
18	1,447,869						

TABLE 21. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.3.1 OF THE TRANSPORT SECTOR

2.3.1. Activity	Implement the measures included in Tbilisi's Green Transport Policy Plan
Status	Adopted
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA

2.3.1. Activity	Implement the measures included in Tbilisi's Green Transport Policy Plan
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	0.91
Assumptions and Methodology	It is planned to buy 150 more 18-meter MAN buses in 2024–2025. **Assumption 1:** 150 18-meter buses introduced under the activity will replace the existing 12-meter buses. **Assumption 2:** The introduction of new buses will encourage people to use public transport, thereby reducing emissions from vehicles. **Assumption 3:** The impact of the new buses on passenger flow has not been assessed.
Evaluation	

The emission reduction resulting from the purchase of 150 additional MAN 18-meter buses during the years 2024-2025 is calculated using the following formulas:

1. Amount of natural gas consumed (Tj)

$$U_{natgas}=((n\times F_a)\times C)/10^6$$

Where,

U_{natgas} - Amount of natural gas consumed (Tj)

n – Number of Buses (unit);

C – Conversion coefficient (m^3*Mj);

F_a - Average fuel consumption per bus (m^3).

2. Expected reduction of carbon dioxide emissions (Gg CO_2 eq.)

$$CO_2\ Emission\ Reductions= (U_{natgas12}\times C_{natgas})/10^6 - (U_{natgas18}\times C_{natgas})/10^6$$

where,

CO_2 Emission Reductions - Expected reduction of carbon dioxide emissions (Gg CO_2 eq.);

$U_{natgas12}$ – Natural gas consumed by a 12m bus (Tj);

$U_{natgas18}$ – Natural gas consumed by a 18m bus (Tj);

C_{natgas} - Natural gas emission coefficient (CO_2 kg/Tj).

2.3.1. Activity					Implement the measures included in Tbilisi's Green Transport Policy Plan			
Bus length (m)	Number of Buses (Unit)	Average fuel consumption per bus (m3)	Consumed natural gas (m3)	Conversion coefficient (m3*Mj)	Consumed natural gas (Tj)	Natural gas emission coefficient (CO2 kg/Tj)	Amount of carbon dioxide emission (Gg CO2 eq.)	Expected emission reductions (Gg CO2 eq.)
	A	B	C	D	E	F	G	H
			A*B		C*D/ 1,000,000		E*F/ 1,000,000	
				38		56,100		0.13
12	150	4,280	642,002		24		1.37	
18	150	3,883	582,474		22.13		1.24	

TABLE 22. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 2.4.1 OF THE TRANSPORT SECTOR

2.4.1. Activity	Develop international climate finance proposals for the improved public, intercity, and non-motorized transport means
Status	Adopted
Sector	Transport
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	5.5
Assumptions and Methodology	NA
Evaluation	If the "Inter-municipal Sustainable Transport in Georgia" project proposal is funded, it is expected to directly reduce greenhouse gas emissions by 5.537 Gg CO_2 equivalent over a 4-year period. The indirect mitigation potential is estimated at 56.52 Gg CO_2 equivalent.[220]

220 The source is the project proposal document.

TABLE 23. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 1.1.3 OF THE ENERGY GENERATION AND TRANSMISSION SECTOR

1.1.3 Activity	Technical and procedural support for hydro power (HP) generation
Status	Adopted
Sector	Energy generation and distribution
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	2.89
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	5.53
Assumptions and Methodology	**Assumption 1:** Electricity generated by the hydropower plant is considered clean energy, therefore the greenhouse gas emissions are equal to zero. **Assumption 2:** With the operation of the hydropower plant, it is possible to reduce the load on the thermal power plant. **Assumption 3:** The average network emission factors for 2018-2023 are used to represent the amount of greenhouse gases emitted per 1 kW of electricity produced in Georgia. **Assumption 4:** Mestiachala station generates 7.9 million kWh of energy on average annually.
Evaluation	

1.1.3 Activity	Technical and procedural support for hydro power (HP) generation

The reduction in emissions from the operation of the hydropower plant, due to the decreased load on the thermal power plant, is calculated using the following formulas:

1. The amount of reduced carbon dioxide emissions (Gg CO_2 eq.)

$$CO_2 \text{ Emission Reductions} = GE \times GEF$$

Where,

CO_2 Emission Reductions - the amount of reduced carbon dioxide emissions (Gg CO_2 eq.);

GE - Generated energy (kWh);

GEF- Grid emission factor;

2. Amount of reduced carbon dioxide emissions per year (Gg CO_2 eq.)

$$E_{cy} = E_c \div m_{44} \times m_{12}$$

Where,

E_{cy} – The amount of annually reduced carbon dioxide emissions (Gg CO_2 eq.);

E_c - The amount of reduced carbon dioxide emissions (Gg CO_2 eq.);

m_{12} - The number of months in a year;

m_{44} – The number of months the hydropower plant operated.

Period	Generated energy (kWh)	Grid emission factor (kg CO2 eq./kWh)	Reduced carbon dioxide emissions (Gg CO2 eq.)	Reduced carbon dioxide emissions per year (Gg CO2 eq.)	Expected reduction of carbon dioxide emissions (Gg CO2-eq.)
	A	B	C	D	E
			A*B	C/44*12	D*7
05.2019 - 12.2023	28,900,000	0.1	2.89	0.79	
01.2024 – 12.2030					5.53

TABLE 24. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 1.2.1 OF THE ENERGY GENERATION AND TRANSMISSION SECTOR

1.2.1. Activity	Implementation of technical work at thermal power plants
Status	Planned
Sector	Energy generation and transmission Sector
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	NA
Assumptions and Methodology	NA
Evaluation	It is assumed that the turbines will have a higher coefficient of energy conversion efficiency, resulting in greater output with reduced fuel consumption.

TABLE 25. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 3.3.1 OF THE BUILDING SECTOR

3.3.1 Activity	Introducing tax regulations on incandescent bulbs.
Status	Adopted
Sector	Buildings
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	68.95
Assumptions and Methodology	**Assumption 1:** The number of Incandescent bulbs imported in 2023 was taken as a reference value. **Assumption 2:** A LED lamp of the same luminance is on average 60% more energy efficient than an incandescent bulb. **Assumption 3:** Incandescent bulb is lit for an average of 8 hours in 24 hours. **Assumption 4:** The power of the light bulbs are approximated to be 100 and 150 watts. **Assumption 5:** Incandescent bulbs will be completely replaced by energy-efficient bulbs.

3.3.1 Activity	Introducing tax regulations on incandescent bulbs.

Evaluation

The reduction of emissions resulting from the use of incandescent bulbs after the implementation of tax regulations is calculated by the following formulas:

1. Annual consumption of electricity by incandescent bulbs (kWh)

$$EL_y = P \times t$$

Where,

EL_y - Annual electricity consumption (kWh);

P - Power of an incandescent bulb (kWh);

t - Incandescent bulb operating period per day (hours);

2. The amount of carbon dioxide emissions (Gg CO_2 eq.)

$$CO_2 \text{ Emission Reductions} = EL_y \times n \times GEF$$

Where,

CO_2 Emission Reductions - The amount of reduced carbon dioxide emissions (Gg CO_2 eq.);

EL_y - Annual electricity consumption of incandescent bulbs (kWh);

n - Number of incandescent bulbs (unit);

GEF – Grid Emission Factor;

3. Amount of reduced carbon dioxide emissions per year (Gg CO_2 eq.)

$$E_{cy} = E_c \times C_{LED}$$Where,

E_{cy} - The amount of reduced carbon dioxide emissions (Gg CO_2 eq.);

E_c - The amount of carbon dioxide emissions (Gg CO_2 eq.);

C_{LED} – Coefficient of energy efficient light bulbs.

Period	Power of incandescent bulbs (kWh)	Light bulb operating period per day (hours)	Annual electricity consumption (kWh)	Number of incandescent bulbs (unit)	Grid emission factor (kg CO2 eq./kWh)	The amount of carbon dioxide emissions (kg CO2 eq.)	The coefficient of energy efficient light bulbs	Reduction of carbon dioxide emissions (Gg CO2 eq.)	The potential reduction of carbon dioxide emissions (Gg CO2 eq.)
	A	B	C	D	E	F	G		H
			B*C			C*D*E		F*G/1012	
2023	0.1	8	292	427,126	0.1	12,472,079.2	0.6	7.48	
	0.15	8	438	90,343	0.1	3,957,023.4	0.6	2.37	
2024-2030		8			0.1		0.6		68.95

TABLE 26. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 3.4.2 OF THE BUILDING SECTOR

3.4.2 Activity	Encourage using of energy-efficient firewood stoves
Status	Implemented
Sector	Building
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	5,298
Assumptions and Methodology	NA
Evaluation	By 2027, a financial incentive mechanism will be developed and implemented by the state and financial institutions, and information campaigns will be held to encourage the use of energy-efficient stoves, which will reduce the pressure on forests and improve the use of residual biomass.

TABLE 27. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 4.1.1 OF THE INDUSTRY SECTOR

4.1.1 Activity	Substitute wet with the dry method in cement production
Status	Implemented
Sector	Industry
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	478.44
Estimations of GHG emission reductions expected until 2030 (Gg CO_2 eq.)	1,674.54
Assumptions and Methodology	**Assumption**: The standard values of the IPCC 2006 guidelines are used as the factors for net calorific value and emissions.
Evaluation	

4.1.1 Activity	Substitute wet with the dry method in cement production

The reduction of emissions resulting from the replacement of the wet process of cement production with the dry process is calculated using the following formula:

$$CO_2\ Emission\ Reductions = \Sigma_i(M_{natgas} \times NCV_{natgas})/10^6 \times EF_{natgas}/10^6 + \Sigma_i(M_{coal} \times NCV_{coal})/10^3 \times EF_{coal}/10^3$$

Where,

M_{natgas} - Reduced natural gas consumption (m^3);

NCV_{natgas} - Net calorific value of natural gas (m^3/MJ);

EF_{natgas} - Natural gas emission factor (kg CO_2/TJ);

M_{coal} – Reduced coal consumption (m^3);

NCV_{coal} - Net calorific value of coal (m^3/MJ);

EF_{coal} - Coal emission factor (kg CO_2/TJ);

Period	Annul reduction of natural gas consumption (m3)	NCV (m3/MJ)	Emission factor (kg CO2/TJ)	Reduction in carbon dioxide emissions (Gg CO2 eq.)
	A	B	C	D
				A*B/10^6*C/10^6
2022	3,939,309	38	56,100	8
2023	3,939,309	38	56,100	8
2022	94,735	25.8	94,600	231.22
2023	94,735	25.8	94,600	231.22

TABLE 28. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 4.1.2 OF THE INDUSTRY SECTOR

4.1.2 Activity	Supporting the low-emission production of Nitric Acid
Status	Planned
Sector	Industry
Greenhouse Gas	N_2O
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NO
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	1560.79

4.1.2 Activity	Supporting the low-emission production of Nitric Acid
Assumptions and Methodology	**Assumption 1:** The catalyst used in nitric acid production reduces N_2O emissions by 95%.
Evaluation	

The reduction of emissions resulting from the promotion of nitric acid production is calculated by the following formula:

$$N_2O\ Emission\ Reductions = N_2O\ Emissions \times C$$

Where,

N_2O Emission Reductions – Expected reduction of nitrous oxide emissions (Gg CO_2 eq.);

N_2O Emissions - Amount of nitrous oxide emissions (Gg CO_2 eq.);

C - Nitrous oxide emission reduction coefficient.

Period	Nitrous oxide emissions (Gg CO2 eq.)	Nitrous oxide emissions (Gg CO2 eq.) 2013-2017.	Nitrous oxide emission reduction factor	Expected reduction of nitrous oxide emissions (Gg CO2 eq.)
	A	B	C	D
		Average A	B*C	
2013	244.27			
2014	243.71			
2015	257.67			
2016	198.94			
2017	228.94	234.71	0.95	222.97
2024-2030				1560.79

TABLE 29. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 4.2.1 OF THE INDUSTRY SECTOR

4.2.1 Activity	Develop individual emission factors per production
Status	Implemented
Sector	Industry
Greenhouse Gas	CO_2, N_2O
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	390.02

4.2.1 Activity	Develop individual emission factors per production
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	2730.178
Assumptions and Methodology	**Assumption 1:** The annual quantity of raw materials used in clinker production has been estimated based using the mean of the annual consumption of limestone by the plants from 2018 to 2022. **Assumption 2:** The average annual production of nitric acid for the period of 2018-2022 is calculated using the arithmetic mean of the annual nitric acid production by the plant. **Assumption 3:** It is assumed that the quantity of limestone consumed in clinker production and the production of nitric acid in the chemical industry during 2024-2030 will correspond to the average annual quantities of limestone and nitric acid.

Evaluation

Emission reductions resulting from the establishment of individual emission factors based on production, will be calculated using the following formulas:

1. Amount of reduced emission per ton of raw material (Gg CO_2 eq.)

$$E_{per}=(E_{clk}/A_{clk})-(E_{lis}/A_{lis})$$

Where,

E_{per} - Amount of reduced emission per ton of raw material (Gg CO_2 eq.);

E_{clk} – Amount of emission from clinker production (Gg CO_2 eq.);

A_{clk} - Quantity of produced clinkers (t);

E_{lis} - Amount of emission according to limestone consumption (Gg CO_2 eq.);

A_{lis} - Amount of limestone consumed (t).

2. Expected carbon dioxide emission reduction (Gg **CO_2 eq.)**

$$E_{pro}= (\Sigma^{A}{}_{lis})/n\times IEF_{dif}$$

Where,

E_{pro} - Expected carbon dioxide emission reduction (Gg CO_2 eq.);

Σ_{Alis} - Total amount of limestone used in production in 2018-2022 (t)

IEF_{dif} - Default emission factors difference;

n - Number of years.

3. Amount of reduced emission per ton of raw material (Gg CO_2 eq.)

$$E_{per}=(E_{NAold}/A_{NA})-(E_{NAnew}/A_{NA})$$

Where,

E_{per} - Amount of reduced emission per ton of raw material (Gg CO_2 eq.);

E_{NAold} and E_{NAnew} - Amount of carbon dioxide emission from nitric acid production by old and new methodology (Gg CO_2 eq.);

A_{NA} - Amount of produced nitric acid (t);

4. Expected carbon dioxide emission reduction (Gg CO_2 eq.)

$$E_{pro}=(\Sigma^{A}{}_{NA})/n\times IEF_{dif}$$

Where,

E_{pro} - Expected carbon dioxide emission reduction (Gg CO_2 eq.);

ΣA_{NA} - Total amount of nitric acid produced in 2018-2022 (t)

IEF_{dif} - Default emission factors difference;

n - Number of years.

	Amount of clinkers produced (t)	Amount of emission from clinker production (Gg CO2 eq.)	IEF	Amount of limestone used (t)	Amount of carbon dioxide emission according to limestone consumption (Gg CO2 eq.)	IEF	Amount of reduced carbon dioxide emissions per ton of raw materials (Gg CO2 eq.)
	A	B	C	D	E	F	G
			B/A			E/D	F-C
Heidelberg	1,265,700	658.74	0.00052	1,657,111	676.28	0.00041	0.00011

4.2.1 Activity	Develop individual emission factors per production

Period	Amount of limestone used (t)	Average amount of limestone used per year (t)	Amount of reduced carbon dioxide emissions per ton of raw materials (Gg CO2 eq.)	Expected carbon dioxide emission reduction Gg CO2 eq.)
	A	B	C	D
		Average A		B*D
2018	1,405,149			
2019	1,636,834			
2020	1,808,057			
2021	1,687,360			
2022	1,915,512	1,690,582.4	0.00011	185.96
2024-2030				1301.75

	Amount of nitric acid produced (t)	Amount of carbon dioxide emission from nitric acid production (Gg CO2 eq.)	IEF	Amount of nitric acid produced (t)	Amount of carbon dioxide emission from nitric acid production (Gg CO2 eq.)	IEF	Amount of reduced nitrous oxide emissions per ton of raw material (Gg CO2 eq.)
	A	B	C	D	E	F	G
			B/A			E/D	F-C
Rustavi Azoti	369,265	228.94	0.00062	1,657,111	195.71	0.00012	0.0005

TABLE 30. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 6.1.1 OF THE WASTE SECTOR

6.1.1. Activity	Closing official (unauthorized) non-hazardous landfills
Status	Adopted
Sector	Waste
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA

6.1.1. Activity	Closing official (unauthorized) non-hazardous landfills
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	70
Assumptions and Methodology	The 5th version of the IPCC Waste model is used, which utilizes the First Order Decay (FOD) method.

TABLE 31. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 6.1.2 OF THE WASTE SECTOR

6.1.2. Activity	Closing dumpsites
Status	Adopted
Sector	Waste
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	29
Assumptions and Methodology	Information is extracted from 2030 Georgia's Climate Strategy.

TABLE 32. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 6.1.3 OF THE WASTE SECTOR

6.1.3. Activity	Construction of regional non-hazardous landfills
Status	Adopted
Sector	Waste
Greenhouse Gas	CO_2
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	NA
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	229
Assumptions and Methodology	Information is extracted from Georgia's 2030 Climate Strategy

TABLE 33. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 6.2.2 OF THE WASTE SECTOR

6.2.2. Activity	Biodegradable (organic and garden waste) recycling by the municipalities
Status	Adopted
Sector	Waste

6.2.2. Activity	Biodegradable (organic and garden waste) recycling by the municipalities
Greenhouse Gas	CH_4, N_20
Estimations of GHG emission reductions achieved (Gg CO_2 eq.)	0.023
Estimations of GHG emission reductions expected (Gg CO_2 eq.)	0.74
Assumptions and Methodology	**Assumption 1:** Biodegradable waste was recycled with the wet method by the municipal composting factory. **Assumption 2:** The annual amount of processed biodegradable waste will be 600 tons.
Evaluation	

Reduction of emissions resulting from the recycling of biodegradable (organic and garden) waste by municipalities is calculated using the following formulas:

1. Methane emissions (Gg CO_2 eq.)

$$CH_4 \text{ Emissions} = \Sigma_i (M_i \times EF_i) \times 10^{-3} - R$$

Where,

CH_4 Emissions – Methane emission in the reporting year, (Gg CO_2 eq.);

M_i – Type "i" composted waste mass (kt);

EF – Emission factor for type "i" waste, (g CH_4/kg waste);

i – Compost or anaerobic processing;

R – The amount of recovered methane (Gg CH_4).

2. Nitrous oxide emissions (Gg CO_2 eq.)

$$N_2O \text{ Emissions} = \Sigma_i (M_i \times EF_i) \times 10^{-3}$$

Where,

N_2O Emissions – Nitrous oxide emissions in the reporting year, (Gg CO_2 eq.);

M_i – Type "i" composed waste mass (Gg);

EF – Emission factor for type "i" waste, (g N_4O/kg waste);

i – Compost or anaerobic processing;

6.2.2. Activity					Biodegradable (organic and garden waste) recycling by the municipalities				
Period	Recycled waste mass (t)	CH4 emission factor (g CH4/kg waste)	Amount of methane emission (t CH4)	Amount of methane emission (t CO2 eq.)	N2O emission factor (g N2O/kg treated waste)	Amount of nitrous oxide emission (t N2O)	Amount of nitrous oxide emission (t CO2 eq.))	Amount of reduced greenhouse gas emissions (Gg CO2 eq.)	Expected reduction in greenhouse gas emissions (Gg CO2 eq.)
	A	B	C	D	E	F	G	H	I
			A*B*0.001	C*28		A*E*0.001	F*265	(D+G)*0.001	(D+G)*0.001
2023	132	4	0.53	14.78	0.24	0.03	8.40	0.023	
2024-2030	4200	4	16.80	470.40	0.2	1.01	267.12		0.74

Table 34. Methodology and assumptions of activity 5.1.1 of the agriculture sector

5.1.1 Activity	In order to reduce the emissions generated by enteric fermentation of the cattle, develop a methodology for changing the feed for the cattle and run a recommendation campaign
Status	Planned
Sector	Agriculture
Greenhouse Gas Affected	CH_4
Emissions Reduced (Gg CO_2 eq.)	NO
Expected Emissions Reduction (Gg CO_2 eq.)	101.8

5.1.1 Activity	In order to reduce the emissions generated by enteric fermentation of the cattle, develop a methodology for changing the feed for the cattle and run a recommendation campaign
Assumptions & Methodology	Under the activity, a laboratory study aimed at changing cattle feed is being conducted by the Scientific-Research Centre of Agriculture of MEPA. The study aims to reduce greenhouse gas emissions generated from cattle enteric fermentation. The study focuses on two main areas: 1. Modifying the cattle feed, and 2. Activating the antagonistic microflora of methanogen. Experiments are conducted throughout different climatic periods of the year. In the first area, the focus is on determining the dosage of food additives. At this stage of the project, the optimal amounts of the following nutrients are being regulated in cattle diet: protein, lipid compounds, non-nitrogenous extractive compounds, crude ash, and lignin compounds. In the second area, a group of lactic acid fermentation bacteria is used to reduce methanogens in cattle. A solution enriched with this bacterial group is provided to the cattle using a cattle waterer. The research is ongoing. Preliminary results from both areas of the study indicate that the goal of a 12-15% reduction in methane emissions has been surpassed. **Assumption 1**: According to preliminary results from both areas of the study, annual methane emissions from single cattle are expected to be reduced by approximately 13.5%. **Assumption 2:** As small and medium-sized farms may not have the financial and informational resources to implement the findings of the research, the mentioned innovations will be introduced in large enterprises and very large family farms. **Assumption 3:** It is planned that the activity will end in the fourth quarter of 2025. Therefore, its implementation will begin in 2026 and will be fully implemented in large enterprises and very large family farms from 2027. **Assumption 4:** Greenhouse gas emissions reductions calculated using 2022 data are projected to extend to 2027.
Evaluation	

5.1.1 Activity	In order to reduce the emissions generated by enteric fermentation of the cattle, develop a methodology for changing the feed for the cattle and run a recommendation campaign

Reduction of Emissions from Enteric Fermentation, Feed Replacement for Cattle By implementing the methodology, it is calculated by the following formula:

1. Averaged emissions of one cattle (Gg CO_2 eq.)

$$E_{per}=(\Sigma_n Y_i)/n$$

Where,

E_{per} - Averaged emissions of one cattle (Gg CO2 eq.);

ΣY_i – Total greenhouse gas emissions of one cattle by year;

n - Number of years;

2. Amount of reduced methane emissions (Gg CO_2 eq.)

$$E_m=((FN\times CN_F+IN\times CN_I)\times E\_per)\times M_k$$

Where,

E_m - Amount of reduced methane emissions (Gg CO_2 eq.);

FN - The number of very large family farms;

CN_F, CN_I – Average number of cattle in very large family farms and large enterprises;

IN - Number of large enterprises;

E_{per} - Averaged emissions of one cattle (Gg CO_2 eq.);

M_k - Reduction coefficient of methane emissions.

Year	Cattle - head (number)	Greenhouse gas emissions (Gg CO2 eq.)	Emissions per head of cattle (Gg CO2 eq.)	Average emission of one head of cattle (Gg CO2 eq.) Years 2020 - 2022	Number of very large family farms	Number of large enterprises	Average number of cattle in very large family farms	Average number of cattle in large enterprises	Total average number of cattle in very large family farms	Total average number of cattle in large enterprises	Total annual methane emissions (Gg CO2 eq.)	Methane emission reduction coefficient	The amount of methane emissions reduced (Gg CO2 eq.)
	A	B	C	D	E	F	G	H	I	J	K	L	M
			A*B	AVERAGE C					E*G	F*H	(I+J)*D		K*L
2020	1,210,000	1,718	0.0014										
2021	1,213,800	1,609	0.0013										
2022	1,114,500	1,538	0.0014	0.0014	1,035	84	100	400	103,500	33,600			
2027	1,114,500	1,538	0.0014	0.0014	1,035	84	100	400	103,500	33,600	188.53	0.135	25.45

TABLE 35. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 5.1.3 OF THE AGRICULTURE SECTOR

5.1.3 Activity	Rehabilitation and transformation of windbreaks to minimize climate-related land degradation.
Status	Implemented
Sector	Agriculture
Greenhouse Gas Affected	CO_2
Emissions Reduced (Gg CO_2 eq.)	NO
Expected Emissions Reduction (Gg CO_2 eq.)	10.92
Assumptions & Methodology	**Assumption 1:** Each hectare of rehabilitated windbreak is expected to absorb 0.132 Gg of CO_2[221] over 30 years, which means an annual absorption rate of 0.004 Gg of CO_2. **Assumption 2:** The project for rehabilitation of the windbreaks will begin in 2026 as the inventory of the windbreaks is planned to be completed in the fourth quarter of 2025. Therefore, starting in 2027, CO_2 absorption will start for each hectare of rehabilitated windbreak. **Assumption 3**[222]**:** According to the project proposal developed under this activity, 4,350 hectares of windbreaks will be rehabilitated over 7 years. This means that approximately 621 hectares of windbreaks will be restored each year.
Evaluation	
The amount of CO_2 absorbed per hectare of rehabilitated windbreak over 30 years (t)	
The amount of CO_2 absorbed per hectare of rehabilitated windbreak in one year (t)	
The area of the windbreak strip rehabilitated in one year (ha)	
The amount of CO_2 absorbed on the 621 hectares of rehabilitated windbreak in one year (Gg)	

The amount of CO2 absorbed per hectare of rehabilitated windbreak over 30 years (t)	The amount of CO2 absorbed per hectare of rehabilitated windbreak in one year (t)	The area of the windbreak strip rehabilitated in one year (ha)	The amount of CO2 absorbed on the 621 hectares of rehabilitated windbreak in one year (Gg)
A	B	C	D
	A/7		B*C
132	4.4	621	2.73

221 GIZ's assessment of potential carbon stocks and CO2 reductions achieved through afforestation project activities in Southeast Georgia.

222 The assumption is based on the project proposal, which may be revised during project implementation.

Table 36. Methodology and assumptions of activity 5.2.2 of the agriculture sector

5.2.2 Activity	Develop cost-benefit analysis and feasibility study to identify best options in which manure management systems can be implemented.
Status	Implemented
Sector	Agriculture
Greenhouse Gas Affected	CH_4
Emissions Reduced (Gg CO_2 eq.)	NO
Expected Emissions Reduction (Gg CO_2 eq.)	1,240
Assumptions & Methodology	The cost-benefit analysis and feasibility study titled "Evaluation of Manure Management Alternatives in Georgia" was carried out as part of the activity. This study identifies the most effective manure management practices for Georgia, focusing on three prioritized measures: using covers when storing manure, composting, and applying manure as fertilizer[223]. These methods can be implemented independently or simultaneously. The analysis shows that covers are effective for both manure storage and composting. Currently, most Georgian farms store manure in piles next to stables without covers. The study, along with international research, suggests that plastic covers could reduce CH_4 emissions by 12-45% and N_2O emissions by up to 30% (Clemens et al., 2006; Mohankumar et al., 2018). Composting manure involves mixing cow manure, a nitrogen source, with carbon sources like straw, peat, or wood shavings to create compost within a few months. Some Georgian farmers already practice composting, though not always under ideal conditions. With proper guidelines, they could improve their methods. Research indicates that composting can significantly reduce emissions from manure management, potentially lowering emissions by 90% compared to baseline scenarios (Luske, 2010; Pattey et al., 2005). Using manure as fertilizer reduces the need for synthetic fertilizers, thus cutting associated emissions. Georgian farmers already use manure this way, particularly those who cannot afford synthetic fertilizers. However, the quantity of organic fertilizer applied has varied from ~25-150 kg/ha since 2010, and the percentage of agricultural land treated with manure has decreased from 2% in 2010 to 0.9% in 2020 (GEASTAT, 2021). The main mitigation potential here is in replacing synthetic fertilizers, which reduces emissions from their production, transportation, and application. Studies suggest manure application as a fertilizer could cut the use of synthetic fertilizer by up to 10% (Snyder et al., 2014), an assumption used in the feasibility study. Assumption 1: Implementation of the activities suggested by the study will begin in 2026. Assumption 2: All farms in Georgia will adopt the recommended practices.

223 Whether all three of the presented measures will be implemented in practice, or only one or two, is a matter of further discussion.

5.2.2 Activity	Develop cost-benefit analysis and feasibility study to identify best options in which manure management systems can be implemented.
Evaluation	The study concludes that widespread use of covers could reduce emissions by 145-160 Gg CO_2 eq. by 2030, contingent on government support, such as establishing requirements for the farmers, who applied for grants and subsidies, to use plastic covers. Storage conditions significantly affect the impact of these reductions. Effective composting, sometimes requiring covers, could similarly reduce emissions by up to 160 Gg CO_2 eq. by 2030. Applying manure as fertilizer could reduce emissions by about 50 Gg CO_2 eq. by 2030, potentially more with improved application practices, given the current overuse of fertilizers in Georgia. These three mitigation measures could reduce emissions by 300-320 Gg CO_2 eq. by 2030, representing nearly a 10% reduction in sector emissions. However, the actual reduction would likely be lower than the sum of these figures due to overlap in practices. These estimates are initial indicators of the maximum potential mitigation achievable with these prioritized measures.

TABLE 37. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 5.1.2 OF THE AGRICULTURE SECTOR

5.1.2 Activity	Develop legislation and prepare a project proposal with the aim of increasing the quality of livestock nutrition and conservation of pasture biodiversity
Status	Implemented
Sector	Agriculture
Greenhouse Gas Affected	CO_2
Emissions Reduced (Gg CO_2 eq.)	NO
Expected Emissions Reduction (Gg CO_2 eq.)	15.6

5.1.2 Activity	Develop legislation and prepare a project proposal with the aim of increasing the quality of livestock nutrition and conservation of pasture biodiversity
Assumptions & Methodology	A project proposal on sustainable pasture management was prepared under the scope of the activity. The project proposal was approved and a three-year project "Achieving Land Degradation Neutrality Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands" is under implementation. The project encompasses the (1) Elaboration of State-owned pastureland management plans (strategic and operational) for three target municipalities with their active involvement (in total 20,000 ha), (2) with an active participation of municipalities implementation of sustainable participatory pasture management practices (grazing management, weed control, breeding program with local stock, fertilization, terracing, gully prevention, mobile water points for livestock, water harvesting, mobile fencing, mobile shade structures, etc.) (in total 747 ha) and (3) Pastureland management municipal group discussions and community consultations. The project will be finalized in 2024. Assumption 1: In one year, 3.7 t CO_2 is absorbed per 1 ha of rehabilitated pastureland. Assumption 2: 6 915.6 ha will be rehabilitated in one year, as the project is 3 years long and it is planned to rehabilitate 20 747 ha of pastureland in total.
Evaluation	

Amount of absorbed CO_2 per 1 ha of rehabilitated pastureland in 1 year (t)

Area of rehabilitated pastureland in 1 year (ha)

Amount of absorbed CO_2 on 6 915.6 ha of rehabilitated pastureland in 1 year (t)

Amount of absorbed CO2 per 1 ha of rehabilitated pastureland in 1 year (t)	Area of rehabilitated pastureland in 1 year (ha)	Amount of absorbed CO2 on 6 915.6 ha of rehabilitated pastureland in 1 year (t)
A	B	C = A*B
3.7	6 915.6	2.6

TABLE 38. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 7.1.1 OF THE FOREST SECTOR

7.1.1 Activity	Restoration of 625 ha of degraded forest area (including fire-sites) through forestation
Status	Ongoing
Sector	Forest
Greenhouse gas	CO_2
Reduced emissions (Gg CO_2 eq.)	-1.2
Expected emission reduction (Gg CO_2 eq.)	-3.8
Assumptions and methodology	Estimated emissions savings were calculated using the Ex-Ante Carbon-balance Tool (EX-ACT) model developed by FAO. The tool is an assessment system based on various assumptions that provides an assessment of the impact of agricultural and forestry development projects, programs and policies on carbon storage potential. The following assumption is used: as a result of the i project implementation, the forest area has been completely restored. The calculations include the so-called Living biomass (above and below ground). Expected changes in soil carbon stocks are not considered.

TABLE 39. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 7.1.2 OF THE FOREST SECTOR

7.1.2 Activity	Restoration of the degraded forest through supporting natural restoration
Status	Implemented
Sector	Forest
Greenhouse gas	CO_2
Reduced emissions (Gg CO_2 eq.)	-10.5
Expected emission reduction (Gg CO2 eq.)	NA

7.1.2 Activity	Restoration of the degraded forest through supporting natural restoration
Assumptions and methodology	Projected emissions savings were calculated using the Ex-Ante Carbon-balance Tool (EX-ACT) model developed by FAO. This tool is an assessment system that based on various assumptions provides an assessment of the impact of agricultural and forestry development projects, programs and policies on carbon storage potential. The following assumption is used: as a result of the project implementation in the selected degraded area, the forest will be restored, thereby eliminating the degradation processes. In contrast, if the project is not implemented, =the degradation of the area will continue. The calculations include the so-called Living biomass (above and below ground). Expected changes in soil carbon stocks are not considered.

TABLE 40. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 7.2.2 OF THE FOREST SECTOR

7.2.2 Activity	Introduction of sustainable forest management practice through supervision and capacity development
Status	Adopted
Sector	Forest
Greenhouse gas	CO_2
Reduced emissions (Gg CO_2 eq.)	NA
Expected emission reduction (Gg CO_2 eq.)	-189.2

7.2.2 Activity	Introduction of sustainable forest management practice through supervision and capacity development
Assumptions and methodology	Estimated emissions savings were calculated using the Ex-Ante Carbon-balance Tool (EX-ACT) model developed by FAO. The mentioned tool is an assessment system that based on various assumptions provides an assessment of the impact of agricultural and forestry development projects, programs and policies on carbon storage potential The following assumption is used for forecasting: as a result of implementing the planned measures on the selected area, forest degradation will be eliminated, and in case of not implementing the project, the degradation processes will continue. The calculations include the so-called Living biomass (above and below ground). Expected changes in soil carbon stocks are not considered.

TABLE 41. METHODOLOGY AND ASSUMPTIONS OF ACTIVITY 7.2.3 OF THE FOREST SECTOR

7.2.3 Activity	Promoting sustainable management of forests by supporting the multifunctionality of forests, raising public awareness, and supporting public involvement in the forest reform processes
Status	Adopted
Sector	Forest
Greenhouse gas	CO_2
Reduced emissions (Gg CO_2 eq.)	NA
Expected emission reduction (Gg CO_2 eq.)	-127

7.2.3 Activity	Promoting sustainable management of forests by supporting the multifunctionality of forests, raising public awareness, and supporting public involvement in the forest reform processes
Assumptions and methodology	Estimated emissions savings were calculated using the Ex-Ante Carbon-balance Tool (EX-ACT) model developed by FAO. The tool is an assessment system that based on various assumptions provides an assessment of the impact of agricultural and forestry development projects, programs and policies on carbon storage potential. The following assumption is used for forecasting: the level of degradation in the selected area is relatively low, and as a result of the implementation of measures, forest degradation will be completely eliminated. Degradation processes will continue in case of not implementing the project. The calculations include the so-called Living biomass (above and below ground). Expected changes in soil carbon stocks are not considered.

TABLE 42. METHODOLOGY AND ASSUMPTION OF ACTIVITY 7.2.4 OF THE FOREST SECTOR

7.2.4 Activity	Develop emerald network management plans for the territory of the forest of Georgia within the approved emerald network sites
Status	Implemented
Sector	Forest
Greenhouse gas	CO_2
Reduced emissions (Gg CO_2 eq.)	-47.1
Expected emission reduction (Gg CO_2 eq.)	NA

7.2.4 Activity	Develop emerald network management plans for the territory of the forest of Georgia within the approved emerald network sites
Assumptions and methodology	Estimated emissions savings were calculated using the Ex-Ante Carbon-balance Tool (EX-ACT) model developed by FAO. The tool is an assessment system that based on various assumptions provides an assessment of the impact of agricultural and forestry development projects, programs and policies on carbon storage potential. The following assumption is used for forecasting: the level of degradation in the selected area is relatively low, and as a result of the implementation of measures, forest degradation will be completely eliminated. Degradation processes will continue in case of not implementing the project. The calculations include the so-called Living biomass (above and below ground). Expected changes in soil carbon stocks are not considered.

TABLE 43. METHODOLOGY AND ASSUMPTIONS OF THE ACTIVITY7.2.5 OF THE FOREST SECTOR

7.2.5 Activity	Protection and/or sustainable management of forest areas within the new protected territories
Status	Adopted
Sector	Forest
Greenhouse gas	CO_2
Reduced emissions (Gg CO_2 eq.)	NA
Expected emission reduction (Gg CO_2 eq.)	-47.1

7.2.5 Activity	Protection and/or sustainable management of forest areas within the new protected territories
Assumptions and methodology	Estimated emissions savings were calculated using the Ex-Ante Carbon-balance Tool (EX-ACT) model developed by FAO. The tool is an assessment system that based on various assumptions provides an assessment of the impact of agricultural and forestry development projects, programs and policies on carbon storage potential. The following assumption is used for forecasting: the level of degradation in the selected area is relatively low, and as a result of the implementation of measures, forest degradation will be completely eliminated. Degradation processes will continue in case of not implementing the project. The calculations include the so-called Living biomass (above and below ground). Expected changes in soil carbon stocks are not considered.

1.4.4 IMPACT OF GREENHOUSE GAS EMISSIONS FROM INTERNATIONAL TRANSPORT

The NDC includes greenhouse gas emissions from the category 1.A.3.b Road transport, 1.A.3.c Railway and 1.B.2. oil transportation. However, the CSAP currently does not explicitly address mitigation measures that would reduce emissions from these categories.

In addition, the NDC does not include greenhouse gas emissions from the 1.A.3.ai international aviation and 1.A.3.di International water -borne navigation categories. Consequently, the CSAP does not explicitly address mitigation measures that would reduce emissions from the international transport.

1.4.5 ASSESSMENT OF SOCIO-ECONOMIC IMPACT OF RESPONSE MEASURES

This sub-chapter is dedicated to an NDC under Article 4 that consists of adaptation actions and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, paragraph 7, of the Paris Agreement. Since Georgia's NDC tracking focuses exclusively on monitoring the implementation of the Climate Strategy and Action Plan (CSAP), which includes only mitigation actions, it does not require information on the tracking of progress related to adaptation actions and/or economic diversification plans resulting in mitigation co-benefits, including domestic policies and measures that address the social and economic impacts of response measures. This includes (a) sectors and activities associated with the response measures, (b) the social and economic consequences of these measures, (c) challenges and barriers to addressing these consequences, and (d) actions taken to mitigate them.

TABLE 44 INFORMATION NECESSARY TO TRACK PROGRESS ON THE IMPLEMENTATION AND ACHIEVEMENT OF THE DOMESTIC POLICIES AND MEASURES IMPLEMENTED TO ADDRESS THE SOCIAL AND ECONOMIC CONSEQUENCES OF RESPONSE MEASURES [A]

Sectors and activities associated with the response measures [b]	Social and economic consequences of the response measures [c]	Challenges in and barriers to addressing the consequences [d]	Actions to address the consequences [e]
NA	*NA*	*NA*	*NA*

[a] *Each Party with an NDC under Article 4 that consists of adaptation actions and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, para. 7, of the Paris Agreement shall provide the information necessary to track progress on the implementation and achievement of the domestic policies and measures implemented to address the social and economic consequences of response measures (para. 78 of the MPGs).*

[b] *In accordance with para. 78(a) of the MPGs.*

[c] *In accordance with para. 78(b) of the MPGs.*

[d] *In accordance with para. 78(c) of the MPGs.*

[e] *In accordance with para. 78(d) of the MPGs*

1.5 SUMMARY OF GREENHOUSE GAS EMISSIONS AND REMOVALS

(Paragraph 91 MPGs)

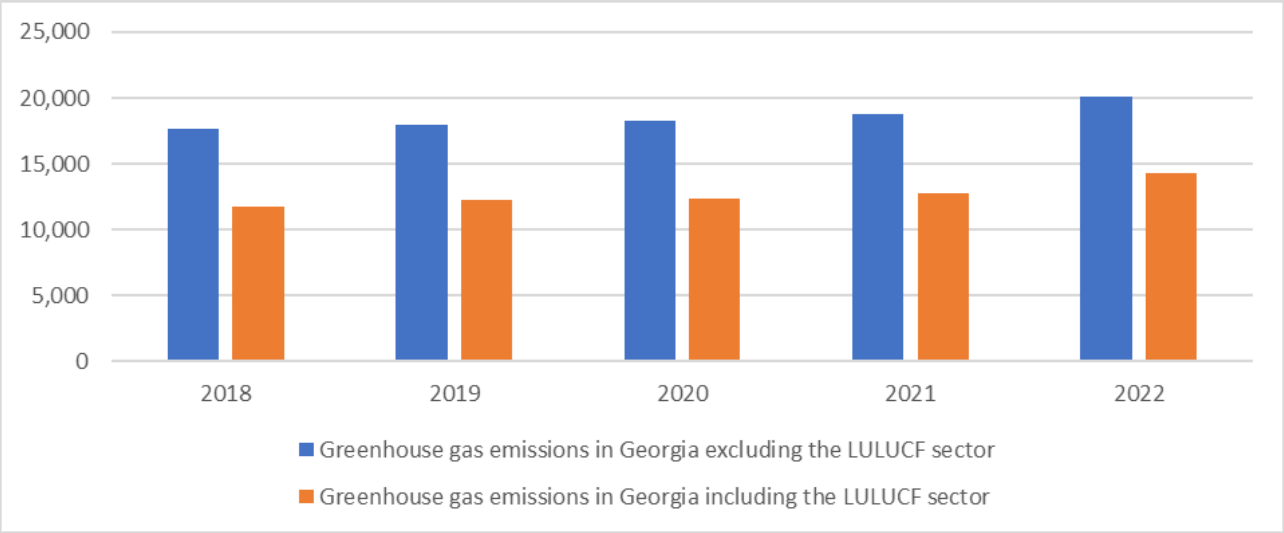
This chapter provides an overview of the inventory data on GHG emissions and removals in Georgia for the period of 2018-2022. The data is organized by both sectoral and individual GHGs, with separate breakdowns that include and exclude the LULUCF sector. This information is presented in a clear tabular format, offering a detailed look at the country's GHG dynamics over the specified timeframe.

From 2018 to 2022, GHG emissions in Georgia, excluding the LULUCF sector, rose from 17,656 to 20,096 Gg CO_2 eq., marking an increase of approximately 13.8%. When including the LULUCF sector, emissions increased from 11,771 to 14,295 Gg CO_2 eq., representing a rise of around 21.4%. This comparison shows a growth in emissions both when LULUCF is included and excluded, with a slightly higher percentage increase observed when the LULUCF sector's contribution is accounted for.

TABLE 45 GEORGIA'S GHG EMISSIONS 2018-2022 (GG CO_2 EQ.)

	2018	2019	2020	2021	2022
Greenhouse gas emissions in Georgia excluding the LULUCF sector (Gg CO_2 eq.)	17,655	18,001	18,296	18,797	20,096
Greenhouse gas emissions in Georgia including the LULUCF sector (Gg CO_2 eq.)	11,771	12,218	12,394	12,786	14,295

FIGURE 4 GEORGIA'S GHG EMISSIONS 2018-2022 (GG CO2 EQ.)

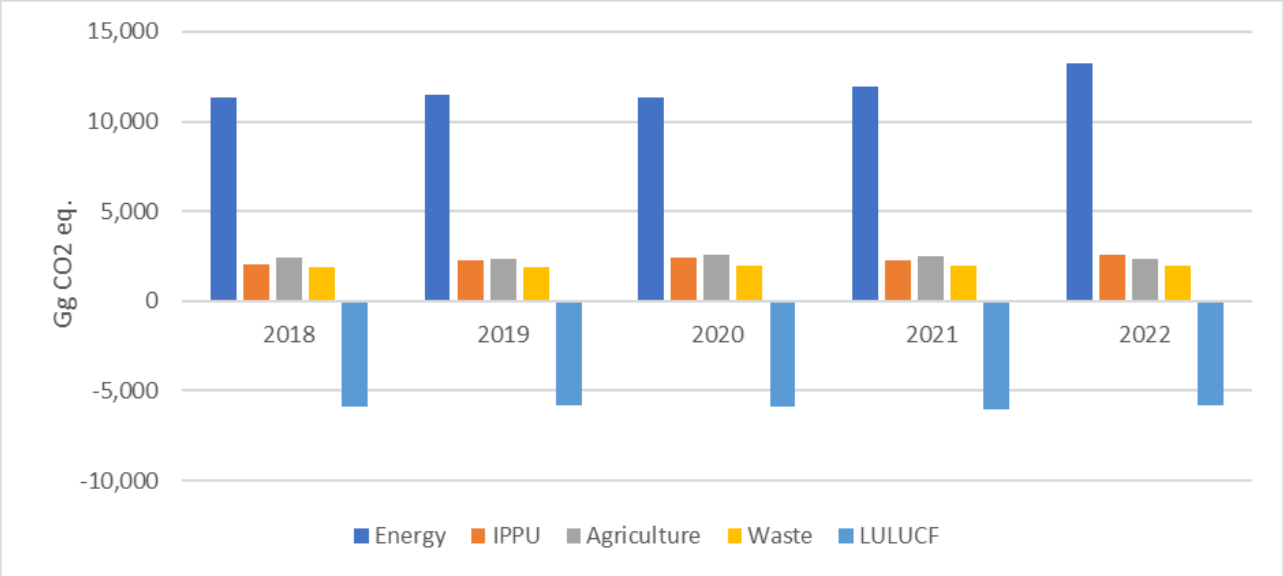


Georgia conducted GHG emissions and removals inventory, covering the period from 2018 to 2022, with a comparative analysis across five key sectors. In the energy sector, emissions increased from 11,326 in 2018 to 13,218 Gg CO_2 eq. in 2022, showing a total growth of approximately 14%. In the agriculture sector, emissions decreased from 2,411 in 2018 to 2,310 Gg CO_2 eq. in 2022, reflecting a reduction of about 4%. The IPPU sector experienced minimal change, with emissions increasing slightly from 2,019 in 2018 to 2,571 Gg CO_2 eq. in 2022, resulting in a growth of about 21%. In the waste sector, emissions grew from 1,900 in 2018 to 1,996 Gg CO_2 eq. in 2022, marking an overall increase of approximately 5.1%. For the LULUCF sector, absorptions improved slightly, with emissions changing from -5,884 in 2018 to -5,801 Gg CO_2 eq. in 2022, which corresponds to a reduction in absorption capacity of about 1.4%. This comparison between 2018 and 2022 shows that, the IPPU sector had the most significant increase in emissions, while the agriculture sector experienced the largest reduction in emissions. The LULUCF sector's absorptions slightly weakened over the same period.

TABLE 46 GREENHOUSE GAS EMISSIONS AND ABSORPTIONS INVENTORY DATA BY SECTORS IN GEORGIA, GG CO_2 EQ. (2018-2022)

სექტორი	2018	2019	2020	2021	2022
Energy	11,326	11,462	11,351	11,984	13,218
IPPU	2,019	2,236	2,452	2,305	2,571
Agriculture	2,411	2,377	2,541	2,530	2,310
Waste	1,900	1,926	1,951	1,978	1,996
LULUCF	-5,884	-5,784	-5,901	-6,011	-5,801

FIGURE 5 GREENHOUSE GAS EMISSIONS AND ABSORPTIONS INVENTORY DATA BY SECTORS IN GEORGIA, GG CO2 EQ. (2018-2022)



The table below provides data on GHG emissions in Georgia, measured in Gg CO_2 eq., across various gases for each year from 2018 to 2022. It includes emissions data for CO_2, CH_4, N_2O, HFC-32, HFC-125, HFC-134a, HFC-143a, HFC-227ea, and SF_6. The values indicate the amount of each gas emitted or absorbed.

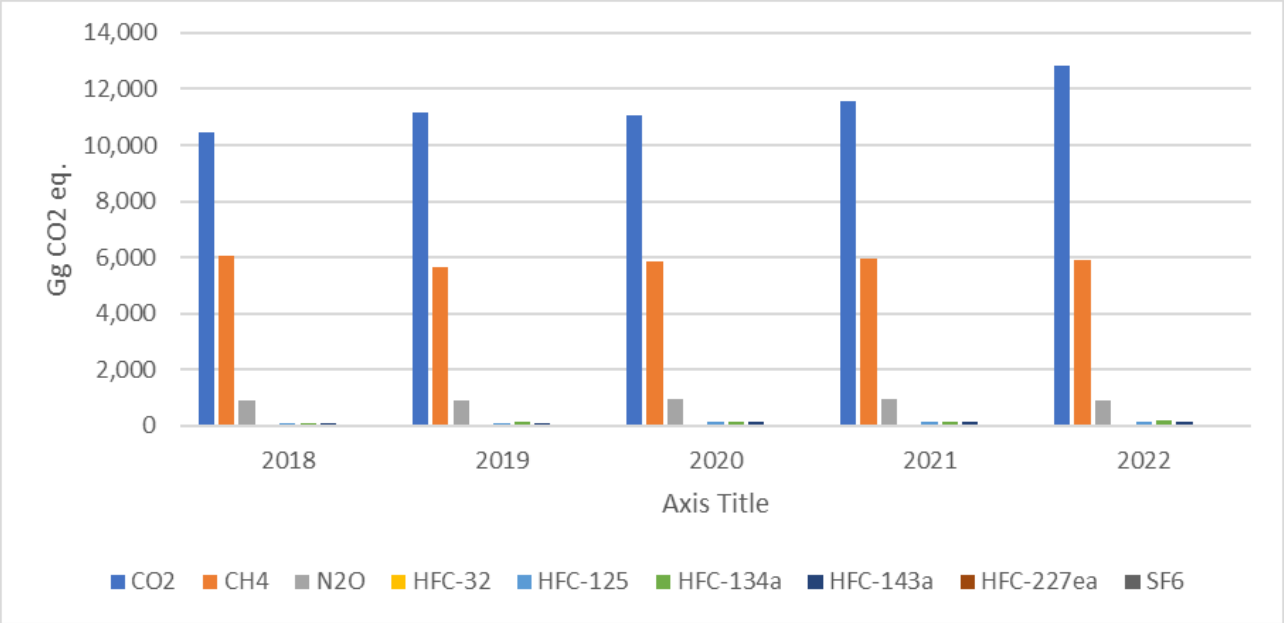
CO_2 emissions show a noticeable upward trend, rising from 10,455 Gg CO_2 eq. in 2018 to 12,829 Gg CO_2 eq. in 2022, indicating an overall increase of 22%. Despite CO_2 not having as high a percentage increase as the HFCs, the absolute quantity increase is larger, making its impact more noticeable. Compared to 2018, methane (CH_4) and nitrous oxide (N_2O) levels in 2022 show a slight decrease in emissions.

The table also indicates increases in emissions for several hydrofluorocarbons (HFCs). For example, HFC-125 emissions increased by 82%, reaching 54.62 Gg CO_2 eq. in 2022. Other HFCs also generally show an upward trend over time. SF_6 emissions show a slight rise, from 0.93 Gg CO_2 eq. in 2018 to 1.14 Gg CO_2 eq. in 2022. Between 2018 and 2022, HFC emissions had the most significant percentage increase, while CH_4 and N_2O emissions showed a decrease.

TABLE 47. GREENHOUSE GAS EMISSIONS AND ABSORPTIONS INVENTORY DATA BY GASES IN GEORGIA, GG CO_2 EQ. (2018-2022)

Year	CO2	CH4	N2O	HFC-32	HFC-125	HFC-134a	HFC-143a	HFC-227ea	SF6
2018	10,455	6,048	905	10.40	66.44	95.40	72.38	0.31	0.93
2019	11,171	5,639	892	11.96	79.43	115.42	92.56	0.10	1.00
2020	11,050	5,859	943	14.45	122.91	153.60	152.04	0.61	1.06
2021	11,545	5,943	924	16.59	117.49	126.94	122.14	0.39	1.12
2022	12,829	5,906	879	14.82	121.06	207.04	136.20	0.47	1.14

FIGURE 6 GREENHOUSE GAS EMISSIONS AND ABSORPTIONS INVENTORY DATA BY GASES IN GEORGIA, GG CO2 EQ. (2018-2022)



1.6 SUMMARY OF GREENHOUSE GAS EMISSIONS AND REMOVALS

(Paragraphs 92-102 MPGs)

This chapter presents the information on GHG emissions and removals until 2040 according to 3 different scenarios:

1. Scenario without measures (WOM);
2. Scenario with existing measures (WEM);
3. Scenario with additional measures (WAM).

According to MPG paragraph 98, these scenarios utilize the same measurement units as outlined in Georgia's national greenhouse gas inventory report. Furthermore, as stipulated in paragraph 99 of the MPGs, the scenarios are presented alongside the inventory data.

The scenarios for greenhouse gas emissions and removals projected until 2040, in accordance with MPG paragraphs 100 and 101, are displayed in both graphical and tabular formats, with and without the inclusion of the LULUCF sector.

Under paragraph 93 of the MPG, the information described in the national-scale forecast scenario reflects national/municipal mitigation policies, strategies, action plans, etc., the impact of measures on GHG emissions or removals and does not provide information to assess the progress of national contributions.

Greenhouse gas emissions and removals scenarios are provided in Georgia's LT-LEDS, prepared by the Government of Georgia as a long-term vision framework document in accordance with the Paris Agreement.[224]

LT-LEDS defines the estimated national GHG emissions and removals and sets a vision for 2050. This view is based on projections developed for emitting and absorbing sectors, which are summarized in total national emissions. [225]

The LT-LEDS covers various sectors of the economy, including building, industry, transport, energy, agriculture, waste management and LULUCF.[226] The main goal of the concept is to make Georgia carbon neutral by 2050.

Based on existing and future policy documents (including the CSAP), two mitigation measures scenarios were identified: "Existing Measures" (WEM) and "Additional Measures" (WAM); Scenario "Without Measures" (WOM) was also prepared; Ultimately, six scenarios were developed—encompassing both pessimistic and optimistic projections for WOM, WEM, and WAM—which detail the estimated ranges of GHG emissions for the year 2050. [227] [228]

1.6.1 WITHOUT MEASURES (WOM) SCENARIO

According to the WOM scenario, an analysis of projected GHG emissions and removals indicates that CO2 emissions, with LULUCF sector, are expected to increase by 10,230.01 Gg CO2 by 2040 compared to 2022 levels. When the LULUCF sector is excluded, emissions are projected to rise by 9,967.17 Gg CO2 by 2040, relative to the same year.

Regarding the emissions of CH4 and N2O for 2040, the difference between the projected values of the GHG emissions and removals compared to the 2022 data with and without the LULUCF sector is almost identical. CH4 emissions will increase by 1,761 Gg CO2 eq. by 2040 compared to the most recent inventory year. N2O emissions will increase by 216 Gg CO2 eq. compared to 2022.

Compared to the most recent inventory year, by 2040 the Energy sector GHG emissions will

224 Georgia's Long-Term Low Emission Development Strategy. P. 11.
225 Georgia's Long-Term Low Emission Development Strategy. P. 11.
226 Land Use, Land Use Change and Forestry.
227 Georgia's Long-Term Low Emission Development Strategy. P. 11.
228 Below are discussed the pessimistic scenarios of WoM, WeM and WaM.

have the highest increase by 5,367 Gg CO2 eq.

According to the WOM scenario, by 2040, CO2 is projected to experience the greatest increase both in terms of percentage and absolute quantity.

TABLE 48. INFORMATION ON PROJECTIONS OF GREENHOUSE GAS EMISSIONS AND REMOVALS UNDER A 'WITHOUT MEASURES' SCENARIO [A,B] [229]

	Most recent year in the Party's national inventory report (Gg CO_2 eq.) [c]	Projections of GHG emissions and removals (Gg of CO_2 eq.) [c]			
	2022	2025	2030	2035	2040
Sector [d]					
Energy	8,718.34	9,843.79	11,924.19	13,104.68	14,085.86
Transport	4,499.50	5,080.34	6,154.02	6,763.27	7,269.65
IPPU	2,571.47	2,844.87	3,276.14	3,647.55	3,934.7
Agriculture	2,310.10	2,316.28	2,326.57	2,426.43	2,525.26
LULUCF	-5,800.73	-5,771.38	-5,693.55	-5,615.72	-5,537.89
Waste	1,995.90	2,029.15	2,086.15	2,157.08	2,247.01
Other	NA	NA	NA	NA	NA
Gas					
CO2 emissions including net CO2 from LULUCF	7,028.17	8,670.21	11,675.58	13,506.79	15,026.36
CO2 emissions excluding net CO2 from LULUCF	12,828.84	14,441.65	17,369.08	19,122.45	20,564.19
CH4 emissions including CH4 from LULUCF	5,906.27	6,226.97	6,814.23	7,257.07	7,667.38
CH4 emissions excluding CH4 from LULUCF	5,906.32	6,226.9	6,814.27	7,257.12	7,667.43
N2O emissions including N2O from LULUCF	879.41	914.03	971.23	1,037.52	1,095.26
N2O emissions excluding N2O from LULUCF	879.42	914.04	971.24	1,037.53	1,095.27
HFCs	479.59	530.58	611.02	680.29	733.84
PFCs	NA	NA	NA	NA	NA
SF6	1.14	1.26	1.46	1.62	1.75

229 Georgia's Long-Term Low Emission Development Strategy. P. 68.

	Most recent year in the Party's national inventory report (Gg CO_2 eq.) [c]	Projections of GHG emissions and removals (Gg of CO_2 eq.) [c]			
	2022	2025	2030	2035	2040
NF3	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA
Total with LULUCF	14,294.58	16,343.05	20,073.52	22,483.29	24,524.59
Total without LULUCF	20,095.31	22,114.43	25,767.07	28,099.01	30,062.48

[a] *Each Party shall report projections pursuant to paras. 93–101 of the MPGs; those developing country Parties that need flexibility in the light of their capacities are instead encouraged to report such projections (para. 92 of the MPGs).*

[b] *Those developing country Parties that need flexibility in the light of their capacities with respect paras. 93–101 of the MPGs can instead report using a less detailed methodology or coverage (para. 102 of the MPGs).*

[c] *Projections shall begin from the most recent year in the Party's national report and extend at least 15 years beyond the next year ending in zero or five; those developing country Parties that need flexibility in the light of their capacities with respect to this provision have the flexibility to instead extend their projections at least to the end point of their NDC under Article 4 of the Paris Agreement (para. 95 of the MPGs).*

[d] *In accordance with para. 82(f) of the MPGs.*

FIGURE 7 INFORMATION ON PROJECTIONS OF TOTAL GHG EMISSIONS AND REMOVALS WITH AND WITHOUT LULUCF UNDER A "WITHOUT MEASURES" SCENARIO

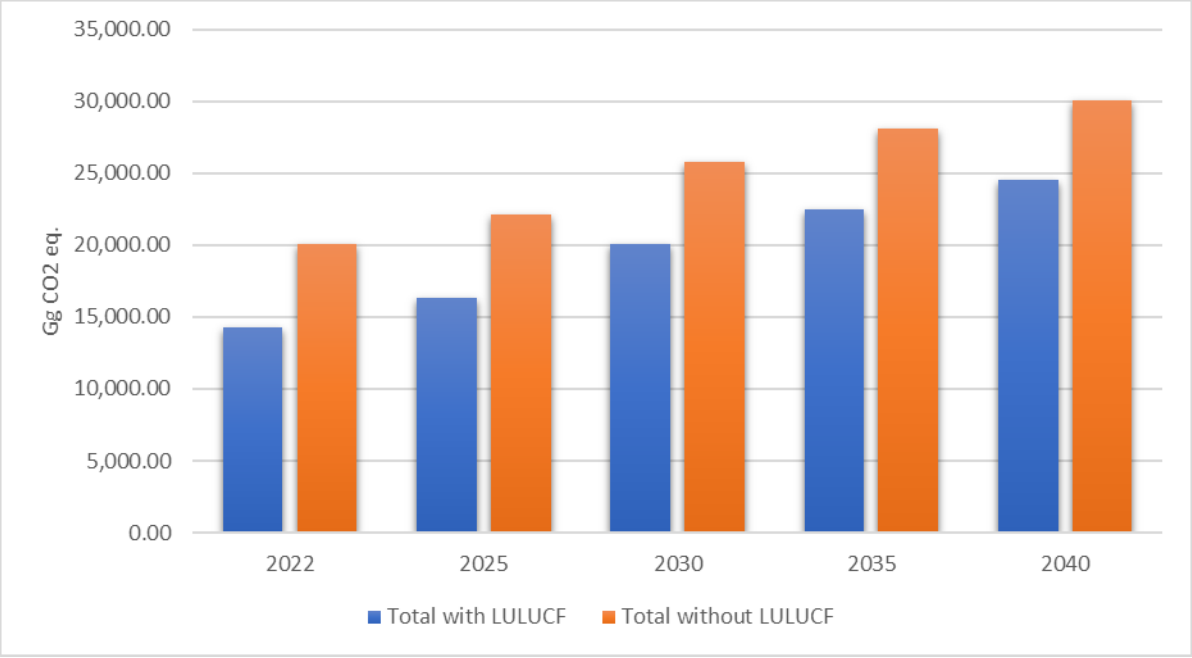


FIGURE 8 INFORMATION ON PROJECTIONS OF GHG EMISSIONS AND REMOVALS (BY SECTORS) UNDER A "WITHOUT MEASURES" SCENARIO

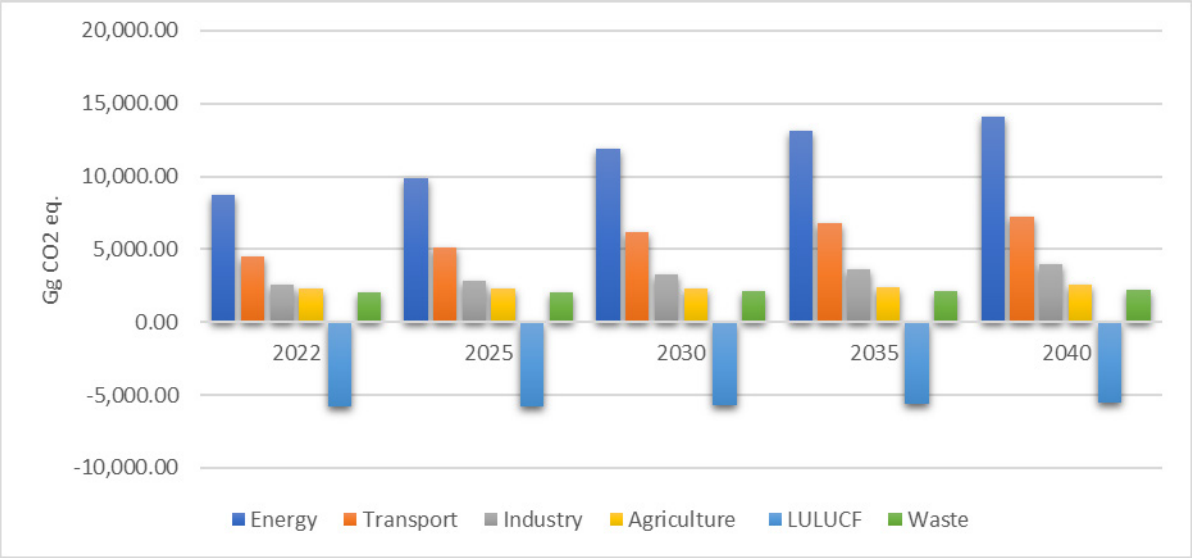
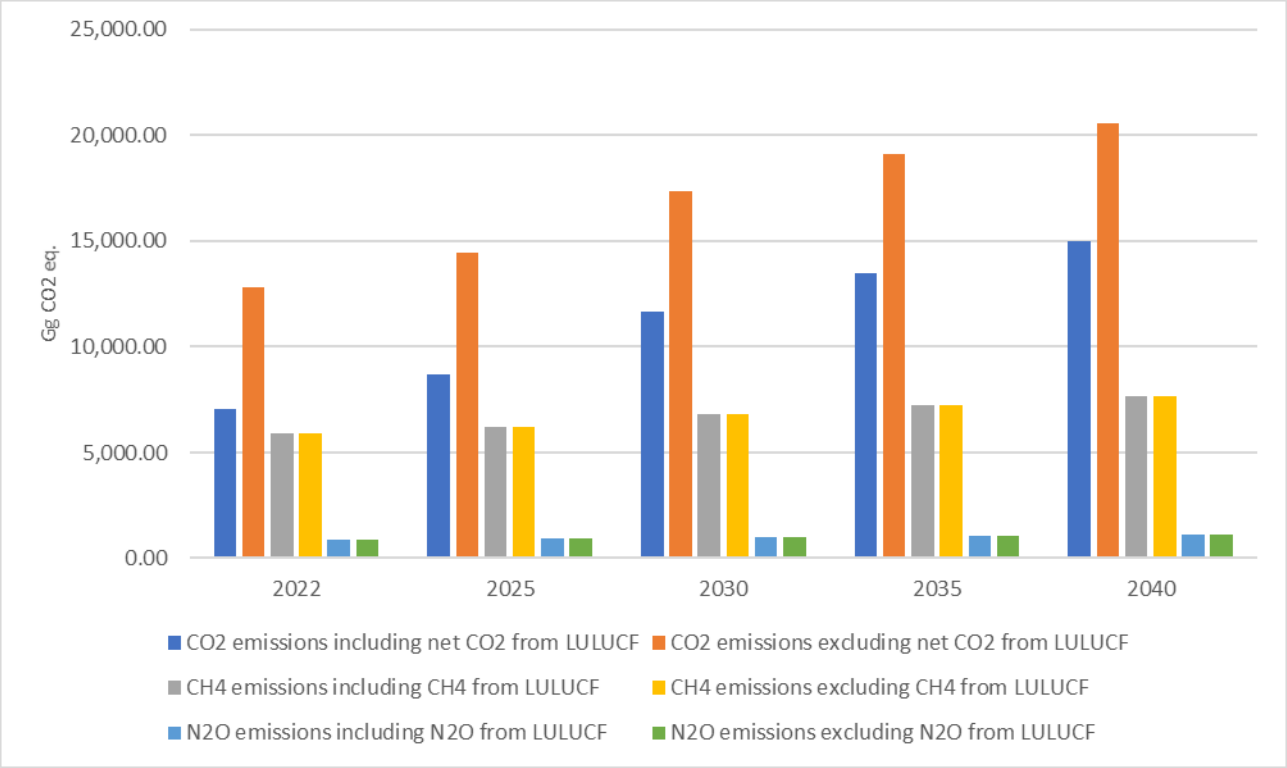


FIGURE 9 INFORMATION ON PROJECTIONS OF GHG EMISSIONS AND REMOVALS (BY GASES) UNDER A "WITHOUT MEASURES" SCENARIO



WOM by sector

The sectoral analysis of projected GHG emissions under the WOM scenario indicates that by 2040, emissions across all sectors are expected to rise, while removals in LULUCF are expected to decrease.

In the **energy sector,** emissions are projected to reach 14,086 Gg CO_2 eq. by 2040, representing a 61.5% increase compared to 2022 levels. Similarly, **transport sector** emissions are expected to grow to 7,270 Gg CO_2 eq., marking a 61.5% rise.

In the **IPPU sector**, emissions are projected to increase significantly to 3,935 Gg CO_2 eq., reflecting a 9.3% growth compared to 2022. The **waste sector** is forecasted to see an increase in emissions to 2,247 Gg CO_2 eq., indicating a 12.5% growth.

By 2040, **agriculture sector** emissions are expected to reach 2,525 Gg CO_2 eq., reflecting an 9.3% increase compared to 2022. However, GHG absorption from **LULUCF sector** is projected to decline to -5,538 Gg CO_2 eq., indicating a 4.6% decrease in carbon absorption relative to 2022.

1.6.2 WITH EXISTING MEASURES (WEM) SCENARIO

As a result of the analysis of the projected GHG emissions and removals under the WEM scenario, it was revealed that by 2040, CO_2 emissions with LULUCF sector will increase by 2,506.42 Gg CO_2 compared to the data of 2022, and without LULUCF sector - by 4,291.9 Gg CO_2.

Regarding the emissions of CH_4 and N_2O for 2040, the difference between the projected GHG emissions and removals compared to the data for 2022 with and without the LULUCF sector is almost identical. CH_4 emissions will increase by 594.4 Gg CO_2 eq. by 2040 compared to the most recent inventory year. N_2O emissions compared to 2022 will increase by 119.1 Gg CO_2 eq.

Compared to the most recent inventory year, by 2040 the Energy sector GHG emissions will have the highest increase by 2,161 Gg CO2 eq.

According to the WEM scenario, by 2040, CO2 is projected to experience the greatest increase both in terms of percentage and absolute quantity.

TABLE 49. PROJECTIONS OF GREENHOUSE GAS EMISSIONS AND REMOVALS UNDER A 'WITH EXISTING MEASURES' SCENARIO [230]

	Most recent year in the Party's national inventory report (Gg CO_2 eq.)	Projections of GHG emissions and removals (Gg of CO_2 eq.)			
	2022	2025	2030	2035	2040
Sector					
Energy	8,718.34	8,299.96	9,116.49	10,245.17	10,880.18
Transport	4,499.50	4,283.58	4,704.98	5,287.49	5,615.21
IPPU	2,571.47	2,722.8	3,106.86	3,362.51	3,514.99
Agriculture	2,310.10	2,292.69	2,263.67	2,333.11	2,402.55
LULUCF	-5,800.73	-5,949.63	-6,316.58	-6,951.4	-7,586.21
Waste	1,995.90	2,023.04	2,052.74	1,989.97	1,974.28

230 Georgia's Long-Term Low Emission Development Strategy. P. 70.

	Most recent year in the Party's national inventory report (Gg CO_2 eq.)	Projections of GHG emissions and removals (Gg of CO_2 eq.)			
	2022	2025	2030	2035	2040
Other	NA	NA	NA	NA	NA
Gas					
CO2 emissions including net CO2 from LULUCF	7,028.17	6,463.52	7,401.54	8,370.7	8,644.67
CO2 emissions excluding net CO2 from LULUCF	12,828.84	12,413.09	13,718.06	15,322.04	16,230.81
CH4 emissions including CH4 from LULUCF	5,906.27	5,813.92	6,026.26	6,302.77	6,500.68
CH4 emissions excluding CH4 from LULUCF	5,906.32	5,813.97	6,026.32	6,302.83	6,500.74
N2O emissions including N2O from LULUCF	879.41	885.97	919.53	964.76	998.53
N2O emissions excluding N2O from LULUCF	879.42	885.98	919.53	964.76	998.54
HFCs	479.59	507.82	579.45	627.13	655.56
PFCs	NA	NA	NA	NA	NA
SF6	1.14	1.21	1.38	1.49	1.56
NF3	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA
Total with LULUCF	14,294.58	13,672.44	14,928.16	16,266.85	16,801.00
Total without LULUCF	20,095.31	19,622.07	21,244.74	23,218.25	24,387.21

FIGURE 10 INFORMATION ON PROJECTIONS OF TOTAL GHG EMISSIONS AND REMOVALS WITH AND WITHOUT LULUCF UNDER A "WITH EXISTING MEASURES" SCENARIO

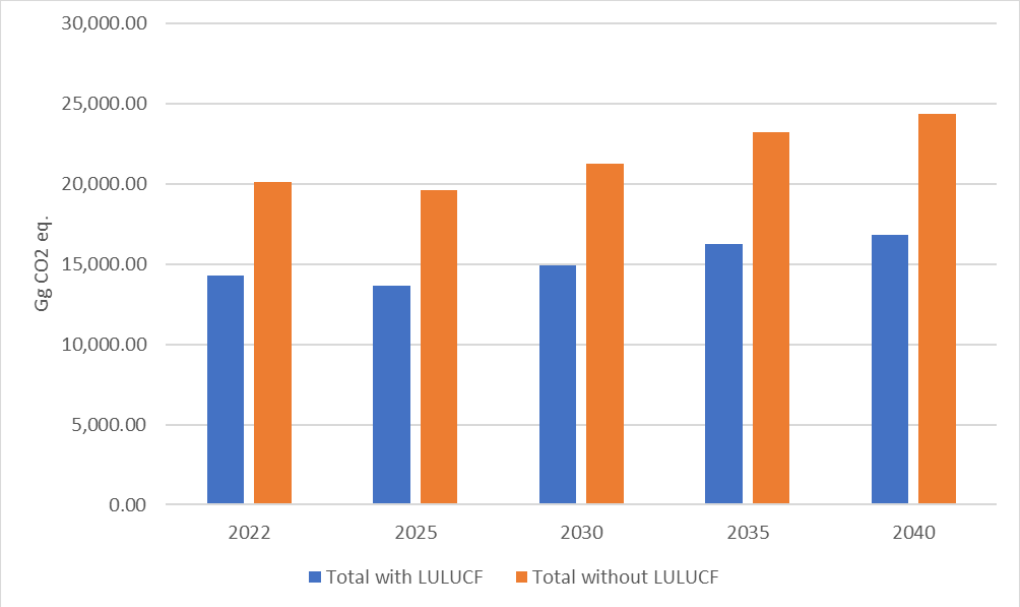


FIGURE 11 INFORMATION ON PROJECTIONS OF GHG EMISSIONS AND REMOVALS (BY SECTORS) UNDER A "WITH EXISTING MEASURES" SCENARIO

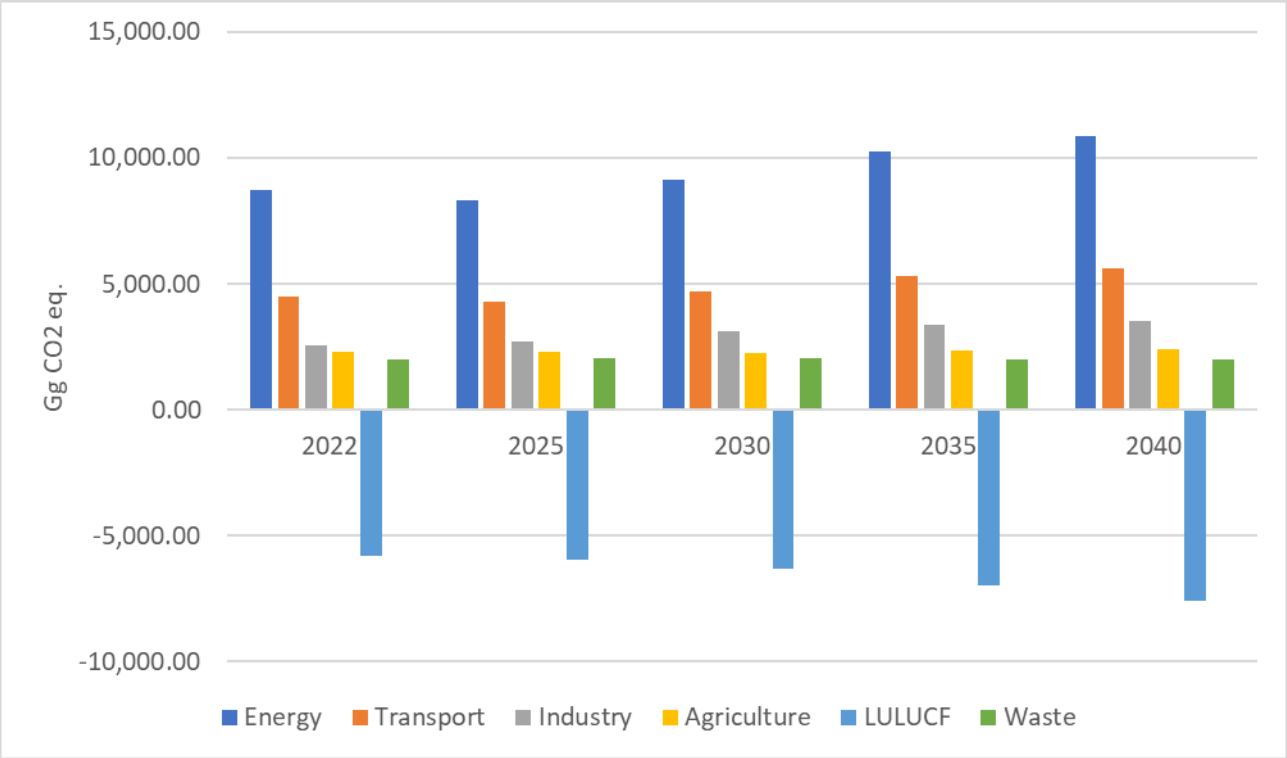
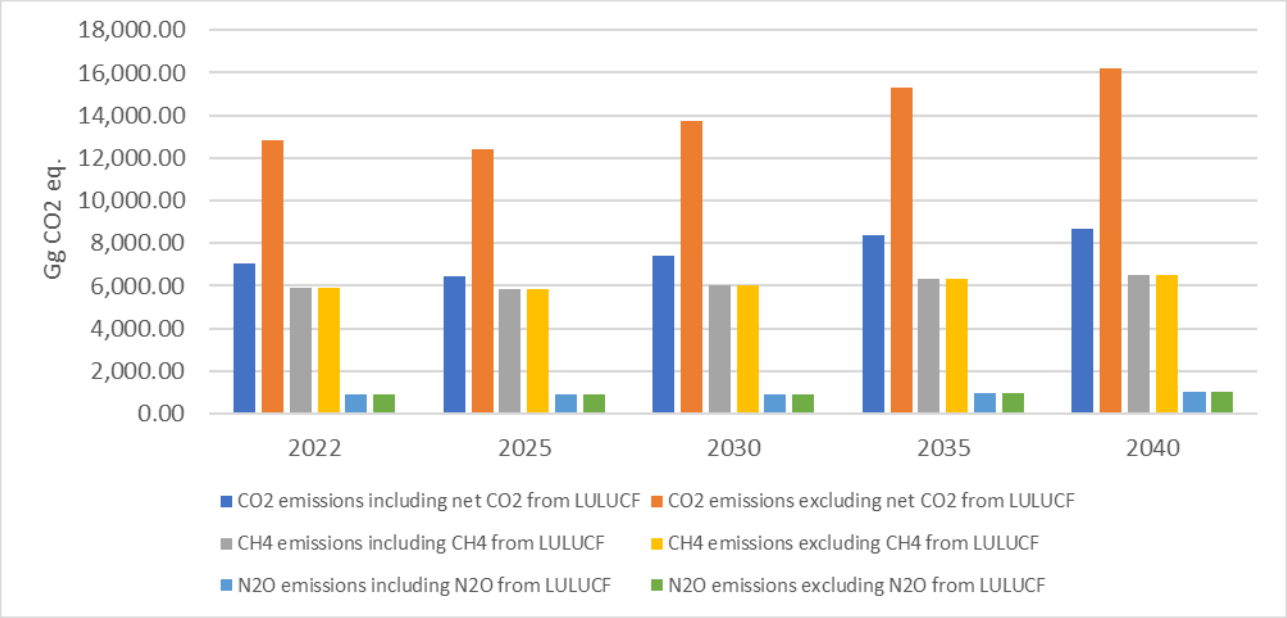


FIGURE 12 INFORMATION ON PROJECTIONS OF GHG EMISSIONS AND REMOVALS (BY GASES) UNDER A "WITH EXISTING MEASURES" SCENARIO



WEM by sector

The sectoral analysis of projected GHG emissions and removals under the WEM scenario reveals that by 2040, all sector emissions, except the waste sector, are expected to rise.

Under the WEM scenario, emissions from the energy sector are expected to reach 10,880 Gg CO2 eq., representing a 24.7% rise compared to 2022. Emissions from the transport sector are projected to increase to 5,615 Gg CO2 eq., marking a 24.7% rise.

GHG emissions from the **industry sector** are anticipated to increase to 3,515 Gg CO_2 eq. reflecting a 36.6% rise. Meanwhile, emissions from the **waste sector** are projected to fall to 1,974 Gg CO_2 eq., a 1.1% decrease compared to 2022.

By 2040, agriculture sector emissions are projected to reach 2,403 Gg CO2 eq., a 4% increase over 2022 levels. Meanwhile, CO2 absorption from the LULUCF sector is expected to reach -7,586 Gg CO2 eq., indicating a 30.7% improvement in carbon absorption compared to 2022.

1.6.3 WITH ADDITIONAL MEASURES (WAM) SCENARIO

An analysis of projected GHG emissions and removals under the WAM scenario reveals that by 2040, CO2 emissions, with LULUCF sector, are expected to decrease 5,984.72 Gg CO2 eq. compared to 2022 levels, while without the LULUCF sector, emissions will decrease by 3,075.35 Gg CO2.

For CH4 and N2O emissions in 2040, the difference between projected emissions and removals compared to 2022 data, with and without the LULUCF sector, remains the same. CH4 emissions are expected to decline by 792.33 Gg CO2 eq. by 2040 compared to the most recent inventory year, while N2O emissions are projected to decrease by 12.67 Gg CO2 eq. compared to 2022.

Under the WAM scenario, Energy is projected to see the most significant reduction by 2040 – 1,960 Gg CO2 eq.

TABLE 50. PROJECTIONS OF GREENHOUSE GAS EMISSIONS AND REMOVALS UNDER A 'WITH ADDITIONAL MEASURES' SCENARIO [231]

	Most recent year in the Party's national inventory report (Gg CO_2 eq.)	Projections of GHG emissions and removals (Gg of CO_2 eq.)			
	2022	2025	2030	2035	2040
Sector					
Energy	8,718.34	8,312.81	8,313.58	8,467.12	6,758.11
Transport	4,499.50	4,290.21	4,290.6	4,369.85	3,487.83
IPPU	2,571.47	2,692.82	2,895.07	2,897.38	2,782.96
Agriculture	2,310.10	2,268.77	2,199.9	2,236.42	2,272.95
LULUCF	-5,800.73	-6,145.4	-7,000.3	-7,855.2	-8,710.1
Waste	1,995.90	2,020.62	2,007.05	1,868.64	1,718.11

231 Georgia's Long-Term Low Emission Development Strategy. P. 73.

	Most recent year in the Party's national inventory report (Gg CO_2 eq.)	Projections of GHG emissions and removals (Gg of CO_2 eq.)			
	2022	2025	2030	2035	2040
Other	NA	NA	NA	NA	NA
Gas					
CO2 emissions including net CO2 from LULUCF	7,028.17	6,261.95	5,554.81	4,894.56	1,808.9
CO2 emissions excluding net CO2 from LULUCF	12,828.84	12,407.4	12,555.16	12,749.69	10,519.08
CH4 emissions including CH4 from LULUCF	5,906.27	5,796.6	5,730.85	5,662.82	5,113.94
CH4 emissions excluding CH4 from LULUCF	5,906.32	5,796.54	5,730.79	5,662.89	5,114.01
N2O emissions including N2O from LULUCF	879.41	877.86	879	885.16	866.74
N2O emissions excluding N2O from LULUCF	879.42	877.87	879.01	885.16	866.59
HFCs	479.59	502.22	539.95	540.38	519.04
PFCs	NA	NA	NA	NA	NA
SF6	1.14	1.2	1.29	1.29	1.24
NF3	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA
Total with LULUCF	14,294.58	13,439.83	12,705.90	11,984.21	8,309.86
Total without LULUCF	20,095.31	19,585.23	19,706.20	19,839.41	17,019.96

FIGURE 13 INFORMATION ON PROJECTIONS OF TOTAL GHG EMISSIONS AND REMOVALS WITH AND WITHOUT LULUCF UNDER A "WITH ADDITIONAL MEASURES" SCENARIO

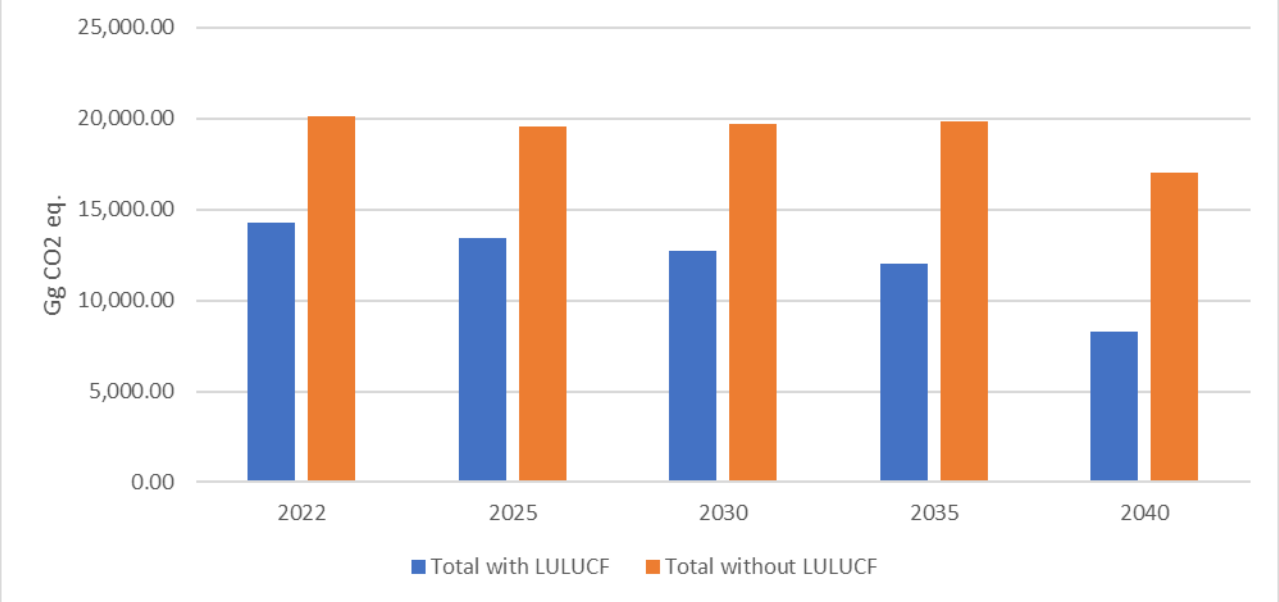


FIGURE 14 INFORMATION ON PROJECTIONS OF GHG EMISSIONS AND REMOVALS (BY SECTORS) UNDER A "WITH ADDITIONAL MEASURES" SCENARIO

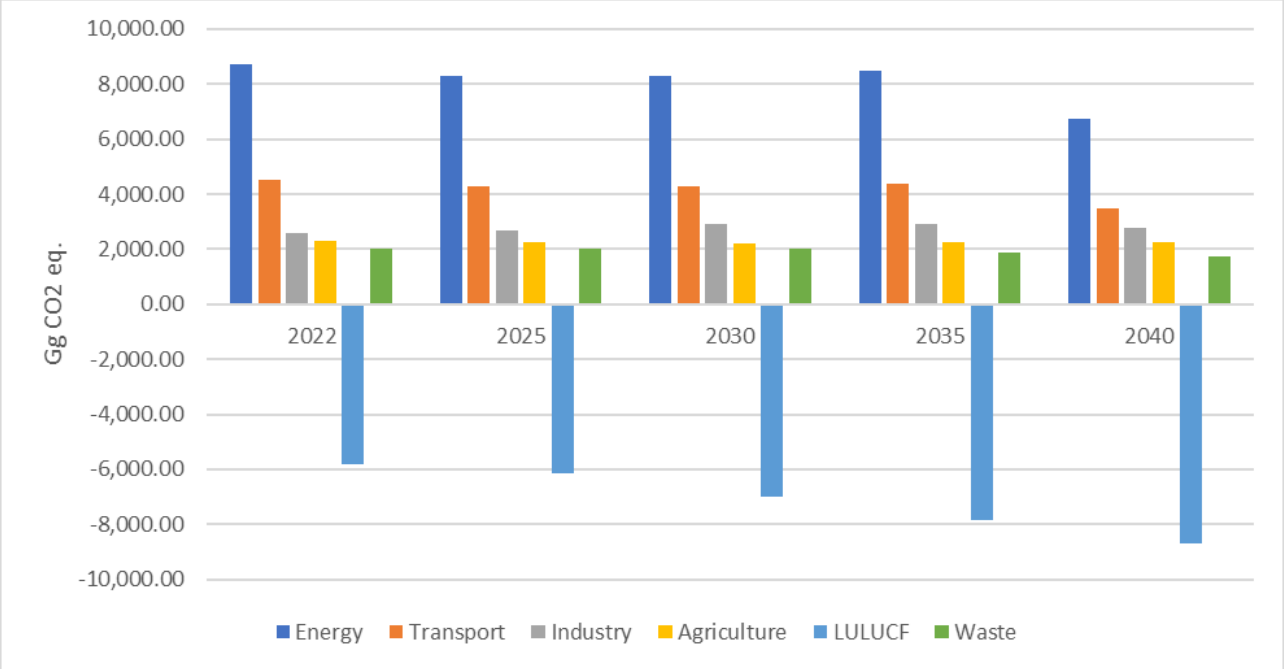
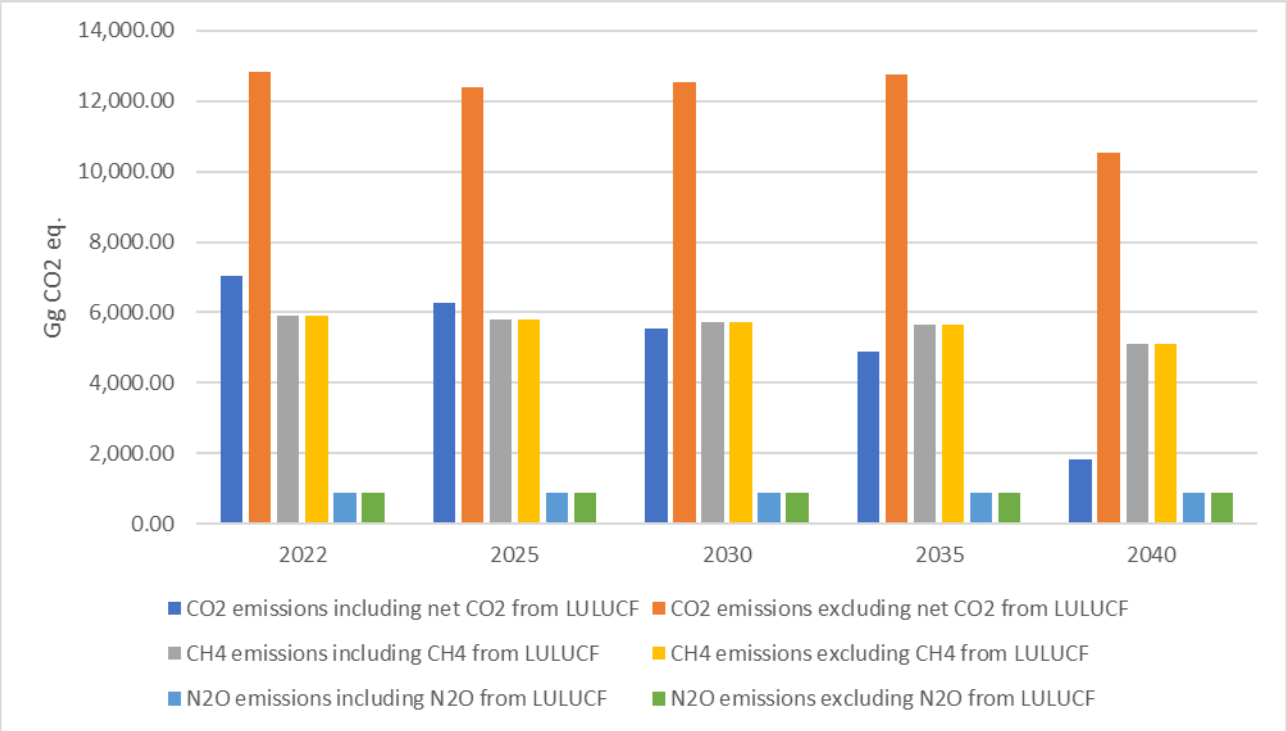


FIGURE 15 INFORMATION ON PROJECTIONS OF GHG EMISSIONS AND REMOVALS (BY GASES) UNDER A "WITH ADDITIONAL MEASURES" SCENARIO



WAM by sector

Sectoral analysis of projected GHG emissions and removals under the WAM scenario indicates that by 2040, emissions from all sectors, except the Industry sector, will decline. Absorptions from LULUCF sector are expected to increase.

GHG emissions from the **energy sector** are expected to decrease to 6,758 Gg CO_2 eq., representing a 22.4% decrease compared to 2022. Similarly, emissions from the **transport sector** are projected to decrease to 3,488 Gg CO_2 eq., marking a 22.4% decrease.

In the **industry sector**, emissions are expected to increase to 2,783 Gg CO_2 eq., reflecting a 8.2% rise compared to 2022. Meanwhile, emissions from the **waste sector** are projected to fall to 1,718 Gg CO_2 eq., a 13.9% decrease compared to 2022.

By 2040, emissions from the **agriculture sector** are projected to reach 2,273 Gg CO_2 eq., reflecting a 1.6% decrease compared to 2022 levels. Meanwhile, GHG absorption from the **LULUCF sector** under the WAM scenario is expected to increase significantly, reaching -8,710 Gg CO_2 eq., which marks 50.1% improvement in carbon dioxide absorption compared to 2022.

Key underlying assumptions and parameters used for projections

The table below presents the projected emissions of key indicators (in Gg CO_2 equivalent) from 2022 to 2040.[232] The data reflects anticipated changes in emissions for key sectors over the period.

The main indicator of Georgia's NDC is its Greenhouse gas emissions in Georgia excluding the LULUCF sector. According to the WEM scenario emissions are projected to reach 21,244 Gg CO_2 eq. by 2030. As for the 2040 projections GHG emissions are expected to decrease to 24,387 Gg CO_2 eq.

In turn, the sectoral indicators of the NDC are (1) the amount of greenhouse gas emissions from the energy generation and transmission sector, (2) the amount of greenhouse gas emissions from the transport sector, (3) The GHG emissions of the industry sector, and (4) the carbon capture potential of forests.

GHG emissions from Georgia's energy generation and transmission sector shows an increase of around 25% – rising from 3,594 Gg CO_2 eq. in 2022 to 4,485 Gg CO_2 eq. by 2040. Emissions from the transport sector are also expected to rise, increasing from 4,500 Gg CO_2 eq. in 2022 to 5,615 Gg CO_2 eq. in 2040, indicating growth in transportation activity.

The table further highlights projections for GHG emissions in the industry sector, which are expected to see a steady increase of approximately 32%, growing from 4,366 Gg CO_2 eq. in 2022 to 5,755 Gg CO_2 eq. by 2040. Conversely, the forest sector's carbon sequestration potential is projected to grow, with carbon capture improving from -6,694 Gg CO_2 equivalent in 2022 to -8,753 Gg CO_2 equivalent in 2040.

232 WEM Scenario

TABLE 51. PROJECTIONS OF KEY INDICATORS [A,B]

Key indicators [c]	Unit, as applicable	Most recent year in the Party's national inventory report, or the most recent year for which data are available (Gg of CO_2 eq.)	Projections of key indicators (Gg of CO_2 eq.) [d]			
		2022	2025	2030	2035	2040
{Key indicator}						
Greenhouse gas emissions in Georgia excluding the LULUCF sector	Gg CO_2 eq.	20,096	19,622	21,244	23,218	24,387
the amount of greenhouse gas emissions from the energy generation and transmission sector	Gg CO_2 eq.	3,594	3,422	3,758	4,223	4,485
The amount of GHG emissions from the transport sector	Gg CO_2 eq.	4,500	4,284	4,705	5,287	5,615
The GHG emissions of the industry sector	Gg CO_2 eq.	4,366	4,432	4,984	5,472	5,755
the carbon capture potential of forests	Gg CO_2 eq.	-6,694	-6,865	-7,289	-8,021	-8,753

Note: The Party could add rows for each additional key indicator.

[a] Each Party shall report projections pursuant to paras. 93–101 of the MPGs; those developing country Parties that need flexibility in the light of their capacities are instead encouraged to report such projections (para. 92 of the MPGs).

[b] Those developing country Parties that need flexibility in the light of their capacities with respect paras. 93–101 of the MPGs can instead report using a less detailed methodology or coverage (para. 102 of the MPGs).

[c] Each Party shall also provide projections of key indicators to determine progress towards its NDC under Article 4 of the Paris Agreement (para. 97 of the MPGs).

[d] Future years extended to at least 15 years beyond the next year ending in zero or five; those developing country Parties that need flexibility in the light of their capacities with respect to this provision have the flexibility to instead extend their projections at least to the end point of their NDC under Article 4 of the Paris Agreement (para. 95 of the MPGs).

1.6.4 METHODOLOGY USED TO DEVELOP THE PROJECTIONS

In this sub-chapter, in line with paragraph 96 of the MPGs, detailed information is provided on the models, core assumptions, and projection parameters utilized in the development of projected scenarios. It also outlines the key assumptions on policies and measures included in the "with existing measures" and "with additional measures" scenarios. Furthermore, this section delves into the sensitivity analysis of the projected scenarios.

Methodology of projected scenarios and parameters

To develop LT-LEDS scenarios, a variety of methods and models have been employed for projecting GHG emissions across different sectors.[233]

The TIMES-Georgia model is utilized to forecast emissions from the energy sector, encompassing energy consumption across various domains, including the energy generation and transmission industry, residential and commercial buildings, industrial processes, agriculture, and transportation, along with their associated emissions. In 2016, initial data related to energy, economic, and other parameters were incorporated into the model, which was subsequently modified to reflect the specific conditions of Georgia. The model relies on general statistical data—such as population, GDP, and daylight hours—and makes projections based on existing policy documents. This approach enables the calculation of both optimistic and pessimistic baseline scenarios (no measures) by analysing general (population, GDP) and sectoral drivers. Additionally, it facilitates the development of emission mitigation scenarios based on existing and planned measures specific to each sector. The model also considers available technologies and economic criteria, including cost factors, within the sector.

The Ex-ACT (Ex-Ante Carbon-balance Tool) assesses emissions within the forest sector and evaluates the impact of proposed measures in both the forest and agriculture sectors on emissions reduction. The EX-ACT system was developed by the Food and Agriculture Organization of the United Nations (FAO) to assess the impact of agricultural and forestry development projects, programs and policies on the carbon balance.

The calculation employs the C Stock Changes (carbon stock change) method, which analyses variations in carbon stocks over different periods. Ex-ACT is reflects on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. In accordance with these guidelines, calculations in the forest sector include five carbon stocks: aboveground biomass, belowground biomass, dead root mass, dry woody biomass, and soil organic carbon.

To analyse information pertaining to land use and agricultural practices, Ex-ACT employs geographic, climatic, and agroecological variables. Its computational framework operates by comparing the outcomes of the proposed measures against the results of a baseline scenario (WOM) concerning carbon stock.

In accordance with IPCC methodology, Ex-ACT employs standard emission factors for Tier 1 computational calculations. Within the agriculture sector data, the national (country-specific) emissions coefficient is incorporated, as outlined in the NIR.

IPCC Waste Model (Improved version)

IPCC waste model calculates the CH_4 emissions of solid waste placed at the landfills, depending on the composition of the waste. The model is based on the FAO methodology (first-order decay (FOD) methodology) recommended by the 2006 IPCC Guidelines. The IPCC model provides an opportunity to model landfill gas, or CH_4 originating from it, according to various parameters (e.g.: climate type, amount of waste, composition, type of landfill management, etc.).

Key assumptions, including WEM and WAM scenarios

233 Georgia's Long-Term Low Emission Development Strategy. P. 93-94.

As mentioned earlier in the earlier chapters, based on existing and potential policy documents, including the CSAP, two mitigation scenarios have been established: "with existing measures" (WEM) and "with additional measures" (WAM).

WEM is developed by accounting for the GHG emissions reduction impacts of mitigation policies and measures that have been implemented or are planned within the country.[234]

The WAM scenario builds upon the WEM scenario by incorporating the effects of additional mitigation measures, while accounting for currently adopted and planned mitigation policies and measures. This means that all technologies included in the WEM scenario are also considered in the WAM scenario, along with the inclusion of additional mitigation technologies. [235]

Statistical data on population and GDP growth indicate a slow and fluctuating trend over recent decades. Regardless of the underlying causes, the country's LT-LEDS should account for the potential for significant progress, targeting substantial increases by mid-century. Consequently, rather than relying on a single, near-realistic WOM scenario, projections have been framed within a range that encompasses both pessimistic and optimistic trajectories. The pessimistic development scenario assumes slow population growth and GDP expansion, closely aligned with recent statistics and trends. In contrast, the optimistic scenario reflects the most hopeful expectations for significant economic and demographic growth. [236]

Thus, two baseline scenarios—pessimistic and optimistic—have been developed based on a set of projected key drivers identified in advance. Corresponding annual growth rates were calculated and applied to these drivers to create long-term projections for each scenario.

Table 52 Drivers Projected for an Optimistic Scenario[237]

Driver	Unit	2020	2025	2030	2040	2050
GDP (w/o convergency)	Million GEL, prices of 2015	33,754.7	43,614.7	56,618.1	95,448.5	160,896.9
GDP growth	%	-6.3	5.2	3.8	4	4.05
Population	Thousand people	3,716.8	3,721.6	3,727.5	3,739.5	3,751.5
Population growth	%	-0.17	0.032	0.032	0.032	0.032

TABLE 53 DRIVERS PROJECTED FOR A PESSIMISTIC SCENARIO.[238]

Driver	Unit	2020	2025	2030	2040	2050
GDP (w/o convergency)	Million GEL, prices of 2015	33,754.7	43,614.7	55,284.6	82,718.5	115,977.3

234 Georgia's Long-Term Low Emission Development Strategy. P. 129.
235 Georgia's Long-Term Low Emission Development Strategy. P. 134.
236 Georgia's Long-Term Low Emission Development Strategy. P. 190.
237 Georgia's Long-Term Low Emission Development Strategy. P. 107.
238 Georgia's Long-Term Low Emission Development Strategy. P. 108.

GDP growth	%	-6.3	5.2	4.6	3.7	3.3
Population	Thousand people	3,716.8	3,722.7	3,722.7	3,722.7	3,722.7
Population growth	%	-0.17	0.031	0	0	0

TABLE 54. KEY UNDERLYING ASSUMPTIONS AND PARAMETERS USED FOR PROJECTIONS [A,B]

Key underlying assumptions and parameters [c]	Unit, as applicable	Most recent year in the Party's national inventory report, or the most recent year for which data are available (Gg of CO_2 eq.)	Projections of key underlying assumptions and parameters (Gg of CO_2 eq.) [d]			
		2020	2025	2030	2040	2050
{Key underlying assumption/parameter}						
GDP (w/o convergency)	Million GEL, prices of 2015	33,754.7	43,614.7	55,284.6	82,718.5	115,977.3
GDP growth	%	-6.1	5.2	4.6	3.7	3.3
Population	Thousand people	3,716.8	3,722.7	3,722.7	3,722.7	3,722.7
Population growth	%	-0.17	0.031	0	0	0

Note: The Party could add rows for each additional key underlying assumptions and parameters.

[a] Each Party shall report projections pursuant to paras. 93–101 of the MPGs; those developing country Parties that need flexibility in the light of their capacities are instead encouraged to report such projections (para. 92 of the MPGs).

[b] Those developing country Parties that need flexibility in the light of their capacities with respect to paragraphs 93–101 of the MPGs can instead report using a less detailed methodology or coverage (para. 102 of the MPGs).

[c] Information provided by each Party in describing the methodology used to develop the projections should include key underlying assumptions and parameters used for projections (e.g. gross domestic product growth rate/level, population growth rate/level) (para. 96(a) of the MPGs).

[d] Future years extended to at least 15 years beyond the next year ending in zero or five; those developing country Parties that need flexibility in the light of their capacities with respect to this provision have the flexibility to instead extend their projections at least to the end point of their NDC under Article 4 of the Paris Agreement (para. 95 of the MPGs).

The following assumptions for mitigation measures under the WEM and WAM scenarios are outlined below by sector:

Assumptions for the transport sector in both the WEM and WAM scenarios are as follows: [239]

239 Georgia's Long-Term Low Emission Development Strategy. P. 122.

- By 2030, the South Caucasus pipeline will transport 18 billion m^3 of gas, increasing to 25 billion m^3 by 2040.
- Average daily vehicle mileage is projected to reach 28 km per day by 2030.

Assumptions for the agricultural sector in both the WEM and WAM scenarios include: [240]

- Fuel consumption for field operations (such as traditional plowing, harrowing, fertilization, herbicide application, seeding, and harvesting) ranges between 80-100 kg/ha, with an average of 90 kg/ha.
- Under minimum tillage practices, fuel consumption is reduced to 47 kg/ha, and under no-tillage practices, it decreases further to 34 kg/ha.
- Diesel is the primary fuel used in agricultural machinery.
- Natural gas is predominantly used for heating farm buildings and greenhouses;
- Electricity is primarily used for water pumping in irrigation and for lighting purposes.

Assumptions Formulated in the Energy Sector for WEM and WAM Scenarios: [241]

- Electricity is sourced through imports.
- Methane is extracted from coal deposits.
- Natural gas losses are minimized to align with normative standards.
- Transportation losses of natural gas are reduced, corresponding to the methane emission factor specified for transportation systems in the 2006 IPCC guidelines.

Assumptions Established in the Industrial Sector for WEM and WAM Scenarios: [242]

- Cement and steel production processes are evolving;
- Greenhouse gas emissions resulting from the use of fluorinated gases are being reduced.

Assumptions Established in the Land Use, Land Use Change, and Forestry Sector (LULUCF) for WEM and WAM Scenarios: [243]

- Alterations in wood resource consumption;
- Adjustments in the use of arable land will be implemented;
- Changes in the area covered by perennial plants in agricultural fields.

Assumptions Established in the Waste Sector for WEM and WAM Scenarios: [244]

- The introduction of new technologies in the sector is unlikely;
- The removal of compostable waste and paper fractions from municipal solid waste

240 Georgia's Long-Term Low Emission Development Strategy. P. 168.
241 Georgia's Long-Term Low Emission Development Strategy. P. 111.
242 Georgia's Long-Term Low Emission Development Strategy. P. 147.
243 Georgia's Long-Term Low Emission Development Strategy. P. 176, 189.
244 Georgia's Long-Term Low Emission Development Strategy. P. 190, 192, 194.

for recycling is being prioritized.

In addition to the general drivers, projections of the scenarios utilize the scale of tourist influx into the country, along with the total population of local residents and tourists.

1.6.5 CHANGES IN PROJECTIONS METHODOLOGY

Information will be included in future reports as needed. In accordance with subparagraph b of paragraph 98 of the MPGs, this subsection outlines changes in the methodology of scenarios compared to the previous BTR. As this is the first BTR, information will be included in future reports as needed.

Sensitivity analysis

The presented sensitivity analysis examines mitigation projection scenarios that incorporate macroeconomic forecasts developed as part of Georgia's LT-LEDS. The analysis aims to identify the relationships between GHG emissions (dependent variable) and real gross domestic product (GDP) and population size (independent variables). Additionally, the sensitivity analysis explores the correlation between international financial inflows and the dynamics of GHG emissions.

During the sensitivity analysis, time series data covering the period from 2016 to 2050 was examined at both national and sectoral levels. The analysis focused on seven sectors related to climate change: energy, building, transport, industry, agriculture, waste, and LULUCF. A simple linear regression analysis was employed to assess elasticity and correlations.

The dynamics of GHG emissions in Georgia are influenced by various events and motivating factors (drivers). Both GDP and population significantly impact these emissions. The analysis revealed the relationships between optimistic and pessimistic development approaches and the variations in GHG emissions across all three scenarios: WOM, WEM, and WAM. Consequently, the sensitivity analysis discusses how changes in scenarios affect the country's emissions and assesses the sensitivity of national emissions to the primary motivating factors of GDP and population.

In the WOM scenario, two potential development versions are considered: optimistic and pessimistic. The optimistic scenario is characterized by population growth, with an average increase of 0.02%, and relatively high economic growth, averaging 3.94% real growth rate over the long time period (2016-2040). Conversely, the pessimistic long-term development scenario assumes a slight decline in population and relatively low economic growth. [245]

In the WOM scenario, a strong correlation exists between real GDP and GHG emissions, with a correlation coefficient of 0.99 between the differences in optimistic and pessimistic real GDP scenarios and their corresponding GHG emissions. The total GHG emissions of the country demonstrate an inelastic response to real GDP, with a coefficient of 0.85. This indicates that, **in the long term, a 1% increase in GDP will result in a 0.85% rise in GHG emissions.** Additionally, the dependence of GHG emissions on GDP is quantified at 0.19 in absolute terms, meaning that **in the long term an increase in GDP of 1 million GEL will lead to an increase in national GHG emissions of 0.19 Gg CO_2 eq.** (see Table 55).

245 Georgia's Long-Term Low Emission Development Strategy.

It is important to highlight that those similar relationships are observed at the sectoral level as well. **Sectoral emissions exhibit inelasticity in relation to GDP, with an elasticity of less than 1** (see Table 55).

TABLE 55 RESULTS OF THE SENSITIVITY ANALYSIS OF NATIONAL AND SECTORAL GHG EMISSIONS IN GEORGIA IN RELATION TO GDP AND POPULATION SIZE: WITHOUT MEASURES SCENARIO (WOM) [246] [247]

Sector	Elasticity with respect to GDP, % change	Elasticity with respect to population, % change	Correlation to GDP, changes in CO_2 eq.	Correlation to the population, changes in Gg CO_2 eq.
Energy and Buildings	0.83	1.88	0.15	198.6
Transport	0.59	1.66	0.08	103.5
Industry	0.63	1.54	0.02	28.7
Agriculture	0.58	1.09	0.004	7.6
Waste	0.57	1.25	0.017	20.0
LULUCF	NA	NA	NA	NA
Total National GHG Emissions	0.85	1.82	0.19	254.9

The sensitivity of GHG emissions to population size is notably high, with an elasticity coefficient of 1.82. This indicates that emissions increase significantly with population growth. Moreover, the elasticity across all sectors exceeds 1 (see Table 55).

The population dependence factor is approximately 255, indicating that **an increase of 1,000 people over a given period will result in a rise of 255 Gg CO_2 eq. in GHG emissions.** This factor is particularly pronounced in the energy and buildings sectors (see Table 55).

In WEM, there is a very high correlation between real GDP and GHG emissions. The correlation between the difference between the optimistic and pessimistic scenarios of real GDP and the corresponding figure for GHGs is 0.97. The country's total GHG emissions are inelastic to real GDP - 0.56. Therefore, **in the long term, a 1% increase in GDP will lead to a 0.56% increase in GHG emissions.** Also, the dependence of greenhouse gas emissions on GDP is 0.14 in absolute terms. Accordingly, **in the long term, an increase in GDP by 1 million GEL will lead to an increase in national GHG emissions by 0.14 Gg CO_2 eq.** (see Table 56).

Similar connections can be seen in the sectoral view as well. Sectoral emissions are inelastic to GDP (elasticities are less than 1). Consequently, the sensitivity is also low (see Table 56).

Table 56 Results of the Sensitivity Analysis of National and Sectoral GHG Emissions in

246 Note: Total national greenhouse gas emissions are analysed without LULUCF
247 Georgia's Long-Term Low Emission Development Strategy, Calculated by the author.

Georgia in Relation to GDP and Population Size: With Measures Scenario (WEM) [248] [249]

Sector	Elasticity with respect to GDP, % change	Elasticity with respect to population, % change	Correlation to GDP, changes in CO_2 eq.	Correlation to the population, changes in Gg CO_2 eq.
Energy and buildings	0.79	1.73	0.1	130.3
Transport	0.66	1.85	0.12	154.1
Industry	0.53	1.12	0.02	23.8
Agriculture	0.35	0.66	0.003	6.25
Waste	0.44	1.03	0.017	20.1
LULUCF	NA	NA	NA	NA
Total National GHG Emissions	0.56	1.21	0.14	180.2

In the WEM scenario, the sensitivity of GHG emissions to population size is high, as the elasticity coefficient with respect to population is 1.21. However, except for agriculture, the elasticity of all sectors is greater than 1. (see Table 56).

Compared to the WOM scenario, the coefficients of elasticities in the WEM scenario are relatively lower for all sectors (see Table 56).

The population dependence factor is approximately 180, which means that **an increase in population by 1,000 people will lead to an increase in GHG emissions by 180 Gg CO_2 eq.** The mentioned indicator is also high for the energy, building, and transport sectors (see Table 56).

In the WAM scenario, a high correlation is observed between real GDP and GHG emissions. The correlation coefficient between the variance in optimistic and pessimistic real GDP scenarios and the corresponding fluctuation in GHG emissions is 0.49. The country's total GHG emissions are inelastic to real GDP - 0.07. Accordingly, **in the long term, a 1% increase in GDP will lead to a 0.07% increase in GHG emissions.** Also, the dependence of GHG emissions on GDP is 0.01 in absolute terms. Accordingly, **in the case of development of the mentioned scenario, in the long term, an increase in GDP by 1 million GEL will lead to an increase in national GHG emissions by 0.01 Gg CO_2 eq.** (see Table 57).

It is worth noting that similar connections can also be seen in the sectors. **In relation to GDP, sectoral emissions are inelastic** (elasticity is less than 1) (see Table 57).

248 Note: Total national GHG emissions are analyzed without LULUCF

249 Georgia's Long-Term Low Emission Development Strategy, Calculated by the author.

TABLE 57. RESULTS OF SENSITIVITY ANALYSIS OF NATIONAL AND SECTORAL GHG EMISSIONS OF GEORGIA TO GDP AND POPULATION SIZE, WITH ADDITIONAL MEASURES SCENARIO (WAM) [250251]

Sector	Elasticity with respect to GDP, % change	Elasticity with respect to population, % change	Correlation to GDP, changes in CO_2 eq.	Correlation to the population, changes in Gg CO_2 eq.
Energy and building	0.005	0.08	0.008	0.001
Transport	0.09	0.14	0.007	0.001
Industry	0.58	1.41	0.012	15.9
Agriculture	0.33	0.63	0.002	4.87
Waste	0.16	0.32	0.004	0.4
LULUCF	NA	NA	NA	NA
Total National GHG Emissions	0.07	0.24	0.01	10.2

The sensitivity of GHG emissions to population size is relatively low, with an elasticity coefficient of 0.24. Furthermore, the elasticity across all sectors, with the exception of industry, remains below 1 (see Table 57).

The population dependence factor is about 10, which means that **an increase in population by 1000 people in the long term will lead to an increase in GHG emissions by 10 Gg CO_2 eq.** This indicator is also high for the industry sector (15.9 Gg CO_2 eq.) (see Table 57).

In the WOM, WEM, and WAM scenarios, the GHG indicators for the LULUCF sector remain unchanged between the optimistic and pessimistic scenarios. As a result, the sensitivity of this sector to real GDP and population cannot be assessed.

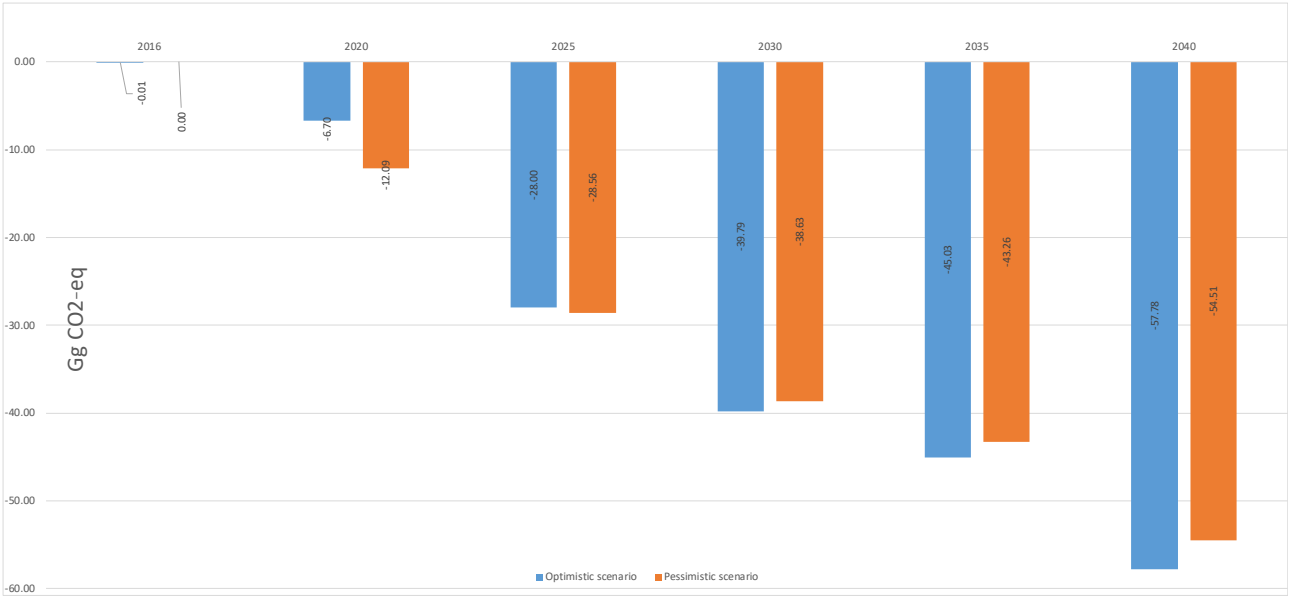
Figure 16 presents scenarios, which highlight the sensitivity of national GHG emissions to international financial support. This is a critical issue for Georgia, as it remains a developing country that heavily relies on cooperation with donors and international organizations for the successful implementation of its climate change policies. It should be emphasized, that the implementation of climate change mitigation activities in the WAM scenario is strongly dependent on international support and donor funding.

The graph shows that the percentage deviation between the WOM and WAM scenarios increases over the long term in both optimistic and pessimistic projections, surpassing 50% by 2040.This suggests a substantial potential for reducing GHG emissions, particularly with the availability of international financial support. This is largely due to the high reliance on international support for the activities outlined in the WAM scenario.

250 Note: Total national GHG emissions are analyzed without LULUCF

251 Georgia's Long-Term Low Emission Development Strategy, Calculated by the author.

FIGURE 16 PERCENTAGE DEVIATION VALUES BETWEEN THE WOM AND WAM SCENARIOS EVALUATED UNDER BOTH OPTIMISTIC AND PESSIMISTIC SCENARIOS [252]



In summary, Georgia's national GHG emissions are highly sensitive to factors such as population growth and international financial support (See Figure 16), while real GDP exerts a more moderate influence. Notably, under the WAM scenario, the sensitivity of GHG emissions to economic variables would decrease significantly. This would result in a decoupling of emissions trends from broader economic and social developments, reflecting a shift towards a more sustainable trajectory where emissions are less dependent on economic growth.

252 Georgia's Long-Term Low Emission Development Strategy.

CHAPTER 2.
INFORMATION ON FINANCIAL, TECHNOLOGY DEVELOPMENT AND TRANSFER AND CAPACITY-BUILDING SUPPORT NEEDED AND RECEIVED UNDER ARTICLES 9-11 OF THE PARIS AGREEMENT

(Paragraphs 130-145 MPGs)

2.1 CLIMATE CHANGE FINANCING

2.1.1 FINANCIAL SUPPORT REQUIRED TO MEET CLIMATE CHANGE OBJECTIVES AND FULFIL NATIONALLY DETERMINED CONTRIBUTION TARGETS.

To guarantee the fulfilment of Georgia's obligations regarding the climate change agenda, it is crucial to mobilise and efficiently manage sufficient financing while engaging all relevant stakeholders. Utilising both domestic and international resources is vital, with the involvement of representatives from both the public and private sectors. This approach reflects Georgia's commitment to mobilising climate finance. Beyond the primary objective, the mobilisation of climate-related financing also encompasses secondary goals, such as enhancing business opportunities, advancing technologies, and generating employment. These initiatives must align with the country's inclusive green economic growth agenda and its established priorities.

The document titled "NDC Financing Strategy and Investment Plan," developed in 2022 under the EU4Climate initiative, which is funded by the European Union and executed by the United Nations Development Programme (UNDP), indicates that approximately 13

billion GEL (around 5 billion USD) is necessary to implement the mitigation strategies outlined in the NDC document. This figure is based on an exchange rate of 1 USD = 2.62 GEL and includes 8 billion GEL (approximately 3 billion USD) allocated for unconditional obligations and 5 billion GEL (2 billion USD) for conditional obligations.

Regarding adaptation, the Intended Nationally Determined Contributions (INDCs) submitted to the Convention Secretariat in 2015 suggest that economic losses due to climate change from 2021 to 2030 are estimated to be between 10 and 12 billion USD. The costs associated with adaptation measures are projected to range from 1.5 to 2 billion USD (3.9 to 5.2 billion GEL). Given the more ambitious targets established in the updated NDC, it is anticipated that the financing requirements for both mitigation and adaptation efforts will increase.

- Developing a financial strategy for the execution of these measures is crucial, as it will facilitate the identification and mobilization of the necessary funding from both domestic and international, public and private sources to meet the national objectives set for 2030. The country has made progress in this area, particularly concerning mitigation efforts. In 2021, the "Georgia 2030 Climate Change Strategy and Action Plan 2021-2023" was adopted, which primarily outlines a short-term budget for implementing climate change mitigation initiatives. This document specifies the responsible parties for these measures, the timelines for implementation, the projected budget, and potential funding sources.
- In 2024, the "Georgian Climate Change 2030 Strategy 2024-2025 Action Plan" has an estimated total budget of approximately 3.694 billion GEL. This includes 83.6 million GEL (2.3%) sourced from state funding, while the majority, amounting to 3.603 billion GEL (97.5%), is derived from other financing sources, which encompass contributions from both donors and the private sector. The plan indicates a deficit of only 7.2 million GEL (refer to Table 58). However, this modest deficit does not imply that all climate change requirements are adequately addressed. According to the "Georgia's Climate Change Strategy 2030" document, interventions that possess emissions reduction potential but face significant financial constraints are not included in the climate action plan.

Furthermore, the plan does not encompass projects for which the necessary financial resources have not been identified.

TABLE 58: FINANCING OF THE 2024-2025 CLIMATE CHANGE ACTION PLAN (IN MILLION GEL) AND FUNDING SOURCES BY SECTOR

	Total budget	Among them:		Deficit
		Other	State	
Goal 1. Energy sector	2,934.6	2,934.5		
Goal 2. Transport sector	375.7	373.4		2.3
Goal 3. Buildings sector	35.7	33.7		2.0
Goal 4. Industry Sector	17.8	17.8		

	Total budget	Among them:		Deficit
		Other	State	
Goal 5. Agricultural sector	5.7	4.4	0.9	
Goal 6. Waste sector	319.7	237.2	79.5	3.0
Goal 7. Forestry Sector by Carbon Absorption Possibility Increase	5.1	1.9	3.2	
Total	**3,694.3**	**3,602.9**	**83.6**	**7.2**

TABLE 59: FINANCING OF THE 2021-2023 CLIMATE CHANGE ACTION PLAN (IN MILLION GEL) AND FUNDING SOURCES BY SECTOR

	Complete Budget (GEL)	They Between (GEL)		Deficit
		Other	State	
Goal 1. Energy Sector	5,671.1	5,362.2	109.7	199.2
Goal 2. Transport Sector	1,773.9	1,771.2	2.5	0.1
Goal 3. Buildings Sector	168.2	164.2	2.6	1.4
Goal 4. Industry Sector	33.6	33.6	-	-
Goal 5. Rural Farming Sector	3.5	0.5	-	3.0
Goal 6. Waste Sector	253.4	213.9	36.7	2.8
Goal 7. Forestry Sector by Carbon Absorption Possibility Increase	26.0	19.5	6.4	-
Total :	**7,929.6**	**7,565.0**	**155.6**	**208.9**

- In 2023, the LT-LEDS was officially adopted, encompassing aspects of climate-related financing. This framework evaluates various scenarios for reducing greenhouse gas emissions by the year 2050, alongside identifying critical success factors necessary for mobilizing financial resources from both public and private sectors to effectively execute long-term climate change mitigation strategies. Sector specialists project that the total investment needed will amount to USD 50.5 billion under the With Existing Measures Scenario (WEMs) and approximately USD 78 billion under the With Additional Measures Scenario (WAMs). The sector-specific investment requirements leading up to 2050 are detailed in Table 60.

TABLE 60: FOR SECTORS NECESSARY INVESTMENTS NUMBER IN 2020-2050

Sector	Amount of investment required, million USD	
	Existing measures Scenario	Additional measures Scenario
Energy	5,980	7,310
Transport	44,000	70,100
Industry	160	200
Agriculture	33	65
Land use, land use change and forestry	307	414
Waste	20	20
Total	**50,500**	**78,109**

2.1.2 EXISTING CHALLENGES RELATED TO FINANCIAL RESOURCES ATTRACTION

Georgia has gained experience in securing climate finance; however, practical observations indicate that several challenges need to be addressed to attract sufficient funding for climate change initiatives within the country. The LT-LEDS in Georgia outlines the general barriers related to the accessibility and mobilization of climate-related finance:

- Insufficient resources to supply the required level of venture capital;
- Inflated views regarding climate risks and the heightened "cost" associated with accessible capital;
- A deficiency in transparent, reliable, and readily available data, which adversely affects the assessment of technical performance, energy production, and environmental impact of climate-related projects, thereby hindering potential investors' ability to evaluate the success of existing projects and understand growth risks;
- A tendency among investors to favor short-term investments;
- A competitive edge in larger-scale transactions;
- A misinterpretation of the timing related to the short-term or long-term effects of climate change risks;
- An absence of practical guidelines for climate-smart investments to facilitate sound investment decisions.

The presence of these barriers establishes a detrimental atmosphere for the acquisition, mobilization, and enhancement of financial capital. Additionally, they obstruct the execution of essential climate change mitigation and adaptation initiatives, as well as opportunities for green investments. The impact of these barriers is shaped by a nation's developmental status, international evaluations, economic conditions, capital market dynamics, and other specific national factors.

Financing Strategy and Investment Plan [253]" developed under the EU4Climate initiative, which is funded by the European Union and executed by the United Nations Development Programme (UNDP). This document examines various challenges that impede the financing of climate change initiatives in Georgia. Notably, several critical issues have been highlighted:

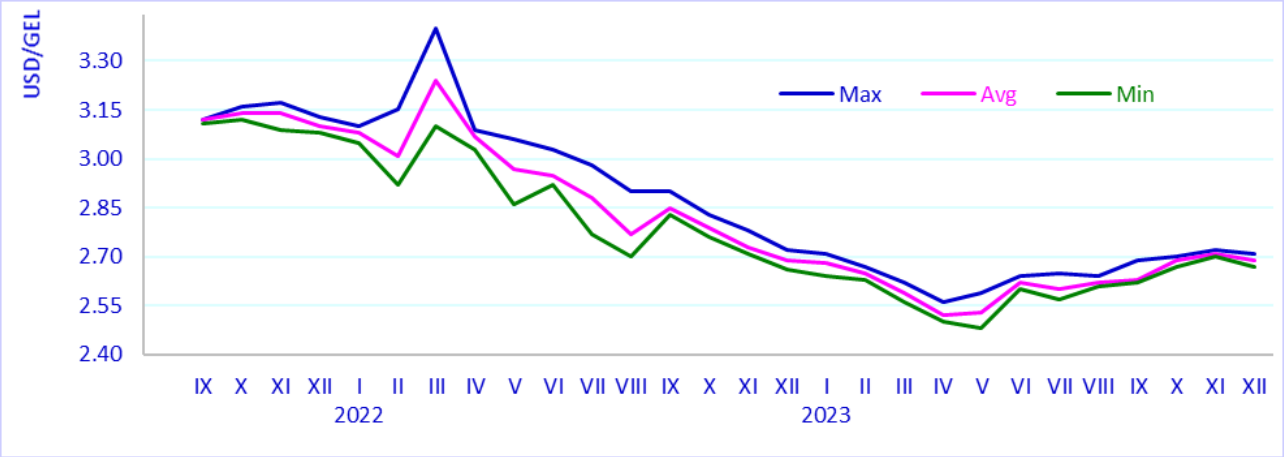
- ***The absence of a cohesive national climate change policy essential for mobilizing climate finance*** - Although there have been considerable governmental efforts in alignment with international climate commitments and national objectives, climate change considerations are insufficiently incorporated into national, sectoral, and regional policies.
- ***Insufficient private sector investment*** - The limited availability of affordable, long-term capital within the private sector poses a significant barrier to attracting investments aimed at climate-related initiatives. Furthermore, a considerable portion of the innovative financial incentives and funding mechanisms accessible to the private sector in Georgia remains underutilized and unexploited.
- ***Impact of climate change on revenue, expenditure, and public debt*** - The Covid-19 pandemic resulted in a notable decline in revenues, an escalation in expenditures, and consequently, an increase in public debt. However, the economy's recovery in the post-pandemic phase has been relatively swift, allowing the ratio of the Georgian government's debt to Gross Domestic Product (GDP) to remain within the 60% threshold established by the Law on Economic Freedom. By the end of 2023, the total government debt, inclusive of public-private partnership obligations, was recorded at 38.3% of GDP.

The realization of anticipated fiscal risks associated with climate change may manifest in a country's economic indicators, potentially resulting in an uptick in government debt.

- ***Heavy dependence on foreign financing*** - Since 1991, Georgia's reliance on foreign funding has persisted, particularly following the August War in 2008, when it reached its peak. Although there has been a notable reduction since then, official development assistance remains significantly high, accounting for 2.89% of national income in 2019. This unpredictable support is essential, yet it creates a substantial risk of dependency on donors for various programs.
- ***National currency depreciation*** - primarily influenced by the decline in the nation's balance of payments, the weakening of currencies of trading partners, pessimistic public sentiment, and a reduction in foreign financing. In 2010, the official exchange rate of the lari against the US dollar was 1.78. By 2021, this rate peaked at 3.4 before falling to 2.5, ultimately averaging 2.69 in December 2023 (Figure 2.1).

253 https://www.undp.org/sites/g/files/zskgke326/files/2022-12/undp-georgia-eu4climate-ndc-financing%20strategy%202022-geo.pdf

FIGURE 2. 1. EXCHANGE RATE OF THE GEORGIAN LARI AGAINST THE DOLLAR (USD/GEL)[254]



- It is important to highlight that as of December 2023, the country exhibits a significant level of dollarization. Specifically, 49.27% of deposits and 55.3% of loans are denominated in the national currency. In contrast, a substantial 78.78% of deposits in foreign currency are held in US dollars, while 19.36% are in euros. [255]. This situation inherently places the nation at a disadvantage regarding external shocks, and the risks associated with various forms of high dollarization establish specific obstacles in terms of financing.
- ***The establishment of a climate change finance recognition system in Georgia is currently underway***, as it is a newly developed initiative. In 2022, state budget programs and subprograms began to address climate change issues. The aim is to enhance the connections between strategic and political documents and the budget, thereby promoting the Public Finance Management Reform Strategy for 2023-2026 and its corresponding action plan. In 2022, through the budget management classifier, the Ministry of Environment Protection and Rural Farming collaborated to identify climate change-related programs. This task presents challenges for public sector institutions, as it requires specific knowledge in budgeting processes related to relevant sectoral policies and programs, necessitating the involvement of responsible personnel.

To ascertain the current financial requirements within the climate sector, an analysis was conducted on the "*Georgian Climate Change Strategy 2030 Action Plan 2024-2025*" (GCCSAP 2024-2025) and the "*Georgian Fourth National Environmental Action Program for 2022-2026*" (GDMEP 4/NEAP 4), along with their associated budgets. The focus was directed towards the activities outlined in these action plans, leading to the identification of measures that exhibit a financial shortfall. For GDMEP 4/NEAP 4, a qualitative assessment of climate-related activities was performed by experts, which involved categorizing actions pertaining to climate change in terms of mitigation or adaptation, although it did not provide a separate monetary allocation for the climate components of these actions. The identified funding gap for climate-related initiatives for the years 2024-2026, as derived from these two documents, totals 56,507,535 GEL (20,907,057 USD). The distribution of this funding gap

254 National Bank of Georgia. https://nbg.gov.ge/monetary-policy/currency
255 https://nbg.gov.ge/en/page/deposits

across various sectors is as follows: the forestry sector experiences the most significant deficit, representing 63% of the total funding gap, followed by agriculture (land resources) at 14%, water resources at 7%, the waste sector at 5%, and both air protection and buildings sectors at 4% each. Other sectors account for 1% or less of the total gap (refer to Table 61). **Detailed information regarding the existing financial needs related to climate,** including the funding gap for proposed activities intended to be financed through non-budgetary sources (such as grants and credits), is presented in **Table A2.1 of the Annex (Table III.6 as requested by Decision 5/CMA.3 of the Conference of the Parties to the Convention).**

TABLE 61 CLIMATE ASSOCIATED EVENTS FINANCING DEFICIT DISTRIBUTION SECTORS ACCORDING TO 2024-2026

Sector	Necessary Financing (deficit)	
	USA Dollar	Share , %
Forest Management	13,217,004	63.2
Land Resources Protection	2,937,320	14.0
Water Resources And Black Sea Protection	1,513,429	7.2
Waste Management	1,100,512	5.3
Transport	840,375	4.0
Buildings	735,662	3.5
Atmospheric Air Protection	286,890	1.4
Environmental Governance	127,858	0.6
Natural Dangers And Risks Management	120,255	0.6
Industry	27,751	0.1
Total	**20,907,056**	**100**

It is worth noting that this deficit covers only the years 2024-2026, while the needs may be much greater if we consider Georgia's declared climate change policy for 2030 or 2050.

2.1.3 FINANCE ALLOCATED TO ACHIEVE CLIMATE-RELATED EXISTING PRIORITIES AND NDC GOALS

Climate-related initiatives in Georgia are supported by multiple funding sources; however, the primary sources of financing for these initiatives are:

1. International Financial Institutions, Partner Countries and their Associated International Development Agencies
2. The budget of the country's central and local governments
3. Private sector.

2.1.3.1 International Financing

International support plays a crucial role in advancing a nation's climate change agenda, encompassing both mitigation and adaptation strategies. In the case of Georgia, the provision of financial support, technology transfer, and capacity building is vital for executing initiatives related to climate change. The funding for these initiatives primarily comes from *Official Development Assistance (ODA)* [256]. This support is facilitated through a range of multilateral climate funds, bilateral co-financing arrangements, and multilateral development banks.

To enhance the transparency, accountability, and effectiveness of International Support directed towards Georgia, the Government of Georgia has established the *e-Aid Information Management System (eAIMS).* [257] This tool is designed for the collection, analysis, and reporting of information regarding International Support and is overseen by the Administration of the Government of Georgia. eAIMS functions as an online database that provides details on projects funded by international development partners. The organization of information within eAIMS adheres to the sector classifications set forth by the *Organisation for Economic Co-operation and Development (OECD).* Although there is no distinct filter for climate change within the system, it is feasible to identify climate-related projects through *the OECD thematic group titled "Sustainable Use of Natural Resources"* and by utilizing the existing filter for sustainable development goals.

The eAIMS system, as established by donors, operates on a voluntary basis. Consequently, the accuracy and comprehensiveness of the information recorded within the system rely heavily on the willingness of the contributors. Evidence suggests that while a considerable number of projects are documented in the system, a portion continues to be unaccounted for. Thus, ensuring that all project data is entered into this database remains a significant challenge. Furthermore, the system lacks the capability to categorize projects based on their focus on adaptation or mitigation. Additionally, there is no clarity regarding the proportion of the project budget allocated to activities addressing climate change.

As of 2023, *eAIMS* reports that there are 78 projects related to climate change, with the earliest project commencing in 2013 and concluding in 2039. These projects have garnered total financing of approximately USD 676.7 million, of which 53 projects, representing 68% of the total, have been completed at a value of USD 211.5 million. The distribution of financing is predominantly allocated to major financial institutions, with 43% provided by the *European Bank for Reconstruction and Development (EBRD),* 23.4% from the *Asian Development Bank (ADB*), and 7% from the *World Bank (WB).* Additionally, significant contributions include 11% from the *European Union (EU),* 6% from Germany, and 4% from the *Green Climate Fund (GCF)*, Sweden, and Switzerland. Other funding sources account for less than 1% (refer to Table 62).

256 The OECD defines "Official Development Assistance (ODA)" as government aid to achieve economic development and prosperity in developing countries.

257 eAIMS (e-Aid Information Management System) is a tool for collecting, analyzing, and reporting information on international support, which aims to improve the transparency, accountability, and effectiveness of international support flows to Georgia.

https://eaims.ge/AboutUs/

TABLE 62 CLIMATE WITH CHANGE RELATED PROJECTS FINANCING SOURCES ACCORDING TO SDIMES /EAIMS ON THE DATA FOUNDED IN 2023

Source of funding	Million US dollars	Share, %
Europe Reconstruction And Development Bank	290.9	43.0
Asia Development Bank	158.7	23.4
European Union	74.4	11.0
World Bank	50.0	7.4
Germany	39.9	5.9
Climate Green Foundation	27.1	4.0
Sweden	19.5	2.9
Switzerland	7.3	1.1
Austria	3.8	0.6
Healthcare World Organization	2.7	0.4
United Kingdom	1.2	0.2
Slovakia	0.8	0.1
Millennium Development Goals	0.1	0.02
Czech Republic Republic	0.1	0.01
Estonia	0.1	0.01
Japan	0.08	0.01
Netherlands	0.04	0.01
Norway	0.02	0.00
Lithuania	0.02	0.00
Total	676.7	100.0

A different perspective on climate change-related initiatives emerges from the data obtained from state agencies, local governments, non-governmental organizations, and international institutions. Comprehensive details regarding the funding allocated or received for climate change projects [258] from 2018 to 2028 are outlined **in Table A5.2 of the Annex (Table III.7 as per Decision 5/CMA.3 of the Conference of the Parties to the Convention).** This dataset is more extensive than that found in the eAIMS databases, encompassing certain projects categorized as Non-Official Development Assistance (Non-ODA). However, it remains incomplete, as not all beneficiaries have provided their information. Furthermore, it is important to highlight that the connection of some projects listed by international financial institutions as related to climate change is not always clearly defined. Nevertheless, since these organizations have classified them as such and have officially communicated this to the Ministry, these projects have been included in Table A5.2.

258 Only 3 of the projects presented in the table cover the period until 2028.

Based on the data gathered from the aforementioned sources and after minimizing duplications to the greatest extent possible, a total of 101 projects have been identified, with an estimated overall value of around 1 billion USD.[259]. Among these, 39 projects have been completed, while 62 are currently in progress. In terms of sector distribution, the majority of projects are concentrated in transport (40.3%), followed by emergency management (10.5%), agriculture (9.7%), forestry (8.5%), energy (7.9%), construction (6.9%), and multisector initiatives (7.5%). The remaining sectors account for a relatively minor share, totaling 8.7% (refer to Table 63).

TABLE 63 CLIMATE RELATED PROJECTS FINANCING SECTORAL DISTRIBUTION

Sector And Subsector	Financing	
	Million US Dollar	Share
Transport	408.8	40.27%
Emergency Situations Management	106.7	10.51%
Rural Farming	98.8	9.73%
Forestry	86.7	8.54%
Energy , energy efficiency , renewable Energies	79.7	7.85%
Multisectoral	76.4	7.52%
Construction , energy efficiency	70.0	6.90%
Waste Management	19.0	1.87%
Social Development	15.0	1.48%
Urban Development	13.0	1.28%
Protected Territories , biodiversity	12.2	1.20%
Environmental Education	6.0	0.59%
Land Degradation	5.2	0.51%
Industry	5.0	0.49%
Digital Technologies	5.0	0.49%
Water Resources And Water supply	4.0	0.39%
Non-agricultural Entrepreneurial Activities	2.1	0.20%
Economy	1.6	0.15%
Total	1,015.2	100%

2.1.3.2 Budgetary Financing

Substantial resources are allocated from the state budget for the execution of climate-

259 Until 2028, project budgets were presented in different currencies (mostly USD, EUR and GEL and a small part in Norwegian krone), but were then converted to USD at the current exchange rate for the analysis period (02.12.2023) (according to the National Bank of Georgia exchange rate: 1 USD = 2.726 GEL, 1 EUR = 2.9421 GEL, 1 NOK = 0.25322 GEL).

related initiatives, particularly in the area of adaptation, which encompasses activities such as the restoration of irrigation systems, the expansion of the hydrometeorological observation network, and coastal protection projects. However, these expenditures were not classified as climate-related budget allocations until recently. Consequently, during the reporting period from 2018 to 2022, it is not feasible to identify or quantify the climate-related financial resources derived from the budget. In 2022, the integration of the "Policy Classifier" into the electronic budget management system enabled Georgian ministries and other spending entities to associate budgeted programs and sub-programs within the electronic budget management system (ebudget.ge) with the relevant "Policy Classifier." The connections between programs and the policy classifier are documented in the program budget annex, which includes the identification of links between climate-related initiatives and the programs listed in the state budget. Furthermore, the fiscal risk analysis document, prepared alongside the draft state budget, provides insights into the implications of climate change-related consequences and associated fiscal risks. [260] These reforms are being executed in alignment with the Public Finance Management Reform Strategies for the periods of 2018-2022 and 2023-2026. [261].

The establishment of accounting for climate-related expenditures and the identification of financing sources is still underway. The initial phase involves the implementation of a voluntary marking system to incorporate climate change initiatives into the program budget, along with an assessment of fiscal risks associated with climate change.

2.1.3.3 Climate Budget Tagging

In line with Resolution No. 88 issued by the Government of Georgia on February 25, 2022, [262], the Ministry of Finance of Georgia has incorporated the "Policy Classifier" into the electronic budget planning system to enhance the connection between strategic and policy documents and the budget. This integration enables Georgian ministries and other spending entities, including municipalities, to associate the programs and sub-programs outlined in the budget within the electronic budget management system (ebudget.ge) with the relevant "Policy Classifier." The associations between programs and the policy classifier are documented in the program budget annex. During the years 2022-2023, this initiative has identified measures related to climate change and their associated expenditures across the budgets of four ministries. There are plans to enhance the electronic budget management system by adding features that will specify particular expenditures, thereby illustrating the fiscal implications of climate change within the context of budgeted programs, utilizing the policy classifier functionality.

Identifying programs related to climate change within the budget poses a significant challenge for public sector spending institutions, as it necessitates specialized knowledge from those tasked with planning pertinent sectoral policies and programs involved in the budgeting process. Therefore, it is crucial to establish a methodology for recognizing climate change connections in budget planning, which will aid in the effective execution of these initiatives. To this end, guidance documents, including the "Methodology for Classifying Climate-Related Budget Expenditures," were developed in 2022 by Gauss

260 https://www.mof.ge/5189
261 https://www.mof.ge/5613
262 https://matsne.gov.ge/ka/document/view/5393449?publication=0 ,

International Consulting SL and Georgia's Environmental Outlook (GEO) as part of the EU4Climate program. Consultations with relevant stakeholders were conducted, and discussions regarding the analysis of climate change-related programs and budget expenditures took place. Additionally, seminars and workshops were organized to present the methodology for identifying climate change linkages. Furthermore, during 2022 and 2023, the World Bank supported the enhancement of capacities within several ministries and local governments to gain practical knowledge for identifying, strategically planning, and budgeting climate-related expenditures. As part of these initiatives, a methodological manual and practical guide were created, including a draft version and brochure titled "Linking the Budget to Climate Change in Georgia," developed in 2023 with the World Bank's assistance under the "Building Government Capacity to Lead the Green Transformation" and "South Caucasus Climate and Environment" regional programs. Despite the progress made, further efforts are necessary to implement relevant methodologies and establish an appropriate regulatory framework, such as the development of guides, instructions, or practical manuals, along with capacity-building through training. At the behest of the Ministry of Finance, the budget annex for 2023 incorporated the connections between the spending institutions' programs and sub-programs and the "Policy Classifier" pertaining to climate change. Specifically, 13 programs and 10 sub-programs were associated with the climate change classifier, while 3 programs were linked to the "Sustainable Development Goal 13 / SDG 13 - Achieving Climate Resilience" classifier.

The assessment of the fiscal implications of climate change was initially conducted as part of the EU4Climate program during the period of 2021-2022, focusing on the budgets from 2018 to 2020. This initiative involved key representatives from major state agencies responsible for significant financing and climate policy, although only six ministries were included in the expenditure analysis. These agencies were requested to provide budgetary data for the years 2018 to 2020, and the labeling process was executed in collaboration with representatives from the same agencies, following the established methodology. Throughout the tagging period, the total budget financing for these agencies showed an annual increase, reaching 594.9 million GEL in 2020. In relation to their overall actual budget expenditures for the years 2018, 2019, and 2020, the proportions were recorded at 6.45%, 6.94%, and 5.68%, respectively (refer to Table 64).

TABLE 64 STATE BUDGET EXPENSES AND WITH THE CLIMATE RELATED SHARE 2018-2020 ACCORDING TO [263]

Year	Budgetary expenditure (One thousand GEL)	Costs associated with climate change	
		Volume, thousand GEL	Share in the total budget, %
2018	7 , 125 , 460	459 , 851	6. 45
2019	8 , 229 , 41 2	571 , 47 7	6. 94
2020	10 , 469 , 15 2	594 , 92 0	5. 68

263 Climate Labeling and Institutional Review of Public Finances. May 2022, Georgia, Technical Report, prepared under the EU/UNDP Action: EU4Climate, CRIS, Gauss International Consulting SL and Georgia's Environmental Outlook (GEO).

The Ministry of Regional Development and Infrastructure has been recognized as holding the most significant portion of funding for large-scale infrastructure initiatives associated with climate change, with an allocation of approximately 950 million GEL over a three-year period. In contrast, the Ministry of Environmental Protection and Agriculture of Georgia has been noted for having the largest share of the total budget allocated to climate change initiatives within the agency (refer to Table 65)

TABLE 65 CLIMATE ASSOCIATED STATE EXPENSES VOLUME AND SHARE STATE AGENCIES ACCORDING TO 2018-2020

Years	Actual expenditure of the agency, thousand GEL	Costs associated with climate change	
		Volume, thousand GEL	Share in the agency's budget, %
Ministry of Environmental Protection and Agriculture of Georgiaronmental Protection and Agriculture			
2018	263,009	78 , 97 9	30. 03
2019	358 , 04 5	104 , 239	29. 11
2020	496 , 804	115 , 117	23. 17
Ministry of Regional Development and Infrastructure			
2018	1,668,777	250 , 896	15. 03
2019	2 , 121 , 193	345 , 385	16. 28
2020	2 , 202 , 373	353 , 92 5	16. 07
Ministry of Economy and Sustainable Development			
2018	227 , 528	21 , 38 6	9. 40
2019	260 , 409	22 , 588	8. 67
2020	759 , 36 4	39 , 26 7	5. 17
Ministry of Finance			
2018	76 , 216	781	1. 02
2019	85 , 567	92 9	1. 09
2020	76 , 91 2	843	1. 10
Ministry of Internally Displaced Persons from the Occupied Territories, Labor, Health and Social Protection			
2018	3,688,462	46 , 49 4	1. 26
2019	4,055,432	46 , 498	1. 15
2020	5,631,137	56 , 44 3	1.00
Ministry of Education, Science and Youth of Georgia			
2018	1 , 201 , 467	61 , 316	5. 10
2019	1,348,76 5	51,837	3. 84
2020	1 , 302 , 561	29 , 32 8	2. 25

In 2023, the World Bank conducted a climate budget tagging for 2024. [264] The assessment was conducted on the draft budgets of four ministries, which represent 67% of the total budget allocated to these ministries, amounting to approximately 12.92 billion GEL. Programs and sub-programs linked to climate change were identified, along with their respective budget allocations in GEL. It was found that 29 out of 39 programs addressed climate change concerns, with 22 focusing on mitigation, 27 on adaptation, and 20 encompassing both adaptation and mitigation efforts. Overall, 13.48% of the budgets from the four reviewed agencies were classified as climate-related financing, totaling around 1.74 billion GEL (refer to Table 66).

TABLE 66 MINISTRIES BUDGETS CLIMATE BY SIGN CONNECT (MARK) IN 2024

Activity	Number of activities	Activities Share, %	Climate-related budget, thousand GEL	Climate share in the agency's budget, %
Climate mitigation	22	56%	601 , 780	4. 66 %
Climate adaptation	27	69%	1,139,692	8. 82 %
Climate mitigation and adaptation together	20	51%	1,541,732	11. 93 %
Climate-related	29	74%	1,741,473	13. 48 %

The Ministry of Regional Development and Infrastructure accounted for the largest proportion of budget programs and funding associated with climate change, representing 37.7% of the total. Conversely, the Ministry of Internally Displaced Persons from the Occupied Territories of Georgia, Labor, Health and Social Protection received the smallest allocation for climate change initiatives, with only 3.6% of the budget dedicated to this area (refer to Table 67).

TABLE 67 CLIMATE BUDGET TAGGING RESULTS FOR THE MINISTRIES IN 2024

Name	Number of programs	Total budget of programs, thousand GEL	Climate-related programs	Share in programs	Climate-related budget, thousand GEL	Climate share in the agency's budget
Total (4 ministries)	39	12,920,834	29	74%	1,741,473	13. 48 %
Ministry of Regional Development and Infrastructure	8	3 , 400 , 700	8	100%	1 , 283 , 380	37.7 %
Persons from the Occupied Territories of Georgia , Ministry of Labor, Health and Social Protection	6	6,051,920	6	100%	197 , 224	3. 26 %

264 Climate Budget Tagging in Georgia 2023, World Bank, draft report.

Name	Number of programs	Total budget of programs, thousand GEL	Climate-related programs	Share in programs	Climate-related budget, thousand GEL	Climate share in the agency's budget
Ministry of Education, Science and Youth of Georgia	11	2,508,044.0	3	30%	142 , 148	5. 11 %
Ministry of Environmental Protection and Agriculture of Georgiaronmental Protection and Agriculture	15	688,000	12	80%	118 , 72 1	17. 26 %

The initial steps in establishing a climate-focused budget are crucial. The subsequent phase will involve the harmonization and adoption of the methodologies created for climate budget tagging. This will represent a significant advancement in the analysis of budget expenditures through a climate lens, facilitating informed decision-making.

2.1.3.4 Fiscal Risks Analysis

The "Fiscal Risk Analysis Document"[265] published by the Ministry of Finance in 2022 addresses the challenges posed by climate change. This document evaluates the fiscal risks associated with various climate change scenarios. It outlines four scenarios developed with technical assistance from the International Monetary Fund. [266]: The first scenario, termed the "Paris Agreement Scenario," is deemed the most optimistic. In contrast, the subsequent scenarios present increasingly adverse conditions: the second scenario is labeled the "Unmitigated and Deteriorated Climate Change Scenario," [267]", the third is referred to as the "Unsustainable, Variable Scenario," and the fourth is identified as the "Extreme Scenario." The analysis indicates that, according to the assumptions of these scenarios, climate change is expected to have a detrimental effect on labor productivity. Specifically, the deteriorated scenario is projected to reduce GDP by 0.2% by 2026 due to anticipated declines in income. Even if spending remains constant, this will significantly impact the primary deficit ratio. [268]. Furthermore, the analysis emphasizes that the adverse effects of climate change on the economy will manifest as slower economic growth and an increased primary deficit ratio, leading to a rise in the debt-to-GDP ratio. By 2050, under the most extreme scenario, this ratio could surpass the 60% threshold established by fiscal regulations for state debt.

265 https://info.parliament.ge/file/1/BillReviewContent/314006

266 Harris J et al (2022), Updating the Balance Sheet and Quantifying Fiscal Risks from Climate Change in Georgia: https://www.imf.org/-/media/Files/Publications/CR/2022/English/1GEOEA2022001.ashx

267 Global temperature increase of about 4 0 C compared to pre-industrial levels

268 Empirical estimates from Kahn et al. (2021) for Paris, non-mitigation, and baseline scenarios are used. Kahn, M., Mohaddes, K., Ng, R., Pesaran, M., Raissi, M., & Yang, J. (2021). Long-term macroeconomic effects of climate change: A cross-country analysis. Energy Economics, 104 (105624), 105624-105624 . https://doi.org/10.1016/j.eneco.2021.105624

2.1.3.5 Private Sector Financing

The reforms enacted in Georgia have markedly enhanced the tax framework, improved services for business initiation and operation, and created more favorable conditions, thereby elevating the country's appeal for investment. Data from the International Monetary Fund indicates that private investment in Georgia surged 3.5 times between 2010 and 2019, reaching over 8.28 billion GEL by 2019, which was 2.3 times greater than the amount of state investment in that same year. In 2019, Georgia's total capital was reported at 121.98 billion GEL, with 61% allocated to the private sector (74.88 billion GEL), 37% to state capital (45.44 billion GEL), and 2% to public-private partnerships (exceeding 1.66 billion GEL). [269].

The identification of the proportion of private investment in climate change initiatives poses a significant challenge, primarily due to the absence of a centralized system for tracking and documenting ODA and non-ODA projects in Georgia. Data collection relies heavily on expert insights, which raises concerns regarding the completeness of the information gathered.

Regarding private sector financing, it is important to highlight specific initiatives undertaken by commercial banks that facilitate the mobilization of private funds from the Global Climate Partnership Fund (GCPF) in Georgia. The GCPF operates as a public-private partnership, leveraging public funds to attract private capital for investment in local financial institutions within various countries. This fund is dedicated to financing climate change mitigation projects in developing economies, promoting sustainable growth and energy efficiency for small and medium-sized enterprises and households, while also encouraging the adoption of renewable energy sources. Additionally, the fund enhances weather monitoring, information sharing, research, and the development of early warning systems for weather events, as well as improving capabilities for greenhouse gas monitoring. With the backing of the GCPF, Basisbank has intensified its efforts in green lending and the evaluation of green projects, while TBC Bank has expanded its lending options for climate-related private initiatives. Notably, in 2021, TBC Bank became the first commercial bank in the Caucasus region to gain accreditation from the Green Climate Fund, enabling it to secure financing for various adaptation and mitigation projects related to climate change. Furthermore, TBC Bank, in collaboration with the EBRD, has successfully raised funds for the Green Economy Financing Facility (GEFF) and the Green for Growth Fund Green Facility (GGFGF), which finance projects aimed at enhancing energy efficiency, resource efficiency, and renewable energy, thereby contributing to energy savings and reductions in carbon dioxide emissions. [270].

The Bank of Georgia stands as a prominent private banking institution facilitating the provision of green loans within the Georgian market. It has secured funding from multiple financial entities, such as the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB), to offer loans through various credit lines aimed at promoting energy efficiency and renewable energy initiatives. Additionally, it collaborates with the German Credit Bank for Reconstruction (KfW) and the Green for

269 "NDC Financing Strategy and Investment Framework", 2022, was prepared under the EU/UNDP EU4Climate programme by Gauss International Consulting SL and Georgia's Environmental Outlook (GEO).

270 Green Financing, TBC Bank

Growth Fund (GGF).[271].

ProCredit Bank's commitment to advancing the climate agenda is particularly evident through its provision of eco-loans aimed at facilitating investments in energy-efficient materials and equipment. These initiatives are designed to enhance the productivity and efficiency of small and medium-sized enterprises, as well as households. Furthermore, the bank's retail loan program for home improvements and the acquisition of electric vehicles is also commendable

A number of Georgian companies view climate change-related financing as a potential avenue for business growth and are actively seeking to secure funding. Nevertheless, this proactive approach does not guarantee the full utilization of the opportunities available to Georgia through international collaboration.

It is important to highlight that a variety of internationally recognized financial incentives and innovative financing mechanisms are accessible to the Georgian private sector. However, a significant portion of these resources remains untapped. The findings of a 2018 OECD survey regarding the application of these mechanisms in Georgia are presented in Table 68.

TABLE 68 IN GEORGIA PRIVATE FINANCING AVAILABLE MECHANISMS [272]

Mechanism	Internal sources				International sources	
	Commercial banks	Microfinance institutions	Institutional investors	Non-financial corporations	Financial institutions	Non-financial corporations
Corporate bonds	Available but not yet used	Available but not yet used	Available but not yet used	Available but not yet used	Available but not yet used	Available but not yet used
Project bonds	Available but not yet used	-	Available but not yet used	Available but not yet used	Available but not yet used	Available but not yet used
Direct lending	Operating mechanism	Available but not yet used	Available but not yet used	-	Operating mechanism	-
Mezzanine financing	Operating mechanism	-	Operating mechanism	-	Available but not yet used	-
Direct investment	-	Available but not yet used	Operating mechanism	Operating mechanism	Operating mechanism	Operating mechanism
Capital investment	-	-	-	-	Operating mechanism	-
Guarantees/ Insurance	-	-	-	-	Available but not yet used	-

271 https://www.oecd-ilibrary.org/sites/bce6b2de-ka/index.html?itemId=/content/component/bce6b2de-ka

272 OECD (2018), Mobilizing Climate Finance in Georgia, Green Finance and Investment, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264289727-en

Mechanism	Internal sources				International sources	
	Commercial banks	Microfinance institutions	Institutional investors	Non-financial corporations	Financial institutions	Non-financial corporations
Initial investment	Available but not yet used	Available but not yet used	-	-	Available but not yet used	-
Currency swaps	-	-	-	-	Existing channel	-
Securitization	-	-	Available but not yet used	-	Available but not yet used	Available but not yet used
Union/ Difficulty	-	-	Available but not yet used	-	Available but not yet used	Available but not yet used

"-" is not subject to filling.

Help To receive Used Financial Tools And Financing Priority Directions

According to information from the Foreign Assistance Information Management System, which is current as of 2023, 93% of international climate-related resources were designated for financial assistance, 7% for technical and expert support, and less than 1% for technology (refer to Table 69). Notably, nearly half of the financial assistance, around 50%, is directed towards investment projects, while 30% is allocated for budget support, and 21% is distributed as grants.

TABLE 69 INTERNATIONAL SUPPORT IN CLIMATE CHANGE BY FINANCIAL TYPES IN 2013-2039

Type of International Support	Amount of assistance Thousand US dollars	Share, %	
		In help	In financial support
Financial assistance	629,565	93.04	100
Grant / Budgetary Assistance	*689*	*0.10*	*0.11*
Grant	*131,129*	*19.38*	*20.83*
Loan / Budgetary assistance	*185,927*	*27.48*	*29.53*
Loan / Investment Project	*311,820*	*46.08*	*49.53*
Technical / Expert Assistance	46,939	6.94	7.46
Technologies	156	0.02	0.02
Total International Support	**676,660**		

OECD international support in the context of climate change and the share of main sectors, according to the databases of the International Support Information Management System (e AIMS.GE), are presented in Table 70.

TABLE 70 INTERNATIONAL SUPPORT ALLOCATION IN CLIMATE CHANGE WITHIN THE OECD KEY SECTORS

OECD Sectors (main)	Million US Dollar	%
Energy Conservation And Saving Request In part	261.7	38.7%
Water supply Sector Politics And Administrative Management	157.1	23.2%
Multisectoral Help	50.0	7.4%
Energy Politics And Administrative Management	41.5	6.1%
Financial Intermediaries Formal In the sector	35.0	5.2%
Disaster Risk Reduction	27.1	4.0%
Waste Management / destruction	20.1	3.0%
General Environment Protection	18.0	2.7%
Disasters Prevention And Readiness	11.2	1.7%
Biosphere Protection	7.5	1.1%
Transportation Politics And Administrative Management	6.2	0.9%
Biological Diversity	6.1	0.9%
Environment Defensive Politics And Administrative Management	6.1	0.9%
Environment Protection In the field Education / Training	4.5	0.7%
Decentralization And Local Governance Support	4.2	0.6%
Food Harmlessness And Quality	3.2	0.5%
Democratic Engagement And Civil Society	2.7	0.4%
Rural Farming Development	2.1	0.3%
Health Protection , general	1.9	0.3%
Forestry Sector Development	1.6	0.2%
Public Sector Politics And Administrative Management	1.5	0.2%
Agricultural Politics And Administrative Management	1.4	0.2%
Rural Development	1.1	0.2%
Government And Civil Society , general	1.0	0.2%
Other	3.7	0.5%
Total	676.7	100%

Throughout the same timeframe, the predominant portion of international support allocated for climate change was organized by thematic categories. The sustainable utilization of natural resources received the largest allocation, comprising 45.7%, followed by economic development at 6.8%. Social welfare and democratic governance each accounted for roughly 1%. The remaining categories primarily encompassed financing from the EBRD and the World Bank associated with the energy sector (refer to Table 71).

TABLE 71 INTERNATIONAL SUPPORT ALLOCATION IN THEMATIC GROUPS RELATED TO CLIMATE CHANGE IN [273]2013-2039 .

No.	Thematic group	Help	
		US Dollar	%
1	Social welfare	4,609,922	0.7
2	Economic development	45,927,473	6.8
3	Democratic governance	9,418,791	1.4
4	Sustainable use of natural resources	307,459,570	45.4
5	Other	309,244,576	45.7
Total		**676,660,332**	**100.0**

A major challenge lies in the creation of a comprehensive database that encompasses climate change-related projects funded in Georgia. The existing database recorded in the SDIME/eAIMS captures a significant portion of international support projects; however, it is limited to Official Development Assistance (ODA) funding and lacks comprehensiveness, as the submission of this data by donors is voluntary. This issue will involve the Ministry of Environment Protection and Rural Farming. The current data is incomplete, as it does not account for projects financed by various organizations independently. Nevertheless, it is likely that such information is represented by donors within the SDIME/eAIMS framework. In these instances, it is crucial to prevent double counting. Additionally, the data provided by the Ministry of Finance regarding foreign assistance for state project implementation across various sectors is also fragmented. To achieve a complete data collection, enhanced efforts are necessary from relevant institutions to facilitate regular communication with representatives from the public sector (including ministries, local governments, and other public entities), donors, and the non-governmental sector, which will require additional resources and a suitable mandate.

2.2 SUPPORT NEEDED AND RECEIVED FOR TECHNOLOGY DEVELOPMENT AND TRANSFER

The introduction and implementation of cutting-edge climate technologies represent a crucial element of climate change policy, essential for the nation to meet its obligations under the Paris Agreement, including the Nationally Determined Contributions (NDC) and Long-Term Low Emission Development Strategies (LT-LEDS). The objective of achieving climate neutrality by 2050 is a specific target. Both the 2030 Climate Change Strategy and Action Plan, as well as the LT-LEDS, highlight the significance of innovative technologies, for which the country currently lacks adequate financial resources. Consequently, Georgia will heavily depend on the technology transfer mechanism established by the UN Framework Convention on Climate Change and will utilize biennial transparency reports to indicate the technologies that are required and have been implemented.

273 International Support Information Management System databases. https://eaims.ge/InfoGraphics/

2.2.1 TECHNOLOGY DEVELOPMENT AND WITH THE TRANSMISSION RELATED NEEDS AND PRIORITIES

Technology is integral to the strategies implemented and planned in the realm of climate change, significantly influencing the efficacy of these strategies and, as a result, the likelihood of achieving the established objectives. The advancement of technology is predominantly reliant on the transfer of knowledge and tools from developed nations, as outlined in the Climate Change Convention and its Paris Agreement.

The modernization of existing technologies, the enhancement of current systems, and the adoption of innovative solutions are essential prerequisites for bolstering efforts against climate change and fulfilling the targets established by the Paris Agreement. Presently, Georgia's status regarding climate technologies does not align with the nation's Nationally Determined Contributions (NDC) or its long-term aspiration for climate neutrality by 2050.

Georgia's technological requirements are outlined in various climate policy documents, long-term strategic visions, and technology needs assessments. These assessments have been developed in light of the country's commitments, research conducted through various projects, and insights gathered from expert surveys. The Nationally Determined Contribution (NDC) of Georgia is notably ambitious, with targets expected to rise with each subsequent update. As the effects of global climate change become more pronounced, the necessity for adaptation grows correspondingly. Consequently, advancements in technology present a significant opportunity to meet the increasing demands for both climate change adaptation and mitigation.

According to the NDC, Georgia aims to achieve an unconditional reduction of greenhouse gas emissions by 35% by the year 2030, relative to 1990 levels. This target will be incorporated into the forthcoming NDC. The document reinforces the principle of ambition, which necessitates substantial technological upgrades across the nation. Considering the unique developmental needs of Georgia, considerable technological advancements are essential in the areas of energy generation and transmission, agriculture, industry, transport, and building. Furthermore, the repercussions of climate change on the agricultural sector, along with the heightened risk of natural disasters, underscore the urgent need for technologies that facilitate quicker and more effective adaptation to anticipated climate changes.

In terms of determining the necessary technologies, the "Climate Change Strategy 2030 and the Action Plan 2024-2025" are important, which set targets for reducing greenhouse gas emissions. The mitigation measures defined for each sector in this document also take into account the introduction of appropriate technologies.

Georgia, due to its geographical and climatic conditions, is highly vulnerable to the negative impacts of climate change. Adaptation is considered a national priority, which is reflected in the country's NDC. and other strategic documents. However, the country has not yet developed a national plan for adaptation to climate change.

An essential political document for assessing technological needs is the LT-LEDS, which outlines the country's developmental scenarios and aims for climate neutrality by 2050. This framework sets the stage for strategic planning over the coming decades concerning climate change and identifies the period from 2030 to 2040 as pivotal for technological advancement, based on the current technological landscape of the nation. The document

specifies greenhouse gas reduction strategies for each sector, emphasizing the necessity of innovative technologies. Evaluations within the document indicate that Georgia will be unable to meet its objectives without substantial transformations, which must occur within a constrained timeline. It is important to highlight that the adoption of technologies, whether under pessimistic or optimistic development scenarios, is fundamental to achieving climate neutrality across all sectors. Timely and effective technological advancement is vital for realizing the proposed vision.

A significant document that offers comprehensive details regarding the requirements for climate technologies, encompassing both mitigation and adaptation strategies for a designated timeframe, while considering the priorities outlined in current climate action plans, is the "Climate Technology Needs Assessment" document. The third iteration of this assessment was developed in 2023.

The Action Plan [274] outlines the activities undertaken following the release of the second Climate Technology Needs Assessment Document, focusing on technological upgrades and identifying new technological requirements for both mitigation and adaptation across relevant sectors affected by climate change. The third document evaluates the nation's climate change policies, objectives, and the current technological landscape, detailing both implemented and unimplemented measures during the reporting period, as well as the obstacles encountered. In alignment with the country's development objectives and the significance of various sectors in relation to climate change, energy (generation and transmission), buildings, transport, and agriculture have been designated as priority sectors, with three key technologies identified for each. The criteria for selecting these technologies encompassed efficiency, economic viability for private sector engagement, potential for widespread adoption, alignment with national development priorities, and the capacity for reducing greenhouse gas emissions and enhancing resilience to climate change.

2.2.1.1 Existing Domestic Capacity and Technology Strengthening

The examination of technologies and regional competencies reveals that the prevalence of outdated technologies, coupled with insufficient local capabilities to adopt new technologies, poses significant challenges across all sectors. This technological lag results in diminished efficiency, cost-effectiveness, and productivity. The successful integration of new technologies necessitates the involvement of stakeholders, including businesses, as well as a conducive regulatory framework that promotes rather than obstructs the adoption and functioning of these technologies. Additionally, adequate technical support, encompassing services, a supply of spare parts, and skilled technical personnel, is essential. The absence of local capabilities represents a substantial obstacle to the adoption and execution of new technologies, which can be attributed to several factors.

- The regulatory legal framework (laws, regulations) is slowly being aligned with European regulations;
- There is an acute shortage of properly qualified technical personnel, craftsmen, technical materials, and services;

274 Georgia's Climate Technology Needs Assessment and Action Plan , 2023, 'Remission Center for Sustainable Development'

- The system for training and certification of technical personnel is not functioning properly;
- A number of normative acts and standards need to be developed.

Another significant problem is the lack of interest of businesses in introducing and implementing technologies, one of the reasons for which, in addition to the imperfection of regulations, may be the absence of preliminary research and lack of knowledge, which leads to the desire to avoid risks associated with innovation. Financial constraints are also an additional barrier for small and medium-sized businesses.

the introduction of technologies , which remove the barriers to entry are: political will (conducting policies that facilitate the introduction of technologies, improving regulations to simplify this process, remove legislative barriers and encourage them); intensification of research; increasing knowledge, expertise, training and retraining of technical personnel, certification; creation of consulting centers and services; provision of flexible financing schemes, adaptation of financial products to specific technologies (by banks). In the current reporting period, certain shifts in this direction have been observed, which are related to :

- Improving the legislative framework and developing policies
- Georgia is fulfilling its obligations under the Association Agreement with the European Union, which envisages harmonization with EU regulations, which improves the common legislative and regulatory framework, including in terms of facilitating the import of technologies;
- To implement its commitments under the Paris Agreement, Georgia has approved its long-term vision to achieve climate neutrality by 2050, which necessarily requires technological rearmament;
- "Georgia's National Integrated Energy and Climate Strategy 2021-2030" According to the preliminary version of the plan , Georgia, as a member of the European Energy Community , undertakes to reduce greenhouse gas emissions and accordingly restructure the energy sector, which also includes technological re-equipment.
- The Paris Agreement once again emphasized the obligation of developed countries to transfer technology to developing countries to ensure the achievement of the ultimate objective of the Convention, and obliged all countries to continuously provide information on transferred, received and required technologies, as part of biennial transparency reports;
- Awareness of climate change, climate technologies in general, including the benefits of climate technologies, is growing, which increases motivation to introduce and implement technologies;
- Climate issues are being integrated into sectoral development plans (agriculture, energy, transport, healthcare, waste, tourism);
- The number of studies, access to information, connections with researchers and manufacturers are increasing;
- Banking products are improving. Banks are introducing environmentally friendly products and loans.

2.2.1.2 Needs For Local Capacity And Technology strengthening

Certain sectors, alongside the general ones, possess distinct technological requirements and face unique challenges. These requirements were examined and documented in the Climate Technology Needs Assessment Report published in 2023, which highlighted four priority sectors:

- Electricity generation and transmission
- Buildings
- Transport
- Agriculture

These sectors can make a significant contribution to reducing greenhouse gas emissions from the territory of Georgia and/or to the adaptation of those sectors that are most vulnerable to the risks caused by climate change. Multi-criteria analysis was used to prioritize the sectors, which included the determination of key criteria and their weights by experts, and then the selection of four priority sectors based on these criteria. In the selected 4 sectors, 12 priority technologies (three technologies in each sector) were also selected based on multi-criteria analysis. Project proposals for the most important of them have been prepared for submission to the Green Climate Fund.

One of the criteria for selecting priority technologies was the existence of a combined mitigation and adaptation capability. Among the adaptation-related (adaptation-focused/targeted or combined) technologies, climate-smart agricultural technologies are noteworthy: conservation tillage methods and the use of agricultural waste as fertilizer. Building sector technologies: thermal insulation of building envelopes and highly efficient heating-cooling systems (water-electric heat pumps), which have both mitigation and adaptation potential. A noteworthy multi-sector adaptation technology is soil nailing for landslide protection (dalursmva) , which is aimed at protecting areas prone to hazardous geological events (landslides, mudslides).

Information on the support required for technology development and transfer is summarized in a tabular format (Table A5.3 of the Annex, Table III.8 of Decision 5/CMA.3 of the Conference of the Parties to the Convention). The information presented in the table is consistent with the results of the Technology Needs Assessment Report and information on technology needs in different sectors, requested from various sources in the country and obtained through interviews.

2.2.2 SUPPORT RECEIVED ON CLIMATE TECHNOLOGY

Numerous initiatives in Georgia facilitate the transfer and implementation of technologies within the country. These initiatives are carried out by local government entities or various organizations, often supported by international or bilateral financial and technical assistance. Such support is primarily aligned with national and sectoral policies and development programs, aimed at advancing Georgia's international obligations regarding climate change. This includes commitments under the United Nations Framework Convention on Climate Change, the Paris Agreement, the EU-Georgia Association Agreement,

the European Energy Community, and other pertinent conventions and agreements. The financial resources for this assistance are sourced from the Financial Mechanism of the Climate Convention, the European Union, and development agencies from allied nations.

Information on assistance received for technology development and transfer is summarized in a tabular format (**Table A5.4 of the Annex, Table III.9 of Decision 5/CMA.3 of the Conference of the Parties to the Convention).** The information presented in the table is based on information collected from government agencies and the private sector.

2.2.2.1 Successful And Unsuccessful Practice Examples

Several technologies have been implemented in Georgia that have shown their success in various sectors. Information about these technologies, provided by the implementing organizations, is presented in Table 72 below. The success of the technologies was determined by the same organizations.

TABLE 72 SUCCESSFUL PRACTICE EXAMPLES - TECHNOLOGIES

#	Technology name	Sector(s)	At what level was the assistance provided?	From whom? (Country, donor)
1	Greenhouse farming	Agriculture	Demonstration, installation-placement	HEKS/EPER Switzerland
2	Preparation of river basin resilience zoning and hotspot maps across Georgia, based on modeling of natural processes	Climate change, forest resources		Austrian Development Cooperation (ADC)
3	Solar powered charger	Climate change, Renewable energies		European Union
4	Battery chargers for hydro and meteorological stations	Climate change, Water resources		European Union
5	climate change (budget tagging)	Climate change	Development and demonstration completed; rollout underway	Climate change
6	Development of policy dialogue platforms between the public, private, civil and scientific sectors to support legislative and institutional reforms in sustainable natural resource management	Forestry, Rural Development, Tourism, Energy, Disaster Management (DRM)		Austria
7	Creation of databases, information systems and technological mechanisms	River basin management, DRM, forestry		Austria
8	Development and implementation of non-formal education programs/systems	Environmental education, rural development		Austria

#	Technology name	Sector(s)	At what level was the assistance provided?	From whom? (Country, donor)
9	Various renewable (RE) and energy-efficient (EE) measures were implemented in 2 kindergartens of Telavi Municipality (Telavi #1 & Ikalto), where the following RE and EE technologies were introduced: Complete rehabilitation and insulation of the building's roofs with 20 cm. of glass wool; thermal insulation of the external walls and foundation with 10 cm. of rock wool and 8 cm. of XPS. Low-emissivity double-glazed metal-plastic doors and windows. Individual/decentralized (air-flow-ventilation wall recuperators) in Ikalto Kindergarten , and central ventilation systems in Telavi Kindergarten #1; Autonomous heating system powered by solid fuel (vine grate): Technical storage for the boiler (boiler room building); Biomass-fired boiler (116&174 kW), including control system; Biomass (vine scraps) bunker; Fuel supply system (auger); Chimney; Two-circuit heating system, radiators, including heat meter. Solar water heating systems connected to an autonomous heating system; Grid-connected solar photovoltaic systems with a total installed capacity of 5.45 kW (Ikalto) and 6.875 kW (Telavi#1). Biomass (flax) supply chain diagram Biomass (sludge) storage facility; 2 tractors with trailers, Round baler and shredder machines for biomass (stalks)	Energy efficiency, renewable energies	From beginning to end	European Union
10	A modern autonomous central heating system powered by local agricultural waste (nut shells); Solar water heating system (230 liters) for hot water; Grid-connected (1300 W) photovoltaic (PV) system for electricity generation; Thermal insulation of the building's attic (full thermal insulation: 10 cm glass wool) and external wall (partial: 5 cm EXP);	Energy efficiency, renewable energies	From beginning to end	BP EXPLORATION (Caspian Sea) Ltd. Georgia.
11	Grid-connected (5.52 kW) photovoltaic system (PV) for electricity generation and a screen for continuous monitoring of solar modules; Two units of solar water heater (150 lt) and (800 lt)	Energy efficiency, renewable energies	From beginning to end	The Swedish International Development Cooperation Agency (Sida)

The data presented in the table indicates that a significant proportion of technologies deemed successful are related to renewable energy, as well as awareness-raising and information management initiatives. Additionally, there is a clear prevalence of small-scale technologies, with the European Union and Austria being the leading contributors among donors. It is important to note that the implementing organizations did not supply information regarding technologies that were unsuccessful.

Nevertheless, certain implemented technologies have encountered failures, frequently

attributed to:

- With improper prior research/planning,
- With a low level of technical knowledge and service,
- Due to the weakness of the monitoring system and
- Lack of responsibility for reception and maintenance.

2.2.2.2 Support for Technology Development And Transfer, local Capacities And Know - how

Technology transfer in Georgia, along with the establishment of local capacities and the integration of know-how, faces significant challenges at this stage without external support. Typically, such support encompasses both financial and technical elements. An examination of the assistance rendered indicates that these components may only be partially involved (through co-financing or limited technical support). In many instances, financial support is essential, while technical assistance may be absent altogether. This situation primarily pertains to smaller technologies that do not qualify as innovations. Conversely, entirely new and large-scale technologies invariably necessitate both technical and financial support. The development of local capacities and the acquisition of know-how are often critical for technology transfer, particularly when dealing with new technologies that are unfamiliar within the country. However, even in scenarios where the technology is not innovative but rather an enhancement of an existing one, support for capacity development remains crucial. Georgia faces a significant shortfall in training, knowledge, qualifications, and the number of technical personnel needed for the implementation of new technologies. The Georgia Technology Needs Assessment Project offers comprehensive tables outlining the barriers associated with all considered technologies.

It is essential that the transfer of technologies and the enhancement of their associated capabilities occur in a consistent and ongoing manner to guarantee the successful completion of the process and its long-term viability. In this context, the monitoring of the process and the regular exchange of information are vital components.

2.2.2.3 The stage of the technology cycle supported, including research and development, demonstration, deployment, diffusion and transfer of technology

The analysis of the information received shows that the largest share in the technology transfer process falls on its research and development stage, when the feasibility of continuing the process is assessed. Subsequent stages are much less frequently represented in this assistance. In terms of time duration, research and development is the longest. The development of technologies, and especially their diffusion, seems to be the most difficult. This situation clearly reflects the lack of capacity in the country and emphasizes the need to include a capacity building component in the transfer and implementation process of each technology. This conclusion is fully consistent with the results presented in the Climate Technology Needs Assessment Report , that all the new technologies considered are characterized by a shortage of technical knowledge and qualified personnel.

2.3 STRENGTHENING THE COUNTRY'S CAPACITY TO COMBAT CLIMATE CHANGE

2.3.1 EXISTING NEEDS AND PRIORITIES FOR CAPACITY-BUILDING

The nation is diligently working to enhance its capabilities and understanding of climate change; however, significant gaps remain where both external support and domestic initiatives are essential.

The priorities for capacity development, along with the associated needs, are shaped by the country's climate change policy framework, which encompasses its international obligations and national climate change strategies, as well as needs identified through various project frameworks.

Acknowledging the restricted capacity for adaptation as a primary challenge, the Nationally Determined Contributions (NDC) document outlines specific adaptation objectives focused solely on bolstering this capacity. These objectives are as follows:

- Strengthening national capacities for developing adaptation strategies;
- Strengthening the capacity of policy makers for adaptation planning;
- Strengthening the capacity of communities to reduce their vulnerability to the negative impacts of future climate hazards;
- Strengthening the capacity of national health systems to manage long-term health risks sensitive to climate change.

The Climate Change Law, which is currently being developed, will also focus on capacity building. This legislation will require the Government of Georgia to enhance the adaptive capacity and resilience of the nation and its systems, in alignment with the Paris Agreement, and to mitigate vulnerability to climate-related hazards. [275].

In the realm of capacity development, it is essential to enhance institutional capabilities that support data analysis and consultation processes addressing the effects of climate change, including both acute and gradual events, to mitigate or prevent the damage inflicted by climate change. Generally, inadequate institutions, particularly at the local or municipal levels, represent a significant obstacle to building climate change capacity. The battle against climate change necessitates sustained and ongoing efforts. Consequently, it is vital to bolster capacities and expertise at both national and local/municipal levels to enable more ambitious climate initiatives.

The Climate Change Law outlines the establishment of a Just Transition Fund by the government, primarily aimed at supporting local communities, individuals, municipalities, and businesses in their shift towards a zero-carbon economy. This support encompasses capacity building initiatives, including training, education, and retraining opportunities.

In the realm of climate change, enhancing technical skills and institutional capacity in

275 Georgia's Climate Change Law is a comprehensive and comprehensive law.

https://web-api.parliament.ge/storage/files/shares/Komitetebi/garemo/White-Paper-WDF-geo.pdf?fbclid=IwAR0MHGbWgUasQmIoxllesGiaSODUPAuQ6r-qnTN_kPLjBzaNZ93vt6Qwof8

transitioning economies is essential for effectively tackling the causes and impacts of climate change, as well as for facilitating a broader green transformation. Skills deficiencies represent a significant barrier to the advancement of various sectors, such as agriculture, renewable energy, energy and resource efficiency, construction, environmental services, and manufacturing. The necessity for green transformation and the development of green skills is explicitly emphasized in the "Vocational Education Strategy 2021-2025." Additionally, the "Action Plan of the Georgian Small and Medium Business Development Strategy 2021-2025" underscores the importance of formulating a green growth strategy. Various other strategies, conceptual documents, and legislative frameworks also address the need for skills development in relation to the green agenda. A notable trend is emerging in this context, characterized by a growing demand for both new and existing professions that require green skills. The legislative and political framework established in the country over the past decade has fostered a demand for new "green" professions, such as environmental managers and energy auditors.

Regarding capacity-related needs, the key sectors are:

2.3.1.1 Agriculture

The decrease of greenhouse gas emissions within the agricultural sector is significantly linked to the enhancement of current capabilities in this field. In this context, it is important to highlight the creation of a methodology for designing feed rations and implementing a recommendation initiative aimed at mitigating emissions from enteric fermentation in cattle. The objective is to examine the effects of various animal feeding rations in Georgia on enteric fermentation and to establish an optimal methodology for ration formulation that will minimize greenhouse gas emissions associated with this process.

Regarding awareness and capacity development, it is crucial to set up demonstration plots in various regions to promote practices that optimize manure utilization, lower N2O emissions, and integrate cover crops and green manures into crop rotation systems.

To promote the adoption of climate-smart agricultural practices, it is essential to provide farmers [276] with climate services through extension services and awareness initiatives, along with the strategic dissemination of information via multiple channels. This initiative is envisioned as a climate-oriented service delivery framework that will grant farmers access to the relevant mobile application developed by the Rural Development Agency (GECSA). The system will serve as a resource for information regarding natural hazards, disease outbreaks, and irrigation management. Furthermore, the application should feature automatically updated bulletins on a weekly, monthly, and seasonal basis, in addition to short-term and long-term weather forecasts. Starting in 2025, two pilot projects of the GECSA system are scheduled to be launched in the Kakheti region and in the Kartli region.

Georgia intends to evaluate and enhance its adaptation capabilities for the cultivation of agricultural crops that significantly contribute to the GDP, such as grapes, nuts, and tangerines, as well as for the production of the country's unique products, including

276 Agricultural extension is a non-formal educational process that includes Providing farmers with relevant consultations and information aimed at their To increase production, volume and competitiveness, as well as their overall standard of living

Georgian honey and non-timber forest products. This initiative will involve assessing the potential changes in climate parameters and the spread of diseases to ensure the conservation of species and the security of food supplies.

In the realm of agriculture, the "Agriculture and Rural Development Strategy 2021–2027" is particularly significant, as it underscores the necessity of improving the qualifications of agricultural professionals and providing education for farmers and rural entrepreneurs. The strategy highlights the shortage of agricultural specialists and adequately trained experts, stressing the importance of higher education, vocational training, and non-formal education to enhance opportunities in the sector.

2.3.1.2 Forest Management Sector

A critical requirement within the forest management sector pertains to the capability to utilize software for modeling forest maintenance and restoration efforts aimed at alleviating the effects of climate change. Enhancing the sector's capacity to thoroughly plan forest restoration initiatives, while considering various climate scenarios, is essential.

Additionally, it is important to emphasize the necessity of developing and incorporating the primary modules of the monitoring and information system. This integration will enhance the oversight of forestry activities, including forest utilization, maintenance, and restoration, as well as facilitate effective forest management planning as outlined in forest management plans.

To enhance fire prevention strategies, the nation intends to carry out fire risk evaluations in forested regions and develop forest fire management plans at the district level. Initiatives are being implemented to create a comprehensive forest fire management and early warning system to address forest fires.

In light of these efforts, it is crucial to gather and reinforce pertinent technologies while disseminating knowledge within the local community.

2.3.1.3 Industry sector

In the industrial sector, there are significant areas where the country requires support for capacity building. One key focus is the advancement of nitric acid production with reduced greenhouse gas emissions. Since 2020, Georgia has partnered with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany to participate in an initiative aimed at providing nitric acid manufacturing companies in member countries with technology to mitigate nitrogen oxides that contribute to climate change. It is anticipated that Rustavi Azoti LLC, a nitric acid production facility, will receive modern technology to decrease N2O emissions from its production processes. Additionally, a project is in progress to enhance the monitoring of SF6 in the electricity transmission and distribution sector. Beginning this year, an improved method for estimating greenhouse gas emissions associated with the use of gas as an electrical insulator will be implemented.

Furthermore, it is crucial for the country to cultivate expertise in biomass/biogas, green hydrogen, and storage technologies for both system and market analysis. This includes the need for specialists in green hydrogen modeling who are proficient in DIGSILENT

and PLEXOS software, as well as experts experienced in the planning, construction, and equipping of green hydrogen production facilities.

2.3.1.4 Renewable energies and energy efficiency

To enhance energy efficiency, it is crucial to establish a program aimed at bolstering the capacity to enforce minimum energy performance standards and certification for buildings. This involves strengthening both the human resources and the physical infrastructure of state permitting and supervisory authorities. The minimum energy efficiency requirements for buildings, their components, or elements will take effect on July 1, 2023. Currently, the certification process for buildings is still under development.

A notable challenge lies in equipping consumers with better information and increasing their awareness regarding the purchase of household appliances, which is essential for boosting the market share of energy-efficient products. This initiative entails a gradual yet substantial expansion of the list of appliances, equipment, products, and devices that require labeling. To achieve this, it is vital to translate and adopt pertinent European and international standards for the labeling and testing of selected household appliances. The implementation of a comprehensive set of labeling regulations should be complemented by an information campaign focused on energy labeling.

In terms of strengthening capacity in the sector, it is important to develop programs to improve the skills and competence of energy audit engineers in the energy sector, based on which relevant experts will be retrained and certified.

4 training programs have been developed:

- For those conducting energy audits in the industry and transport sector;
- For persons carrying out energy efficiency certification of buildings;
- Independent experts conducting periodic inspections of heating and air conditioning systems in buildings;
- For those conducting energy audits in the building sector

In the near future, the programs will be approved and accordingly, the retraining/ certification of experts will begin.

It remains essential to implement initiatives aimed at enhancing public awareness of energy efficiency across the nation. This includes information campaigns focused on the “Varvara” lamps, which aim to achieve a 100% adoption rate of energy-efficient lighting in new residential and commercial buildings by 2026. Additionally, it is crucial to promote awareness of solar water heating solutions nationwide.

There is an urgent need to bolster the capacity for effective biomass utilization and the adoption of energy-efficient heating systems by promoting alternative energy sources and technologies. This approach will significantly alleviate the pressure on forest resources.

In this context, the country requires experts in solid fuel and biomass heating systems, with an emphasis on enhancing engineering expertise in this technology. It is vital to establish a supportive policy and legislative framework that facilitates the use of agricultural waste

as an energy resource and the implementation of associated technologies. Furthermore, there is a demand for builders skilled in the installation of thermal insulation materials, energy-efficient doors and windows, and solar photovoltaic water heating systems.

From an energy standpoint, the installation of Battery Energy Storage Systems (BESS) and the development of expertise in this domain within the country are of paramount importance. It is essential to enhance the capabilities of BESS modeling specialists, particularly those proficient in DIGSILENT and PLEXOS software, to facilitate comprehensive system and market analysis.

The energy sector, recognized as a high-tech field of strategic significance, necessitates robust research, analytical, and informational support, along with a workforce of qualified professionals. To make informed strategic decisions, it is crucial to monitor and incorporate global and regional energy trends, political-economic factors, and technological advancements. Consequently, prioritizing science and education within the energy sector is vital. Innovative approaches and mechanisms should be established to engage research and educational institutions in addressing energy challenges. Furthermore, a legislative and institutional framework that fosters innovation and scientific inquiry must be developed. The cultivation of skilled professionals in the energy sector and the enhancement of collaboration between research institutions and energy organizations are also essential.

The requisite capabilities in the energy sector encompass the ability to assess both renewable and fossil energy resources and their potential, devise optimal utilization strategies, and undertake initiatives to enhance climate and meteorological forecasting, predict hydrological patterns, and explore and implement new clean and alternative technologies, including hydrogen energy.

2.3.1.5 Waste management

Enhancing waste management capabilities is an essential prerequisite for nearly all programs and initiatives that are either in the planning stages or currently being executed. In this context, projects concerning municipal waste landfills nationwide are particularly significant, as they encompass various measures, including the enhancement of landfill leachate treatment systems and the installation of materials recovery facilities, along with gas collection and recycling systems.

At the community level, it is crucial to implement effective awareness-raising initiatives to motivate municipalities to commence waste separation at the source and to improve recycling rates.

A vital opportunity for capacity building within the sector arises from empowering both the population and public institutions engaged in waste management, as well as increasing awareness among relevant stakeholders, such as kindergartens, schools, and universities.

Capacity building is also linked to the establishment of a cohesive process for the collection and updating of data within the waste sector, which involves the creation of an integrated electronic database for waste management and the formulation of reporting guidelines.

2.3.2 SUPPORT RECEIVED FOR CAPACITY-BUILDING AND COUNTRY EFFORT

Georgia has made significant strides in fulfilling its obligations under both international and national climate change policies, as evidenced by a notable rise in the implementation of climate change mitigation and adaptation initiatives compared to the previous reporting period. This enhancement of capacity has been facilitated through both domestic resources and international technical assistance projects.

Almost all technology transfer initiatives executed within the country incorporate capacity building as an essential element, enabling Georgia to gain the requisite experience and skills for effectively utilizing the technologies received. This process encompasses raising awareness, executing targeted educational and training programs, disseminating information on best practices, and providing training on the mechanisms and opportunities for technology transfer.

It is important to highlight that the enhancement of local capacity, knowledge, and awareness regarding climate change is a fundamental aspect of nearly all ongoing projects or programs in the country, irrespective of the specific sector involved.

In the realm of capacity building, the efforts of the LEPL Environmental and Education Information Center, part of the Ministry of Environmental Protection and Agriculture of Georgia, are particularly noteworthy. This institution plays a pivotal role in environmental education and capacity building, engaging with a diverse range of target groups, including institutional units of ministries, representatives from the private sector, and local municipalities.

During the reporting period, numerous medium and large-scale projects were executed in the country with the assistance of foreign grants. The primary donor organizations include the Green Climate Fund (GCF), the European Union (EU), the United States Agency for International Development (USAID), GIZ, as well as the governments of Austria, Germany, the Netherlands, Norway, Sweden, Switzerland, and the Czech Republic. The key organizations responsible for implementing these projects are the United Nations Development Programme (UNDP), the Ministry of Environmental Protection and Agriculture of Georgia, the Regional Environmental Center for the Caucasus (REC Caucasus), the Energy Efficiency Center, Georgia's Environmental Outlook (GEO), and Geografiki Company, among others. These initiatives also facilitate Georgia's participation in knowledge and experience exchange with other countries, which is essential for the adoption of specific technologies and the enhancement of related capabilities. Such projects encompass events designed for information and experience sharing, allowing Georgian experts to engage in regional or global capacity-building seminars and gain insights into new mitigation and adaptation technologies. These events play a vital role in fostering expertise within the country.

In terms of capacity development, it is important to note the following main directions .

2.3.2.1 Disaster Risk Management

Disaster risk management, particularly in relation to climate change, has emerged as a key area of advancement in capacity development within the country. A notable initiative in this context is the project titled "Enhancing the Early Warning System for Multilateral

Hazards and Utilization of Climate-Related Information in Georgia," which is being executed by the UNDP in collaboration with the Utsiba Environmental Information and Education Center and the Emergency Management Service. The primary objective of this project is to mitigate the effects of climate change-induced natural hazards on the population, livelihoods, and infrastructure of Georgia by establishing a national early warning system for multilateral hazards and promoting risk-informed actions at the local level. A critical aspect of the project involves capacity building and education, where contemporary methodologies for hazard assessment and relevant technical tools are being introduced. Emergency management plans are being developed for selected municipalities, alongside community risk management plans and early warning systems. Additionally, the project encompasses the creation of manuals and educational resources on various hazards tailored for teachers, municipal authorities, media representatives, and groups such as women and youth. Enhancing the capabilities and awareness of municipal authorities, local NGOs, community organizations, and residents in community-based disaster risk management and adaptation constitutes a significant focus of the initiative.

The Emergency Management Service of the Ministry of Internal Affairs of Georgia has experienced a notable enhancement in its capabilities, particularly through the retraining of its personnel. The agency's proficiency in managing forest fire risks has been notably improved.

The National Environmental Agency consistently conducts research to analyze the outcomes and predict the progression of natural geological processes. This research informs the development of relevant recommendations and measures, which significantly mitigate the adverse effects associated with geological events.

In the realm of risk management, it is essential to highlight the standardization and harmonization of the national multi-hazard mapping and risk assessment methodology. This initiative aims to establish a cohesive risk information system with a well-defined structure at the national level, supported by a robust institutional and legislative framework. Furthermore, it has become feasible to perform on-site assessments of risks and economic losses related to natural hazards.

2.3.2.2 Forestry sector

Initiatives and programs executed within the forestry sector have facilitated the enhancement of both technical and human resources in the country, particularly regarding forest inventory and statistical inventory methodologies. Additionally, there has been a notable improvement in the ability to utilize modern tools and equipment essential for inventory processes. A forest monitoring and information system has been established and put into operation, which is expected to greatly enhance the incorporation of climate change adaptation strategies into planning and management within the forestry sector.

Furthermore, capacity-building initiatives can be viewed as efforts to bolster the resilience of local communities involved in forest management and to foster the development of skills related to the utilization of renewable energy sources within the sector.

2.3.2.3 Use of alternative energies and energy efficiency

The nation has undertaken considerable initiatives to promote alternative energy sources and enhance energy efficiency, leveraging both international support and domestic resources. These efforts have been closely tied to capacity building. A notable emphasis has been placed on increasing awareness, particularly regarding the "Covenant of Mayors" policy and sustainable energy investment initiatives, which aim to facilitate the replication of such projects in other municipalities across Georgia, especially among the signatories of the "Covenant of Mayors." These activities have focused on fostering green economy opportunities for local collaboration, enhancing income and employment prospects, thereby contributing to improved energy security in the regions and the decarbonization of local economies. Additionally, significant strides have been made at the municipal level to bolster the capabilities of local governments in executing sustainable energy investment projects. This includes assisting local authorities in enhancing energy security, decreasing reliance on imported fossil fuels, and lowering greenhouse gas emissions.

At the local level, there has been a vigorous promotion of renewable energy generation and utilization, particularly through the use of locally sourced biomass and innovative technologies. In this regard, the project titled "Biomass Energy and Energy Efficiency Technologies as Sustainable Energy Solutions for Covenant of Mayors Cities" stands out, as it aimed to enhance local capacities in this field.

The capacity to utilize renewable energy has been enhanced by evaluating the viability of establishing a renewable energy supply chain and launching it in designated municipalities across Georgia.

Recently, initiatives and projects focused on alternative energy and energy efficiency have significantly contributed to the expansion of opportunities and the enhancement of awareness. For instance, the promotion of energy efficiency measures and the adoption of renewable energy sources were facilitated through the execution of comprehensive pilot investment projects within municipal buildings in Georgia.

In rural areas, households received substantial support to improve their access to solar photovoltaic technologies, which inherently involved bolstering the capabilities of the beneficiary households.

2.3.3 CAPACITY-BUILDING NEEDS AND RECEIVED IN A TABULAR FORMAT

Capacity building serves as a fundamental theme that permeates various climate change-related projects, manifesting in diverse degrees and forms. It is important to highlight that the existing project accounting system is inadequate for the thorough and effective identification of projects where capacity building is a primary or secondary goal. Consequently, the data presented in Table A5.6 of the Annex (Table III.11 as per Decision 5/CMA.3 of the Conference of the Parties to the Convention) may not be exhaustive. It is essential to undertake significant measures in this area to enable the country to accurately document projects and activities focused on capacity building, thereby enhancing reporting practices.

To assess capacity needs, an analysis of the CSAP 2024-2025 and NEAP 4 was conducted, leading to the compilation of Table A.5.5 in the Annex (Table A.5.5. III.10 in accordance with

Decision 5/CMA.3 of the Conference of the Parties to the Convention).

In relation to the support provided by developing country Parties for the execution of Article 13 of the Paris Agreement and the implementation of transparency measures, including capacity building for transparency, the project titled “Integrated Transparency Framework for the Implementation of the Paris Agreement” was initiated in the country. Comprehensive details are available in Table A.2.7 of the Annex (Table III.13 in accordance with Decision 5/CMA.3 of the Conference of the Parties to the Convention).

2.3.4 ENHANCED TRANSPARENCY FRAMEWORK - SUPPORT RECEIVED AND NEEDED

the Paris Agreement, in terms of the process of establishing transparency, the country made efforts and achieved progress during the reporting period, which was reflected in the following key results:

- The Paris Agreement has seen the country make significant strides in establishing transparency during the reporting period, as evidenced by several key outcomes. The nation has notably enhanced vertical coordination between its planned and executed local climate change initiatives and national objectives. This improvement has fostered better synergies between national and local climate policy measures. Additionally, a Municipal Development Coordination Platform (MDCP) has been created as part of the Enhanced Transparency Framework (ETF). Various forms of technical assistance, capacity building, and awareness-raising initiatives have been implemented, including the creation of software tools for the Global Covenant of Mayors [277] for Climate & Energy. These tools support signatory municipalities in developing Sustainable Energy and Climate Action Plans (SECAP) and Measurement, Reporting, and Verification (MRV) reports. Both line ministries and municipalities are actively utilizing the online climate change data management system.
- The national greenhouse gas inventory system has been significantly improved, including the development of country-specific emission factors for key sources. Relevant tools and capacities for greenhouse gas inventory data collection and QA/QC (quality assurance and quality control) management have also been improved for the energy, agriculture, industry and waste sectors.
- A national tracking system (NDC) was developed and implemented. In particular, the development of this system has enabled key stakeholders in the country to monitor and assess progress towards the NDC. in relation to the objectives and also assess and report on the implementation of mitigation measures through accurate and transparent methods/ways, including through a data management system for transferred technologies.

277 https://www.globalcovenantofmayors.org/gcom-charter-v2/

2.4 GENDER MAINSTREAMING IN CLIMATE CHANGE, SUPPORT RECEIVED AND NEEDED

2.4.1 GENDER MAINSTREAMING AND SUPPORT RECEIVED

One of the significant challenges in integrating gender issues into climate policy and practice is the lack of accessible information on gender mainstreaming within climate-related initiatives. Currently, there is no centralized agency or data system that provides cohesive and comprehensive information on these matters. Although an individual has been informally designated as responsible for gender issues within the Ministry, this arrangement is inadequate, as the position lacks official recognition and defined responsibilities, resulting in a role that is merged with other primary functions.

This chapter aims to analyze, to the extent feasible, the integration of gender considerations in climate policy assistance activities. However, the study is not exhaustive due to the aforementioned challenges and relies on data gathered from various local and international organizations.

The chapter also discusses the Lima Gender Action Plan, which was adopted in 2014, and encompasses several key areas: capacity building, knowledge management and communication; participation and women's leadership; coherence; gender-sensitive implementation processes and means of implementation; as well as monitoring and reporting. It outlines the principal activities undertaken during the reporting period in each of these areas.

2.4.1.1 Capacity-Building, knowledge Management And Communication

A public opinion survey conducted in 2023 [278], indicates that the majority of respondents (28%) believe that enhancing public awareness is the most effective approach to mitigate the adverse effects of climate change. Nevertheless, the same survey reveals that the general population's understanding of climate and environmentally friendly initiatives, programs, projects, and policies in Georgia remains significantly low. In terms of knowledge improvement, some advancements have been noted in specific areas compared to the previous survey round. Notably, awareness of the National Notification Scheme on Climate Change has risen (2023: urban - 16%; rural - 13%; 2022: urban - 6%; rural - 6%). Additionally, there has been a relative increase in the proportion of individuals familiar with the early warning system (2023: urban - 15%; rural - 17%; 2022: urban - 4%; rural - 5%).

The Green Climate Fund (GCF) is actively engaged in enhancing climate knowledge and awareness. Currently, the project titled "Expanding the Multi-Hazard Early Warning System and the Use of Climate Information in Georgia" is being implemented with financial backing and co-financing from the Georgian government. This initiative aims to establish a multi-hazard early warning system and integrate climate information into planning and decision-making across all sectors, thereby fostering risk reduction, prevention, and preparedness. A key aspect of this program is to elevate societal knowledge and awareness regarding environmental and climate-related issues. This aspect includes a strong commitment to

278 Georgia-wide public opinion survey on knowledge, perceptions, attitudes, behavior and preferred policies on environmental and climate issues, 2023. WFD, ISSA, UKaid.

gender mainstreaming, supported by a dedicated gender action plan. The monitoring report associated with this plan indicates that gender considerations were effectively integrated into the project's awareness-raising efforts. Specifically, modules addressing gender and vulnerable populations in the context of natural disasters were developed and incorporated into various training sessions and seminars for diverse stakeholders, including local media, green camps, discussions, teacher training, and community forums. According to program data, women constituted 68% of the participants in these awareness-raising activities.

The same study indicates that a significant portion of respondents holds largely accurate views and understandings regarding the factors that contribute to and impede climate change. Notably, only 13% of individuals perceive climate change as an unrealistic phenomenon or myth. However, the study fails to explore the relationship between climate change and gender equality, making it challenging to assess the level of knowledge and awareness among the population concerning this connection. Nevertheless, the responses to the statement, "Women are more vulnerable to the risks caused by climate change than men," offer some insight into societal perceptions. Specifically, 27% of respondents concurred with this assertion, while 39% expressed disagreement.

CENN is undertaking various initiatives aimed at empowering women regarding climate-related matters. These initiatives are carried out as part of the Georgia Climate Action Project (GEO CAP). [279] The EU-funded project encompasses various initiatives across multiple regions of Georgia aimed at incorporating women's concerns into disaster risk reduction and adaptation strategies. These initiatives engage women and youth groups, empowering them through the enhancement of knowledge and skills. Furthermore, the NGO KGAOK/CENN is executing the "Climate Resilient Agriculture" program in the Marneuli Municipality, specifically targeting women and youth as key beneficiaries.

Furthermore, with the financial backing of the UK Government, as part of the ongoing initiative "Promoting Environmental Protection, Climate Change Resilience and Democratic Sustainability in Georgia," the Westminster Foundation for Democracy (WFD) carried out a study titled "Assessing the Impact of Climate Change on Women in Georgia." This study serves as a significant resource for knowledge management and policy formulation regarding these matters.

In summary, concerning capacity development, knowledge management, and communication related to gender and climate issues:

- Finding, processing, and analyzing information is a challenge because information exists in a scattered and unsystematic form at the level of projects and activities of different organizations;
- Most of the measures implemented are small-scale and do not cover a large part of the population;
- The knowledge management process is not systematized, as there are no defined framework documents at the level of the Ministry of Environmental Protection

279 https://www.cenn.org/georgia-climate-action-project-geo-cap-promoting-civil-society-engagement-in-climate-change-policy-design-and-implementation/

and Agriculture of Georgiaronmental Protection and Forestry and no responsible person with knowledge and a defined role to ensure knowledge management on these issues within the Ministry and other agencies.

2.4.1.2 Participation And Women's Leadership

The extent of women's involvement in decision-making roles and their leadership skills serves as an indicator of their vulnerability within society. This participation is also linked to women's overall resilience in managing various crises, including those associated with climate-related disasters.

As of September 2023, women constitute 27 members (19.3%) of the Georgian Parliament. In the local government elections of 2021, 31.4% (441) of elected officials were women under the proportional representation system, while 7.6% (50) were elected through the majoritarian system. Consequently, women's representation in municipal councils has risen to 24%. However, political parties often lack well-defined internal gender policies, or they implement them inadequately. There are no clear guidelines for the recruitment, engagement, and advancement of female candidates, which obstructs greater female participation in politics. Female candidates and politicians particularly struggle with public perception, facing various forms of criticism related to their age, appearance, and personal lives. To significantly enhance women's political engagement, it is essential to reform democratic processes within political parties.

The 2022 Parliamentary Report from the Public Defender of Georgia indicates that the representation of female professional civil servants at the executive level is significant, although the statistics differ across various agencies. For instance, in the Civil Office of the Ministry of Defense of Georgia, 42% of female professional civil servants occupy decision-making roles. Conversely, as of December 2022, only 7% of managerial positions within the Ministry of Internal Affairs of Georgia are held by women, with men comprising 93% of these roles. In the Ministry of Environmental Protection and Agriculture of Georgia, the Minister has appointed five deputies, one of whom is Ms. Nino Tandilashvili, serving as the First Deputy Minister. [280].

A study carried out by the Public Defender's Office in 2022 revealed that women's participation in municipal meetings and decision-making processes, such as budget development, is markedly insufficient. This low level of involvement can be attributed to various factors, including a lack of awareness, distrust in the process, domestic responsibilities, limited access to transportation, and prevailing stereotypes. Furthermore, individuals from vulnerable groups encounter even more significant obstacles, particularly women with disabilities, members of ethnic and religious minorities, the elderly, displaced women, and others.[281]

2.4.1.3 Consistency

The Lima Action Plan outlines a strategic approach that entails the establishment

280 Source: Official website of the Ministry of Environmental Protection and Agriculture of Georgiaronmental Protection and Agriculture of Georgia.

281 Assessment of Gender Equality Policies of Municipalities, Public Defender of Georgia, 2022.

and execution of mechanisms aimed at systematizing gender mainstreaming within the framework of climate policy planning and implementation. This initiative seeks to ensure that there are cohesive methodologies for integrating climate policy with gender considerations at the national level. It is crucial to note, however, that this aspect currently poses the most significant challenge to the effective integration of gender in climate policy. This challenge arises from two primary factors: firstly, the existing modifications and initiatives aimed at promoting gender mainstreaming in climate policy are considerably constrained; secondly, the initiatives and changes that have been enacted during the reporting period tend to be isolated efforts rather than part of a comprehensive strategy.

A pivotal development in this context is the Nationally Determined Contributions (NDC). The revised document articulates commitments concerning gender and climate change, marking an initial step towards the systematic integration of gender considerations in climate initiatives. It underscores the importance of women's participation in decision-making processes and addresses health issues linked to climate change and associated programs. Furthermore, it stresses the necessity of incorporating gender perspectives in energy and water efficiency strategies. The document also calls for the collection of sex-disaggregated data to be utilized in national accounts pertaining to climate change.

the LT-LEDS adopted in 2023, which also integrates a gender mainstreaming component and aims to reflect gender aspects in its implementation process, in the following ways:

- Equal access of women to economic life and society in the process of low-emission development;
- Women's participation in the planning, monitoring and updating process of low-emission development;
- Involving women in technology needs assessment and implementation processes, including and especially through creating an enabling environment and capacity building;
- Adequate use of women's knowledge and capabilities in virtually all economic, environmental and climate change areas and sectors, and equal participation of women in mitigation measures in all sectors according to their experience and preferences.

An additional significant document introduced during the reporting period, which is expected to play a crucial role in the organization of climate policy, particularly in relation to gender mainstreaming, is the "White Paper" [282] developed for the formulation of the Climate Change Law. This document was created in 2023 with the assistance of the Environment and Natural Resources Committee, the Westminster Foundation for Democracy, and the United Kingdom. The "White Paper" outlines the fundamental principles that should be incorporated into the Georgian Climate Change Law. It is essential to highlight that the draft legislation will be subject to a regulatory impact assessment, along with a gender and socio-economic evaluation. Among various topics, the "White Paper" addresses gender justice and incorporates its principles. The document acknowledges that gender disparities can exacerbate the impacts of climate change, affecting different genders in distinct manners. Therefore, achieving gender justice within climate change legislation

282 https://eiec.gov.ge/Ge/News/Details/5170

necessitates the integration of principles and practices that tackle gender inequalities and promote the substantial advancement of gender equality in climate policy and legislation through capacity building, gender mainstreaming, and adherence to international commitments. More specifically, the White Paper proposes several interventions aimed at ensuring gender justice.

The government is tasked with establishing a practice of gender analysis that includes the systematic collection, examination, and dissemination of gender-disaggregated data every five years.

It is essential to incorporate a gender perspective into climate change policies, specifically addressing the unique needs, priorities, and challenges faced by women, girls, men, boys, and their respective groups in the context of climate change.

Furthermore, it is crucial to ensure the active involvement of both genders in climate change policy development. This entails valuing and considering a range of perspectives, empowering marginalized communities, and creating avenues for women to engage and take leadership roles in climate-related initiatives. The Climate Change Act mandates the appointment of at least one gender expert to the independent expert advisory body.

In conclusion, the majority of modifications made to climate legislation and policy during the reporting period are recent, making it challenging to evaluate their effectiveness at this time. However, these changes are expected to yield positive outcomes in the future, provided they are implemented successfully.

2.4.1.4 Gender-wise Sensitive Implementation Process And Means of Implementation

This section focuses on the methods and strategies that facilitate the development and execution of gender-sensitive climate policies within the nation. During the reporting period, two significant modifications were introduced, aimed at enhancing the integration of gender considerations into climate policy.

To strengthen the connections between strategic and policy documents and the budget, the “Policy Classifier” was incorporated into the electronic budget management system in 2022, in line with the Public Finance Management Reform Strategy and Action Plan for 2023-2026. This integration enables Georgian ministries and other budgetary entities, including municipalities, to associate budgeted programs and sub-programs within the electronic budget management system (ebudget.ge) with the relevant “Policy Classifier,” which encompasses classifications for gender equality and climate change (including mitigation, adaptation, and mitigation-adaptation). As this change is relatively recent, it is challenging to evaluate the effectiveness of this mechanism at this time; however, the decision itself represents a notable advancement. Furthermore, this system will assist in identifying gender and climate initiatives being implemented in the country, thereby streamlining the information-gathering process for future reports.

A notable advancement in this area is the UNDP/GGP initiative titled “Expansion of the Multi-Hazard Early Warning System and the Use of Climate Information in Georgia.” This program has established a gender-sensitive socio-economic vulnerability assessment methodology, which has been applied to identify 100 vulnerable villages as part of its implementation. The methodology incorporates key indicators essential for integrating

gender considerations into the vulnerability assessment process.

2.4.1.5 Monitoring And Reporting

Gender mainstreaming in climate policy has emerged as a recent endeavor, with only limited efforts observed in certain strategic documents. Currently, there are few initiatives at the implementation stage aimed at achieving this objective. The chapters of this report mark a pioneering effort to assess gender mainstreaming within climate policy, representing progress in this area. Furthermore, the modifications made to the electronic budget management system in 2023 are expected to enhance the monitoring of gender and climate aspects in state programs. However, it is important to emphasize that this change will not suffice unless it is paired with the integration of relevant indicators into the programs, which is currently lacking. An analysis of the document titled “Information on the Expected Results and Indicators of Programs Defined by the 2023 State Budget of Georgia” [283] revealed that even in programs where gender mainstreaming is identified as a priority, appropriate indicators for monitoring and evaluation are absent.

283 Appendix to the 2023 Program Budget

ANNEX

TABLE 1.1 STRUCTURED SUMMARY: DESCRIPTION OF GEORGIA'S NDC A [284]

	Description
Objectives and description *Includes type(s) of goals b, c*	The first, second, and fourth paragraphs of Georgia's Nationally Determined Contribution (NDC) outline the country's objectives regarding climate change through the year 2030. The first and second paragraphs focus on the absolute reduction of greenhouse gas emissions, whereas the fourth paragraph addresses the exploration of adaptation strategies to climate change and the mobilization of resources for groups that are particularly vulnerable.
Unconditional vision/goal *According to national contribution*	1. Georgia commits to an unwavering obligation to decrease its total national greenhouse gas emissions by 35% relative to 1990 levels by the year 2030. By that time, the total national emissions, excluding emissions and removals from land use, land-use change, and forestry (LULUCF), shall not surpass 29,250 Gg CO2-equivalent.
Conditional vision/goal *According to national contribution*	2. Georgia commits to a conditional obligation to decrease its national greenhouse gas emissions by 50-57% relative to 1990 levels by the year 2030, contingent upon receiving international assistance. A 50% reduction is necessary if global efforts align with a 2 °C scenario for the increase in average global temperature, whereas a 57% reduction is mandated under a 1.5 °C scenario. By 2030, the total national emissions, excluding emissions and removals from Land Use, Land Use Change, and Forestry (LULUCF), must not surpass 23,300 Gg CO2-equivalent in a scenario that limits the average temperature rise to 2 °C, and 20,300 Gg CO2-equivalent in a scenario that restricts the increase to 1.5 °C.
Target year *Is it annual or perennial?*	2030 (specific year vision/goal)
Base year *Their corresponding indicators*	1990 (goal of absolute reduction in greenhouse gas emissions)
Deadlines Implementation period	2021-2030 years

284 Nationally Determined Contribution (NDC), 2021. https://mepa.gov.ge/Ge/Files/ViewFile/50125

	Description
Target area and coverage *Including sectors, categories, activities, sources of emissions and sinks, gases*	The commitment excludes the areas of Abkhazia and Tskhinvali, as these regions are currently under temporary occupation by the Russian Federation, preventing the Georgian government from exercising its de facto jurisdiction over them. In terms of mitigation, seven sectors have been identified: energy generation and transmission, transport, building, industry, agriculture, waste management, and forestry[285]. Five sectors are considered in terms of adaptation: health, agriculture, forestry, biodiversity, and tourism. Categories: Transport (1.A.3), Commercial/Public (1.A.4.a), Residential Buildings (1.A.4.b), Energy Industry (1.A.1), Fugitive Emissions from Fuels (1.B), Agriculture /Forestry/Fisheries/Fish Farming (1.A.4.c) and Agriculture (CRF Sector 3), Manufacturing and Construction (1.A.2), Industrial Processes and Product Consumption (CRF Sector 2) and Waste (CRF Sector 5) are considered for mitigation. Activities: The implementation status of 66 activities has been reviewed from a mitigation perspective. Gases: carbon dioxide (CO 2), methane (CH 4), nitrous oxide (N 2 O), hydrofluoric acid (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF 6), and nitrogen trifluoride (NF 3). Georgia's unconditional commitment to mitigation under its Nationally Determined Contributions (NDC) does not account for carbon dioxide emissions or removals associated with the forestry sector.
Intention to use collaborative approaches Including the use of ITMOs for nationally determined contributions under Article 6 of the Paris Agreement	As of October 31, 2023, Georgia is regulating emissions trading activities with Switzerland and Japan through bilateral cooperation agreements under Article 6 of the Paris Agreement. At this stage, emissions trading activities are planned within the framework of these agreements.
Additional information or clarification Regarding the information previously presented d	NA

Note: The table is used on a voluntary basis.

[a] *Each Party shall provide a description of its NDC under Article 4, against which progress will be monitored. The information provided shall include the necessary information (as appropriate), including updates to previously provided information (paragraph 64, MPGs).*

[b] *For example, in a broad economic perspective, absolute emission reductions, relative emission reductions, emission reductions compared to a baseline scenario, adaptation activities or economic diversification plans, co-benefits of mitigation policies and measures, etc. (paragraph 64(a), MPGs).*

[c] *Countries with both unconditional and conditional national contribution targets may add rows to the table to*

285 Does not participate in the fulfilment of an unconditional obligation.

describe the conditional targets.

[d] *For example: recalculation of previously submitted inventory data, significant details of the methodology, or use of collaborative approaches (paragraph 64(g) MPGs).*

ANNEX 1

TABLE A2.1. FINANCIAL ASSISTANCE NEEDS (DECISION 5/CMA.3, TABLE III.6)

Sector	Subsector	Event name	Program / Project Description	Amount of assistance		Duration	Financial instrument	Type of assistance	Contribution to technology development and transfer (Yes 1/ No 0)	Contribution to capacity development goals (Yes 1/ No 0)	Does it align with the national strategy and/or the nationally determined contribution? (Yes 1/ No 0)	Expected impact, outcome
				GEL	USD							
Forestry sector	Forest	Ensuring the utilization of multifunctional forests. Fourth National Environmental Action Programme of Georgia (NEAP 4), Objective 12.4.	The cultivation of timber resources for commercial purposes, while adhering to the principles of sustainable management.	15,000,000	5,550,211	2023-2026	Not specified	Adaptation	0	0	1	Enhancing and sustaining both the quantitative and qualitative metrics of forests while augmenting the advantages derived from them, with consideration for the services provided by forest ecosystems.
Forestry sector	Forest	Forest management and restoration of degraded areas (NEAP 4 objective 12.3)	The organization of a laboratory to facilitate the efficient execution of forest maintenance and restoration initiatives within a functional laboratory setting.	3,100,000	1,145,518	2023-2026	Not specified	Penetrating	0	0	0	
Forestry sector	Forest	Mitigate the strain on forests by encouraging the adoption of alternative resources and energy-efficient technologies (NEAP 4 Target 12.2).	A comprehensive situational analysis regarding the advancement of energy-efficient infrastructure within public institutions and the transition from firewood to alternative fuels is being undertaken.	62,000	22,941	2023-2026	Not specified	Penetrating	1	1	1	
Forestry sector	Forest	Mitigate the strain on forests by encouraging the adoption of alternative resources and energy-efficient technologies (NEAP 4 Target 12.2).	70 business yard layout	11,393,400	4,215,718	2023-2026	Not specified	Penetrating	0	1	1	
Forestry sector	Forest	Enhance forest management systems by reinforcing planning and execution frameworks (NEAP 4 Target 12.1).	Enhancing the human resources of forest management organizations by employing suitably qualified professionals.	5,674,000	2,099,460	2023-2026	Not specified	Penetrating	0	1	1	
Forestry sector	Protected Areas and Biodiversity	Strengthen the management of invasive alien species (NEAP 4 Target 11.5).	A strategy for the management of invasive alien species is presently under development, with an anticipated completion by the year's end. This strategy will delineate the necessary actions to be undertaken and the corresponding timelines for their execution.	30,000	11,100	2023-2026	Not specified	Adaptation	0	1	1	Safeguarding biodiversity, preserving ecosystem services, and promoting the sustainable utilization of biological resources while considering the requirements of the population.

Sector	Subsector	Event name	Program / Project Description	Amount of assistance		Duration	Financial instrument	Type of assistance	Contribution to technology development and transfer (Yes 1/ No 0)	Contribution to capacity development goals (Yes 1/ No 0)	Does it align with the national strategy and/or the nationally determined contribution? (Yes 1/ No 0)	Expected impact, outcome
				GEL	USD							
Forestry sector	Protected Areas and Biodiversity	Create a cohesive network of well-managed protected areas (NEAP 4 Target 11.2).	Development of a manual aimed at mitigating the adverse effects of the tourism industry on biodiversity.	155,000	57,352	2023-2026	Not specified	Penetrating	0	1	1	Protecting biodiversity, preserving ecosystem functions, and promoting the sustainable utilization of biological resources.
Forestry sector	Protected Areas and Biodiversity	Create a cohesive network of well-managed protected areas (NEAP 4 Target 11.2).	Preparation of a critical spatial analysis of protected areas	310,000	114,704	2023-2026	Not specified	Penetrating	0	1	1	Protecting biodiversity, preserving ecosystem functions, and promoting the sustainable utilization of biological resources.
Agriculture	Land resources	Mitigate land degradation and desertification while rehabilitating degraded regions (excluding pastures) (NEAP 4 Target 8.1).	Restoration and development of 400 ha of windbreak	4,000,000	1,480,056	2023-2026	Not specified	Adaptation	0	0	1	Promoting sustainable management of land resources
Agriculture	Land resources	Mitigate land degradation and desertification while rehabilitating degraded regions (excluding pastures) (NEAP 4 Target 8.1).	Complete inventory of windbreaks	3,938,400	1,457,263	2023-2026	Not specified	Adaptation	0	0	1	Promoting sustainable management of land resources
Penetrating	Natural hazards	Enhance the efficiency of the monitoring and early warning system (NEAP 4 Task 14.1).	The development and revision of geological hazard zoning maps for the territory of Georgia involves the establishment of a GIS database that encompasses geological hazards across 11 principal river basins. This process includes the compilation of a catalog or cadastre, which will serve as the foundation for the creation of geological hazard zoning maps.	325,000	120,255	2023-2026	Not specified	Adaptation	0	0	1	Enhancing the system for managing natural hazards and associated risks.
Penetrating	Environmental management	Strengthen mechanisms for public participation and elevate stakeholder engagement (NEAP 4 Task 1.2).	Adding new modules/topics to the Environmental Assessment Portal	101,850	37,686	2023-2026	Not specified	Penetrating	0	1	1	Increasing the effectiveness of EIA and ESIA procedures
Penetrating	Environmental management	Enhance mechanisms for public participation and elevate stakeholder engagement (NEAP 4 Task 1.2).	1. Organizing 600 public hearings and enhancing the capabilities of the pertinent department within the center.	243,700	90,172	2023-2026	Not specified	Penetrating	0	1	0	Increasing the effectiveness of EIA and ESIA procedures

Sector	Subsector	Event name	Program / Project Description	Amount of assistance		Duration	Financial instrument	Type of assistance	Contribution to technology development and transfer (Yes 1/ No 0)	Contribution to capacity development goals (Yes 1/ No 0)	Does it align with the national strategy and/or the nationally determined contribution? (Yes 1/ No 0)	Expected impact, outcome
				GEL	USD							
Industry	Atmospheric air	Establish a comprehensive permitting system (NEAP 4 Task 2.1).	The formulation of subordinate normative regulations utilizing the most effective techniques available, followed by their presentation for approval.	75,000	27,751	2023-2026	Not specified	Mitigation	0	1	0	Increasing the effectiveness of EIA and ESIA procedures
Water and sanitation	Water resources	Develop an assessment framework for the systematic evaluation of water bodies' conditions in accordance with contemporary standards, particularly the EU Water Framework Directive (NEAP 4 Task 5.1).	Development and approval of basin management plans	400,000	148,006	2023-2026	EU grant	Adaptation	0	1	1	The establishment of a comprehensive water resources management system.
Water and sanitation	Black Sea biodiversity	Mitigate the introduction of new invasive species through ballast water management (NEAP 4 Task 6.1).	The creation of a ballast water laboratory will facilitate the examination of foreign harmful organisms and pathogens present in the water, aimed at ensuring effective ballast water management.	400,000	148,006	2023-2026	Not specified	Adaptation	1	1	1	Protection of Black Sea species and habitats
Water and sanitation	Black Sea biodiversity	Foster the advancement of marine aquaculture (NEAP 4 Task 6.4)	The formulation of a management strategy for designated aquaculture zones will be accompanied by initiatives to enhance public awareness regarding aquaculture practices.	60,000	22,201	2023-2026	Not specified	Adaptation	0	1	1	Protection of Black Sea species and habitats
Water and sanitation	Black Sea biodiversity	Enhance the management of marine litter (NEAP 4 Task 6.5)	An assessment of the Pending state of marine litter will be conducted.	375,000	138,755	2023-2026	Not specified	Adaptation	0	0	1	Protection of Black Sea species and habitats
Water and sanitation	Black Sea biodiversity	Establish a comprehensive monitoring program for the Black Sea (NEAP 4 Task 6.6)	The acquisition of a vessel equipped with suitable scientific and research instruments, such as multi-meter analyzers and sampling tools, is proposed.	1,777,500	657,700	2023-2026	Grant	Adaptation	1	1	1	Protection of Black Sea species and habitats
Water and sanitation	Black Sea biodiversity	Establish a comprehensive monitoring program for the Black Sea (NEAP 4 Task 6.6)	As part of the EU project, the procurement of four pieces of equipment for the Batumi laboratory is planned.	1,077,694	398,762	2023-2026	EU grant	Adaptation	1	1	1	Protection of Black Sea species and habitats
Penetrating	Atmospheric air	Mitigate the release of harmful substances from various pollution sources (NEAP 4 Task 7.1)	Strategy for enhancing the proportion of electric vehicles within the automotive fleet.	30,450	11,267	2023-2026	Not specified	Mitigation	0	0	1	Guaranteeing that the air quality across the entire region of Georgia is safe and conducive to human health.
Penetrating	Atmospheric air	Create a system for monitoring and assessing ambient air quality (NEAP 4 Task 7.2.1)	Acquisition of an automated monitoring station installation.	500,000	185,007	2023-2026	Grant	Mitigation	1	1	1	Guaranteeing that the air quality across the entire region of Georgia is safe and conducive to human health.

Sector	Subsector	Event name	Program / Project Description	Amount of assistance		Duration	Financial instrument	Type of assistance	Contribution to technology development and transfer (Yes 1/ No 0)	Contribution to capacity development goals (Yes 1/ No 0)	Does it align with the national strategy and/or the nationally determined contribution? (Yes 1/ No 0)	Expected impact, outcome
				GEL	USD							
Penetrating	Atmospheric air	Create a system for monitoring and assessing ambient air quality (NEAP 4 Task 7.2.3)	Revamping the atmospheric air quality portal - air.gov.ge, along with the development of a corresponding mobile application.	182,500	67,528	2023-2026	Grant	Mitigation	1	1	1	Guaranteeing that the air quality across the entire region of Georgia is safe and conducive to human health.
Penetrating	Atmospheric air	Create a system for monitoring and assessing ambient air quality (NEAP 4 Task 7.2.3).	Compilation of inventory and forecasting reports, which include a spatial distribution analysis of emissions.	62,400	23,089	2023-2026	Not specified	Mitigation	1	1	1	Guaranteeing that the air quality across the entire region of Georgia is safe and conducive to human health.
Transport	Public transport	Management of vehicle emissions on roadways. Georgia's Climate Change Strategy 2030 Action Plan 2024-2025 (CSAP) Task 2.1.2)	Equipping the cities of Poti, Zugdidi, and Gori with field instruments for the measurement of vehicle emissions.	500,000	185,007	2024-2026	Not specified	Mitigation	1	1	1	By the year 2030, greenhouse gas emissions in the transport sector are projected to decrease by 15% in comparison to the baseline scenario.
Transport	Private transport	Execution of initiatives outlined in the Batumi Sustainable Urban Mobility Plan (CSAP Task 2.3.2)	Expanding the zonal-hourly parking infrastructure; 2. Establishing a network for bicycles.	1,171,197	433,359	2024-2025	Grant	Mitigation	0	0	1	By the year 2030, greenhouse gas emissions in the transport sector are projected to decrease by 15% in comparison to the baseline scenario.
Transport	Railway	Conducting a cost-benefit analysis and feasibility study to determine optimal strategies for transferring road freight to rail (CSAP Task 2.4.1)	Conducting a cost-benefit analysis to identify the most viable measures for incorporation into the forthcoming iteration of the Climate Action Plan.	300,000	111,004	2024-2025	Not specified	Mitigation	0	0	1	By the year 2030, greenhouse gas emissions in the transport sector are projected to decrease by 15% in comparison to the baseline scenario.
Transport		Creation of a spatial development document for the city of Kutaisi (CSAP Task 2.4.2)	The formulation of the 15-minute city concept for Kutaisi.	300,000	111,004	2024-2025	Not specified	Mitigation	0	0	1	By the year 2030, greenhouse gas emissions in the transport sector are projected to decrease by 15% in comparison to the baseline scenario.
Building sector	Penetrating	Establishment of a program aimed at enhancing the capacity to enforce minimum energy performance standards and building certification (CSAP Task 3.1.1)	Establishment of a program addressing the following areas: training for officials, enhancement of human and physical infrastructure capacities within state permitting and supervisory agencies.	40,000	14,801	2024-2025	Not specified	Mitigation	0	1	1	Greenhouse gas emissions from the buildings sector

Sector	Subsector	Event name	Program / Project Description	Amount of assistance		Duration	Financial instrument	Type of assistance	Contribution to technology development and transfer (Yes 1/ No 0)	Contribution to capacity development goals (Yes 1/ No 0)	Does it align with the national strategy and/or the nationally determined contribution? (Yes 1/ No 0)	Expected impact, outcome
				GEL	USD							
Building sector	Public buildings	Formulation of a plan to secure an energy performance certificate for public sector buildings (CSAP Task 3.3.2)	Creation of an energy performance certification strategy that encompasses modernized public buildings and the proportion of these buildings relative to the total area documented in the building register.	40,000	14,801	2024-2025	Not specified	Mitigation	0	0	1	Greenhouse gas emissions from the buildings sector
Building sector	Commercial buildings	Designing a co-financed modernization strategy for the most energy-intensive commercial sector buildings to comply with minimum energy performance and certification standards (CSAP Task 3.3.3)	Identification of buildings with the highest emissions and the promotion of their complete or partial modernization.	400,000	148,006	2024-2025	Not specified	Mitigation	0	0	1	Greenhouse gas emissions from the buildings sector
Building sector	Residential buildings	Examination of the building stock of housing associations and vulnerable groups with the highest emissions, followed by the development of a modernization program (CSAP Task 3.3.4)	Establishment of a register for the most polluting housing estates and buildings occupied by vulnerable groups, along with the development of a modernization initiative for these structures.	400,000	148,006	2024-2025	Not specified	Mitigation	0	0	1	Greenhouse gas emissions from the buildings sector
Building sector	Penetrating	Creation of a financial incentive mechanism for the installation of solar water heating systems in buildings (CSAP Task 3.4.1)	Development of a financial incentive framework.	178,200	65,937	2024-2025	Not specified	Mitigation	0	0	1	Greenhouse gas emissions from the buildings sector
Building sector	Penetrating	Development of a program to enhance the accessibility and widespread adoption of technologies throughout the country (CSAP Task 3.4.3)	Conducting a feasibility study on the provision of technologies aimed at improving energy performance in buildings; fostering local production and installation activities; enhancing the engineering capabilities of the nation; and bolstering enforcement capacities. Implementation of market-oriented policies and incentive systems for enterprises to encourage local production. Formation of professional associations and provision of support for their resources.	400,000	148,006	2024-2025	Not specified	Mitigation	1	1	1	Greenhouse gas emissions from the buildings sector

Sector	Subsector	Event name	Program / Project Description	Amount of assistance		Duration	Financial instrument	Type of assistance	Contribution to technology development and transfer (Yes 1/ No 0)	Contribution to capacity development goals (Yes 1/ No 0)	Does it align with the national strategy and/or the nationally determined contribution? (Yes 1/ No 0)	Expected impact, outcome
				GEL	USD							
Building sector	Penetrating	Preparation of a comprehensive feasibility study plan for the building stock (CSAP Task 3.4.4)	Comprehensive inventory and evaluation of the technical condition of public facilities; formulation of a detailed modernization plan for public buildings; inventory and feasibility assessment of the commercial building stock; inventory and feasibility assessment of the residential stock; social and environmental research concerning the energy characteristics of buildings; and, based on the findings, conducting feasibility studies, planning, and budgeting for the execution of projects in both the public and commercial sectors.	130,000	48,102	2024-2025	Not specified	Mitigation	0	1	1	Greenhouse gas emissions from the buildings sector
Building sector	Penetrating	Establishment of a program for state subsidies supporting energy-efficient building technologies (covering both supply and demand sides) (CSAP Task 3.4.5)	The creation of a program encompassing the following domains: (a) local manufacturing, engineering, and installation; (b) enhancement of Pending financing mechanisms, funding of programs, or securing co-financing; (c) establishment of financing initiatives, collaborative funding from donors and the government, and financing of loan interest.	400,000	148,006	2024-2025	Not specified	Mitigation	1	1	1	Greenhouse gas emissions from the buildings sector
Waste		Evaluation of the requirements for converting biodegradable waste into energy (CSAP Task 6.2.3)	Preparation of a needs assessment report focused on the transformation of biodegradable waste into energy.	565,208	209,135	2024-2025	Not specified	Mitigation	0	0	1	The quantity of emissions decreased due to the process of waste recycling.
Waste		Assessment of plastic waste streams (CSAP Task 6.2.4)		423,906	156,851	2024-2025	Not specified	Mitigation	0	0	1	The quantity of emissions decreased due to the process of waste recycling.
Waste		Collection and recycling of greenhouse gases at the Kobuleti wastewater treatment facility (CSAP Task 6.3.4).	Implementation of gas collection and processing systems at the wastewater treatment facility in Kobuleti.	1,985,130	734,526	2024-2025	Not specified	Mitigation	0	0	1	The quantity of emissions decreased due to the process of waste recycling.
Total				**56,507,535**	**20,907,059**							

ANNEX 2

TABLE A2.2. FINANCIAL ASSISTANCE RECEIVED (DECISION 5/CMA.3, TABLE III.7)

Program / Event Name	Funding channel	Source of aid received (donor)	Receiver	Implementer	Amount In GEL	Amount in USD	Period	Finance Instrument Type (grant , credit ,etc.)	Status Assigned / Accepted	Type of assistance (mitigation , adaptation , penetrating)	Sector And subsector	Contribution to the implementation of technology development and transfer objectives (1 - yes; 0 - no)	Contribution to the achievement of capacity building goals (1 - yes; 0-no)	Activity status Planned, Pending, Completed	Use, impact and consequences
Establishing early warning systems for the EU climate (EU4Climate)	Bilateral	EU	UNDP	UNDP	3,072,451	1,137,945	2018-2022	Grant	Accepted	Penetrating	Multisectoral	0	1	Pending	MHEWS development, monitoring expansion, risk management plans
Georgia Climate Action Project (GEO-CAP)	Bilateral	EU	CENN	CENN	483,646	179,128	2021-2024	Grant	Accepted	Mitigation	Multisectoral	0	1	Pending	Enhancing the involvement of civil society in the formulation and execution of climate change policies.
Georgia's Integrated Transparency Mechanism for the Implementation of the Paris Agreement (CBIT)	Multilateral	GEF	UNEP	RECC	2,700,000	1,000,000	2019-2022	Grant	Accepted	Penetrating	Multisectoral	0	1	Completed	Establishment of a municipal development coordination platform; Enhancement of the national greenhouse gas inventory system.
Nitric Acid Climate Action Group (NACAG)	Bilateral	Federal Ministry for Environment, Nature Conservation and Nuclear Safety (Germany)	-	GIZ	13,500,000	5,000,000	2020-2023	Grant	Accepted	Mitigation	Industry	1	1	Pending	Equipping the Rustavi nitrogen plant with technology to reduce climate change-causing nitrogen oxide emissions.
Technical Assistance Project "Environmental Protection and Combating Climate Change"	Bilateral	EU	-	NIRAS	6,767,668	2,506,544	2022-2024	Grant	Accepted	Penetrating	Multisectoral	0		Pending	Reducing emissions from the agricultural sector
Encouraging the restoration of ecosystems to mitigate the risk of drought.	Other	IUCN, ECARO; Austrian Development Cooperation (ADC)	CENN	CENN	258,656	95,798	2021-2023	Grant	Accepted	Adaptation	Multisectoral	0	1	Pending	Enhanced understanding of nature-based strategies for alleviating drought conditions; Suggestions for incorporating nature-based strategies for drought alleviation into planning and policy frameworks.

Program / Event Name	Funding channel	Source of aid received (donor)	Receiver	Implementer	Amount In GEL	Amount in USD	Period	Finance Instrument Type (grant , credit ,etc.)	Status Assigned / Accepted	Type of assistance (mitigation , adaptation , penetrating)	Sector And subsector	Contribution to the implementation of technology development and transfer objectives (1 - yes; 0 - no)	Contribution to the achievement of capacity building goals (1 - yes; 0-no)	Activity status Planned, Pending, Completed	Use, impact and consequences
EU4Environment	Bilateral	EU (EU investment: 19.5 million euros)		OECD, United Nations Industrial Development Organization (UNIDO), UNEP, United Nations Economic Commission for Europe (UNECE)	58,785,392	21,772,367	2019-2022	Grant	Accepted	Penetrating	Forestry	0	1	Pending	Adopting greener solutions; The circular economy and emerging avenues for growth; Equitable and just opportunities within the environmental sector; Ecosystem services and natural resources; Collaboration and dissemination of knowledge.
Capacity enhancement for climate initiatives: augmenting the understanding of policymakers to incorporate climate considerations into policy frameworks.	Bilateral	Federal Ministry for Environment, Nature Conservation and Nuclear Safety (Germany)(BMUB)	GIZ	GIZ	1,198,846	444,017	2017-2022	Grant	Accepted	Penetrating	Multisectoral	0	1	Pending	Capacity enhancement for climate action involves raising the awareness of policymakers to incorporate climate considerations into policy frameworks. It also entails formulating methods and strategies for embedding climate change adaptation initiatives within national development agendas.
Achieving Georgia's Land Degradation Neutrality Goals through Restoration and Sustainable Management of Degraded Pastures. Environmental Non-Governmental Organizations Network (CENN)	Multilateral	Global Environmental Fund(GEF)	FAO	RECC	4,796,507	1,776,484	2020-2023	Grant	Accepted	Adaptation	Land degradation	0	0	Pending	The application of sustainable land management principles to pastures involves conducting an inventory of 20,000 hectares of pastureland and executing pilot projects across 770 hectares in the municipalities of Dmanisi, Kazbegi, and Gurjaani. Additionally, efforts will be made to enhance the capacity and raise awareness among stakeholders.
Collaboration between the Ministries of Energy and Environment and Natural Resources Protection of Georgia and the Norwegian Directorate of Water Resources and Energy (NVE) focuses on renewable energy, specifically in the areas of hydropower, hydrology, and climate.	Bilateral	Norwegian Ministry of Foreign Affairs	Norwegian Water Resources and Energy Directorate	Norwegian Water Resources and Energy Directorate	7,800,190	2,888,959	2018-2023	Grant	Accepted	Adaptation	Energy, energy efficiency, renewable energies	0	1	Pending	Capacity building; Analysis of the impact of climate change on future hydropower production.
Georgian Irrigation and Land Market Development Project	Multilateral	WB	MEPA National Agency of Public Registry	MEPA National Agency of Public Registry	135,000,000	50,000,000	2014-2023	Credit	Accepted	Adaptation	Agriculture	0	1	Pending	Provision of improved irrigation and drainage services to the target area.

Program / Event Name	Funding channel	Source of aid received (donor)	Receiver	Implementer	Amount In GEL	Amount in USD	Period	Finance Instrument Type (grant , credit ,etc.)	Status Assigned / Accepted	Type of assistance (mitigation , adaptation , penetrating)	Sector And subsector	Contribution to the implementation of technology development and transfer objectives (1 - yes; 0 - no)	Contribution to the achievement of capacity building goals (1 - yes; 0-no)	Activity status Planned, Pending, Completed	Use, impact and consequences
"Energy Efficiency Promotion Program"	Multilateral	GCF, German Federal Ministry for Economic Cooperation and Development - BMZ	GIZ	GIZ	13,503,110	5,001,152	2022-2028	Grant	Accepted	Mitigation	Agriculture	1	1	Pending	Technical support and investment assistance for manufacturers of energy-efficient stoves and alternative fuel sources.
Project on reducing emissions and building resilience to climate change in the Georgian agri-food sector	Multilateral	GCF	FAO	FAO "Rural Development Agency"	1,350,000	500,000	2023-2025	Grant	Accepted	Adaptation	Agriculture	0	0	Pending	1. Suggestions for the creation of an agricultural guide and the formulation of a financing action plan.
Rural Development Program	Other	EU, ENPARD	UNDP	Rural Development Agency	5,599,049	2,073,722	2020-2021	Grant	Accepted	Adaptation	Non-profit-making, entrepreneurial, and social activities	0	1	Completed	Enhancing the operational effectiveness of agricultural organizations; Bolstering smallholder farming cooperatives and facilitating access to essential resources; Encouraging the diversification of social and economic prospects in rural communities.
Green Grant Program	Other	EU, ENPARD	UNDP	Rural Development Agency	668,434	247,568	2022	Grant	Accepted	Mitigation	Energy efficiency, renewable energies	0	0	Completed	N/A
Economic and environmental benefits through sustainable land management for vulnerable communities in Georgia	Multilateral	GEF	MEPA	UNEP At the national level RECC	3,923,014	1,452,968	2018-2021	Grant	Accepted	Adaptation	Land degradation	0	1	Completed	Enhancing sustainable land management practices and land restoration efforts in Gori, Kareli, Kvareli, and Sagarejo; fostering capacity development.
"Achieving land degradation neutrality through restoration and sustainable management of degraded pastures"	Multilateral	GEF	MEPA	FAO; At the national level RECC CENN	5,336,507	1,976,484	2020-2024	Grant	Accepted	Adaptation	Land degradation	0	1	Pending	Restoration of degraded pastures in selected pilot municipalities, specifically Kazbegi, Dmanisi, and Gurjaani. Application of sustainable land management practices on pastures; enhancement of stakeholder capacity and awareness.
Sustainable management of forests to promote climate-resilient development in rural areas.	Bilateral	Austrian Development Cooperation (ADC)	MEPA; LEPL National Forestry Agency	CENN	4,570,564	1,692,802	2018-2022	Grant	Accepted	Mitigation	Forestry	0	1	Completed	LEPL National Forestry Agency Raising awareness among young people about sustainable forest management and use.
Natural Resource Management and Ecosystem Services for Sustainable Rural Development in the South Caucasus (ECOserve)	Bilateral	Federal Ministry for Economic Cooperation and Development(BMZ)	MEPA	GIZ, LEPL National Forestry Agency	38,504,432	14,260,900	2018-2021	Grant	Accepted	Adaptation	Forestry	0	1	Completed	The responsible utilization of natural resources, while considering biodiversity objectives, alongside the promotion of environmental consciousness within the community.

Program / Event Name	Funding channel	Source of aid received (donor)	Receiver	Implementer	Amount In GEL	Amount in USD	Period	Finance Instrument Type (grant , credit ,etc.)	Status Assigned / Accepted	Type of assistance (mitigation , adaptation , penetrating)	Sector And subsector	Contribution to the implementation of technology development and transfer objectives (1 - yes; 0 - no)	Contribution to the achievement of capacity building goals (1 - yes; 0-no)	Activity status Planned, Pending, Completed	Use, impact and consequences
Implementation of the Akhmeta Forest Management Inventory with Improved Methodology	Bilateral	Federal Ministry for Economic Cooperation and Development(BMZ)	LEPL National Forestry Agency	GIZ, MEPA - LEPL National Forestry Agency	309,702	114,704	2019-2020	Grant	Accepted	Penetrating	Forestry	0	1	Completed	Improved recordkeeping
Advancing Sustainable Forest Management in Lagodekhi Municipality as Part of the "Enhancing Rural Development in Georgia" Initiative	Bilateral	UNDP ENPARD; EU	LEPL National Forestry Agency	LEPL National Forestry Agency	126,418	46,822	2019-2020	Grant	Accepted	Penetrating	Forestry	0	1	Completed	Formulation of a comprehensive forest management strategy; Enhancement of skills and knowledge; Financial assistance for value chains related to forest resources.
Sustainable Forest Management Practices in Adigeni Municipality.	Bilateral	International Labour and Development Centre of the Republic of Slovenia	LEPL National Forestry Agency	A consortium of Slovenian organization "Zavita" and WWF	1,656,396	613,480	2020-2022	Grant	Accepted	Penetrating	Forestry	0	1	Completed	
Promoting the introduction of multifunctional forest use practices	Bilateral	GGP, Swedish International Development Cooperation Agency (SIDA)	LEPL National Forestry Agency	LEPL National Forestry Agency	322,920	119,600	2020-2021	Grant	Accepted	Penetrating	Forestry	0	1	Completed	Enhancing the competencies of the Forestry Agency by emphasizing the utilization of the tourist and recreational potential of forested regions, alongside the advancement of ecotourism.
Promoting sustainable forest management in Tetritskaro and Dedoplistskaro municipalities within the framework of the "Improving Rural Development in Georgia" project	Bilateral	UNDP, ENPARD (EU)	LEPL National Forestry Agency	LEPL National Forestry Agency	416,739	154,348	2020-2022	Grant	Accepted	Penetrating	Forestry	0	1	Completed	Formulation of a comprehensive forest management strategy; Enhancement of skills and capabilities; Financial assistance for value chains associated with forest resources.
Supporting the implementation of forestry reform in Georgia to reduce greenhouse gas emissions caused by forest degradation. Sub-program: Sustainable Forest Management	Multilateral	GCF GIZ, SIDA SDC	LEPL National Forestry Agency	LEPL National Forestry Agency, EIEC; Rural Development Agency GIZ	96,995,897	35,924,406	2021-2028	Grant	Accepted	Penetrating	Forestry	0	1	Pending	Assisting eight municipalities across three designated regions in the execution of sustainable forest management practices over an area of 270,807 hectares; employing energy-efficient stoves and alternative fuels, such as briquettes, to decrease wood consumption for fuel purposes.

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Supporting sustainable and climate-smart forest management practices in Georgia	Bilateral	Japanese Government	MEPA LEPL National Forestry Agency	LEPL National Forestry Agency	2,501,979	926,659	2022-2023	Grant	Accepted	Penetrating	Forestry	0	1	Completed	The “Business Yard” initiative has been established in the Mtskheta Municipality. It aims to inform local communities and supply socially vulnerable families within the municipality with energy-efficient technologies, along with training on their application. Additionally, the program provides foresters with essential equipment and offers training for its effective use.
Sustainable Forest Management in Adigeni Municipality, Phase II	Bilateral	Centre for International Cooperation and Development of the Republic of Slovenia (CMSR)	LEPL National Forestry Agency	A consortium of Slovenian organization “Zavita” and WWF	1,469,635	544,309	2023-2024	Grant	Accepted	Penetrating	Forestry	0	1	Pending	A comprehensive forest inventory and a management plan will be developed for the Adigeni forest use area, along with a strategy for the multiple use of forest resources. Furthermore, the project encompasses a component dedicated to capacity building.
Creating Innovative Climate Services by Integrating Scientific and Local Knowledge - I-CISK	Bilateral	EU	CENN	CENN	775,562	287,245	2021-2025	Grant	Accepted	Penetrating	Water resources and water supply	0	1	Pending	The initiative will focus on the design, construction, implementation, and integration of climate services aimed at significantly enhancing the incorporation of local knowledge, perceptions, and preferences alongside scientific expertise.
Project “Climate Resilient Agriculture PRAISE Marneuli”	Other	HEKS/PER	CENN	CENN	555,938	205,903	2021-2024	Grant	Accepted	Adaptation	Agriculture	0	0	Pending	Implement climate-resilient agricultural methods at the municipal level; Enhance the capabilities of community organizations and local stakeholders to adopt climate-resilient agricultural practices.
“Biomass energy and energy-efficient technologies as sustainable energy solutions for cities signatory to the Covenant of Mayors”	Bilateral	European Commission	Telavi Municipality City Hall and the Unification of Kindergartens	EEC and Telavi Municipality-Tet City Hall	2,200,618	815,044	2018-2022		Accepted	Mitigation	Energy, energy efficiency, renewable energies	1	1	Completed	Encouraging the production and use of renewable energy through the use of locally available biomass and innovative technologies
Eco-energy for the children of Erisimedi	Other	BP EXPLORATION (Caspian Sea) Ltd. Georgia	Energy Efficiency Center Georgia/EEC	EEC	98,321	36,415	2018-2019	Grant	Accepted	Mitigation	Energy, energy efficiency, renewable energies	0	0	Completed	Energy demand is being optimized at Erisimedi Kindergarten by using agricultural waste.

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Transition to alternative energy sources for income and employment	Bilateral	Swedish International Development Cooperation Agency (SIDA)	Georgian Technical University and Zestaponi Vocational College "Construct2"	HELVETAS and EEC	791,254	293,057	2021-2022	Grant	Accepted	Mitigation	Energy, energy efficiency, renewable energies	0	0	Completed	Analysis of Renewable Energy and Energy Efficiency Sectors - Evaluation of Policies and Identification of Gaps, Assessment of Skilled Labor Demand and Supply Discrepancies; Delivery of Technical Assistance.
Tbilisi Metro Project	Multilateral	EBRD	Tbilisi Municipality	Tbilisi Transport Company LLC	220,445,219	81,646,378	2020-2023	Loan	Accepted	Mitigation	Transport	1	0	Pending	Tbilisi Metro Modernization Project
Tbilisi Metro Modernization Project	Multilateral	EBRD	Tbilisi Municipality	Tbilisi Transport Company LLC	148,727,041	55,084,089	2023-2029	Loan	Accepted	Mitigation	Transport	1	0	Pending	Tbilisi Metro Modernization Project
Sustainable Urban Mobility Project	Multilateral	KfW	Tbilisi Municipality	Tbilisi City Hall	138,145,671	51,165,063	2022-2027	Loan	Accepted	Mitigation	Transport	1	0	Pending	Purchase of low-emission buses
Sustainable Urban Mobility Project	Multilateral	KfW	Tbilisi Municipality	Tbilisi City Hall	4,408,904	1,632,928	2022-2027	Grant	Accepted	Mitigation	Transport	1	0	Pending	Purchase of low-emission buses
Tbilisi Solid Waste Project	Multilateral	EBRD	Tbilisi Municipality	LLC Tbilservice Group	48,681,000	18,030,000	2018-2024	Loan	Accepted	Mitigation	Waste management	1	1	Completed	Improving solid waste management
Tbilisi Solid Waste Project - Tbilisi Municipal Solid Waste Strategy	Multilateral	EBRD	German-Greek consortium ICP-ENVIROPLAN	German-Greek consortium ICP-ENVIROPLAN	1,324,053	490,390	2019-2023	Technical Support/ Grant	Accepted	Mitigation	Waste management	1	0	Completed	Strategy development
Tbilisi Municipal Service Project	Multilateral	EBRD	Tbilisi Municipality	LLC Tbilservice Group	25,920,000	9,600,000	2021-2024	Loan	Accepted	Mitigation	Multisectoral	0	0	Pending	Purchase and operation of SWM and SL service equipment
Tbilisi Solid Waste Project - PIU support	Multilateral	EBRD	Geo Consultant, GWCC	Geo Consultant, GWCC	1,080,000	400,000	2019-2022	Grant	Accepted	Mitigation	Waste management	1	1	Completed	Improving solid waste management
Tbilisi Solid Waste Project Expansion	Multilateral	EBRD	GWCC-INTERVAL-ABF BOKU-"DG Consulting" cooperation	GWCC-INTERVAL- ABF BOKU-"DG Consulting" cooperation	202,500	75,000	2019-2022	Grant	Accepted	Mitigation	Waste management	0	0	Completed	Technical research
Construction of a trail connecting Turtle Lake and Mtatsminda and natural forest regeneration	Multilateral	GIZ	Tbilisi Municipality	Tbilisi City Hall	149,856	55,502	2019-2019	Grant	Accepted	Penetrating	Forestry	0	0	Completed	Infrastructure arrangement

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Municipal Transformation Portfolio - Kutaisi Ecosmart City	Bilateral	EU, UNDP (225000 Euro)	Kutaisi City Hall	Kutaisi City Hall	629,394	233,109	2022-2024	Grant	Accepted	Mitigation	Multisectoral	1	1	Pending	Advocating for the segregation of waste; Encouraging the use of electric vehicles; Establishing an academy focused on eco-innovations in infrastructure; Developing a communication platform (application) dedicated to environmental issues.
Strengthening the Financial Sustainability of the Protected Areas System in Georgia	Multilateral	GEF	GGP, Caucasus Nature Fund (CNF)	GGP, Caucasus Nature Fund (CNF)	26,419,500	9,785,000	2018-2023	Grant	Accepted	Penetrating	Protected areas	0	1	Pending	Enhancing the financial viability of conservation areas. Developing an ecotourism facility; Assessing biodiversity across multiple protected regions; Establishing a SMART patrol system in the Mtirala, Machakhela, Kintrishi, and Kobuleti protected areas.
Preservation of pristine forest groves in the Autonomous Republic of Adjara	Other	AAGE V. Jensen Naturfond	NNLE"Community and Environment"	Adjara Forest Agency (LEPL)	314,758	116,577	2022	Grant	Accepted	Penetrating	Forestry	0	0	Completed	Facilitation of the natural process, appropriate measures for fencing and mowing of approximately 100 hectares
Enhanced availability of solar photovoltaic technologies for households facilitated by a minor grant program.	Bilateral	EU	UNDP	N(N)JP Agroservice Centre	614,547	227,610	2022	Grant	Accepted	Mitigation	Energy, energy efficiency, renewable energies	1	0	Completed	N/A
Biodiversity and sustainable local development in Georgia	Multilateral	KfW	World Wide Fund for Nature (WWF) in the Caucasus	Forestry agencies of protected areas and Adjara	22,021,008	8,155,929	2022-2028	Grant	Accepted	Adaptation	Forestry	0	1	Pending	Developing the capabilities of the Forestry Agency, promoting protected areas, including the establishment of two new protected areas in Shori, Racha and Shida Kartli.
Renewable energy for sustainable forest management and strengthening community resilience	Bilateral	Japanese government	UNDP	N(N)JP Agroservice Centre	1,161,000	430,000	2023 –2024	Grant	Accepted	Penetrating	Energy efficiency, renewable energies	0	0	Pending	Renewable solar energy technologies will be accessible to more than 1,300 households situated within the Machakhela Protected Landscape.
ECO.Georgia	Other	GCF, SDC, BMZ	MEPA	GIZ, NFA, RDA, EIEC, DES	12,652,162	4,685,986	2021 2022	Grant	Accepted	Penetrating	Multisectoral	0	0	Pending	The execution of forestry reform in the designated areas of Kakheti, Guria, and Mtskheta-Mtianeti; the advancement of the market for energy-efficient stoves and alternative fuel sources; and the enhancement of local self-governance in communities situated in proximity to forested regions.

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Sustainable Urban Mobility in the South Caucasus (Mobility4Cities)	Bilateral	BMZ	MEPA Georgian media holdings in Tbilisi and Batumi	GIZ	15,660,000	5,800,000	2020–2022	Grant	Accepted	Penetrating	Transport	0	0	Completed	Assisting municipal authorities in the formulation and execution of more sustainable strategies for urban transportation; Advancement of transport infrastructure through the establishment of transport terminals and the integration of intelligent traffic signals; Modernization of the vehicle fleet.
Defining climate-resilient economic development policies (policy advice) (CRED)	Bilateral	BMUV	MoESD	GIZ	1,485,000	550,000	2019 - 2023	Grant	Accepted	Penetrating	Economy	0	1	Completed	Created national macroeconomic models designed to assess the effects of climate change on gross domestic product and employment levels; provided training for economists in the application of these models across sectors such as Agriculture and Tourism/ Infrastructure.
Innovation, engagement and quality	Multilateral	World Bank (WB)	Government of Georgia	Ministry of Education Municipal Development Fund	263,412,000	200,000	2019	Loan	Pending	Penetrating	Education	0	0	Pending	Improving the quality and accessibility of education
Energy supply reliability and financial recovery	Multilateral	World Bank (WB)	Government of Georgia	MESD State-Owned Company “Georgian Electric System”	86,400,000	32,000,000	2019	Loan	Accepted	Mitigation	Energy generation, renewable energies	0	0	Pending	Enhancing the dependability of electricity provision in Western Georgia; securing the financial sustainability of the Georgian State Electric System (GSE) and facilitating access to long-term commercial funding.
Additional funding for regional and municipal development-2	Multilateral	World Bank (WB)	Government of Georgia	MRDI Municipal Development Fund	35,100,000	13,000,000	2020	Loan	Accepted	Mitigation	Urban development	0	0	Pending	N/A
Economic governance and financing of competitiveness enhancement policies	Multilateral	World Bank (WB)	Government of Georgia	Ministry of Finance of Georgia MESD	2,700,000	1,000,000	2020	Loan	Accepted	Mitigation	Economy	0	0	Completed	Enhancing the competitiveness of the private sector involves fortifying the investment environment, fostering innovation, encouraging exports, developing human capital, and improving access to financial resources.

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Additional funding for irrigation and land management development	Multilateral	World Bank (WB)	Government of Georgia	MEPA	21,600,000	8,000,000	2020	Loan	Accepted	Adaptation	Agriculture	0	0	Pending	Irrigation network development/rehabilitation
Log-In Georgia	Multilateral	World Bank (WB)	Government of Georgia	MESD Open Net	13,500,000	5,000,000	2020	Loan	Accepted	Penetrating	Digital technologies	0	0	Pending	Improving high-speed internet connectivity for rural populations
Improving Kakheti's transport connections	Multilateral	World Bank (WB)	Government of Georgia	MRDI Road Department	285,948,360	105,516,000	2022	Loan	Pending	Mitigation	Transport	0	0	Pending	Improving road infrastructure
Human capital	Multilateral	World Bank (WB)	Government of Georgia	MoF, Ministry of Internally Displaced Persons from the Occupied Territories, Ministry of Labor, Health and Social Protection, Ministry of Education and Science	40,500,000	15,000,000	2022	Loan	Accepted	Penetrating	Social development	0	0	Pending	Human resource development through investments in education and social protection.
Improving the management system of protected areas	Bilateral	UNDP SIDA GRF project	Protected Areas Agency	Protected Areas Agency	161,595	59,850	2022-2023	Grant	Accepted	Penetrating	Protected areas, Biodiversity	0	1	Completed	The Management Plan for Tbilisi National Park has been established, along with the creation of a Firewood Production Protocol Document.
Enhancing frameworks for public engagement in environmental decision-making and promoting environmental education initiatives.	Other	UNDP SIDA GRF project	Environmental Information and Education Center	Environmental Information and Education Center	8,100	3,000	2022-2023	Grant	Accepted	Penetrating	Environmental education	0	0	Completed	Preschool Environmental Education Program Revised to Include Climate Change Component.
Development of forest management plans for the protected areas of Algeti, Javakheti and Lagodekhi (Lagodekhi, Tet-Ritskaro and Akhalkalaki forest districts)	Bilateral	United Nations Development Programme(UNDP)/ EU, ENPARD	Agency of Protected Areas	Agency of Protected Areas	275,130	101,900	2021-2022	Grant	Accepted	Penetrating	Forestry	0	0	Completed	Forest management plans
Development of a Sustainable Forest Management Plan for the Dedoplistskaro-Sighnaghi and Tetritskaro Forest Districts	Bilateral	UNDP EU, ENPARD	National Forestry Agency	National Forestry Agency	389,765	144,357	2021-2022	Grant	Accepted	Penetrating	Forestry	0	1	Completed	Forest management plans

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Enhancing the Multi-Hazard Early Warning System and Leveraging Climate Data in Georgia.	Multilateral	United Nations Development Programme (UNDP)/ GCF, MHEWS	MEPA, Ministry of Internal Affairs, Municipalities MRDI	UNDP	73,044,713	27,053,598	2018-2025	Grant	Accepted	Adaptation	Emergency management	1	1	Pending	Enhancing the monitoring framework, evaluating the risks associated with various hazards, and formulating strategies for risk mitigation.
Strengthening Climate Change Adaptation Capacities in Georgia	Bilateral	SDC	UNDP	UNDP	13,554,730	5,020,270	2019	Grant	Accepted	Adaptation	Multisectoral	0	1	Pending	The creation of a comprehensive mapping system for various hazards, alongside the establishment of a standardized and unified national methodology for risk assessment. The formulation of an institutional and legal framework dedicated to hazard mapping and risk assessment. The enhancement of both technical and human resources. The fortification of capabilities for preparedness planning that is informed by risk considerations.
Strengthening the financial sustainability of Georgia's protected areas system	Bilateral	Global Environmental Fund	MEPA Agency of Protected Areas	UNDP	4,931,507	1,826,484	2019-2024	Grant	Accepted	Penetrating	Protected areas, biodiversity, and wildlife	0	0	Pending	Funding has been allocated for twelve globally significant protected areas, covering a total of 31,872 hectares, renowned for their rich biodiversity.
Climate Promise	Other	Multiple donor	MEPA	UNDP	810,000	300,000	2021-2022	Grant	Accepted	Penetrating	Multisectoral	0	0	Completed	NDC performance support
Climate Promise	Bilateral	Federal Ministry for Economic Cooperation and Development (Germany)	MEPA	UNDP	302,508	112,040	2022-2023	Grant	Accepted	Penetrating	Multisectoral	0	0	Pending	NDC performance support
UNDP Small Grants Program	Multilateral	System for Trans-parent Allocation of Resources - STAR	UNDP	UNDP	665,345	246,424	2019	Grant	Accepted	Penetrating	Multisectoral	0	0	Completed	Funding is available for small grant initiatives aimed at actions that mitigate climate change.
UNDP Small Grants Program	Multilateral	System for Trans-parent Allocation of Resources CORE	UNDP	UNDP	268,137	99,310	2020	Grant	Accepted	Penetrating	Multisectoral	0	0	Completed	
UNDP Small Grants Program	Multilateral	System for Trans-parent Allocation of Resources CORE	UNDP	UNDP	290,083	107,438	2021	Grant	Accepted	Penetrating	Multisectoral	0	0	Completed	

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Enguri Hydrological Initiative	Multilateral	EBRD. (The project was financed by the Austrian Government (Drive Fund) (grant)	The created product was transferred to the Georgian State Electric System.	JSC "Georgian Energy Development Fund"	997,206	369,336	2021 – 2023	Grant	Accepted	Mitigation	Energy efficiency, renewable energies	1	0	Completed	The establishment of meteorological and hydrometric stations involves the automated gathering and analysis of data related to water inflow, discharge, and various meteorological parameters concerning the rivers within the Enguri basin.
Project to equip Batumi public schools with solar systems	Bilateral	Ministry of Foreign Affairs of Lithuania. 20% co-financed by the "Georgian Energy Development Fund".	Installation of solar photovoltaic systems for 13 beneficiary schools in Batumi	"Georgian Energy Development Fund" and Lithuanian company "Via Solis" Ltd.	1,477,474	547,213	2020-2021	Grant	Accepted	Mitigation		1	0	Completed	Installed solar micropower plants
Project to equip schools in Tbilisi and Lanchkhuti with solar systems;	Bilateral	The funding provided by the Ministry of Foreign Affairs of Lithuania.	The deployment of solar photovoltaic systems is set to take place in Tbilisi #3 and Lanchkhuti #2 schools	"Georgian Energy Development Fund" and Lithuanian company "Via Solis" Ltd.	661,336	244,939	2022-2023	Grant	Accepted	Mitigation		1	0	Completed	Installed solar micropower plants

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Equipment received through cooperation with the US Embassy and relevant offices	Bilateral	USA	The Emergency Management Center of the Ministry of Internal Affairs	US ODC, US DTRA	5,346,956	1,980,354	2019-2022	Grant	Accepted	Adaptation	Emergency management	1	1	Completed	Completed
Equipment received under the Japanese Government's Grassroots and Human Security Grant Assistance (GGP) Program	Bilateral	Japanese Government		Japanese Government	1,633,165	604,876	2019-2022	Grant	Accepted	Adaptation		1	1	Completed	Completed
The establishment of equipment and the formulation of emergency management plans as part of the UNDP initiative "Climate Change Disaster Risk Reduction in Georgia."	Multilateral	UNDP/GCF		MIA Emergency Situations Management Center. MIA LEPL - Public Security Management Center "112"	412,992	152,960	2022 – 2023	Grant	Accepted	Adaptation		1	1	Pending	The procurement and formulation of emergency management plans. Between 2018 and 2023, the Ministry of Internal Affairs has utilized the allocated Grant for the program to co-finance the annual acquisition of optical fiber cables and CCTV/video surveillance cameras. Additionally, the Grant is allocated for operational and technical maintenance, which includes regular upgrades to the network.
Equipment received within the framework of bilateral cooperation with EU member states	Bilateral	EU		European Union member states	1,215,000	450,000	2020 – 2022	Grant	Accepted	Adaptation		1	1	Completed	Technical Rescue Operations Equipment
Techniques adopted within the framework of EU4 Security, accountability and Fight against Crime in Georgia (SAFE)	Bilateral	EU		EU	1,490,400	552,000	2022 – 2023	Grant	Accepted	Adaptation		1	1	Pending	Technical Rescue Operations Equipment
BMZ-42101/2019 678 27 - Biodiversity and sustainable local development in Georgia	Multilateral	KfW - German Reconstruction Credit Bank	Ministry of Finance of Georgia	Agency of Protected Areas Adjara Forestry Agency	1,336,943	495,164	2021*	Grant	Accepted	Adaptation	Protected areas, biodiversity	0	1	Pending	Forestry Agency Capacity Enhancement, Section Two - Advancing the Conservation of Protected Areas.
KfW-40009-Communal infrastructure for the environment and tourism in Imereti and Kazbegi regions	Multilateral	KfW - German Reconstruction Credit Bank	Ministry of Finance of Georgia	Ministry of Regional Development	1,498,279	554,918	2020*	Grant	Accepted	Adaptation	Water resources, water supply	0	0	Pending	Enhanced infrastructure for tourism will be developed, alongside the introduction of a blockchain-based management system.
KfW-45506/201968650 - Energy efficiency measures and approximation of buildings to EU energy efficiency standards - Phase II	Multilateral	KfW - German Reconstruction Credit Bank	Ministry of Finance of Georgia	Self-governing city of Batumi	2,225,337	824,199	2019*	Grant	Accepted	Mitigation	Water resources, water supply	0	1	Pending	Energy efficiency measures

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NEFCO 07/17 E5P Grant - Improving the energy efficiency of public buildings and using renewable and alternative energy in Georgia	Multilateral	E5P- Eastern European Energy Efficiency and Environmental Cooperation Fund	Ministry of Finance of Georgia	Municipal Development Fund	5,365,618	1,987,266	2018*	Grant	Accepted	Mitigation	Construction, energy efficiency	1	1	Pending	Energy efficiency measures for public buildings and the use of renewable and solar energy
NEFCO 07/17 E5P Grant - Rehabilitation of public schools in the mountainous regions of Georgia	Multilateral		Ministry of Finance of Georgia	Municipal Development Fund	7,642,101	2,830,408	2022*	Grant	Accepted	Mitigation		0	0	Pending	Energy efficiency measures
EU-ENPARD IV - ENPARD IV - European Neighbourhood Programme for Agriculture and Rural Development IV	Bilateral	EU	Ministry of Finance of Georgia	Ministry of Finance of Georgia	56,612,312	20,967,523	2020*	Grant	Accepted	Adaptation	Agriculture	0	0	Pending	Enhancing the competitiveness of the agricultural sector; Generating economic prospects, job opportunities, and services for the community; Boosting export activities; Safeguarding consumer rights through the enhancement of inspection and control quality, as well as increasing the efficacy of pertinent regulations.
IBRD-90430 - Irrigation and Land Market Development Project (additional funding)	Multilateral	WB	Ministry of Finance of Georgia	MEPA Public Registry Agency	34,808,477	12,892,028	2020*	Loan	Accepted	Adaptation	Agriculture	0	0	Pending	Providing improved irrigation and drainage facilities for the target area.
NEFCO 07/17 E5P - Improving the energy efficiency of public buildings in Georgia and using renewable and alternative energy	Multilateral	Nordic Environment Finance Corporation (NEFCO)	Ministry of Finance of Georgia	Municipal Development Fund	7,642,037	2,830,384	2018*	Loan	Accepted	Mitigation	Construction, energy efficiency	1	0	Pending	Improved energy efficiency in public buildings and the use of solar energy
NEFCO Rehabilitation and energy efficiency improvement of public schools in mountainous regions of Georgia	Multilateral		Ministry of Finance of Georgia	Municipal Development Fund	11,463,151	4,245,612	2022*	Loan	Accepted	Mitigation	Construction, energy efficiency	0	0	Pending	Improved energy efficiency in public buildings and the use of solar energy
EBRD- 49649 - Enguri Hydropower Plant Rehabilitation Project - Improving Resilience to Climate Conditions	Multilateral	EBRD	Ministry of Finance of Georgia	Engurhesi LLC	112,350,821	41,611,415	2018*	Loan	Accepted	Mitigation	Energy, energy efficiency, renewable energies	1	0	Pending	Rehabilitation of the Enguri Hydroelectric Power Station
EBRD- 51207 - Tbilisi Bus Extension Project (Phase II-Gas)	Multilateral	EBRD	Ministry of Finance of Georgia	Tbilisi City Hall	184,588,381	68,366,067	2019*	Loan	Accepted	Mitigation	Transport	1	1	Pending	Purchase of a fleet of natural gas-powered buses for Tbilisi
EBRD- 52565 - Tbilisi Bus Extension Project (Phase III-Gas)	Multilateral	EBRD	Ministry of Finance of Georgia	Tbilisi City Hall	243,959,376	90,355,325	2021*	Loan	Accepted	Mitigation	Transport	1	1	Pending	Purchase of a fleet of natural gas-powered buses for Tbilisi

Program / Event Name	Funding channel	Source of aid received (donor)	Receiver	Implementer	Amount In GEL	Amount in USD	Period	Finance Instrument Type (grant , credit ,etc.)	Status Assigned / Accepted	Type of assistance (mitigation , adaptation , penetrating)	Sector And subsector	Contribution to the implementation of technology development and transfer objectives (1 - yes; 0 - no)	Contribution to the achievement of capacity building goals (1 - yes; 0-no)	Activity status Planned, Pending, Completed	Use, impact and consequences
EBRD-51145 - Green Investments in Buildings Project	Multilateral	EBRD	Ministry of Finance of Georgia	Municipal Development Fund	536,047	198,536	2022*	Loan	Accepted	Mitigation	Construction, energy efficiency	0	0	Pending	Enhancing energy efficiency in public facilities; bolstering the capabilities of local construction firms within this domain, and fostering the development of a green technology value chain.
EBRD-51145 - Green Investments in Buildings ProjectGrant	Multilateral	EBRD	Ministry of Finance of Georgia		29,392,696	10,886,184	2022*	Grant	Accepted	Mitigation		0	0	Pending	
KFW Open Energy Efficiency Program	Multilateral	KfW	Ministry of Finance of Georgia		117,570,784	43,544,735	2022*	Loan	Accepted	Mitigation		1	1	Pending	Implementation of energy efficiency measures in public buildings
KFW Open Energy Efficiency ProgramGrant	Multilateral	KfW	Ministry of Finance of Georgia		9,405,663	3,483,579	2022*	Grant	Accepted	Mitigation		1	1	Pending	
KfW-40008 (29937) - Communal Infrastructure for Environment and Tourism (Tranches “A” and “B”)	Multilateral	KfW	Ministry of Finance of Georgia	Ministry of Regional Development	6,297,251	2,332,315	2020*	Loan	Accepted	Mitigation	Water resources Water supply	0	0	Pending	Enhancing and advancing water and wastewater infrastructure; delivering utility services in an environmentally responsible, energy-efficient, sustainable, and effective way.
ADB - 6024 - Liveable Cities Investment Program	Multilateral	Asian Development Bank /ADB	Ministry of Finance of Georgia	Ministry of Regional Development	6,647,319	2,461,970	2019*	Loan	Accepted	Penetrating	Multisectoral	0	0	Pending	The formulation of spatial planning strategies; the drafting of legislative amendments; the endorsement of spatial and urban development plans; and the establishment of a spatial planning information system.
ADB-4134 - Liveable Cities Investment Project for Equitable Development	Multilateral	ADB	Ministry of Finance of Georgia	Municipal Development Fund	118,856,805	44,021,039	2021*	Loan	Accepted	Penetrating	Multisectoral	0	0	Pending	Enhancement, renovation, and restoration of urban infrastructure; advancement of public and tourism transport infrastructure in the regions of Georgia, specifically Kakheti, Samegrelo-Zemo Svaneti, and Tbilisi.
IBRD-9497 - Green and Resilient Georgia Development Policy Operation	Multilateral	WB	Ministry of Finance of Georgia	Ministry of Finance of Georgia	341,380	126,437	2023*	Loan	Accepted	Penetrating	Multisectoral	0	0	Pending	Essential policy reforms designed to promote green and sustainable development, which encompass fulfilling climate obligations and safeguarding natural resources.
Total					**2,711,226,595**	**1,004,157,998**									

ANNEX 3

TABLE A2.3. INFORMATION ON SUPPORT REQUIRED FOR TECHNOLOGY DEVELOPMENT AND TRANSFER (DECISION 5/CMA.3, TABLE III.8)

Sector	Subsector	Name of activity, program, project	Program/ Project Description	Type of assistance	Technology type	Estimated period	Estimated use, impact and outcome assessment	Additional information
Energy	Industry	Combination of wind power plants and hydroelectric power plants (WIND+PHS) *	Integrating wind and pumped storage power facilities to achieve consistent energy generation during both day and night, as well as across all seasons.	Mitigation	Combined technology	The outcome of the feasibility study will determine the next steps.	GHG emission reduction; Renewable energy generation; Increasing system sustainability; Promoting the development wind power plants and hydroelectric power; Reducing imports; Promoting the reduction of the share of thermal generation.	The phases of the project and the obstacles encountered have been analyzed, and the relevant actors and stakeholders have been recognized.
Energy	Industry	Combining solar photovoltaic power plants (PV) with energy storage batteries (ESB)*	Combining PV with EDB for balanced/flexible electricity generation	Mitigation	Combined technology	The outcome of the feasibility study will determine the next steps.	GHG emission reduction; Equitable generation of electricity; Increasing system sustainability; Promoting the development of solar photovoltaic power plants; Reducing imports; Promoting the reduction of the share of thermal generation.	Project stages and barriers have been studied; actors and stakeholders have been identified
Energy	Industry	Combining run-of-river hydropower plants and green hydrogen *	Combining run-of-river hydropower plants and green hydrogen	Mitigation	Combined technology	The outcome of the feasibility study will determine the next steps.	Decrease in greenhouse gas emissions; Equitable electricity generation by leveraging seasonal fluctuations; Encouraging the advancement of sustainable water production; Minimizing imports; Advocating for a decrease in the proportion of thermal energy generation.	The phases of the project and the obstacles encountered have been analyzed, and the relevant actors and stakeholders have been recognized.
Energy	Buildings	Thermal insulation of the building envelope*	Thermal insulation of the building envelope (walls, roof, doors and windows, foundationThe thermal insulation of the building envelope, which includes walls, roofs, doors, windows, and foundations) consists of several components. Component 1 focuses on enhancing local capacity to ensure the comprehensive and effective enforcement of the Energy Efficiency of Buildings Law. Component 2 aims to develop local capabilities that facilitate the successful functioning of Energy Service Companies (ESCOs) while reinforcing existing structures to guarantee their sustainable and long-term operation. Component 3 involves the energy-efficient renovation of public buildings by the government, utilizing low-cost sovereign loans.	Mitigation	Combined technology	NA	GHG emission reduction from the subsector	The phases of the project and the obstacles encountered have been analyzed, and the relevant actors and stakeholders have been recognized.
Transport, Energy	Road transport	Expansion and intensification of the introduction of electric vehicles *	Expanding and intensifying the adoption of electric vehicles by removing barriers to this	Mitigation	Removing legislative and technical barriers	NA	Reducing GHG emissions from the sector	Barriers, actors and stakeholders identified
Transport, Energy	Road transport; fuel combustion	Increasing biodiesel production *	Eliminating obstacles to the expansion of local biodiesel production.	Mitigation	Removing legislative and technical barriers	NA	Reducing GHG emissions from the sector	Barriers, actors and stakeholders identified
Transport	Road transport	Road transport inspection	Road transport inspection within the framework of the National Road Safety Strategy of Georgia for 2022-2025 and its Action Plan for 2022-2023, approved by Resolution No. 353 of July 4, 2022	Mitigation	Mobile exhaust gas analyzers	Until Oct 1, 2025	Reducing GHG emissions from the subsector	NA
Energy	Industry	Hydropower plants, wind farms, solar photovoltaics	Construction of hydroelectric power plants, wind farms, solar photovoltaics	Mitigation	Renewable energy stations	Across various time periods	Reducing GHG emissions	Defined by sector development plans
Industry		N2O reduction and monitoring technology	Purchase and installation of N2O reduction and monitoring technologies at the nitric acid production plant (Rustavi 'Azoti')	Mitigation	N2O reduction technology	NA	Reducing greenhouse gas emissions from nitrogen production	NA

Sector	Subsector	Name of activity, program, project	Program / Project Description	Type of assistance	Technology type	Estimated period	Estimated use, impact and outcome assessment	Additional information
Agriculture	Manure management	Manure management	Evaluation of possible options and pilot actions on farms.	Mitigation	Exploring possibilities	NA	Identify opportunities to plan further actions	Barriers, actors and stakeholders identified
Agriculture	Soils	Conservation tillage practices in Georgia encompass the initiation of multiple pilot farms, alongside an informational campaign aimed at promoting contemporary agricultural techniques and enhancing the capabilities of stakeholders.	Enhancing soil quality by promoting water retention and boosting organic activity through soil conservation techniques for the cultivation of cereal crops such as wheat, barley, and corn.	Penetrating	JSC Land Conservation Methods	NA	The adverse effects on soil will be diminished, the processes of soil erosion will be mitigated and eradicated, and the emissions and air pollution linked to the cultivation of agricultural land will be decreased.	Barriers, actors and stakeholders identified
Agriculture	Livestock farming	Strengthening highly productive livestock breeding	Pilot farms equipped with a limited number of highly efficient livestock, supported by appropriate feeding practices and effective management.	Mitigation	Increasing livestock productivity	NA	Productivity will increase and greenhouse gas emissions will decrease	Barriers, actors and stakeholders identified
Agriculture	Agricultural waste, Manure management	Technology of using agricultural waste as fertilizer.	Use of farm waste and manure as soil fertilizer and fuel	Penetrating	Waste utilization	NA	Yields will increase, greenhouse gas emissions will decrease, and adaptation will be strengthened.	Barriers, actors and stakeholders identified
Forestry	Forest management	Software solutions designed to assist in the modeling of forest maintenance and restoration efforts aimed at alleviating the effects of climate change.	Thorough planning of forest restoration initiatives while considering climate scenarios.	Mitigation	Forest restoration planning	NA	Forest restoration will be strengthened, absorption will increase, and adaptation will be strengthened.	National Forestry Agency Development Strategy and Action Plan 2021-2026
Forestry	Forest management, biomass utilization, renewable energies	Efficient use of biomass and energy-efficient heating and cooling systems	Encouraging the adoption of alternative resources and energy-efficient technologies can alleviate the strain on forests.	Penetrating	Biomass use	NA	Pressure on the forest will be reduced (Adaptation) and emissions will be reduced (through the use of biomass).	National Environmental Action Plan #4 (NEAP4)
Installation of an aerological observation station	Monitoring/ Forecasting	Installation of an aerological observation station for monitoring and forecasting purposes	Installation of an aerological observation station for monitoring and forecasting purposes	Adaptation	Installation of an aerological observation station	NA	Will contribute to climate change or adaptation	Project Document - Multilateral Early Warning System, Green Climate Fund, United Nations Development Programme (GCF funded UNDP MHEWS)
Methodology for modeling and mapping multiple layers	Monitoring/ Forecasting	Preparation of multi-hazard maps for monitoring and forecasting purposes	Development of a methodology for modeling and mapping multiple hazards	Adaptation	Preparation of multiple hazard maps	NA	It will be easier to predict and, consequently, adapt.	Project document
Water and Sanitation 3	NA	NA	NA	NA	NA	NA	NA	NA
Intersection 3	NA	NA	NA	NA	NA	NA	NA	NA
Other (specify) 3	NA	NA	Development of a methodology for modeling and mapping multiple hazards	NA	NA	NA	NA	NA

[1] The data displayed in the table derives from the findings of the Technology Needs Assessment Report, along with information gathered from multiple national sources and interviews regarding the technological requirements across different sectors. Technologies identified as priorities and those requiring local capacity development are indicated with asterisks (and * respectively).*

[2] *The table has been completed based on the information supplied. The empty cells indicate a lack of pertinent information or existing gaps in the data provided.*

[3] *No information - NA – Not Available*

ANNEX 4

TABLE A.2.4. INFORMATION ON ACCEPTED ASSISTANCE FOR TECHNOLOGY DEVELOPMENT AND TRANSFER (DECISION 5/CMA.3, TABLE III.9)*

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
Enguri Hydrological Initiative Austrian Government (Drive Fund)/ EBRD	Study of the hydrological properties of the Enguri River	Study of the hydrological regime	2021-23	JSC "Georgian State Electric Power System"	JSC "Georgian Energy Development Fund"	Mixed	Energy	Industry	Completed	Hydrological regime studied	Research
The Grant provided by the Project Management Agency of the Ministry of Environmental Protection of Lithuania.	Installation of solar photovoltaic systems for the beneficiary school #13 in Batumi	Renewable energy	2020-21	Batumi School #13	"Georgian Energy Development Fund" and Lithuanian company "Via Solis" Ltd.	Mitigation	Energy	Renewable energy	Completed	Solar photovoltaic systems are installed.	Demonstration
	Equipping Tbilisi #3 and Lanchkhuti #2 schools with solar systems	Renewable energy	2022-23	Tbilisi #3 and Lanchkhuti #2 schools		Mitigation	Energy	Renewable energy	Completed		
Project "Biomass Energy and Energy Efficiency Technologies as Sustainable Energy Solutions for Covenant of Mayors Signatory Cities" European Union	1. Autonomous heating system using solid fuel (vine-fired) in kindergartens in Telavi; 2. Solar water heating systems connected to the autonomous heating system; 3. Grid-connected solar photovoltaic systems with a total installed capacity of 5.45 kW (Ikalto) and 6.875 kW (Telavi #1).	Renewable energy	2018-22	Telavi Municipality City Hall; Telavi Municipality Kindergarten Association	Energy Efficiency Center Georgia (EECG), Telavi Municipality City Hall	Mitigation	Energy	Renewable energy	Completed	Planned activities have been implemented.	Demonstration
Solar panels for Lagodekhi business yard	Installing solar panels in Lagodekhi	Renewable energy	2018-22	Lagodekhi Municipality	UNDP/EU Project ENPARD	Mitigation	Energy	Renewable energy	Completed	Implemented	Demonstration
Demonstration of solar water heaters, thermal insulation and solar panels in households in 8 municipalities	Demonstration of solar water heaters, thermal insulation and solar panels in households in 8 municipalities)	Renewable energy	2018-22	8 municipalities	UNDP/EU Project ENPARD	Mitigation	Energy	Energy efficiency and renewable energies	Completed	Implemented	Demonstration

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
Expansion of the hydrometeorological observation network	The hydrometeorological observation network has been expanded, with 79 out of 154 distinct types of hydrometeorological stations now installed, along with 11 geological monitoring stations.	Hydrometeorological observation stations	2018-22	National Environmental Agency	GCF and UNDP Project "Expanding the Early Warning System for Multilateral Hazards and Utilization of Climate-Related Information in Georgia"	Adaptation	Intersectoral	Forecasting and Monitoring	Completed	Making forecasting easier	Totally
The implementation of effective biomass heating systems in two public facilities, utilizing pre-prepared biomass fuel, is taking place in Pasanauri and Kazbegi.	The implementation of effective biomass heating systems in two public facilities, utilizing pre-prepared biomass fuel, is taking place in Pasanauri and Kazbegi.	Renewable energy	NA	Pasanauri and Kazbegi municipalities	UNDP	Mitigation	Buildings	Renewable energy	Completed	Increasing energy efficiency	Demonstration
Sustainable Urban Mobility in the South Caucasus (Mobility4Cities)	Supporting the cities of Tbilisi and Batumi in the advancement of sustainable urban transportation.	Installation of transport terminals and smart traffic lights, renewal of the car park	2020-23	Tbilisi and Batumi City Halls	The German Agency for International Cooperation (GIZ)	Mitigation	Transport	Urban transport	Completed	Reducing transport emissions	Demonstration
Rural Development Program	The advancement of non-agricultural entrepreneurial activities in rural areas; environmental protection, climate	Teaching and training in climate-resilient agricultural practices	2020-21	Ministry of Environmental Protection and Agriculture	UNDP (EU) Project ENPARD/ Rural Development Agency	Adaptation	Agriculture	Climate-Smart Agriculture	Completed	Adaptation of agriculture to climate change and increasing resilience	Demonstration
Green Grant Program	Various projects and activities	various	2022	Ministry of Environmental Protection and Agriculture	UNDP (EU) Project ENPARD/ Rural Development Agency	Mixed	Agriculture	Climate-Smart Agriculture	Completed	Reducing emissions from agriculture	Demonstration

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
Project: Climate Resilient Agriculture (PRAISE Marneuli)	Enhance income generation prospects for local communities, particularly for vulnerable groups, by fostering and promoting environmentally sustainable and climate-resilient agricultural practices. The initiative encompasses advocacy efforts, capacity-building activities, and financial assistance components.	Promoting, lobbying and advocating for climate-resilient agriculture	2021-24	CENN	CENN	Adaptation	Agriculture	Climate-resilient agriculture	Pending	Increasing the resilience of agriculture to climate change	Demonstration
Pasture management practices	Research and development, demonstration, deployment, dissemination and communication	Sustainable pasture management practices	2018-24	MEPA	GEF FAO	Adaptation	Agriculture	Pastures	Pending	Increasing the resilience of pastures to climate change	The whole process
Pastoral management practices	Introducing pastoral management practices in the country		2018-24	MEPA	GEF FAO	Adaptation	Agriculture	Pastures	Pending		The whole process
Attaining land degradation neutrality in Georgia by means of restoration and sustainable management practices. (PPG)	Introduction of sustainable land management technology	Sustainable land management technologies	2020-24	MEPA	FAO RECC	Adaptation	Agriculture	Agriculture	Pending	Stopping land degradation	Demonstration
Natural Resource Management and Ecosystem Services Provision for Sustainable Rural Development in the South Caucasus (Ecoserve)	Development and implementation of a national forest inventory methodology; Development and piloting of a forest statistical inventory methodology (FMI); Modern tools and equipment required for forest inventory	Creating a methodology	2018-21	MEPA	MEPA	Mixed	Forestry	Forest inventory	Completed.	Establishing the essential prerequisites for conducting a forest inventory.	Demonstration

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
Project Eco Georgia Green Climate Fund (GCF) /GIZ and the Government of Georgia	Creation of a forest information and monitoring system; development of an electronic system by adding modules	Creation of an information and monitoring system.	2021-24	MEPA	MEPA, National Forestry Agency, Agency of Protected Areas, Adjara Forestry Agency,	Mixed	Forestry	Forest monitoring	Pending	Ensuring forest monitoring	Research and development, demonstration, installation and deployment
Project Eco Georgia	Energy-efficient ovens	Energy efficiency	2022-28	MEPA	Ministry of Economy and Sustainable Development of Georgia	Mixed	Forestry	Protection of rural areas; climate; forestry sector.	Pending	Enhancing energy efficiency	Installation/ placement
Project Eco Georgia	Encouraging the incorporation of climate change adaptation strategies into the planning and management of the forestry sector.	Establishing a Measurement, Risk Assessment and Verification (MRV) system	2021-24	MEPA	MEPA, National Forest Agency	Adaptation	Forestry	Forest management	Pending	Promoting forest adaptation to climate change	Demonstration
"Environment and Health" Program	strategic plan for reducing carbon emissions in healthcare facilities, along with enhancing the monitoring of climate-associated diseases and their risk factors.	Research	2022	UNDP, National Center for Disease Control and Public Health	L. Sakvarelidze National Center for Disease Control and Public Health	Mixed	Healthcare	Public health	Completed	Supporting health adaptation to climate change	Research
Georgia Climate Action Program (GEO-CAP): Promoting civil society engagement in climate change policy development and implementation	To enhance climate resilience and ensure water security, the initiative will bolster the involvement of civil society in combating climate change. This will be achieved by engaging stakeholders in climate-related matters through the establishment of a national platform and regional action groups, thereby fostering trust and collaboration between governmental and non-governmental entities.	Increasing resilience to climate change	2021-25	CENN	EU, CENN	Mixed	Water and Sanitation	Water safety	Pending	Promoting civil society engagement in climate change policy	Demonstration

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
Sustainable Forest Management for Rural Development (Austria, ADC-SFMRD)	Implementing sustainable forest management practices in Georgia	Increasing resilience to climate change and enhancing GHG absorption	2018-22	MEPA National Forestry Agency	Caucasus Environmental NGO Network	Mixed	Mutual-transaction (Forestry, Agriculture)	Forest, Agriculture	Completed	Increasing forest resilience to climate change and enhancing GHG absorption	Demonstration
Promoting sustainable forest management for climate-resilient rural development in Georgia	Establishing a supportive framework and efficient collaboration among agencies to enhance the management of forests and watersheds, as well as to promote sustainable energy solutions in rural areas.	Coordination	2018-22	CENN	Austrian Development Cooperation (ADC) CENN	Adaptation	Mutual-transaction (Forestry, Agriculture)	Forest, Agriculture	Completed	Inter-agency coordination for forest and watershed management	Demonstration
Green Transformation Support Program funded by the Climate Support Fund Grant	The initiative seeks to support Georgia in enhancing its climate finance capabilities. Various activities are intricate, particularly the introduction of climate-friendly budgeting technologies to the nation. While the principles governing technology transfer are recognized globally, the process necessitates significant adaptation to align with the specific context of the country.	Green transformation	2022-23	Ministry of Finance of Georgia	World Bank	Mixed	Intersecting	Climate finance	Pending	Highlighting climate finance in the budget	Demonstration
Climate Budget Tagging	The creation of a climate budget tagging guide, complemented by a taxonomy of public climate finance and a demonstration video illustrating the application of the tagging digital tool; as well as training sessions on climate budget tagging technology for line ministries and their subordinate institutions.	Development of a guide	2018-23	Ministry of Finance of Georgia	World Bank	Climate finance	Intersecting	Climate finance	Pending	Climate Budget Tagging Guide	Development and demonstration completed, testing pending

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
Cooperation with the US Embassy and relevant offices	Transfer of fire-fighting equipment	Fire-fighting and rescue equipment	2019-23	The Emergency Management Center of the Ministry of Internal Affairs	US funds US ODC, US DTRA	Adaptation	Natural disasters	Climate disasters	Completed	Fire-fighting and rescue equipment	The donor's assistance to the MIA was provided at the financial, or acquisition, stage. The installation/ placement and use were handled by the MIA.
Japanese Government Grassroots and Human Security Grant Assistance (GGP) Program					Japanese Government						
United Nations Development Programme (UNDP): "Climate Change-Induced Disaster Risk Reduction in Georgia"	Reducing the risk of climate change-induced disasters in Georgia	Equipment and development of emergency management plans	2022-23	The Emergency Management Center of the Ministry of Internal Affairs	The Emergency Management Center of the Ministry of Internal Affairs	Adaptation		Climate disasters	Pending.	Reducing the risk of disasters caused by climate change through technology	
United Nations Development Programme (UNDP): "Climate Change-Induced Disaster Risk Reduction in Georgia"	GIS model for hazard risk assessment and loss calculation, using socio-economic assessment methodology for risk calculation of natural hazards (floods, landslides, mudslides, avalanches, wind, hail, drought and multi-hazards)	Model development	2021-23	The Emergency Management Center of the Ministry of Internal Affairs	GIS and Remote Sensing Consulting Center "Geographic"	Adaptation	Natural disasters	Climate disasters	Pending.	Climate change disaster risk assessment model	
Bilateral cooperation with EU member states	Adaptation to natural disasters	Equipment (firefighting special equipment)	2020-22	The Emergency Management Center of the Ministry of Internal Affairs	EU member states	Adaptation	Natural disasters	Climate disasters	Completed	Strengthening cooperation, rescue equipment	
The European Union for security, accountability and the fight against crime (EU4 Security, accountability and Fight against Crime in Georgia (SAFE)	Special (delivery of rescue and firefighting equipment and machinery)		2022-23		EU	Adaptation		Climate disasters	Pending.	Equipping the rescue vehicle with special rescue equipment	
	Delivery of an underwater exploration robot	One underwater search robot	2023		EU	Adaptation	Natural disasters	Climate disasters	Completed	Underwater exploration robot	
Within the framework of cooperation with the Borjomi Development Group of the Estonian Ministry of Foreign Affairs	Drone delivery for Borjomi forest fire prevention and effective crisis response	One drone	2023		Borjomi Development Group	Adaptation	Natural disasters	Climate disasters, Forest fires	Completed	Drone for forest fire prevention	
In cooperation with the Polish State Fire Service	Delivery of computer equipment (tablets)	Computer equipment (tablets)	2023		Poland	Mixed	Natural disasters	Climate disasters	Completed	Computer equipment (tablets)	

Name of activity, program, project	Program/Project Description	Technology type	Period	Receiver	Implementer	Type of assistance Mitigation/ Adaptation/ Mixed	Sector	Subsector	Activity status: planned/ pending / completed	Estimated use, impact and outcome assessment	At what stage did the help occur?
UNDP "Climate Change-Induced Disaster Risk Reduction in Georgia". GCF, SDC, SIDAGovernment of Georgia	Establishing an early warning system in all watersheds of Georgia	Establishing an early warning system	2018-25	Ministry of Environmental Protection and Agriculture of Georgia	United Nations Development Programme	Adaptation	Natural disasters	Climate disasters	Pending	Launching an early warning system	Installation/ placement
Program: Climate-Induced Disaster Risk Reduction	Modeling and application development in a GIS environment	Assessment of risk and economic damage from natural hazards	2021-23	The Emergency Management Center of the Ministry of Internal Affairs	GIS and Remote Sensing Consulting Center "Geographic"	Adaptation	Natural disasters	Climate disasters	Pending	Assessment of risk and economic damage from natural hazards	Demonstration
A methodology for the modeling and mapping of hail and severe winds utilizing artificial intelligence, along with the development of a model grounded in artificial intelligence principles.	Preparation of maps and models for natural disasters (hail and strong winds)	Natural Hazard Modeling and Mapping	2018-22	National Environmental Agency	SDC UNDP Climate Change Adaptation Project	Adaptation	Natural disasters	Modeling climate disasters	Completed	Maps and models for natural disasters (hail and strong winds)	Dissemination, transfer of technologies
Avalanche and mudslide modeling methodology using the Swiss RAMMS software and software delivery	Providing modeling methodology and models for natural disasters (avalanches and mudslides)		2018-22			Adaptation	Natural disasters	Avalanche and mudslide modeling	Completed	Avalanche and mudslide modeling methodology	
Avalanche modeling methodology using Rocky3FourD software and software delivery	Providing a rock avalanche modeling methodology and model		2018-22			Adaptation	Natural disasters	Avalanche modeling	Completed	Avalanche Modeling Methodology	
Procurement of LIDAR data of watershed zones in 11 river basins; procurement of DTM data of mudflows	Data purchase		2018-22			Adaptation	Natural disasters	Floods	Completed	Purchase of modeling data	Research and Development

** The table has been completed based on the information supplied.*

NA (Not Available) - Inaccessibility of relevant information due to its absence or deficiencies in its provision

ANNEX 5

TABLE A.2.5. INFORMATION ON ASSISTANCE RECEIVED FOR CAPACITY DEVELOPMENT (DECISION 5/CMA.3, TABLE III.10)

Sector[286]	Subsector	Name of activity, program, project	Program/Project Description	Type of assistance[287]	Estimated period	Estimated use, impact and outcome assessment	Additional information
Forest sector	Forest management	Enhancing the forest management framework through the reinforcement of planning and execution processes (National Environmental Action Program / (EAP 4. Task 12.1).	Recognizing and evaluating the necessity for contemporary forest management technologies, enhancing the skills of personnel, and creating modules for management information and monitoring systems.	Penetrating	2023 - 2026	Enhancing the capacity for forest management by integrating contemporary technologies and bolstering human resources.	N/A
Forest sector	Forest maintenance	Forest management and restoration of degraded areas (NEAP 4. Objective 12.3)	Establishing a laboratory for the effective implementation of forest maintenance and restoration measures	Penetrating	2026	Capacity building to increase the effectiveness of forest management and restoration measures	N/A
Forest sector	Protected Areas and Biodiversity	Establish an interconnected network of effectively managed protected areas (NEAP 4. Objective 11.2)	Introducing modern “smart” patrolling technologies	Penetrating	2023 - 2026	Enhanced capability for the conservation of biodiversity and the sustainable management of biological resources.	N/A
Agriculture	Land resources	Reduce land degradation/unforestation and restore degraded areas (excluding pastures) (NEAP 4. task 8.1)	Introduction of no-till sowing and crop rotation	Adaptation	2023 - 2026	Enhancing capabilities for the sustainable management of land resources and adaptation.	N/A
Agriculture	Land resources	Sustainable rangeland management (NEAP 4. Task 8.2)	Restoration of degraded grazing lands and the establishment of a methodology for pasture inventory.	Penetrating	2023 - 2026	Capacity building for sustainable pasture management	N/A
Penetrating	Disaster risk management	Natural Hazards Improving the Disaster Response System	Enhancement of the material and technical resources, as well as the infrastructure, of the Emergency Situations Management Service within the Ministry of Internal Affairs. Advancement of the Volunteer Institute and the expansion of their capacities.	Adaptation	2023 - 2026	Strengthening disaster risk management capacities	N/A
Industry	Atmospheric air	Implementation of an integrated permitting system for the prevention and control of emissions from the industrial sector (NEAP 4. Task 2.1)	The formulation of subordinate normative regulations utilizing the most effective techniques available, followed by their presentation for approval.	Mitigation	2023 – 2024	Enhancing the ability to mitigate and regulate emissions from the industrial sector by refining the associated mechanisms.	N/A

286 Energy, transport, industry, agriculture, forestry, water and sanitation, penetrating, etc.

287 Mitigation, adaptation, penetrating

Sector[286]	Subsector	Name of activity, program, project	Program/Project Description	Type of assistance[287]	Estimated period	Estimated use, impact and outcome assessment	Additional information
Penetrating	Disaster risk management	Improve the functioning of the monitoring and early warning system (NEAP 4. Task 14.1)	The enhancement of the stationary hydro-meteorological observation network, the implementation of advanced information and communication technology (ICT) for the reception and transmission of operational data as well as data quality assurance, the establishment of contemporary monitoring systems in regions susceptible to geological disasters, the adoption of modern weather forecasting models, the simulation of natural hazards, and the development of territorial zoning and hazard mapping.	Adaptation	2023 - 2026	Strengthening disaster risk management capacities	N/A
Water and sanitation	Water resources management	The establishment of a comprehensive assessment system for evaluating the condition of water bodies in alignment with contemporary standards, specifically the European Water Framework Directive (NEAP 4, Task 5.1).	Enhancing the capabilities of the personnel at the National Environmental Agency regarding the classification of water bodies, the identification of surface and groundwater that are either contaminated or at risk of contamination from agricultural nitrates, and the delineation of nitrate-sensitive areas through effective zoning and mapping. Additionally, the formulation and ratification of basin management plans.	Adaptation	2023 – 2024	Capacity enhancement for the management of water resources in accordance with the EU Water Framework Directive.	N/A
Water and sanitation	Black Sea biodiversity	Preventing the spread of new alien species from ballast water (NEAP 4. Task 6.1)	The creation of a ballast water laboratory aimed at analyzing the presence of foreign harmful organisms and pathogens in water, with the objective of regulating ballast water.	Adaptation	2023 - 2026	Strengthening capacities for the protection of Black Sea biodiversity.	N/A
Water and sanitation	Black Sea biodiversity	Implementing the Black Sea Integrated Monitoring Program (NEAP 4. Task 4.4)	Enhancing the human resources of the National Environmental Agency, particularly in relation to the study of cetacean strandings. Improving the technical capabilities of the Agency for comprehensive monitoring, which includes the acquisition of at least one pertinent floating facility. Augmenting the Agency's capacity to monitor chemical parameters through the provision of appropriate technical equipment and skilled personnel. Establishing a scientific platform in the Black Sea aimed at facilitating the exchange of scientific knowledge and data.	Adaptation	2023 - 2026	Strengthening capacities for the protection of Black Sea biodiversity.	N/A

Sector[286]	Subsector	Name of activity, program, project	Program/Project Description	Type of assistance[287]	Estimated period	Estimated use, impact and outcome assessment	Additional information
Penetrating	Atmospheric air management	Development of an ambient air quality monitoring and assessment system (NEAP 4. Task 7.2)	The enhancement of the stationary ambient air quality monitoring system will involve the establishment of additional automatic monitoring stations, the development of a modeling and forecasting system for ambient air quality, the upgrade of the air quality portal, and the introduction of quality management and control mechanisms for ambient air quality data.	Mitigation	2023 - 2026	Strengthening capacity in terms of atmospheric air management	N/A
Penetrating	Environmental governance	Strengthening capacity for environmental law enforcement (NEAP 4. Task 3.1)	Enhancing the framework of the Environmental Supervision Department by establishing a new structural unit and providing the department with essential equipment and advanced technologies to effectively enforce legislation.	Penetrating	2023 - 2026	Increasing environmental oversight capacity	N/A
Penetrating	Chemicals management	Harmonize chemicals management legislation with CLP4 and REACH5 regulations (NEAP 4. Task 10.1)	The formulation and endorsement of pertinent subordinate normative acts aligned with CLP and REACH regulations, along with the establishment of the National Agency for Chemicals and the associated registry.	Mitigation	2023 - 2026	Capacity building in the management of chemicals	N/A
Penetrating	Chemicals management	Enhance the national management framework for ozone-depleting substances and various refrigerants (NEAP 4. Objective 10.4).	The establishment of a professional qualification standard for refrigeration technicians, the formulation of a standard addressing safety and environmental protection requirements for refrigeration systems, and the enhancement of the technical capabilities of the Customs Department of the Revenue Service regarding the oversight of legislation governing refrigerant management.	Mitigation	2023 - 2026	Strengthening capacity in the management of ozone-depleting substances and other refrigerants.	N/A
Transport	Private and public transport	Enhance the proportion of private vehicles within the fleet that are low-emission, zero-emission, and technically proficient (CSAP. Objective 2.1).	The incorporation of state license plate recognition technology, commonly referred to as “smart cameras,” acquired by municipalities for the identification of vehicles that fail to undergo technical inspections, into the centralized video surveillance system of the Ministry of Internal Affairs is proposed. This initiative aims to enhance oversight of vehicle emissions on roadways by deploying teams equipped with portable emission measurement devices and expanding their operational capabilities.	Mitigation	2024 - 2025	Enhancing the capacity of the transport sector to meet the objective of decreasing greenhouse gas emissions by 15%.	N/A

Sector[286]	Subsector	Name of activity, program, project	Program/Project Description	Type of assistance[287]	Estimated period	Estimated use, impact and outcome assessment	Additional information
Energy	Buildings sector	Development of a certification system for building energy efficiency (Climate Change Strategy 2030 Action Plan 2024-2025 / CSAP. Task 3.1).	Create a program aimed at enhancing the enforcement of minimum energy performance standards and the certification processes for buildings.	Mitigation	2024 - 2025	Enhancing the human resources and physical infrastructure of state licensing and regulatory agencies.	N/A
Energy	Buildings sector	Encouraging the adoption of solar energy and energy-efficient stoves for the purpose of water heating (CSAP. Task 3.4).	Establish a national initiative to promote the accessibility and extensive application of technologies. Enhance the engineering competencies within the country. Bolster enforcement mechanisms.	Mitigation	2024 - 2025	Strengthening capacity to reduce greenhouse gas emissions from the buildings sector. Buildings	N/A
Energy	Buildings sector	Training of personnel with high professional standards in energy efficiency issues (CSAP. Task 3.5)	Requalify and certify professionals in line with the established training programs.	Mitigation	2024 - 2025	Strengthening capacity to reduce greenhouse gas emissions from the buildings sector.	N/A
Penetrating	Waste management	Promoting waste recycling (CSAP. Task 6.2)	Increase knowledge and awareness regarding waste management practices. Augment the capabilities of both the public and the population involved in waste management, and conduct awareness-raising training sessions and meetings for stakeholders, including kindergartens, schools, and universities.	Mitigation	2024 - 2026	Capacity building in sustainable waste management	N/A

ANNEX 6

TABLE A.2.6. SUPPORT FOR THE DEVELOPMENT OF THE RECEIVED CAPACITY (DECISION 5/CMA.3, TABLE III.11)

Name of activity, program, project	Program/Project Description	Deadlines	Receiving agency	Implementing agency	Type of assistance	Sector[288]	Subsector	Business status	Estimated use, impact and outcome assessment	Additional information
Program "Climate Change Disaster Risk Reduction in Georgia"	Enhancing the response framework for disasters resulting from natural hazards.	2018 - 2025	GGP /UNDP & GDSMS/ MEPA Ministry of Internal Affairs	GGP /UNDP & GDSMS/ MEPA Ministry of Internal Affairs	Adaptation	Penetrating	Disaster Risk Management	Pending	Developing disaster risk management capabilities.	N/A
EU4Climate	EU4Climate assists the Government of Georgia in revising its Nationally Determined Contribution (NDC) in accordance with the Paris Agreement and in formulating strategies aligned with the United Nations Framework Convention on Climate Change (UNFCCC). Additionally, it will implement a national system for measurement, reporting, and verification in Georgia.	2018 - 2022	EU4Climate	EU4Climate	Penetrating	Penetrating	Multisectoral	Pending	National Measurement, Reporting and Verification System, Establishment	N/A
Technical Assistance Project "Environmental Protection and Combating Climate Change"	The objective of the project is to aid the Government of Georgia in enhancing its integration with the European Union, in accordance with the priorities outlined in the Association Agreement (AA) and the Association Agenda, by facilitating the execution of environmental and climate-related provisions.	2022-2024		NIRAS	Penetrating	Multisectoral	Multisectoral	Pending	Fulfillment of obligations under the Association Agenda	N/A
Promoting ecosystem restorationTo reduce the risk of drought	The initiative seeks to assist governments in incorporating ecosystem restoration strategies into drought management practices, thereby mitigating the effects of drought through the application of nature-based solutions (NbS).	2021 - 2023	CENN	CENN	Adaptation	Multisectoral	Drought management	Pending	Strengthening the country's capacity to use nature-based approaches to drought risk management	N/A
EU4Environment	The integration of Georgia's Strategic Environmental Assessment (SEA) System with the Georgian Environmental Assessment Code.	2019 - 2022	Ministry of Environmental Protection and Agriculture	OECD), United Nations Industrial Development Organization (UNIDO), United Nations Environment Programme (UN Environment), United Nations Economic Commission for Europe (UNECE)	Penetrating	Environmental management	Strategic Defense Assessment	Pending	Enhancing the national strategic environmental impact assessment framework for spatial development initiatives.	N/A

288 Energy, transport, industry, agriculture, forestry, water and sanitation, pipelines, etc.

Name of activity, program, project	Program/Project Description	Deadlines	Receiving agency	Implementing agency	Type of assistance	Sector[288]	Subsector	Business status	Estimated use, impact and outcome assessment	Additional information
Enhancing the Capacity for Climate Change Policy in Southeast Asia, Eastern Europe, the South Caucasus, and Central Asia, Phase 3 (CDCP III).	The objective of the project is to assist participating nations in incorporating their national climate change mitigation objectives into their national development strategies.	2017 - 2024	GIZ	GIZ	Mitigation	Penetrating	Multisectoral	Pending	Enhance the nation's ability to incorporate national mitigation priorities into sector-specific strategies.	N/A
Collaboration between the Ministries of Energy and Environment and Natural Resources Protection of Georgia and the Norwegian Directorate of Water Resources and Energy (NVE) focuses on renewable energy, specifically hydropower, hydrology, and climate-related issues.	Examining the effects of climate change on prospective hydropower generation, while considering Pending climate change projections.	2018 - 2023	Norwegian Water Resources and Energy Directorate	Norwegian Water Resources and Energy Directorate	Adaptation	Penetrating	Energy	Pending	Enhancing planning abilities, comprehending the effects of climate change, and establishing a framework for both domestic and international electricity trading.	N/A
Natural Resource Management and Ecosystem Services for Sustainable Rural Development in the South Caucasus (ECOserve)	Implementation of a national forest inventory	2018 - 2021	MEPA	GIZ LEPL National Forestry Agency	Adaptation	Forest management	Forest management	Completed	Increasing the capacity to assess the quantitative and qualitative characteristics of the country's forests.	N/A

Name of activity, program, project	Program/Project Description	Deadlines	Receiving agency	Implementing agency	Type of assistance	Sector[288]	Subsector	Business status	Estimated use, impact and outcome assessment	Additional information
Sustainable forest management in Adigeni Municipality	Purchase of inventory equipment. Employee training/education	2020 - 2022	LEPL National Forestry Agency	A consortium of Slovenian organization "Zavita" and WWF	Penetrating	Forest management	Forest management	Completed	Strengthening the capacity of forestry agency staff	N/A
Promoting the introduction of multifunctional forest use practices	The formulation of eco-tourism development strategies for forested regions overseen by the Agency in the Racha-Lechkhumi and Lower Svaneti areas, in addition to the Chokhatauri municipality.	2020 - 2021	LEPL National Forestry Agency	LEPL National Forestry Agency	Penetrating	Forest management	Forest management	Completed	National Guide to Hiking Trails. Increasing Employee Capacity.	N/A
Supporting sustainable and climate-smart forest management practices in Georgia	Protecting forest ecosystems from degradation and unlawful logging contributes to enhancing the carbon sequestration capacity of forests while simultaneously decreasing greenhouse gas emissions. Promoting clean energy and achieving zero emissions can be facilitated by stimulating investments in clean energy, particularly through the provision of biofuels derived from sustainable forest management practices implemented by local communities. Furthermore, it is essential to bolster adaptation strategies, resilience, and disaster risk reduction efforts, ensuring that these resources are accessible to vulnerable populations.	2022 - 2023	MEPA, LEPL National Forestry Agency	LEPL National Forestry Agency	Penetrating	Forest management	Forest management	Completed	1. Educating and enabling local communities regarding sustainable forest management and energy efficiency. Equipping foresters with essential tools and offering training in forest management practices and equipment utilization.	N/A
Creating Innovative Climate Services by Integrating Scientific and Local Knowledge - I-CISK	Creating climate services that are universally accessible for future generations, utilizing a socially and behaviorally informed methodology for co-production that addresses climate information requirements at suitable spatial and temporal dimensions.	2021 – 2025	CENN	CENN	Penetrating	Multisectoral	Multisectoral	Pending	A framework and guidelines for the co-production of climate services; an online web platform featuring a collection of educational resources presented as online courses.	N/A
Biomass energy and energy-efficient technologies serve as sustainable energy alternatives for cities participating in the Covenant of Mayors.	Enhancing the capabilities of Georgian cities and municipalities that are signatories to the Covenant of Mayors, enabling them to alleviate the impacts of climate change and execute local sustainable energy strategies through the initiation of investment projects (Telavi Municipality).	2018 – 2022	Telavi Municipality City Hall and the Association of Kindergartens	Energy Efficiency Center Georgia and Telavi Municipality City Hall	Mitigation	Energy, energy generation, renewable energies	Energy efficiency. Alternative energy sources	Completed	Enhancing the capabilities of designated pilot municipalities in Georgia to execute Integrated Climate and Energy Services (ICES) and sustainable energy investment initiatives.	N/A

Name of activity, program, project	Program/Project Description	Deadlines	Receiving agency	Implementing agency	Type of assistance	Sector[288]	Subsector	Business status	Estimated use, impact and outcome assessment	Additional information
Renewable energy for sustainable forest management and strengthening community resilience	Protecting the distinctive Colchian forest ecosystem within the Machakhela Protected Area and minimizing the risk of forest degradation.	2023 - 2024	UNDP	N(N)JP Agroservice Centre	Penetrating	Multisectoral	Energy efficiency, renewable energies	Pending	Enhancing the availability and accessibility of adaptation, health, and disaster risk reduction resources for at-risk populations.	N/A
Supporting the implementation of forest sector reform in Georgia - ECO.GEORGIA	The initiative seeks to lower greenhouse gas emissions through the management of forests in a manner that aligns with natural processes, alongside enhancing energy efficiency to decrease the reliance on fuel wood.	2021 - 2028	MEPA and subordinate agencies	GIZ, NFA, RDA, EIEC, DES	Penetrating	Multisectoral	Forest management	Pending	In communities situated near the forest, the capabilities of local governance entities and farmers will be enhanced to facilitate more effective participation in the sustainable forest management process.	N/A
Sustainable Urban Mobility in the South Caucasus (Mobility4Cities)	This initiative focuses on assisting municipal authorities in the South Caucasus in formulating and executing more sustainable strategies for urban transportation.	2020 - 2022	MEPA Georgian media holdings of Tbilisi and Batumi	GIZ	Penetrating	Transport	Transport	Completed	The project encompasses providing technical assistance to municipalities through the expertise of qualified professionals, aimed at enhancing their capacities.	N/A
Strengthening Climate Change Adaptation Capacities in Georgia	Establishing a thorough framework for compiling data on multi-hazard risks, thereby facilitating the effective management of climate-related risks stemming from various hydrometeorological hazards within the nation.	2018 - 2025	UNDP	UNDP	Adaptation	Multisectoral	Disaster risk management	Pending	The establishment of a uniform and coordinated national approach for the identification of various hazards and the evaluation of associated risks. This includes the sustained enhancement of both technical and human resource capabilities within the pertinent agencies and institutions tasked with the mapping of multiple hazards and risk assessment.	N/A
Green Investments in Buildings (GRIB) - Georgia	Improving and rehabilitating the energy efficiency (“EE”) of buildings across the country	2020 -	Ministry of Finance	Municipal Development Fund	Mitigation	Building sector	Energy efficiency	Pending	Enhancing the competencies of regional construction firms and fostering the development of a value chain centered on green technology.	N/A

ANNEX 7

TABLE A.2.7. SUPPORT NEEDED BY DEVELOPING COUNTRY289 PARTIES FOR THE EXECUTION OF ARTICLE 13 OF THE PARIS AGREEMENT AND FOR THE IMPLEMENTATION OF MEASURES RELATED TO TRANSPARENCY, WHICH ENCOMPASSES CAPACITY-BUILDING EFFORTS IN TRANSPARENCY (DECISION 5/CMA.3, TABLE III.12)

Title of activity, programme, project or other	Objectives and description	Expected time frame	Recipient entity	Channel (multi-lateral, bilateral, regional, other)	Support volume		Status of activity	Expected use, impact and estimated results	Additional information
					Local currency GEL	USD			
Transparency in action: advancing Georgia's national climate reporting system	To enhance Georgia's capacity to meet its Paris Agreement commitments by addressing gaps in its transparency framework. The project will establish an Integrated National Transparency Platform (NTP) to manage and share high-quality climate data for international reporting and national planning. It will strengthen institutional arrangements, improve ETF-aligned data systems, and integrate transparency processes into decision-making, fostering sustainable development and transparent governance.	2025 -2028	Ministry of Environment Protection and Agriculture of Georgia	Multilateral	3,543,800	1,300, 000	planned	Expected Use The project will establish the National Transparency Platform (NTP) to manage and share climate data for UNFCCC reporting and national planning, supporting GHG inventories, adaptation assessments, NDC tracking, and financial reporting. It will be utilized by government institutions, policymakers, and experts to ensure transparency and evidence-based decisions. Impact The project will enhance Georgia's climate data management, foster transparent governance, and support low-carbon, resilient development. A gender-responsive and inclusive approach will empower diverse stakeholders, aligning actions with sustainable development goals. Estimated Results: A fully operational NTP with ETF-compliant data modules. Improved institutional coordination and data quality. Training for 300 stakeholders, with 50% women, building national expertise. Integration of climate data into planning and UNFCCC reporting systems. Strengthened transparency and alignment with sustainable development goals.	N/A

289 Exchange rate used: 1 USD = 2.726 GEL (02.12.2023)

Title of activity, programme, project or other	Objectives and description	Expected time frame	Recipient entity	Channel (multi-lateral, bilateral, regional, other)	Support volume		Status of activity	Expected use, impact and estimated results	Additional information
					Local currency GEL	USD			
Development of Second and Third Biennial Transparency Report and 6th National Communication to the UNFCCC	The project aims to support the Government of Georgia in integrating and considering climate change-related issues within development strategies and sectoral policy documents. This will be achieved through the continued enhancement of institutional and technical capacities initiated under the UNFCCC and maintained through subsequent reporting instruments. It will also ensure the establishment of a regular mechanism for improvement of national reporting on climate-related activities, thereby promoting low-carbon and climate-resilient development.	2025-2028	Ministry of Environment Protection and Agriculture of Georgia	Multilateral	2,180,800	800,000	planned	The project's task is to assist the Government of Georgia in preparing a SBTR and combined report of the Sith National Communication (6NC) and the Third Biennial Transparency Report (3BTR) to be submitted to the UNFCCC, in line with its commitments under Articles 4 and 12 of the Convention, as mandated by Decisions 17/CP.8, 5/CMA.3, and 18/CMA.1. Additionally, the project will strengthen existing institutional frameworks to ensure transparency of climate change actions and support the achievement of long-term goals aimed at addressing the impacts of climate change. Estimated Results: Strengthened institutional frameworks and Transparency mechanisms for climate action. Submission of a combined 6NC and 2-3BTR reports to the UNFCCC, meeting international requirements. Enhanced technical capacity for climate monitoring and transparent reporting. Support for low-carbon, climate-resilient development. Progress toward achieving long-term climate goals.	N/A

ANNEX 8

TABLE A.2.8. ASSISTANCE PROVIDED TO DEVELOPING COUNTRY PARTIES FOR THE EXECUTION OF ARTICLE 13 OF THE PARIS AGREEMENT AND FOR THE IMPLEMENTATION OF MEASURES RELATED TO TRANSPARENCY, WHICH ENCOMPASSES CAPACITY-BUILDING EFFORTS IN TRANSPARENCY (DECISION 5/CMA.3, TABLE III.13).

Name of activity, program, project	Objectives / Project Description	Deadlines	Receiving agency	Channel (multi-lateral, bilateral, regional, other)	Support volume		Business status	Estimated use, impact and outcome assessment	Additional information
					Local currency GEL	USD			
Integrated Transparency Framework for the Implementation of the Paris Agreement	The objective of the project is to enhance Georgia's ability to fulfill the obligations set forth by the Enhanced Transparency Framework (ETF) of the Paris Agreement. This initiative assists the nation in: (1) reinforcing the alignment between local and national climate objectives; (2) augmenting the capacity for the collection and management of national inventories by employing refined methodologies and ensuring more precise data; and (3) establishing and executing a national training framework to facilitate the implementation of the Nationally Determined Contribution.	2019 - 2024	Ministry of Environment Protection and Agriculture of Georgia. Caucasus Regional Environmental Protection Center	Multilateral	3,959,079	1,452,340	Completed	Enhancing the nation's ability to uphold the transparency framework established by the Paris Agreement.	-

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