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EU-Georgia cooperation in combating the climate change

Prepared by members of the EaP CSP GNP:

Manana Devidze, Foundation Caucasus Environment

Nino Ckhkbadze, Greens Movement of Georgia

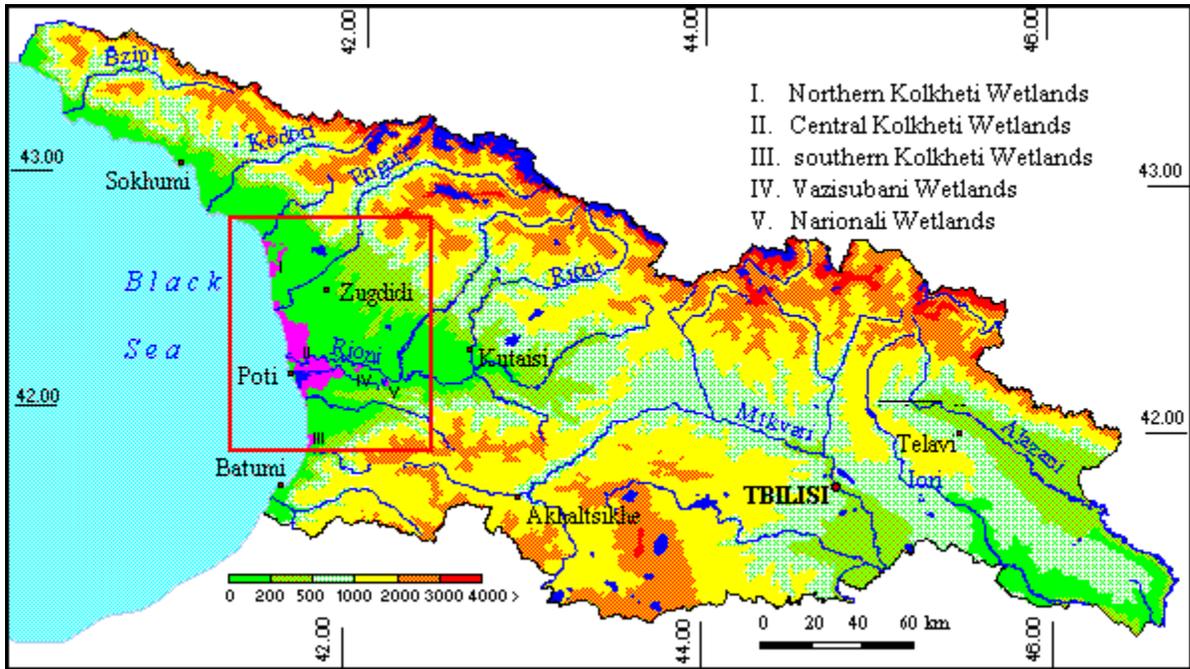
Introduction

The negative effects of climate change are evident worldwide. The melting of frozen water on the Earth has resulted in an unprecedented rise in sea levels. Through changes in weather patterns, the world's oceans have become hotter than before and climate change poses a major threat to agriculture, energy, tourism and other sectors of the economy. Climate change's impact on human health threatens natural habitats and ecosystems. Forests have become more prone to deadly diseases. Finally, the extreme weather events caused by climate change also threaten human lives and infrastructure. Consequently, climate change places heavy burdens on food security, economic development of countries and the welfare of the population. The international community focuses all efforts on combating the threats that have both increased and intensified due to climate change.

About Georgia

Georgia occupies the southeastern part of Europe, to the South of the watershed of Great Caucasian Range, in Transcaucasia, lying between the Black and Caspian Seas. It plays an important role in the Caucasus region, because its geopolitical location - connecting the North, South, East and Western countries. Through the seaports on the Black Sea, Georgia connects to the wider world. Total area of the country is 69,700 km², 46% of which is located at the altitude of 0-1000 m a.s.l. The Likhi Range, crossing the country almost meridionally in the middle of territory, divides the country into 2 different regions that is reflected mainly in the climate.

Western Georgia is rich in rivers, the biggest of which are Rioni and Enguri. The biggest river in Eastern Georgia is Mtkvari with its several confluents flowing down from the Great Caucasus. There are tens of lakes in Georgia. The biggest of them is Paravani with the area of its water plane of 37.5 km². Over 20 regulating water reservoirs are constructed on a number of rivers. Swamps occupy approximately 600 km² of the country's territory, and glaciers occupy the area of 511 km².



Map of Georgia

Almost all types of climate are presented over Georgian territory except savanna and tropical forests. The Black Sea coastal zone has humid subtropical climate. Mean annual temperature here is 14-15 0C and annual precipitation sums range from 1500 to 2500 mm. On the Plains of Eastern Georgia the climate is dry-subtropical with average annual temperatures in the range of 11-13 0 C and annual precipitation sums between 400-600 mm. In mountainous areas this value reaches 800-1200 mm.

In the cold period of the year stable snow cover does not form in both regions of Georgia up to the altitude of 400 m a.s.l. Duration of bright sunshine over the most part of the country's territory ranges from 1900 to 2200 hours. Warming period with 10 0C threshold value on the plains comprises 120-160 days, while in a mountainous zone it reaches 220-320 days.

Climate Change Impact on Georgia's Environment.

The global phenomenon of climate change has a strong impact on Georgia's environment. The negative consequences of climate change in Georgia include the rise in temperatures, changes in precipitation patterns, reduction in water availability, rise of the Black Sea water level, an increase in frequency and intensity of floods, flashfloods, landslides and mudflows, the decrease of rainfall and the extension of evaporation, to name only a few.



Wetlands of Kolkheti Lowland

The adverse impact of climate change on ecosystems and the economy pose severe threats to Georgia's sustainable development. Geographical location, complex dissected landscape, land cover diversity and specific climate, containing almost every type of climatic zone, set the conditions for a wide variety of negative consequences of climate change in Georgia. Climate change is also the main trigger or co-factor in several adverse environmental effects:

- due to rising the sea level and the appearance of other factors, the Black Sea has damaged houses and infrastructure along the coast
- in highlands, the growing frequency and intensity of floods, flashfloods, landslides and mudflows have caused a huge amount of damage to the economy
- due to decreasing rainfall and enhanced evaporation of semi-arid regions, eastern Georgia is under the threat of desertification
- the frequent and intensive heat waves have affected human health

- increases in temperature, changes in precipitation patterns, reduction in water availability, forestfires and spreading pests and diseases have worsened the growth and productivity of forests.



Devdoraki land slide

Climate Change also affects various economic sectors, particularly the agricultural sector. Georgia's agricultural sector plays a key role in the country's economy. The farmers in Georgia take a principal role in providing one of the fundamental needs of society: a safe, secure, and affordable food supply.

This underlines the importance of the relationship between climate change impact on agriculture and food security. During the last decades, the negative consequences of climate change (rising temperatures, increased winds and reduced water availability) have significantly reduced agricultural productivity.

The environmental problems in the agriculture sector of Georgia are mostly caused by the changes in precipitation and temperature patterns associated with future costs mainly in rural areas. In 2000, severe drought reduced the production of cereals to close to zero and almost 400,000 hectares of agricultural land was damaged. Within the last decade the occurrence of droughts in eastern Georgia has increased. Severe droughts accompanied by high

temperatures (40-42°) have been observed every year. The high temperatures double the frequency of the occurrence of intense droughts in the frequency of the occurrence of intense droughts in the region.

Among the negative impact of climate change affecting the economic development of the country are coastal flooding and storm-hazards caused by rising sea levels and water warming, which is correlated with storm intensity. The rise of sea levels will affect the Black Sea and its coast. In order to minimize economic losses, it is vital to assess and implement adaptation measures. According to the National Communication (NC) of Georgia to the UNFCCC, the costs of the adaptation measures in the coastline area are estimated at about GEL 1.5 billion. In absence of these adaptation measures, the estimated losses only in just the tourism sector alone are expected to reach about GEL 5 billion by 2030. The priority should be given to integrated coastal planning and management instruments due to the very high social costs involved, rather than investment only in the abatement of coastal erosion. The combination of various technologies for coastal zone protection are recommended by the second Technology Needs Assessment report of Georgia to prevent significant damage caused by the Black Sea level rise. Other effects of climate change in Georgia related to natural hazards are described in the chapter on Natural Hazards.

Tourism is another dominant economic sector of Georgia suffering from climate change. This sector has a growing tendency and comprises 6.7 percent of total GDP. The climate of the country is a key competitive advantage in the tourism sector. However, climate change poses threats to the tourism industry in the case of neglecting its consequences. The winter tourism centers are sensitive to the amount and quality of snow. The main problems are associated with the shortage of snow in the winter season. The temperature becomes relatively comfortable for tourists in summer resorts. However, abundant precipitation can endanger the tourism season and lower tourism-related revenue. Climate change, causing changes in precipitation patterns and water body regimes, affects the hydro resources that are considered as an alternative environmentally sound source of electricity.

Nowadays, a large share of electricity generated in Georgia comes from hydropower, which has been developed extensively over the last decades. The development of alternative energy sources, such as wind and solar power requires more effort than before. A very positive step has already been taken however by constructing the first wind farm (with a capacity of 20.7 MW) in Georgia. Currently, the construction of new wind farms with a total capacity of about 300 MW is under consideration. The inefficient energy system was inherited by the Georgian economy from the Soviet Union. In order to improve the energy system in Georgia, energy efficiency measures are taken into account in households, industries and service sector, but much has to be done in this respect. The National Energy Efficiency Action Plan (NEEAP) has already been prepared and will soon be approved.

Institutional Framework and Key Stakeholders

The Ministry of Environmental Protection and Agriculture of Georgia (MEPA) is the state agency responsible for defining and implementing Georgia's climate change policy at the national level. The Ministry is also responsible for conducting inventory and monitoring of the climate change processes in Georgia, as well as for the elaboration of the unified state Policy of Agricultural development and control of its implementation. In addition, the Ministry also coordinates the prevention measures of global climate change manifestations and the process of the development of adaptation measures.

The municipalities of Georgia are also key stakeholders, as they are also vulnerable to climate change. It is highly important to support climate change adaptation in the regions of Georgia through the institutionalization of climate change adaptation and mitigation measures at both the local and national levels by building the capacities of local authorities.

Legal and Policy Framework

The international treaties and agreements significantly influence national policy of climate change due to its global nature. In October of 1994, Georgia ratified the United Nations Framework Convention on Climate Change (UNFCCC) and in June of 1999, accessed to the Kyoto Protocol. In 2010, Georgia acceded to the Copenhagen Accord and declared that "Georgia will take steps to achieve a measurable, reportable and verifiable deviation from the baseline scenario (below "Business as Usual" levels) supported and enabled by finance, technology and capacity building."

The Paris Agreement on climate change entered into force for Georgia in 2017. In 2015, prior to the adoption of the Paris Agreement, Georgia submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC. According to the INDC, Georgia plans to unconditionally reduce its GHG emissions by 15% below the Business as Usual (BAU) scenario by 2030. This number will mean a 34% reduction in emission intensity per unit of GDP from 2013 to 2030. Conditional to a global agreement addressing the importance of technical cooperation, access to low-cost financial resources and technology transfer, this 15% can be increased up to 25%. At 25%, Georgia's reduction in greenhouse gas emission intensity per unit of GDP from 2013 to 2030 would be approximately 43%. The 25% reduction would also ensure that by 2030, GHG emissions in Georgia will stay 40% below 1990 levels.

In order to fulfil its obligations under the Paris Agreement, the MEPA has planned the development of a 'Climate Action Plan' (CAP) before 2020 and its implementation in the following years. As one of the first steps, a revision of the Georgian INDC is planned to be conducted based on which, the new NDC will be developed and submitted to the UNFCCC secretariat by 2019.

The main articles of EU- Georgia Association Agreement

Chapter 4

Climate action

Article 308

The Parties shall develop and strengthen their cooperation to combat climate change. Cooperation shall be conducted considering the interests of the Parties on the basis of equality and mutual benefit and taking into account the interdependence existing between bilateral and multilateral commitments in this area.

Article 308

Cooperation shall aim at mitigating and adapting to climate change, as well as promoting measures at international level, including in the areas of:

- (a) mitigation of climate change;
- (b) adaptation to climate change;
- (c) carbon trading;
- (d) research, development, demonstration, deployment and diffusion of safe and sustainable low carbon and adaptation technologies, and
- (e) mainstreaming of climate considerations into sector policies.

Article 309

The Parties shall, inter alia, exchange information and expertise; implement joint research activities and exchange of information on cleaner technologies; implement joint activities at regional and international level, including with regard to multilateral environment agreements ratified by the Parties and joint activities in the framework of relevant agencies as appropriate. The Parties shall pay special attention to transboundary issues and regional cooperation.

Article 310

Based on mutual interests, the cooperation shall cover, inter alia, the development and implementation of:

- (a) national Adaptation Plan of Action (NAPA);
- (b) Low Emissions Development Strategy (LEDS), including nationally appropriate mitigation actions;

- (c) measures to promote technology transfer on the basis of technology needs assessment;
- (d) measures related to ozone-depleting substances and fluorinated greenhouse gases.

Article 311

A regular dialogue will take place on the issues covered by this Chapter.

Article 312

Georgia will carry out approximation of its legislation to the EU acts and international instruments referred to in Annex XXVII to this Agreement in accordance with the provisions of that Annex. EN 30.8.2014 Official Journal of the European Union L 261/.

The EU-Georgia AA is another key document shaping the Climate Change commitments at the national level. Specifically, the AA stresses the need for cooperation on the following areas: mitigation of climate change, adaptation to climate change, carbon trade, integration into industrial policy on climate change issues and the development of clean technologies. The agreement explicitly mentions the cooperation on the preparation of the Low Emission Strategy (LEDS), as well as Nationally Appropriate Mitigation Actions (NAMA), and the measures aimed at promoting technology transfer based on the technology needs assessment. The preparation of LEDS started in 2013. It aims to (a) provide an integrated comprehensive pathway for long-term sustainable development; (b) take into account the country's development objectives and unique circumstances; (c) promote transformational development; (d) help the country meet international climate change commitments; and (e), help the country to access financing from both public and private sources.

The concept related to Nationally Appropriate Mitigation Actions (NAMAs) has become a key element of negotiation on mitigation in the UNFCCC process. Georgia is actively involved in the preparation and implementation of projects for NAMAs. Within the framework of this initiative, the following NAMAs have either been implemented or are under preparation: Adaptive Sustainable Forest Management in the Borjomi-Bakuriani Forest District; the Efficient Use of Biomass for Equitable Climate-Proof and Sustainable Rural Development; Energy Efficient Refurbishment in the Georgian public building sector; and Vertically Integrated Nationally Appropriate Mitigation Action (V-NAMA) with a focus on the urban transport sector.

The Georgian Laws on Environmental Protection (1996) and on Ambient Air Protection (1999) acknowledge the significance of GHG emissions and stress the need to implement mitigation measures. It is highly expected that Georgia's contribution to global greenhouse gas emissions will increase driven by the increasing trends of the projections of population and economic development. However, by joining the Paris Agreement, Georgia is going to contribute to the international commitment by reducing its national GHG emissions.

Climate change mitigation and adaptation actions are more effective if they are integrated into sectoral policies. The integration of climate change issues into sector programs that cause

the biggest GHG emissions (transport, energy, industry) would have the greatest effect in the reduction of GHG emissions. At the same time, public awareness raising and the enclosure of climate change to educational programs enhance the sustainable development supportive decisions in the long-term.

The importance of actions addressing climate change effects at the national level is acknowledged in the Social-economic Development Strategy of Georgia "Georgia 2020". The document declares that "it will be necessary to attract environmental investments from the international funds of the UN Framework Convention on Climate Change (Green Climate Fund (GCF), Global Environmental Facility (GEF)) in order to meet the requirements of the Convention. This will facilitate the process of introducing energy-saving, environmentally-friendly modern technologies in Georgia". The Agricultural Strategy for 2015-2020, among other activities, integrates climate change-related aspects and aims to introduce climate-smart agricultural practices in the country. It is expected that the soon-to-be implemented Strategic Environmental Assessment (SEA), will further facilitate the integration of climate change issues in sectoral policies.

One of the main objectives of the government of Georgia is to improve the country's preparedness and adaptive capacity by developing climate resilient practices that reduce the vulnerability of highly exposed communities. In this regard, the climate-related risks and adaptation measures are initiated to integrate in the national key strategy and program papers.

Georgia strongly supports the EU initiative - Covenant of Mayors (CoM). For seven years, by joining the municipalities and cities of Georgia to the CoM, vertical coordination dialogue has advanced between both the central and local governments with regard to climate change mitigation. The intensification of the dialogue has a dual effect for better coordination. On one hand, the local governments have been exchanging knowledge on translating national climate goals to their action plans and on the other hand, the mitigation targets and needs raised by the municipalities and cities have been included in national climate-related strategies. For instance, the Sustainable Energy Action Plans (SEAPs) prepared under the CoM have been translated into the development of GHG emissions scenarios, such as business as usual and alternatives.

Currently, there are fourteen signatory local administrative entities, including 10 cities and 4 municipalities. They took the obligation to reduce greenhouse gas emissions by 20% by 2020, compared to the value defined by the Business as Usual (BAU) scenario, which is the equivalent of approximately 846 Gg of CO₂ emission reduction. Nine cities and one municipality have submitted their Sustainable Energy Action Plans (SEAP) showing emission reductions mostly from the transport and public sectors.

The new initiative offered by the commission regarding the CoM for climate and energy is open for the cities of Georgia in order to strengthen climate actions towards developing adaptive capacity and enhancing mitigation measures vis-a-vis promoting secure, sustainable and affordable energy.

Problems and priorities:

To achieve long-term benefits, it should be highlighted that climate change mitigation and adaptation does not only serve environmental goals. This is an integrated process that improves the efficiency of the economy as well. Energy efficiency, the diversification of energy sources, and shifting to alternative energy sources are cost intensive. Although, in the long run, these measures will provide better energy independence and lower operational costs for the whole economy. Climate change also has serious negative effects on Georgia's critical economic sectors as mentioned above and may lead to significant economic losses. According to expert opinion, the estimated economic losses without adaptation measures during 2021-2030 could be about GEL 25-30 billion, while adaptation measures could cost up to GEL 2.5-3 billion. Therefore, the implementation of adaptation measures is a key area under the given climate change trends. Another important arena are the mitigation measures planned within the framework of the LEDS for the following sectors: energy, industry, transport, residential, agriculture, LULUCF (Land Use, Land Use Change and Forestry) and waste. The implementation of the SEAPs within the CoM will also significantly contribute to the reduction of GHG emissions and the climate change mitigation process.

Finally, in order to properly implement any adaptation or mitigation measures, it is necessary to track climate change process in Georgia related to permanent studies and analyses. The UNFCCC requires from each party to communicate regularly all possible information on processes related to climate change. Therefore, the preparation of NCs and biannual update reports is essential procedure for the country.

In order to address the above described cross-sectoral challenges, the following long-term goal and short-term targets have been defined below:

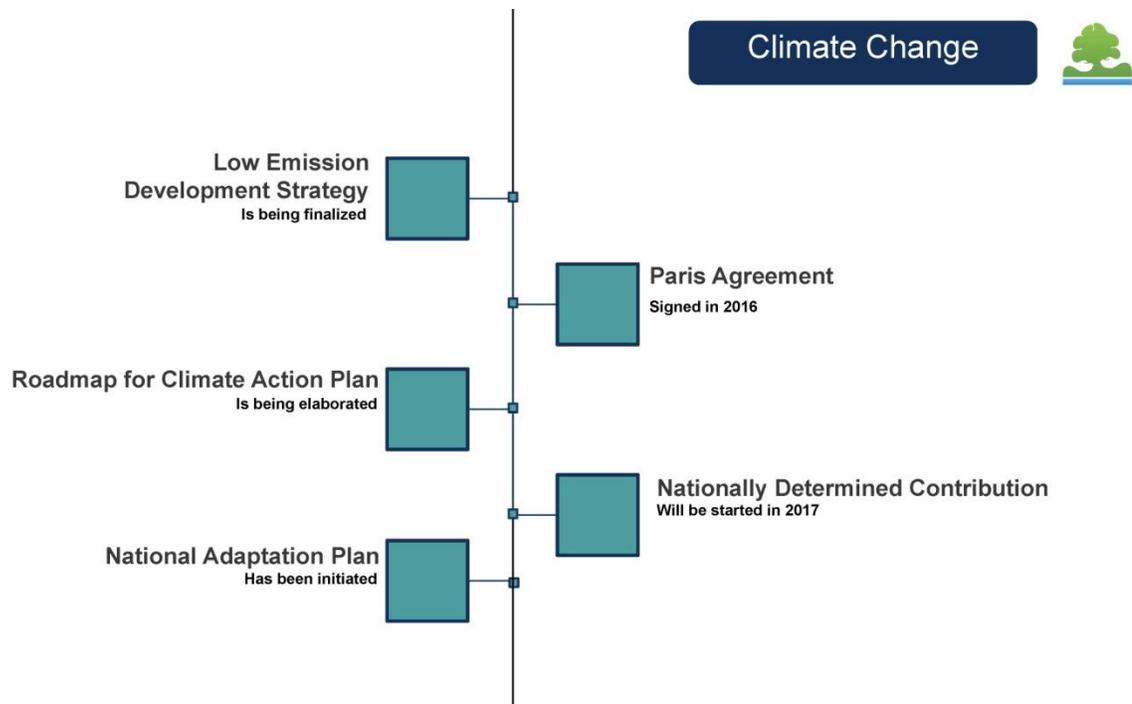
GOAL: to achieve a reduction of GHG emissions and ensure the security of the population of Georgia through the implementation of mitigation and adaptation measures.

Target 1: Creation of prerequisites for greenhouse gas emission reduction

Target 2: Increase the adaptive capacity of the country

Target 3: Implementation of the reporting obligations under the UNFCCC

Georgian government according to EU-Georgia AA developed following activities on Climate Change:



1. Low Emission Development Strategy (is being finalized)
2. Paris Agreement (signed in 2016)
3. Roadmap for Climate Action Plan (is being elaborated)
4. Nationally Determined Contribution (has been started since 2017)
5. National Adaptation Plan (has been prepared for agriculture sector)

Results of implementation of National Action Plan on Climate Change in the 3rd quarter 2018

1. Document of the working version of Intended Nationally Determined Contribution (NDC) to UNFCCC prepared according to Paris Agreement. to the IND. Georgia plans to unconditionally reduce its GHG emissions by 15% below the Business as Usual (BAU) scenario by 2030. Responsible agency Ministry of Environment Protection and Agriculture.
2. Document of the working version of Climate Change scenarios in format of 4th National Communication (NC) of Georgia to the UNFCCC, prepared by support of UNDP and GEF. National Action Plan has been prepared and experts have been

selected for preparation reports in different parts of economy (agriculture, energy, transport and etc.)

3. Working version of the First Biennial Update Report (BUR) on Climate Change report prepared by support of UNDP and GEF. The First (BUR) on Climate Change consolidates updates on national circumstances and inventory of Greenhouse Gas (GHG) emission for 2010-2013 period and provides transparency with mitigation actions and constrains and gaps. The First BUR also provides a brief overview of proposed design of Domestic Measurement, Reporting and Verification (MRV) System.
4. Working version of Climate Change National Action Plan for Georgia's Transport Sector. Tbilisi, 2017.
Climate Change Action Plan 2017-2030 is in process of preparation aiming raising the capacity of Eastern Partnership countries in accordance to European indicators.
Road map for the National action Plan on Climate Change has been prepared.
5. Climate Change National Adaptation Plan for Georgia's Agriculture Sector Tbilisi, 2017.
Elaboration of the National Plan for Agriculture Sector Adaptation to Climate Changes (hereinafter National Adaptation Plan (NAP)) was preceded by the analysis of the studies conducted in the country, for assessment of the agricultural sector vulnerability and adaptation.

Recommendations:

1. One of the priority issues on global climate change is the preservation and protection of forest ecosystems. This can be achieved through sustainable forest management adapted to climate change, that should be reflected in the relevant legislation.
2. The Black Sea coastal zone in Georgia is more vulnerable to climate change as several mangrove areas and wetlands are located in Kolkheti Valley. The raising the Black Sea level threatens with covering the lowland by the marine water and losses the big part of the land in western Georgia.
Therefore the government of Georgia must stop issuing the permits for construction of big hydropower stations which reduces accumulation of gravel in coast of the Sea and causes degradation of the coastal zone. To start the climate

- change adaptive management plan for Georgian coastal zone of the Black Sea and to create legislation for mitigation and adaptation to climate change impact on Kolkheti Lowland is very important for Georgia
3. Adoption of the changes in Marine Strategy Framework Directive (MSFD) by parliament of Georgia which has been initiated by Ministry of Environment and Agriculture of Georgia; To promote harmonization the changes in the MSFD by the countries of the Black Sea Basin.
 4. Climate change related decreasing of fresh water resources impacts as generally on world freshwater stock, on Georgian water resources as well. Georgian Government focuses mainly on hydro resources of the rivers and does not prioritize such resources as solar and wind energy. It is also important to create legislation on energy efficiency, which unfortunately, has not been adopted yet.

References:

1. Third National Environmental Action Program of Georgia 2017-2021, Tbilisi 2017;
2. DonorsCoordinationMeeting_MENRP_8_12_16. Tbilisi 2016;
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4. Climate Change National Adaptation Plan for Georgia's Agriculture Sector. Tbilisi 2017;
5. International Agreements. EU-Georgia AA. Official Journal of the European Union. L 261, Vol.57, 2014;
6. DCFTA 2018 ActionPlan 3rd quarter implementation report. Tbilisi 2018;
7. Georgia _ UNDP's Climate Change Adaptation Portal. UNDP Tbilisi 2018.