

# **Second National Action Program to Combat Desertification**

2014-2022

National Action Programme (NAP) to Combat Desertification was elaborated by the initiative of Ministry of Environment and Natural Resources Protection (MOENRP) of Georgia. It was developed in the frames of the project “Alignment of National Action Program and reporting process under UNCCD”. The project was implemented Regional Environmental Centre for Caucasus (REC C).

Governmental and Non-governmental Organizations, scientific institutions, international organizations and group of experts were participating in development of second National Action Program to Combat Desertification.

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Program development process was based on the meetings of stakeholders, and the representatives of Governmental, Non-governmental Organizations, Scientific Institutions were expressing their opinions and proposals. They all were reflected in the main part of the Program and also in planned activities.

**The stakeholders participating in the meetings:**

Ministry of Environment and Natural Resources Protection of Georgia

Ministry of Agriculture of Georgia

Ministry of regional Development and Infrastructure of Georgia

Ministry of Economy and Sustainable Development of Georgia

Ministry of Health and Social Insurance of Georgia

Ministry of Education and Science of Georgia

LEPL National Forestry Agency

LEPL Agency of Protected Areas

Municipality of Dedoplistskaro

Municipality of Sagaredjo

Municipality of Signagi

Municipality of Gori

Municipality of Kareli

Municipality of Gardabani

Institute of Geography

Agricultural University

GIZ

UNDP

NGO \_ CENN

NGO \_ Georgian Green Movement/ Friends of Earth

NGO \_ NACRES

NGO \_ Innovative Education

NGO \_ Elkana

**Abbreviations**

UNCCD \_ United Nations Convention to Combat Desertification  
NAP – National Action Programme  
GEF - Global Environmental Foundation,  
GM- Global Mechanism,  
UNEP- United Nations Environmental Programme  
MOENRP -Ministry of Environment and Natural Resources Protection  
REC Caucasus - Regional Environmental Centre of Caucasus  
NR – National Report  
NEAP – National Environmental Action programme  
SLM – Sustainable Land Management  
SLM – Sustainable Land Management  
UNCBD – United Nations Convention on Biological Diversity  
UNFCCC \_ United Nations Framework Convention on Climate Change  
SOE \_ State of Environment  
EPR \_ Environmental Performance Review  
UNECE \_ United Nations Economic Commission for Europe  
MOA \_ Ministry of Agriculture  
MOES \_ Ministry of Education and Science  
MOESD \_ Ministry of Economy and Sustainable Development  
MRDI \_ Ministry of Regional Development and Infrastructure  
NGO \_ Non-governmental Organizations  
UNDP \_ United Nations Development Programme  
NEA \_ National Environmental Agency  
BSAP \_ Biodiversity Strategy and Action Plan  
TNC \_ Third National Communication  
ADS \_ Agriculture Development Strategy  
ADF \_ Agricultural Development Fund  
NCSA \_ National Capacity Self-Assessment  
MOH \_ Ministry of Health  
GM \_ Global Mechanism  
AAR's \_ Adjarian Autonomous Republic  
EU \_ European Union  
CAP \_ Common Agricultural Policy  
DLDD \_ Desertification/Land Degradation and Drpoght  
CSO \_ Civil Society Organizations  
MOU \_ Memorandum of Understanding  
CENN \_ Caucasus Environmental NGO Network  
NACRES \_ Biodiversity Conservation and Research

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## 1. National Action Programme to Combat Desertification

### 1.1. Desertification/land degradation processes in Georgia

The 1994 UN convention to combat desertification (UNCCD) initiated the international collaboration to devise measures for combating desertification and land degradation on a global scale.

The convention to combat desertification classifies desertification with varying features, among them are climate change and soil degradation caused by anthropogenic factors among arid, semi-arid and dry sub-humid areas.

Land degradation, as defined by the same convention is, the reduction or loss of biologically or economically productive irrigable and non irrigable arable land, as well as pasture and dense woodland areas, as caused by land use, process of arid, semi-arid and dry sub-humid areas, which is caused by human activity and settlement structures, for example: soil erosion caused by wind or water; physical, chemical, biological or economical depletion of soil quality; prolonged loss of natural vegetation cover.

Combating desertification/land degradation pertains directly towards countering the negative effects of desertification/land degradation and drought, as well as steady governing of land resources (land use, land ownership, integrated governing of water resources, governing of protected lands, agriculture, practice of climate change adaptation, etc.)

In Georgia, desertification/land degradation is not only an ecological, but also a social and economical problem. Overgrazing, reduction of woodland areas, unsustainable practices in agriculture and irrational assimilation of land for urban development are main causes for land degradation.

The process of desertification/land degradation is caused by natural, as well as anthropogenic factors. The main natural reasons are following factors: climate, soil, hydrogeological, morpho- dynamic etc. The major factors of anthropogenic influence on natural environment are agriculture, mining, urbanisation, etc.

As a result of anthropogenic influence the arid and semi-arid territories increase, where wind and gully erosion processes occur, which is followed by badland formation on the majority of land. As a result of cutting down trees in mountainous and plain areas, there has been a significant increase in climate aridity, degradation of soil and vegetation cover and desertification of landscape.

The decrease in soil fertility is caused by salinisation and alkalisation processes. Soil salinisation is likely due to depletion in salt-containing rock formations, underground mineral waters or other factors. Also worth mentioning is the disordered watering of arid agricultural lands, due to which secondary salinated soil is formed. Fertility of soil is also reduced by strong acidity in the soil, caused by intensive and irrational use of physiologically acid based fertilizers, acid sediment and other.

In addition, soil contaminates by irregular use of fertilizers (organic and mineral) in agriculture, accumulation of heavy metals in soil, as well as by domestic and industrial waste.

Though Georgia does not fall in the vicinity of desert zone, as a result of possible global warming, certain areas to the east (Kakheti, mid and lower Qartli) are under a realistic threat of desertification in case of

prolonged droughts. Aside from the above regions, there might be other areas in Georgia under the same threat, identifying which is equally important for implementing the effective activities to combat desertification.

## **1.2. Georgia and UN Convention to Combat Desertification**

In 1994 Georgia signed the UN Convention to Combat Desertification. In 1999 the Georgian parliament ratified the said convention and by 21<sup>st</sup> of October 1999 Georgia became the party of the Convention to Combat of Desertification.

Since the enforcement of the Convention to combat desertification, Georgia has been actively participated at the Conferences of the Parties held under the auspices of the convention as well as meetings held by countries in Central and Eastern Europe specified by the 5-th article of the convention as consideration of Georgia under the convention is in these regions.

According to the 4-th article of the Convention to Combat Desertification, the parties shall develop a long-term strategies for implementation of convention - a National Action Programme (NAP) to combat desertification. In 2000, the first NAP to combat desertification was developed in Georgia and was approved by the president decree #112 on 2nd of April 2003.

In accordance to the first NAP to combat desertification (of 2003) the most vulnerable areas prone desertification were identified - Kakheti and Kvemo Kartli. Number of vulnerable regions increases under the influence of climate change and anthropogenic processes. To discover these areas and develop measures of adaptation is topical.

The first NAP to combat desertification singles out the following basic courses of action:

- Economical drivers to combat desertification;
- Preservation of biological diversity against the process of desertification;
- Raising environmental awareness among the population;
- Monitoring desertification;
- Desertification and agriculture;
- International and regional cooperation

In accordance with this document, the Ministry of Environment and Natural Resources Protection of Georgia was imposed the obligation to coordinate the implementation of the action plan, aside from governmental institutions the active participation of non-governmental, scientific institutes as well as the private sector was considered. The mentioned organisations were also involved in the process of development of the national action plan.

## **1.3. Alignment of Georgian National Action programme with the Strategy of the Convention**

In 2008 the Conference of the Parties has developed the strategy for 2008-2018 years for implementation of the UNCCD. this being the strategy in accordance to which the involved parties had to devise NAP. In accordance, financial institutions such as Global Environmental Foundation (GEF), Global Mechanism

(GM), UN Environmental Programme (UNEP) were tasked to support countries in development of their NAPs.

Ministry of Environment and Natural Resources Protection (MENRP) of Georgia has initiated the project “Alignment of National Action Program with the strategy and Reporting Process under UNCCD” and GEF has funded it. The project was implemented by the Regional Environmental Centre of Caucasus (REC Caucasus) supported by UNEP.

The aim of this project is to align the NAP and prepare 2012-2013 National Report (NR) on implementation of UNCCD.

A group of experts was formed by the REC Caucasus, to align the NAP to the UNCCD Strategy and they were informed about their tasks. This NAP was created by the hard work and active participation of group of experts and also the stakeholders. For development of 2<sup>nd</sup> NAP three regions (Kakheti, Shida Kartli and Kvemo Kartli) were selected.

The operational objectives of the programme were formed in accordance with the operational objectives of the 10 year strategy objectives of the Convention, National Environmental Action Program (NEAP) and considering the structure of Georgian Biodiversity Strategy and Action Plan. The 10 year strategy of UNCCD outlines its strategic and operational objectives.

**Strategic Objectives:**

Strategic objective 1. To Improve the living conditions of affected population;

Strategic objective 2. To improve the condition of affected ecosystems;

Strategic objective 3. To generate global benefits through effective implementation of the UNCCD

Strategic objective 4. To mobilize resources to support implementation of the Convention through building effective partnerships between national and international actors.

The Parties of the Convention developed operational objectives and outcomes in order to accomplish the strategic objectives as mentioned above. The operational objectives of the convention strategy are as follows:

1. Advocacy, awareness raising and education;
2. Policy framework;
3. Science, technology and knowledge;
4. Capacity-building;
5. Financing and technology transfer.

According to the above mentioned objectives and outcomes defined by the strategy the second Georgian NAP to Combat Desertification was developed which was proposed at the workshop. The remarks and opinions raised by the stakeholders were taken under consideration in the final version of the 2<sup>nd</sup> NAP of Georgia.

Noteworthy, that one of the obligations set by the convention, involvement of women and youth in the NAP development process. Women plays the important role to achieve the goal of Sustainable Land

Management (SLM). To implement effectively the NAP to combat desertification, the equal involvement of women and men as the partners in the development and also in the implementation processes of NAP.

#### **1.4. Future Vision and National Objectives**

##### **Future Vision**

The global aim of the UNCCD strategy is to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability.

The future vision of the the NAP to combat desertification at the national level can be defined as, necessity of awareness by stakeholders and public to protect and sustainable use of the land resources, and to integrate Sustainable Land Management (SLM) technologies in the national wide economic development and to ensure welfare of population.

National objectives have been set in order to achieve Future Vision, which are aligned with the Global Strategic Objectives.

##### **National Objectives**

By 2015, the detailed information on the convention will be available in Georgian language at the website of the MOENRP of Georgia and will contain information on the corresponding decisions and documents, as acknowledged at the international forums.

By 2016, to combat desertification/ land degradation will be recognized as one of the priorities in national development.

By 2017 there will be developed of either

- a) a joint plan or
- b) a functional mechanism for the purpose of ensuring conjunction of strategies and implementation of the UNCCD, UNCBD and UNFCCC.

By 2018, regional reporting bodies of the convention will prepare a statement in accordance with the new reporting guidelines.

By 2018, a regional monitoring system will be formed.

By 2018 Georgia will have a renewed strategy for Capacity Building in the field of combating desertification.

By 2019 the aspects of the NAP to combat desertification will be integrated in sectoral and investment planning and policy documents.

By 2020, at least 40% of decision makers and 30% of the population will be informed about the issues of desertification/ land degradation and drought and their relevance with biodiversity and climate change.

By 2020, 50% of community based organisations and scientific institutions will aware the threats of desertification/land degradation/drought and carry out activities in the frames of their own initiatives.

By 2020, the evaluation will be carried out on interaction between a biophysical, social and economical factors.

By 2020-2022 the activities set by Capacity Building strategy will be realised.

## 2. Advocacy, Awareness Raising and Education

The operational objective 1 of the NAP is on advocacy, awareness raising and education. Its main aim is to support the development of the NR of the UNCCD and its alignment to the UNCCD 10 year strategy by participatory, overall and transparent approach.

Almost entire of the global society agrees, that public awareness and lack of knowledge of the realistic damage caused by desertification and the possible benefits of its prevention often play a significant role in loss of fertile soil. This risk is significantly high in Georgia and is caused by problems with advocacy, raising awareness and education.

### 2.1. Situation analysis

#### 2.1.1. Stakeholder survey

The public awareness in Georgia on land degradation, desertification and conservation of soil fertility matters calls for improvement. The stakeholders should be more involved in the decision making process.

Above mentioned problems are caused by:

- Lack of priority and non-existence of clarity in vision on the subjects of land degradation and desertification in the national environmental strategic documentation;
- Lack of awareness of decision makers on the subject of land degradation, desertification and importance of preservation of soil fertility;
- Inaccessibility of information for the general population on subject of land degradation and desertification;
- Lack of formal and non-formal system of education on subject of land degradation and desertification;
- Lack of interest and exposure by non-governmental organisations and mass-media on the subject of land degradation and desertification;
- Non-existence of communicational strategy and action plan in the framework of the UNCCD;
- Scarcity of local organisations focusing their activities on avoidance of land degradation and SLM.

One of the significant tools of public awareness and decision making is the Convention on Access to information, public participation in decision-making and Access to Justice in Environmental Matters" (Aarhus Convention), ratified by Georgia in 2001. According to the Aarhus convention, the MoENRP is obligated to provide effective public involvement in the governing process on the matters of SLM Stby raising public awareness and environmental education, as well as making the relevant environmental information a matter of public access.

The essential tools in informing the public apart from the Aarhus convention are:

State of Environment (SOE), developing and publishing by the MOENRP in every three years.

Publication the "Natural Resources of Georgia and Environmental Protection", produced by the National Statistics Office of Georgia.

EPR produced by the UN Economic Commission for Europe (UNECE) relevantly to the request of the country.

### **Decision Makers**

Awareness raising, education and involvement in the decision making on land degradation and desertification are distributed among the MOENRP, Ministry of Agriculture (MOA), Ministry of Education and Science(MOES)), Ministry of Economy and Sustainable Development (MOESD), Ministry of Infrastructure and Regional Development (MOIRD), Ministry of Culture and Heritage. The main source of information and coordination body on land degradation and desertification is the MOENRP.

MOENRP, as well as MOA have specific functions and responsibilities in land management and prevention of degradation, also in advocacy, awareness and education. The Ministry of Education and Science expands the professional education system as well as undertaking reforms in governing and finance of scientific-research institutions. The mentioned institutions need the capacity building in effective and permanent implementation of awareness raising, educational activities and involvement in decision-making processes. Roles of other above mentioned ministries relative to these matters are insignificant.

### **Private Sector**

The representatives of the private sector, directly involved in the matters of agriculture and therefore the risks of land degradation, the most important are the farmers' associations, small scale entrepreneur-farmers. Their majority bring up the problem of low income in the last decade, cause of which in their opinion is land degradation. Local farmers have lack awareness on prevention of land erosion, majority of them have no possibility to get knowledge on Best Agricultural Practices and obtaining information on historically traditional knowledge.

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

Generally the national and international non-governmental organisations (NGOs) play a significant role in awareness raising and advocacy in climate change related desertification processes. There is a broad spectre of nationally based non-governmental environmental organisations, though the number of these organisations concerned with land degradation is poor and mainly concentrated in the capital.

MOENRP cooperates with NGOs tightly. The National Communication Strategy to combat desertification does not exist, where would be detailed description of their role and input in public awareness and involvement.

### **National and Local Media**

There is no active coverage of land degradation or desertification problems either at national neither at local level; the journalists' interest is poor.

In the last two years, there have been three talk-show presentations (on the Imedi and Maestro channels) dedicated although not specifically to land degradation, but more focused on climate change and agricultural relevance. Land degradation is also getting active coverage on the air of the "First Radio" on the "Farmers Hour" programme.

More active initiative is shown by local mass media sources such as: radio "Hereti", information centre of Kakheti (ick.ge); the newsletter "Shiracki", the online newsletter "Qiziyi"(qiziyi.ge), the newsletter "Spectrum" , radio "Voice of Kakheti".

### **2.1.2. Aims of Communication With the Public:**

In order to establish effective communication among the stakeholders in the planning of public awareness, it is crucial to develop powerful and effective mechanisms for exchange of information.

#### **Aims of Communication With the Media:**

- Awareness Raising in media representatives on the matters of desertification/land degradation.
- Capacity Building of media representatives and their active involvement in the public awareness raising process on the effects of desertification/land degradation on their everyday lives.

#### **Aims of Communication With Scientific institutions:**

- Informing the stakeholders on scientific researches on desertification/land degradation;
- Active involvement of the scientific community in the process of communication, by sharing their views with other stakeholders;
- Media coverage on achievements of scientific-research institutions for population, and especially for target groups.

#### **Aims of Communication with Non-Governmental and community based Organizations:**

- Active participation of Civil society in implementation of the NAP;
- Ensuring availability of relevant information to the civil society for effective implementation of advocacy, community mobilization, education and other activities.
- Increasing youth involvement (school, university).

#### **Aims of Communication With Local Population:**

- Better awareness of local population on the importance of land/soil;
- Awareness Raising of population on sustainable land use.

#### **Aims of Communication With Private Sector:**

- Involvement of the private sector in the process of implementation of NAP;
- Experience sharing of the private sector on the Best Agricultural Practice ;
- To ensure the awareness and provide viable information exchange between the stakeholders and target groups, the following communication tools have to be put in use the printed materials, social networks, webpages, media tours and training for journalists, television and radio,

awareness raising campaigns, promotion of successful projects and individuals as relative to the issue.

## 2.2. Strategic Approaches

The national outcomes are defined by the operational outcome 1: **Advocacy, Awareness Raising and Educaion in this NAP to Combat Desertification** for the purpose of supporting awariness of socio-economic and environmetal values effected by desertification/ land degradation, informing different target groups and youth on existing and possible threat of desertification, creating public motivation and forming relevant habits.

- It is important to plan a large scale communication and awareness raising campaign aimed at the main targeted groups (decision makers, private sector, non-governmental organisations, scientific and technical institutions as well as those within females and children). For these purposes it is imperative to develop appropriate messages. The planned activities include large scale of advocacy using the various tools of communication.
- It is essential to identify and evaluate the effective mechanism and format to provide the information;
- It is needed regular renovation of information for separate target groups, first of all by needs assessment for decision-makers and consequently to improve the efficiency of the information;
- It is important to raise the awareness and education of non-government organisations and mass media on the subjects of the convention as well as principles of sustainable governing of land resources;
- Creation a network between NGOs and academic institutions is necessary as well as forming a memorandum of understanding on cooperation and joint implementation of UNCCD.

## 3. Policy framework

Policy framework analyse implies a formation of favourable, legal and institutional environment when making decisions to combat desertification/ land degradation and minimising the negative effects of drought. This includes:

a) assessing the existing policies and institutional establishments:

- Analysing the national policy in SLM, concentrating on the following - land use and land ownership, integrated water resources management, protected areas management, agriculture, practice of adaptation in account of climate change and other;
- Analizing the Institutional evolution of SLM.

b) formation and/or strengthening of intergovernmental mechanism, including:

- Creation of coordination and consultation/partnership mechanism at a local, national and international levels.
- Facilitating integration of relevant action programmes and its decentralisation in an effort of more efficient solving of a specific amount of problems and utilisation of existing opportunities, connected to territorial governance and local/regional development.

g) Reviewing the national legislation, international laws and regulatory framework, their harmonization and coordination towards correspondence and popularisation.

### **3.1. Situation analysis**

#### **3.1.1. Current Legislation**

In the matter of SLM (including to combat desertification/land degradation and minimising the negative effects of drought) the Georgian legislation comprises of the Georgian constitution, Georgian international treaties and agreements, nominative acts of legislation and bylaws.

The Georgian constitution (1995), being the cornerstone of the policy framework in the given area dictates (article37): everyone has the right to live in a healthy environment, making use of natural and cultural surroundings. Everyone is obligated to preserve their natural and cultural surroundings; with due regard to the interests of the current and future generations the state shall guarantee the protection of environment and the rational use of natural resources, sustainable development of the state in accordance with ecological and economic interests of society ensuring safe environment for human health. everyone has the right to have access in time to the full and objective information on the state of the environment.

#### **Important International Treaties and Agreements**

International treaties and agreements are an important source of Georgian legislation.

**In the field of SLM, reduction of consequences of Desertification/land degradation and drought (inter alia drought caused by climate change) Georgia represents as Party of the following multilateral treaties:**

- UN Convention to Combat Desertification (UNCCD)<sup>1</sup>
- Convention on Biological Diversity (UNCBD)<sup>1</sup>
- UN Framework Convention on Climate Change (UNFCCC)<sup>2</sup>

#### **UN Convention to Combat Desertification (UNCCD)**

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<sup>1</sup> Has been enforced in Georgia by Georgian parliamentary decree on 23<sup>rd</sup> of June 1994.

<sup>2</sup> Has been enforced by Georgian parliamentary decree on 21<sup>st</sup> of April 1994.

<sup>3</sup> Has been enforced since №302 decree of the Cabinet of Ministers on 16<sup>th</sup> May 1994.

The subject to combat desertification was first brought up at the UN Conference on Environmental Protection and Development (Rio De Janeiro 1992). The conference supported the new joined approach to provide a sustainable development at the community level. As a result, the UN Convention to Combat Desertification was developed and approved on 17<sup>th</sup> of June 1994 in Paris, and was joined by Georgia in 1999.

By the terms of the convention, "desertification" means land degradation in arid, semi-arid and dry sub-humid areas resulted from various factors, including climate change and human activities, however "combating desertification" includes actions that are a part of the integrated development of land in arid, semi-arid and dry sub-humid areas for sustainable development, which are aimed at:

- Prevention and/or reduction of land degradation;
- Rehabilitation of partly degraded land; and
- Reclamation of desertified land

The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, through effective action in the framework of an integrated approach which is consistent to the sustainable development principles. To achieve this objective it is imperative for the involved parties to develop a long term integrated strategy, on improved productivity of land, and the rehabilitation, conservation and SLM and water resources,

One of the main tasks of the parties of the convention is to design the national programme to combat desertification. The aim of the national programme is to determine causing factors of desertification and practical actions necessary to mitigate the effects of drought.

Desertification represents significant social, economical and ecological problems for Georgia, as a small-land agricultural country, though it is limited by geographical areas. Other types of degradation such as deforestation, wind and water erosion, landslides, overgrazing, depletion in soil nutrition, soil pollution, etc. are spreading through the entire territory of Georgia, with their own inherent socio-economical effects. For this reason, desertification should be reviewed complexly, within the context of land degradation and SLM, as a composite part.

The National Action Programme of Georgia to combat desertification was designed by coordination of the MOENRP and was approved in 2003. All stakeholders, including interested institutions and scientific institutes, as well as local governing bodies were involved in the development process of the program.

The programme had limited financing, accounting for small scale pilot projects, scientific research forming singular programmes/plans and pre-construction activities. Investment and institutional activities (legislative and organizational changes) aimed at resolving problems caused by desertification/ land degradation were subject to less consideration.

### **United Nations Convention on Biological Diversity (UNCBD)**

Georgia became the party of the UNCBD in 1994. By joining the convention, Georgia admitted the importance to save biodiversity in regard to global concerns and development process. The convention is

establishing new approaches in protection and maintenance of biodiversity. The Main objectives of the convention are:

- Protection and conservation of biological diversity;
- Sustainable use of biodiversity components;
- Fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The convention mainly entails general norms and principals and doesn't dictate specific mandatory norms to the parties with regards to biodiversity and its components. Accordingly, the convention does not limit the jurisdiction of the parties on managing and use of their biodiversity, as long as they provide sufficient protection for the biodiversity and its sustainable use. The parties of the convention have to provide regulation for use of biological resources and dictate clear guidelines for private and legal bodies. The convention dictates that ecosystems, varieties and genetic resources have to be used for the benefit of humans, though at such rates that it doesn't cause long-term decline in biological diversity.

By terms of the convention, biological diversity includes all biological systems and types of life on earth. This includes all species of plants, animals and micro-organisms as well as genetic diversities among the different species. The important aspect of Biodiversity is represented in desert, woodland, swamp, mountain, lake and agroecosystem diversities. The Convention on Biodiversity includes all components of biodiversity - diversity between species, within the species and at the level of ecosystems. The convention outlines problems with conservation of biodiversity and sustainable use, as well as global aims and ways to accomplish them. General obligations of the parties are defined, and the framework of technical and financial cooperation.

According to the convention, the parties of the Convention should develop a strategy of SLM and relevant Action Program to ensure conservation of biodiversity and sustainable use of biological resources. They should make it more larger scale plan in the field of environmental protection and development, especially on subjects of forestry, agriculture, energy, transportation, fisheries and urban development.

The more significant is the views of the convention towards the agrobiodiversity. According to the convention<sup>[3]</sup> agrobiodiversity is a term that encompasses all components of biodiversity that are connected with food products and agriculture as well as those that represent agroecosystems, namely animal, plant-life and microorganism diversities and their variations on genetic, species and ecosystem levels, which is imperative for the preservation of important agroecosystem functions, structures and processes.

Main elements of agrobiodiversity according to the convention are:

- Genetic resources needed for food and agricultural production based on animal, plant and microbe origins;
- Ecological functionality carrying agrobiodiverse components;
- Abiotic factors;
- Socio economical and cultural aspects.

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<sup>3</sup> (2000) Decision No. V/5 - Agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year work programme / Annex III / Nairobi, 15-26 May 2000 // UNEP/CBD/COP/5/23 - 22 June, 2000.

<http://www.cbd.int/doc/meetings/cop/cop-05/official/cop-05-23-en.pdf>

In the year 2000, at the 5th COP, a long-term programme was developed specifically for the purposes of addressing the issue of agrobiodiversity<sup>4</sup> (see, purposes of main aims of programme - Amendment 1), Which among others, entailed the following activities to be carried out at the national level:

- Evaluation of components of agrobiodiversity, such as genetic resources of plants and animals, pest management and nutrient cycles.
- Conservation of those components of agricultural practice and biodiversity that are mentioned in the first iteration of the convention (for example, ecosystems and distribution areas, species and communities, genomes and genes that have scientific and economic values).
- Evaluation of knowledge, innovations and practices of farmers and local communities that promote agrobiodiversity and agrosystemic maintenance services for food production and security.
- Monitoring of the status quo or regeneration of agrobiodiverse degradation since the enforcement of the convention in 1993.
- Inception of management practice, technology and policy, that would support positive and reduce negative effects on agrobiodiversity, improving productivity and the possibility of sustainable existence.
- Increasing capabilities of farmers, local communities and their organisations, as well as other interested groups, for purposes of sustainable management of agrobiodiversity, conservation of *in-situ* agrobiodiversity, for sustainable use and development of management strategies and methodologies.
- Introduction of operational mechanisms involving wide circle of stakeholders for development the real cooperation for putting the agrobiodiversity programme into action.
- Improving political environment by distribution of benefits and providing incentives, which would facilitate local management of agrobiodiversity.
- Reflection/ integration of agrobiodiversity protection strategies and plans in sectoral and inter-sectoral plans and programs.
- Introduction of institutional framework, legislation and planning mechanisms for inclusion of agrobiodiversity in agricultural strategies and plans of action, as well broader strategies and plans of action.
- Undertaking tasks aimed at pollinates conservation and implementation of international initiative for sustainable management.

From the above tasks, a number of them have been implemented successfully<sup>5</sup>, mainly those related with components of agrobiodiversity and collection of genetic material. For example, for the purposes of

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<sup>4</sup> (2000) CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY. Fifth meeting. Nairobi, 15-26 May 2000. REPORT OF THE FIFTH MEETING OF THE CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY // Annex III : DECISIONS ADOPTED BY THE CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY AT ITS FIFTH MEETING // Decision No. V/5 - Agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year work programme - UNEP/CBD/COP/5/23 - 22 June, 2000, <http://www.cbd.int/doc/meetings/cop/cop-05/official/cop-05-23-en.pdf>.

<sup>5</sup> Passed by the Georgian Government, to the CBD Secretariat, [Third National Report](http://www.chm.moe.gov.ge/webmill/data/file/Third_Nat_Report_Geo.pdf) (2002-2005), [http://www.chm.moe.gov.ge/webmill/data/file/Third\\_Nat\\_Report\\_Geo.pdf](http://www.chm.moe.gov.ge/webmill/data/file/Third_Nat_Report_Geo.pdf).

strengthening local capabilities of conservation and management of genetic resources of plants crucial to agriculture and food production, under the GEF/UNDP project "Restoration, conservation and sustainable management of Georgian agrobiodiversity" consultations and trainings were held for local farmers by a NGO "Elkana". The same organisation also held regular courses on bioagroproduction, which covered the subject of conservation and sustainable management of agrobiodiversity; one of the aims of the above mentioned GEF/UNDP project was using advocacy and publicity in forming a suitable environment for sustainable management of agrobiodiversity.

**Article 1 -UNCBD thematic program \_ Agrobiodiversity Working Programme**

COP 5 Decision V/5 / Agricultural biological diversity: multi-year work programme.

**General objectives of Agrobiodiversity Working Program**

- (a) increasing the positive effects and decreasing negative ones of agricultural practices on biodiversity and agricultural ecosystems;
- (b) conservation of genetic resources and promotion of sustainable management - in accordance with factual and potential values of genetic resources;
- (c) Promotion of justified and equal distribution of benefits of genetic resources.

Implementation of the above mentioned activities were entirely depended on the technical and financial support of donor organisations and did not consider on the mobilisation of internal resources of the country and/or existence of local management and implementation mechanisms at national or local levels.

The second working programme of the biodiversity convention, which refers to land resources and agriculture, is a programme of work on arid and sub-humid lands<sup>6</sup>. The programme considers arid and sub-humid areas as the most vulnerable and dynamic systems. One of the aims of the programme is ensuring fair and even distribution of resources on these lands.

Under the auspices of the UNCBD, efforts on intersecting matters are underway one of which is biodiversity and climate change. A number of basic elements on this subject are being reviewed, including the adaptation of biodiversity as it relates to climate change.

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<sup>6</sup> PROGRAMME OF WORK ON DRY AND SUB-HUMID LANDS / COP 5 Decision V/23 / Consideration of options for conservation and sustainable use of biological diversity in dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems / Annex 1- DRAFT PROGRAMME OF WORK ON DRY AND SUB-HUMID LANDS, <http://www.cbd.int/decision/cop/?id=7165>.

On the matter stated above an advantage is given to the adaptation methods based on the "Ecosystem Services Approach". Adaptation efforts with regards to agrobiodiversity are underway, formation of genetic banks and their functionalities are being considered<sup>7</sup> (*ex-situ* conservation).

A direct reference to SLM, agriculture and agrobiodiversity was made at 10<sup>th</sup> planning meeting of convention on biodiversity (2010) as well as the so called "AICHI strategic problems"<sup>8</sup> that was integrated in the plan.

The biodiversity strategic plans for 2011-2020 contains 20 strategic tasks. One of these task is directly concerning rational use and protection of land resources and conservation of agrobiodiversity.

The detailed information reflecting tasks set by the convention on biological diversity and carried out at various periods of time is recorded in national reports provided by Georgia to the secretariat of the UNCBD: the second national report (1994-2001)<sup>9</sup>, third national report (2002-2005)<sup>10</sup> and fourth national report (2005-2010)<sup>11</sup> produced by the Georgian government.

### **The United Nations Framework Convention on Climate Change (UNFCCC)**

The aim of the convention is to stabilise the output of greenhouse gasses to a degree that will not cause dangerous anthropogenic harm to the climate. This has to be achieved on a time scale that is compliant with natural adaptational times of the ecosystems' climate change, which would prevent a downfall food production and provide a steady platform for future economic growth.

As defined by the convention, "Climate Change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. The same convention defines "Adverse Effects of Climate Change" as the changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.

The parties of the convention have to take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.

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<sup>7</sup> Integrating Biodiversity into Climate Change Adaptation Planning Purpose, <http://adaptation.cbd.int/>.

<sup>8</sup> COP 10. Decision X/2. 18-29 October, 2010. Strategic Plan for Biodiversity 2011-2020 / Annex: STRATEGIC PLAN FOR BIODIVERSITY 2011-2020 AND THE AICHI BIODIVERSITY TARGETS "Living in harmony with nature".  
<https://www.cbd.int/decision/cop/?id=12268>

<sup>9</sup> [http://www.chm.moe.gov.ge/webmill/data/file/Second\\_Nat\\_Report\\_Geo.pdf](http://www.chm.moe.gov.ge/webmill/data/file/Second_Nat_Report_Geo.pdf)

<sup>10</sup> [http://www.chm.moe.gov.ge/webmill/data/file/Third\\_Nat\\_Report\\_Geo.pdf](http://www.chm.moe.gov.ge/webmill/data/file/Third_Nat_Report_Geo.pdf)

<sup>11</sup> [http://chm.moe.gov.ge/webmill/data/file/4th%20National%20Rep%20to%20CBD\\_final%20draft%20soso\(1\).doc](http://chm.moe.gov.ge/webmill/data/file/4th%20National%20Rep%20to%20CBD_final%20draft%20soso(1).doc)

Policies and measures to protect the climate system against human-induced change should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.

The parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.

Above mentioned duties are guaranteed by document provided to the secretariat of the convention in periodic national communications.

Under the auspices of the convention a number of mechanisms have been put in place to realise the commitments dictated by the convention. From these mechanisms worth noting is the so called Cancun adaptational mechanism<sup>12</sup>, as well as Green Climate Fund<sup>13</sup>, Work programme on loss and damage<sup>14</sup>, Land use, land-use change and forestry<sup>15</sup> and other.

### **Important National Legislation**

Georgian normative legislation in the relevant field:

Georgian Law on “Protecting the soil” (1994)

Georgian Law on “Environmental protection” (1996)

Georgian Law on “Protected areas systems” (1996)

Georgian Law on “wildlife” (1996)

Georgian Law on “Water resources” (1999)

Georgian Law on “Air protection” (1999)

Georgian Law on “Georgian “Red List” and “Red Book”” (2003)

Georgian Law on “Soil conservation and recovery and improvement of soil fertility” (2003)

Georgian Law on “Spatial planning and Urbanisation” (2005)

Georgian Law on “Permit on environmental impact” (2007)

Georgian Law on “Ecological expertise” (2007)

Georgian Law on “Management of the forest Foundation” (2010)

Georgian law on “civil safety”<sup>16</sup> (2014)

### **Georgian Law on “Environmental Protection”**

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<sup>12</sup> (2011) Cancun Adaptation Framework // Decision 1/CP.16 - II. Enhanced action on adaptation // UNFCCC Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010 - Addendum - Part Two: Action taken by the Conference of the Parties at its sixteenth session // FCCC/CP/2010/7/Add.1. / 15 March 2011 - (paras 11-35), <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4>

<sup>13</sup> (2011) Green Climate Fund . report of the Transitional Committee // Draft decision -/CP.17 - Advance version. [http://unfccc.int/files/meetings/durban\\_nov\\_2011/decisions/application/pdf/cop17\\_gcf.pdf](http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_gcf.pdf)

<sup>14</sup> (2011) Work programme on loss and damage // Draft decision -/CP.17 - Advance unedited version [http://unfccc.int/files/meetings/durban\\_nov\\_2011/decisions/application/pdf/cop17\\_loss\\_damage.pdf](http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_loss_damage.pdf)

<sup>15</sup> (2011) Land use, land-use change and forestry // Decision -/CMP.7 - Advance unedited version. [http://unfccc.int/files/meetings/durban\\_nov\\_2011/decisions/application/pdf/awgkp\\_lulucf.pdf](http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/awgkp_lulucf.pdf)

<sup>16</sup> This law replaces the famous “Protection of Population and Territories from Natural and Technogenic Emergencies” law (2007).

From the above-mentioned laws, “Environmental Protection” occupies special space, which is commonly referred to as “frame law”. The main norms and principles introduced by this law act as basis for legislation relevant to environmental protection.

Main objectives of the law are: a) Define norms and principles in the field of environmental protection; b) protect the main human rights as set by Georgian Constitution relevant to environmental protection – to provide healthy living environment and use of the natural and cultural environment; c) ensure by State the environmental protection and sustainable use of natural resources, safe environment for human health relevant to the ecological and economical interests of the society and taking into consideration the interests of current and future generation; d) promote assurance of biological diversity, maintenance the country-specific flora and fauna rare, endemic and endangered species, protection of marine environment and ensure ecological balance; e) maintain and preserve indigenous landscapes and ecosystems; f) ensure legal solution of environmental problems globally as well as regionally; g) ensure development of the country in sustainable conditions.

A number of legal norms identified in the legislation was formed by legislative act proposed by EU Council and by conclusions of “Rio Declaration on Environment and Development” adopted by Rio de Janeiro Conference on Environment and Development, “Agenda 21 - United Nations Sustainable Development Programme” and “Sustainable Forest Management”. In addition, the law integrates the basic requirements of international treaties and agreements in the field of environmental protection and rational use of natural resources, notable among them are: conventions on “Climate Change”, “Biological Diversity”, “Protection of the Black Sea Against Pollution”.

Basic environmental principles were legally defined (so called norm-principles) and it was determined that, planning and implementing of activities by public authorities, individuals and institutions must be guided by the basic principles of environmental protection.

Law introduced a significant mechanism for informing the public regarding Development and approval of National State of Environment Report (annually, later taken every 3 years according to the norm).

Environmental law regulates the planning mechanism (system), which includes a long-term strategic plan (the National Strategy for Sustainable Development), five-year plan (the National Environmental Action Programme) and Environmental Management Plan on production activities in each facility on a voluntary basis. The law also established that Environmental Action Programms should be drawn up at regional, local and institutional levels.

XII and XIII chapters of the law considers biodiversity protection and preservation issues. Law states that natural ecosystems, landscapes and areas should be protected from contamination, damage, degradation, and depletion.

The law pays special attention to environmental issues of global and regional management. Particularly, by the law it was established that the public authorities and individuals or legal entities, within their competence and in the framework of international obligations taken by Georgia, should implement additional activities at the whole territory of Georgia to resolve global and regional environmental problems.

Articles 51 and 52 of the law regulate the issues of climate protection and ozone layer protection derived from global changes. In addition, it should be noted that the law at the time of its adoption integrated European Directives into Georgian legislation.

## **Georgian Law on “Air Protection”**

The law has a direct relation to the legal aspects of climate change. Article 53 of the law (Article 53. Climate Protection from Global Changes) states that, for protect climate from Global Changes, it is obligated to keep norms on greenhouse gas emissions and to carry out the activities for their reduction. The same article states that the liabilities United Nations Framework Convention on Climate Change of the liabilities of national climate change program and development and implementation of Action Programm is coordinated by the MOENRP, and climate change monitoring, analysis, forecasting and scientific-research activities is implementing by the National Environmental Agency (NEA) within the MOENRP.

Thus, the law on Air Protection clearly defines the issues of climate change as:

National program and action plan for climate change commitment (overall coordination of the MOENRP) and climate change observation, analysis, forecasting and research obligation (NEA)..

No normative act regulations are defined by law on the matter of climate change - except for national climate change program and action plan.

The laws, on " Wildlife", "Protected Areas System", Georgian “Red List” and "Red Book", "Water", "Environmental Impact Permit", "Ecological Expertise", "Forest Fund Management" and the Gorgian Forest Code, are part of the environmental legislation governing the protection of the environment, including protection and use of environmental components.

Laws on "Wildlife" and the "Red List" and "Red Book" cover legal issues of protection and use of only wild animals and wild plants (including endangered species).

None of the above-mentioned laws do not have any direct or indirect reference to sustainable land management issues/norms.

### **legal aspects of territorial protection of biodiversity, including landscape diversity**

From the above-mentioned laws on protection and sustainable use of biodiversity and landscape diversity, especially noteworthy is the "Protected Areas systems". According the law, the purpose of the protected areas system is:

- a) A long term protection of bio-geographical units to ensure continuous development of natural processes;
- b) A protection and restoration of natural ecosystems, landscapes and living organisms;
- c) A protection of genetic resources of the species covered by the "Red List", endangered wildlife and plants and maintenance of biodiversity;
- d) A conservation of unique and rare organic or inorganic natural formations;

- e) A protection of the territories under the active zones of influenced by erosion, floods, avalanches, landslides, as well as surface and underground water formations, flow and discharge areas for the protection of human impact;
- f) A maintenance and restoration of historical and cultural landscape, characteristic landscapes of architectural and archaeological complexes;
- g) A creation of appropriate field conditions at the priceless and irreplaceable objects territories for educational and scientific research purposes;
- h) An ensurance of favorable conditions in natural and historical-cultural environment for recreation reasons, health care and tourism;
- i) A promotion of protection, restoration and development of traditional agricultural activities and folk arts for preservation of original historical-cultural environment;
- j) A stimulation of agricultural, industrial, transportation and energy use areas and natural resource-efficient economic activities.

In terms of agrobiodiversity and sustainable agriculture, particularly interesting are such categories of protected areas, as protected landscape and multiple use areas.

According to the law, a protected landscape can be established for the protection of as natural as natural-cultural landscape formed as a result of the harmonious interaction of manmade and natural environment having national importance, esthetically distinctive value, for preservation of living habitat, recreational-tourism, and traditional agricultural activity. Within the protected landscape fishing and hunting and establishing the hunting farm are permitted. Protected landscape needs extensive land areas of national importance and/or aquatic territories, where origin natural-cultural landscape stands out with high historical and esthetic value. Setting a variety of zones within the landscape is possible.

As for areas of multiple use, according to the law, they will be developed in compliance with environmental needs oriented on organized and renewable use of natural resources for agriculture. Multiple use areas need larger areas of land and/or aquatories, which represent the base for water accumulation, forest and grazing productivity, hunting, fishing, spreading of wildlife, as well as the necessary foundation for tourism. National wide unique natural formations should not be at such territories. Fishing, hunting and establishment of hunting farm is permitted at the multiple use areas. To ensure the permanence and guaranteed use of renewable natural resources, it is possible to allocate the various permissible proportions of nature protection and multiple use areas.

Multiple use lands can be used as needed for creating around the state reserve, national park, national monument and the reserve for establishing the so called buffer zone. In turn a buffer zone targeted to provide natural protection and its balanced activity of sustainable development, as well as for generating local financial income.

It is to be noted, that either of the above mentioned categories of territory can contain areas not representing government owned areas, such as settled land, private agricultural land, along with non-agricultural land and other. Hence, the law sets that government body – the Agency of Protected Areas,

directly responsible for management of protected lands should only manage them with the cooperation of other departments (local governing bodies). However the Agency of Protected Areas does not have the right to manage multiple use lands.

Agricultural areas and farmlands within protected territories and multiple use lands can be used for conservation of agrobiodiversity, as well as to provide sustainable agricultural production (including organic farming).

### **Georgian Law on “Spatial Planning and Urbanisation ”**

The main Legislative Act regulating the field of Spatial Planning - The Law "Spatial Planning and Urbanisation" sets the spatial planning, principles, priorities, objectives and tasks, spatial-territorial planning and planning documents forms and roles in territorial development. According to the law [Article 2, paragraphs "a", "c"], spatial planning represents unity of conditions and processes of legislation on formation of the territories of the physical environment and infrastructure, spatial planning, as state and local policy, spatial planning documents, involving physical and legal entities to identify the unity of conditions and processes, as regards spatial-territorial planning represents the activity, which, among other things, regulates land use, environmental protection and spatial conditions of recreation, infrastructure, and also, the spatial aspects of economic development.

According to the Law the spatial planning is carrying out at the country, local and settlement levels. Therefore, the spatial planning documents are different at various hierarchical levels. At the country level such document is the country spatial planning general scheme, for municipal units - self-governing (municipal) spatial structuring plan, while in settlements - the general land use plan. According to the law [Article 22, paragraph 4] by the spatial structuring plan of the municipality (which is an act approved by the Municipal Council), in the first place, determines the spatial structure of the municipality, particularly, the following categories of spatial types: urban areas, rural areas, natural- landscape areas and special areas.

Noteworthy, that in the field of spatial planning on the basis of acting legislation, the spatial categories (multiple-use areas) (natural-landscape areas) the buffer zones and protected landscape to be established by the legal and institutional point of view represent not conflicting, but mutually complimenting concepts. To confirm the above mentioned besides the spatial planning and the acting norms in the field of environmental protection , according to the "protected areas" law [Article 18, paragraph 4] states that APA, being directly in charge of the Protected Areas Management, actually is not authorized to manage the categories of protected areas, such as protected landscape and multiple use areas.

### **Organic Law of Georgia “Local Self Governance Code”**

Organic law “Local Self Governance Code” put in place in 2014 determines that exclusive (self) frame authority of self governing bodies, which they carried according to the established rules, independently and at their own risk. According to the organic law such authority extends to: local natural resources, including water and forest resources and municipality-owned land resources management as stated by law; municipal spatial planning and the determination of the relevant standards and regulations; Urban planning documents, including the general land use plans, urbanization regulation plans, use of settlement areas and approval of regulations.

## **Legislation on Regional Development**

Up to date, there is no legislation in Georgia regulating regional development. This is largely due to the fact that the legislation does not define regions, as administrative entities.

Regionalization of the country, in turn, is jeopardized by the Georgian Constitution, Article 2, paragraph 3, which states that the prerogative of the legislature of the state territorial arrangement regulation only be recognized after the full restoration of Georgian jurisdiction throughout the entire territory of the country. Hence, the regionalization principles require legislative changes. In this regard, setting policy directions, the relevant legislative proposals for making/adopting and handling fall under the authority of the Georgian Parliament.

## **Georgian Law on “Civil Security”**

The aim of the law is: a) Just regulation of civil security in Georgia; b) Protection of civilian live, health and property, as well as government, municipal, individual and legal entity property and the environment; c) regulation of relations between the entities of a common system, as well as their rights, obligations and responsibilities; d) the provision of a uniform system and organization of its activities, including creation of fire-rescue units; e) fire prevention, extinguishing and emergency-rescue organization and implementation procedures, emergency prevention, response, mitigation and elimination of consequences.

## **Current Legislation in the Field of Agriculture and Food Security**

The normative acts of agriculture and food security legislature:

The Law on "Soil Protection" (1994)

The Law "On Pesticides and Agrochemicals" (1998)

The Law "On Vine and Wine" (1999)

The Law "soil conservation and fertility restoration and improvement" (2003)

The Law on "New species of plants and Animals" (2010)

The Law "Food/Animal food safety, Veterinary and Plant Protection Code" (2012)

The above legislative acts regulate agriculture and food-related legal norms, but apart from the "Soil Protection" and "soil conservation and fertility restoration and improvements" laws, none of them have a direct relation to desertification/land degradation issues.

Georgia does not have the consolidated, frame law type legislative act in the field of agriculture, which would have a wide range of systematization of norms related to agriculture.

## **Georgian Laws on "Soil Protection" and "Soil Conservation and Fertility Restoration and Improvement"**

The mentioned legislative acts regulate legal issues pertaining to protection of soil protection, soil conservation, soil fertility restoration and improvement.

Particularly, the objectives of the Georgian law on “Soil Protection” are:

- a) To ensure the soil integrity, fertility growth and maintenance;
- b) Determine the land users, land owners and government responsibility in order to create the conditions for soil conservation and environmentally friendly production;
- c) Prevent the negative consequences of the use of soil fertility growth products, which endanger the soil itself, human health, flora and fauna;
- d) Ensure the protection of subalpine and alpine meadows by preservation of endemic vegetation and soil in the highlands;
- e) Facilitate the coordination of activities in the field of reclamation in order to obtain high and stable yields on ameliorated lands.

It should be noted that the law does not set any norms for reaching the above stated objectives. Therefore, in terms of law enforcement, it is an inactive legislative act. Legally, the law contains injunctions, which can be used in the field of law enforcement for soil use and protection. Under Article 4 of the law (Article 4. restrictions on soil protection) in order to protect the soil it prohibits:

- Use of fertile soil for non-agricultural purposes;
- Any non-agricultural activity without removal of topsoil, and its use for anything other than its purpose;
- The open method of processing, which does not provide for remediation of disturbed soil;
- Removal of soil for self-interest or personal benefit;
- Terracing of slopes without soil selection and appropriate design;
- Scarcity of pastures through disordered grazing;
- Damage of soil during the forest use;
- Cutting/Altering field protective forest areas, damaging soil protective structures;
- Any action that may worsen the soil properties;
- Fertilizers, chemical melioration and other means which are not tested in Georgian conditions, have not gone through the soil and environmental expertise tests, are not registered and approved by the relevant state agency;
- Soil contamination and pollution of any type.
- Excessive amounts of grazing beyond the permitted limit in the high mountain pastures, which leads to erosion processes;
- Mining and consumption of subalpine and alpine endangered vegetation for fuel and other purposes in mountainous regions.

It should be stressed that apart from the above-mentioned Article 4, the law is more declarative in nature.

"Soil conservation and fertility restoration and improvement" law regulates:

- Soil conservation and fertility restoration and improvement, erosion, landslides, avalanches, flooding, soil pollution, salinization, minerals, open mining of ores and raw materials, as well as anthropogenic influence on prevention of soil loss
- Soil fertility restoration and improvement and rational use of Salty, solonetz, swamped, eroded, acid, very stony and other low fertility areas;
- Establish the maximum permissible levels of harmful substances in the soil, norms of consumption of pesticides and agrochemicals;

- Relations originating for implementation of soil conservation and fertility enhancement and exploitation, as well as use of agrochemicals.

Aims of the Law:

- To ensure the conservation and restoration and improvement of fertility of soils throughout the country;
- Determine the legal principles of relations for soil fertility conservation and restoration and improvement, to promote the coordination activities of state bodies individuals and legal entities in this area;
- Ensure soil conservation, fertility restoration and improvement and implementation of such measures, which will not jeopardize the soil, biodiversity, human health and the environment;
- Establish standards, limitations and restrictions of soil conservation and fertility restoration and improvement.

The law applies to the following:

- Chemical amelioration of the soil;
- Flooding, mudflow, landslide and avalanche events, as well as soil erosion control measures;
- Soil fertility research and monitoring;
- Soil fertility and biodiversity conservation;
- Complex use of soil potential.

The law (Articles 7 and 8) is very important as it applies restrictions in the field of conservation of soil and fertility restoration and improvements.

The law (Article 12) defines the competent authority of soil conservation and fertility restoration and improvement as the MOA, which according the law has a right to:

- Inspect the condition of soil fertility, importing rules of fertility raising products, regulations and rules for their use, as well as the status of agrochemical, agro-forestry, irrigational, phytosanitary, sanitary measures and protection of other Georgian regulatory acts;
- Inspect the efficiency and condition of soil conservation and productivity raising measures;
- Inspect soil contamination by radionuclides, heavy metals and toxic elements, entomological, helminthological, bacterial and viral factors and the effectiveness in measures taken of the agreement with the MOENRP of Georgia;
- Require to limit or stop agrochemical, agro-forestry, reclamational, plant protection and other measures from the farmers, if they do damage to the environment or to any lands belonging to other governing bodies.

Majority of normative acts regulated by the law (norms and rules of import, storage, realisation and rational use of agrochemicals; regulations on soil fertilization intensity; recommendations on complex measures for protection of soil against erosion; regulations on soil conservation and fertility monitoring; rules of removal, management, use and recultivation of top-soil; conservation rules of agricultural lands degraded as a result of toxic waste and radioactive pollution; national programme on soil protection and raising of fertility) are operational, with the exception of the most important act, The State Supervision of Land Protection and Use.

Despite a number of irregularities "soil conservation and fertility restoration and improvement" is at

present the only active legislative act that directly regulates the range of land degradation and desertification issues.

### **3.1.2. Policy Documents**

Georgian Regional Development 2010-2017 strategy and the 2011 action plan for the strategy, as well as the conception of the Agricultural Sector Development of Adjara Autonomous Republic and the 2012-2016 Second NEAP and the Georgian adaptational strategy (the second National Communication, 2009, to the UNFCCC) include desertification/land degradation and agricultural issues across the entire range. However the above-mentioned documents do not review desertification/land degradation and SLM issues in a coherent and comprehensive manner.

#### **National Level**

##### **National Security Concept**

On 23 December 2011, the Parliament approved a new national security concept<sup>19</sup>, which replaced the Concept of National Security adopted in July of 2005<sup>17</sup>. The resolution approved the National Security Concept a second time, which reflects the changes in environment and their impact on threats, risks and challenges facing to Georgia.

The National Security Concept is the basic document that explains the fundamental national values and national interests, forming a vision of secure development, identifies threats, risks and challenges, and sets security policies. National Security Concept develops the Government of Georgia and approves the Parliament of Georgia.

The concept forms the country's national values, national interests, the threats, risks and challenges of the country, and security policies. Among the fourteen national interests is mentioned the Georgian and regional ecological security, and in the twelve major threats and challenges to Georgia mentions the ecological challenges, both natural processes and human-made crises of the environment, biodiversity and the arising threat to its citizens.

The concept of environmental security policy states that the provision of environmental security policy is to protect the safety of people and the environment – through reducing the use of natural resources, environmental pollution, natural disasters and man-made crises prevention. Special attention is paid to prevention of natural disasters, such as floods, landslides, avalanches, earthquakes and industrial accidents, etc. Georgian environmental policy also intends to ensure effective anti-pollution measures and air, water and soil pollution prevention, protection of forest resources, ridding the territory of radioactive and other hazardous materials and preventing Black Sea pollution, etc.

##### **National Environmental Action Programme of Georgia**

By decree N127 January 24, 2012 of the Government of Georgia the Second Georgian National Environmental Action Programme (NEAP) for 2012-2016 was adopted. .

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<sup>17</sup> Georgian Parliament decree №1895 (8<sup>th</sup> July 2005) on approval of “Georgian National Security Concept”.

The Second Georgian NEAP is an official document, which includes the plans in the field of environmental protection for the years 2012-2016. The program creates a good basis for future environmental planning. The programme recognizes the need for the country's economic development through sustainable development and not prohibition of prospects.

The program includes the main sector directions - including land resource areas. In addition to sectoral directions the program includes general content, which summarizes the intersection issues, which are represented in many sectoral directions, and are likely to be beneficial for all the environmental sectors. Due to the complex and intersectoral nature of the environmental issues, the need to integrate environmental strategy and policy in other fields of development plans and policies are reviewed in a separate part of the programme.

According to the program, the overall environmental measures are:

- Perfection of the legislative basis;
- Awareness raising of the parties involved;
- Improvement of monitoring, inspection and enforcement systems;
- Awareness raising in processes needed for policy-making.

The main problem identified in the field of land resources is - land degradation. It is noted that in 2006, 60% Georgian agricultural land was characterized as medium or low productivity; Excessive and uncontrolled grazing, loss of forest cover and utilization of unplanned urban development are the major factors causing land degradation; Soil erosion, which in some cases is a natural phenomenon, is exacerbated by human unsustainable use of soil. Construction activities, infrastructure projects, inappropriate agricultural practices contribute to the loss of fertile soil in the top layer; Soil fertility is also reduced by soil salinization and alkalisation. Soil salinization is caused by erosion of salts in soil, mineralized ground water, non-compliance with norms and rules of watering in arid agricultural zones and so on. Soil acidity is caused by intensive and irrational use of acid containing fertilizers, acidic sediment and other. Soil pollution is also often caused by wrong use of fertilisers and chemicals, oil spills, irregular working irrigation systems and uncontrolled waste disposal.

The program also emphasizes the fact that Georgia is an agrarian country, historically and at present, the official statistical data states that 53% of workers in Georgia are engaged in agriculture. If the land and soil resources are kept in proper maintenance conditions, Georgia has the potential to produce high quality agricultural products, which is important in terms of food security, as well as the country's exports.

According to the programme, efficient management of land resources is important for country, not only for environmental reasons, but also in terms of socio-economic issues.

The programme views, land degradation, lack of effective management practices of land resources, limited access to information and communications technologies, and weak institutional relations among different stakeholders (which makes decision-making process less efficient) as the main problems that affect the subject of land resources.

According to the program management of land resources in terms of long-term goals is introduction of best possible land use practices by promoting sustainable land management. Successful implementation of the long-term goal necessitates a change in management of land resources to sustainable integrated management to support Georgian territorial planning, zoning, which provides the best use of land resources for achieving sustainable benefits, environmental, social and economic interests by way of optimal balance. Also, it must be consider such issues as territorial conservation, private property rights, interests of local citizens and communities.

### **National Biodiversity Strategy and Action Plan (BSAP) (2014-2020)**

The National Biodiversity Strategy and Action Plan, developed over the period 2014-2020 was approved by the Georgian Government by resolution of the May 8, 2014 №343. This document defines the strategy and specific actions for biodiversity protection and reasonable use for a 5-year period.

National BSAP includes a review of the country's biodiversity, national vision and future goals for biodiversity protection and preservation, followed by a thematic analysis in the following directions:

- Species and habitats;
- Protected Areas;
- Forest ecosystems;
- Agricultural biodiversity and natural grassland;
- Inland water ecosystems;
- Black Sea;
- Governance issues;
- Public awareness, education and communication.

Strategy and Action Plan concentrates mainly on agricultural biodiversity and natural pastures in terms of soil degradation/erosion related issues. In particular, according to the Strategy and Action Plan, soil degradation/erosion presents a serious problem in terms of degradation of agricultural ecosystems. The current agricultural policies do little in providing use of best agricultural practices (e.g.: sustainable use of agro-chemicals, modern technologies for irrigation, land use and watering), use of agro-ecologic methods(landscape planning, building windbreakers, soil filtration, etc.) and development of Organic Farming. There are no adequate programmes dealing with recovering or reduction of negative effects to the soil caused by strong erosion, heavy metals and radionuclides pollution. Natural habitat reduction and modification (reduction of buffer zones, monocultural production), incorrect use of insecticides and harmful agrochemicals reduces the populations of useful insects.

In addition, it is stressed that Georgian semi-arid ecosystems, most of which are used for winter pasture cattle, are under threat due to excessive and unsystematic grazing. Soil erosion and pasture degradation process, which originates from the Soviet period, is at critical levels in many of the places visited and emergency measures must be taken to prevent irreversible effects; Infrastructure projects (roads, pipelines, buildings and reservoirs construction), mining (for example, manganese mining in Chiatura) and open method of topsoil removal, results in forest cover loss and degradation in certain areas. At present, the above mentioned reasons cause decrease of forest cover in relatively small areas, but in the future, with the country's economic growth, in the absence of proper control, possible exacerbation of the

problem can be expected; There is no comprehensive information on the state-owned summer and winter pastures (the area and plots according to municipalities) and their condition have not been studied (use, load, vegetation, fertility rate, etc.).

### **National Action Program to Combat Desertification (2003)**

To meet the commitments made by Georgia at the UNCCD, the National Action Programme (NAP) to Combat Desertification was adopted in 2003<sup>18</sup>.

The program identifies arid and semi-arid regions of Georgia as areas most sensitive to desertification (south-eastern part of Georgia: Dedoplistskaro, Sighnaghi, Sagarejo Shida Kartli region). Therefore, the NAP mainly emphasises on these areas. However, studies of desertification processes in Akhaltsikhe, as in Meskhetian basin have to be undertaken, it is also necessary to identify and study all desertification sensitive areas.

The program includes the National Action Plan to Combat Desertification with a range of project activities, of which a large part is applicable to the traditional methods toward the implementation of climate change adaptation measures of agriculture and biodiversity (e. g., establish an early warning system in place for agricultural recovery from drought, forming protection and sustainable use programs, promotion of traditional knowledge and experience, research and related programs in agriculture, development of principles of arable land management, etc.).

### **The Georgian adaptational strategy and climate change mitigation policies and measures: The Second National Communication to the Climate Change Convention (2009)**

To uphold the duties set at UNFCCC Georgia prepared the first National Communication in 1997-1999. Since then, the country has implemented a number of projects, which were aimed at a variety of issues of climate change and preparation of project proposals in the field of climate change mitigation and adaptation.

In 2006-2009 Georgia prepared the Second National Communication for the United Nations Framework Convention on Climate Change. During this process, a national inventory of greenhouse gases was conducted, possible climate change scenarios were devised and the current and potential climate change vulnerability of different ecosystems and economic factors was assessed. Along with greenhouse gas emission reduction measures adaptation projects were prepared, and events intended to raise public awareness on climate change issues.

Based on the results of the Second National Communication and other already completed or in progress projects, a long and short term strategy was devised on issues of climate change. But it can not cover the whole countrywide area, and it focuses on the advanced study of the selected priority areas. This strategy, which aims to overcome the existing barriers, consisting of 6 parts: Enhancement of local potential to keep with UNFCCC principles, ensure the sustainable inventory of greenhouse gas, climate change vulnerability assessment and adaptation measures, the reduction of greenhouse gas emissions, convey advanced technologies and raise public awareness.

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<sup>18</sup> Presidential Decree N112 of April 2, 2003, "National Action Programme to Combat Desertification".

Based on the expected climate change scenario evaluations, adaptational measures were planned for three priority regions - Black Sea Coast, Dedoplistskaro region and Lower Svaneti.

The changes of climate elements in Georgia and in particular the priority areas was estimated using the observed data. Average air temperature has been investigated along with temperature extremes, precipitation, relative humidity, moisture and wind regime, as well as extreme event (strong winds, drought, landslide, flood, etc.) trends for each of the regions studied.

Third National Communication (TNC) is a continuation of the work, which was carried out within the framework of the Second National Communication, addressed by the parties of UNFCCC, in accordance with Decision 17 / COP8-'s and other instructions. The TNC will update and strengthen the information on the national situation, greenhouse gas inventory, climate change mitigation, measures taken against vulnerability to climate change and adaptation to climate change, as well as information on public awareness, education, training, systematic research and observation. The project will also increase the capacity to prepare further national communications relative to the guidance of parties of the Conference and to improve the climate change policy in Georgia.

Thus, the three priority areas in the Second National Message - the Black Sea Coast, Dedoplistskaro district and Lower Svaneti climate change adaptation measures include a range of biodiversity and agrobiodiversity. For example, adaptation measures considered for the Lower Svaneti region (rehabilitation of the most damaged areas of forests and their proper management; restoration of the forest as landslide restrictive ecosystems in the the appropriate areas; putting in place preventive measures for protection of local forests from harmful insects) and Dedoplistskaro district measures (permanent monitoring system of protected areas for evaluation of land degradation and endemic species of flora and fauna impact on impact of climate change in anthropogenic impact-free conditions; create plantation groves in abandoned and eroded lands; rehabilitation of windbreaks).

### **Georgian State Strategy of Regional Development for 2010-2017**

By the Governmental decree N172 from 25<sup>th</sup> of June 2010, Georgian State Strategy of Regional Development for 2010-2017. Was approved. Later the 2011 Action Plan of the Georgian state strategy of Regional Development 2010-2017 was approved according to the government decree N1448 (16<sup>th</sup> November 2010).

Ministry of Regional Development and Infrastructure of Georgia in 2009 established the Governmental Commission on Regional Development Policy, the task of which defined to develop the project of Georgian Strategy for regional development. To support the work of the commission, a Secretariat of the commission and seven working groups were established, which were composed of experts, representatives of civil society and public servants from ministries of different sectors. The Secretariat of the Commission prepared the Diagnostic Report on Regional Development and the main directions and tasks of the project documents of Regional Development Strategy, approved by the Commission. Georgian State Strategy on Regional Development for 2010-2017 has been developed for the main directions and tasks highlighted in the above mentioned documents.

The main objective of the Georgian State Strategy on Regional Development is to create a favorable environment for regional socio-economic development and the improvement of living standards and

conditions of the population, which can be achieved by a balanced socio-economic development, and increased competitiveness in the regions by reducing the socio-economic disparities between the regions.

One of the main directions of the strategy is development of agriculture and tourism, and environmental protection. Specifically in the field of agriculture, the strategy dictates that:

1. To define the state policy, goal, objective and development priorities, the Ministry of Agriculture must develop a strategy for rural development.
2. Law has to be adopted concerning farmers, which will determine their status, duties and rights.
3. The state should ensure endemic and traditional agricultural production (wine, wheat, tea, etc.) rehabilitation by way of financial and technical support.
4. Local self-government entities should be provided with adequate financial support for accurate registration of their ownership of agricultural land.
5. A database of melioration infrastructure and inventory meliorated plots needs to be created.
6. lending system should be made for farmers and agribusiness entrepreneurs, favorable conditions for attracting commercial banks and microfinance institutions must be created.
7. Improving access to agricultural equipment needs to be established in agricultural mechanization service government centers, which will be coordinated by the MOA.
8. promotion of supplying of small and medium-sized agricultural machinery for villages, creation and/or preferential interest loans on machine-tractor stations.
9. It is necessary to implement measures to improve access to markets, create information network in order to increase agricultural capacity.
10. Investors should be encouraged to invest in Agricultural entrepreneurial initiatives. Support family farms in agricultural activities. Particularly, agricultural product processing-oriented and promotion of other entrepreneurial initiatives, which should be focused on local human and entrepreneurial resources.

The risk zones to be introduced the monitoring and early warning systems, to be developed action plans for emergency situations caused by natural disasters, to be planned and implemented appropriate preventive measures.

Assessment of risks caused by extreme natural events (drought, hail, high winds, etc.), natural disasters/geodynamic processes (floods, landslides, mudflows, etc.) and their effects on local economic and social situation and consider them in sustainable development strategies and action programs.

Considering those natural changes (i. e., Global warming results) in the Regional Development Plans, which have a serious impact on the marine ecosystem and lead to undesirable changes in the system, which, in turn, negatively affect (including negative anthropogenic processes) the coastal zone.

Having the perfect land cadastre. Land conditions have to be first studied in the regions where the land resources vulnerability is revealed.

Developing the Norms of exploitation of agricultural lands according to local climate conditions, researching of their internal change, general anthropological influence and soil condition(number of livestock per unit of pasture land; type of agricultural activity, which is allowed in the zones under landslide danger; ensuring the areas by windbreaks, that are are vulnerable to the wind erosion, etc).

Planning and implementation of Monitoring, rehabilitation and adaptation activities for especially vulnerable (landslides, water erosions, river banks and coastal zone) lands.

Thus, the strategy reflects the issues of land protection, agriculture, agrobiodiversity and climate change related issues.

### **Georgian Regional Development Program for 2015-2017**

The Ministry of Regional Development and Infrastructure Prepared the "Georgian Regional Development Program 2015-2017", The program deals with the risks of natural disasters and pollution control of the old industrial facility areas, forest inventory and implementing strategies for sustainable forestry, waste and wastewater treatment and air pollution. Special attention is paid to the issue of waste management, in particular; modern solid waste management systems, the construction of new sanitary landfills and transfer stations, gradually establishing EU environmental and technical standards.

### **Georgian Development Strategies of the Regions**

The following regional strategies were Prepared by the Ministry of Regional Development and Infrastructure and approved by the Government: 17 September 2013 decree N1363 on Guria region development strategy for 2014-2021; 17 September 2013 decree N1365 on Shida Kartli region development strategy for 2014-2021; 17 September 2013 decree N1365 on Kvemo Kartli region development strategy for 2014-2021; 17 September 2013 decree N1366 on Kakheti region development strategy for 2014-2021; 18 September 2013 decree N1372 on Samegrelo-Zemo Svaneti region development strategy for 2014-2021; 18 September 2013 decree N1373 on Samtsxe-Javaxeti region development strategy for 2014-2021 and 19 September 2013 decree N1374 on Racha-Lechkhumi and Kvemo Svaneti regions development strategy for 2014-2021. The strategy focuses on the activities related to environmental protection. Strategy highlights several factors: Ambient air and water quality, forest resources protection, natural disaster management, environmental activities and cooperation, biodiversity conservation in the protected areas.

### **Current policies in the agricultural sector**

Georgia did not have national agricultural policy, strategy and a relevant action program until recently. This changed in the second half of 2011, when preparations for implementing agricultural reforms began, which resulted in formation of an agricultural strategy and its subsequent realisation.

### **Agricultural policy-making and adoption process**

The Government decree №206 on May 13, 2011 established the "State Commission on Agricultural Policy" - as the government advisory body. The commission was headed by the Prime Minister. Currently, the Commission is in fact abolished and its functions assumed by the Ministry of Agriculture.

The commission structure portrayed the formal decision-making scheme in agricultural policy at the governmental level. On March 28, 2012 the Government approved decree N566 "Georgian Rural Development Strategy - 2012-2022" was developed and tested under the auspices of the Commission.

The Commission replaced the Georgian agricultural policy-making governmental commission, which was formed according to the Georgian Government September 8, 2005 №156 Resolution. In turn, the Georgian agricultural policy-making commission replaced the national agro-policy national council, brought in power by the president's order N505 on 11<sup>th</sup> of August 1996.

Despite the fact that the Agrarian Policy State Commission did not have an approved regulations, it proved to be more effective than any other advisory bodies of the same purpose during last 15-years period.

Under the auspices of the commission and with coordination of the Georgian Ministry of Agriculture, an Agriculture Development Strategy (ADS) was prepared, which was accepted/approved in March 2012.

### **Georgian Agriculture Development Strategy (ADS)**

By the Georgian Government Decree N566 of March 28, 2012, there was adopted the ADS for 2012-2022, which defined the transition period, during which the state continues to define the main direction in the field of agriculture. Implementation of measures considered in the strategy (agricultural reform) started in the first half of 2012 and its provision was considered mainly at the expense of the state budget allocated assignments. Implementation of measures considered in the strategy (agriculture reforms) started in the first half of 2012 and its provision was stipulated to mainly fall at the expense of the state budget allocated assignments. Agricultural Development Fund (ADF) was considered the cornerstone of agrarian reform organizational structure. The ADF<sup>19</sup>, which was founded by the Government in December 2011 aimed to increase competitiveness in international and local agricultural sector by providing human, material and technical synergy.

The Fund represented the founder of the Agricultural Corporation of the earlier established joint stock company and of 100% of its shareholders, while the last one was the founder of LTD "Meqanizatori" and owners of 100% of the shares. LTD "Meqanizatori" held current functioning agricultural service centers in Georgia - mechanization service providers, consulting and farm service centers.

### **New Agricultural Development Strategy**

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<sup>19</sup> See. " measures to be implemented to set up the Agricultural Development Fund" the President's Decree №817 of December 14, 2011. By decree, after its foundation of the statutory powers are to be given to the Ministry of Agriculture.

New ADS for 2015-2020 aimed to be approved by 2014, main aim of which is to create a relevant environment to increase competitiveness in agriculture, to promote stable growth of agricultural productivity, to ensure food safety, to eliminate poverty by agriculture and sustainable development in rural areas. Thus it is clear, that the state still retains the function of promoting the development of the agricultural sector, however, like the previous strategy, believes that the strengthening of the private sector is the main tool in promoting development of the industry. The fact that the state is funding the development of agricultural infrastructure, land market creation, food safety and other areas, shows that the state still plays an important role in agricultural development.

### **Environmental Part of the draft New Agricultural Development Strategy**

ADS includes "environmental protection and biodiversity" parts, which will provide guidance for good agricultural practices, biodiversity and sustainable development and environmental protection programs as well as preservation of endemic species by creating/managing a genetic bank.

According to the draft strategy, good agricultural practice provides effective and sustainable agricultural production, improvement and maintenance of soil quality and reduction of degradation. The state supports increasing of awareness in farmers and conducting educational programs on good agricultural practices (crop rotation, effective use of chemicals and fertilizers, use of organic fertilizers and water, etc.). The government will also develop and implement plans to promote this practice in life. Organic production potential is under discussion, including the possibility of harmonizing it with international standards of the accreditation system.

### **Regional Level**

#### **Adjarian Autonomous Republic's (AAR's) Agricultural Sector Development Concept**

On September 16<sup>th</sup> 2009, the supreme council of AAR passed the N50 resolution, which approved "AAR's Agricultural Sector Development Concept (2009-2015)".

The main objective of concept of Adjara agricultural sector is development of competitive agricultural sector based on the principles of market economic relations and on this basis to accelerate the promotion of problem solving by strengthened rural employment, increased agricultural production and regional sector potential, restoration and preservation food product demand and supply balance, food safety.

Some of such problems according to the concept are agro-biodiversity preservation, ecological security and sustainable environmental development, strengthening of soil protection and creation-enactment of an effective system to ensure rational use of natural resources

### **EU Policy**

The EU has no horizontal legislation on desertification / land degradation, however they are a part of EU's so-called "Common Agricultural Policy".

#### **EU's Common Agricultural Policy**

The aim of EU's CAP is to:

- provide a stable supply of food at reasonable prices;
- provide farmers with a decent living standard;
- Increase agricultural production fertility through technical progress.

Technical progress has always been one of the main direction of agricultural policy. CAP has undergone many changes over the years. Currently it reflects the aspiration for growth and provision of more jobs, and the basic requirements for innovation, education, information technology development and other areas.

All member States agree that the policy to be united. A significant amount the EU budget is spent on CAP implementation (on average, about 50 billion euros per year). Thus, this policy is one of the most powerful tools for European integration. This is a sector where policies of different countries is coordinated and is largely managed by EU. If we take into account that agriculture represents a competitively small part of European production, this amount of attention to agricultural development indicates that its importance to Europe far exceeds its value expressed in production.

In a typical agricultural production capacity, the number of people involved in the production and the income level of each of them is small (average annual income of a European farm is about 35,000 euros), which does not allow them to conduct research with their own resources. EU included research funding in its framework programme. This, together with the Member States' research programs, provided the necessary level of research in the EU. The main task of EU is to communicate the results of research to the farmers. Appropriate mechanisms (services), which around the world are called extension services, and frequently called advisory services in the EU, are formed by Member States and regional governments.

Initially CAP was concentrated on increase of agricultural development, giving farmers a subsidy for production growth, which had impressive results. In time, CAP acquired a new role – providing environmentally expectable support to agriculture, including food product self-sufficiency and promotion of sustainable agriculture.

Another strong factor was EU's commitment to lower Carbon Dioxide emissions and as a result to increase a production in biofuel production (this issue is tied to EU's energetical independence).

In accordance with these requirements, the 2001 European Council in Gothenburg adopted a decision "..... The board agreed that the CAP in its future development, among other things, contribute to achieve sustainable development of healthy, high-quality products, environmentally sustainable production methods (including organic farming), renewable raw materials and the protection of biodiversity". This tendency in CAP means the strengthening of innovation approaches.

Substantial policy reform began in 2005. First of all, direct cash assistance for farmers is separated from production, i.e. the aid to farmers for the production of a particular product has ceased (this process is not completely finished). Assistance has begun to farmers in providing certain standards (environmental, including reduction of land degradation and other factors) of maintenance and storage, for which farmers stepped up their environmental activities. Consequently farmers increased their attempts to produce innovative products, because their decisions become dependent on market demands and not on financial stimulations of certain products production. CAP also increased support towards quality of production

and improvement of standards. Since 2007, direct aid cuts resulted in freeing of 1 billion euros per year, which are being redirected to rural development objectives (land management, rural economy, competitiveness).

Agricultural Area (where less than 150 people live per 1 sq. km), represents 90% of the EU's territory and 50% of population lives there. Of course, the development of agricultural production remains a central issue in rural development. However, to reduce rural-urban social differences (which is reflected in a significant difference in income, access to information, etc.), it is no less important to develop services and production in rural areas. The so-called "single payment scheme" has been developed according to which the farmer gets funded in exchange for taking care of the land and up keeping with the general environmental requirements.

The above mentioned standards are quite difficult to uphold. Suffice it to say that the requirements are established in accordance with EU Directive and Regulation 19. It refers to the protection of the environment; human, animal and plant health; animal living conditions; food safety. It is hard to imagine other areas of production in which the entrepreneur is provided with so many conditions, as in agriculture. In addition, agriculture is a strong source of environmental pollution. Over 30% of Greenhouse gas emissions in the atmosphere are the result of land processing. This is an important area when considering lowering effect of climate change. The main measures (strategies) are as follows: carbon enrichment of soil; Cultivation of perennial plants; Climate saving livestock; Protection of habitat distribution; recovery of degraded pasture. It has become very difficult for farmer to deal with these challenges without financial and technological/technical assistance.

In order to better accomplish the above stated stipulations, a portion of funds designated to CAP is spent on creation of farmers' mandatory consultation system, which gives farmers information on technologies to be used in order to accomplish the required provisions. According to the above-mentioned decisions, the consultation services is the mandatory task of national governments, the European Commission is only involved in funding. At the same time, the services are part of the innovation systems of countries and regions, as well as the EU. Development of consultation services for farmers, however, is not the central issue at the EU level. The development of these services is primarily the concern of the national and local innovation policies.

Separately should be noted the Rural Development Programmes. Rural Development Programs revealed CAP's role in European integration in another aspect – eradication of inequality in European regions, rural and urban areas. Rural development is a broader concept, than agriculture. On the one hand, it is the expansion of the latter, on the other hand, it is the guarantee of the latter's sustainable existence and development. Local and national governments have the opportunity to use the wide range of EU instruments for their own rural development programs.

Above mentioned directions, in a broad sense, encourage innovative activities. Many of their components correspond with EU regional development tasks, which are financed by the so-called structural funds. With rare exceptions, farmers do not apply for support to the European Commission, but to the relevant national agencies(they have different names in different countries), or organisations authorised by these agencies. They receive funds from three sources: the national government; European Agricultural Guarantee Fund - payment schemes for functionality of farmers; Rural Agricultural Development Fund – for rural development programs

Rural development issues are closely related to forests and forestry as well, development of which occurs according to the Forestry Action Plan. The plan intends to provide research-based development of forestry and forest-related innovative production, accounting for environment, renewable energy, and new products. Traditionally, the main task of farmers is food production. Currently, the EU food production methods are related with a high degree to scientific and technical achievements, to make sufficient quantities of food at an available price.

### **3.1.3. Institutional Structuring**

The institutions directly connected to SLM issues (among them to combat desertification/land degradation, to protect soil, minimizing negative effects of drought) in Georgia have to be improved upon their competency.

In addition to this, there are central and local government bodies responsible for individual aspects of land management: combating desertification/land degradation, soil protection, management of natural and agricultural resources.

Apart from this, there are government formed commercial and non-commercial legal entities based under private law created for development of agriculture, full or partially funded educational and research institutions, as well as non-government organizations, which can have significant benefit to SLM, combat desertification/land degradation, soil protection, minimizing negative effects of drought.

Currently, creating an effective mechanism of coordination between the above-mentioned agencies, organizations and institutions represents a necessary condition for sustainable land management.

#### **The existing institutional arrangement (the main institutions and offices)at National Level**

##### **The supreme legislative and executive authorities**

##### **Georgian President and Georgian Parliament**

The President of Georgia is the Head of State. According to the constitution the President has a certain amount of decision making powers, which was significantly reduced as a result of a constitutional reform entered into force in the second half of 2013.

The Parliament is the supreme representative body, which exercises legislative power, determines the main directions of domestic and foreign policy, control of the government's activities under constitutional framework and performs other duties.

##### **Georgian Government**

Authority and functions of Georgian government and executive authorities is defined by the law "Authority and Rules of Operation of Georgian Government Structure". On merits of the this Law and

the Georgian legislation and for its implementation and enforcement, approval of the aforementioned agencies is underway.

The government applies coordination and control to activities of the ministries. It is carrying out its work by using the Government Program as its guideline, which is approved by the Parliament.

If a matter is assigned to the executive authorities by law and it does not fall under the competence of any Ministries, then the decision is made by the Government.

To the programme part of the Governmental activities belong those competencies, which are in the frames of budget and also in the planning of the state task programmes of the Government. Using the aforementioned directions, the government will create and with the approval of the President of Georgia will present to the parliament, the Georgian national budget program, after the budget is accepted, the government will provide its implementation.

Apart from this, the government has the task to approve and ensure the implementation of national programs in the field of socio-economy, culture and other.

According to the aforementioned law, among the various competencies attributed to the government, those related to the environmental protection should be noted, particularly in addition to enforce unified state policy in the field of protection and rational use of natural resources and to ensure ecological safety of the population, as well as the competence to organize protection and rational use of natural resources.

The law however does not determine the government's competency in such matters as agriculture. According to the Governmental Competence Law, in the field of environmental protection, direct integration represents, influence of constitutional norms<sup>20</sup> in the same field and not for example recognizing the priority at the legal level of environmental protection of the agriculture or any other areas (of the law of unintended).

Thus, the Georgian government based on 5<sup>th</sup> article of the "Authority and Rules of Operation of Georgian Government Structure" law, has the authority to approve documents that define environmental, natural resource and ecological safety policies<sup>21</sup> (e.g. strategy, action plan, programme, concept, etc.) with the exception of cases, where the authority to make the decision belongs to one of the Ministries.

As for the government's role in the field of agriculture, it is determined by the current active nominal decree N566 (28 March 2012) approved document on Agricultural Development Strategy (2012-2022) according to which: shifting to market economy caused new challenges to the economy as the relationship of the farmer and the government has changed. When earlier, making the decisions in planned economy was attributed to the government, now it is solely tasked to the farmers.

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<sup>20</sup> See. Constitutional norms on the protection of the environment - part of analysis of policies and legislation within the project – issues on agrobiodiversity and climate change.

<sup>21</sup> In turn, these trends, in the broadest sense, also include biodiversity (including agro-biodiversity) and climate change and appropriate adaptation issues.

According to the agricultural development strategy, in the agricultural sector the state is no longer the decision-making entity, but during the transitional period it retains the functions of defining the course of agriculture sector and therefore, the government is obliged to take all measures for farmers to be provided with the information that will help them take the right steps. Therefore, the government should not intervene in the market processes, but it must provide the following services: agricultural infrastructure (modern logistics centers, reclamation systems, etc.); Market-oriented educational system; And informational material and statistical data.

In general, in correspondence to the rural development strategy, the goal of the government is to create a favorable business environment, legal system and liberal tax regime. It must do everything possible to minimize the barriers of foreign trade and to protect the identity of Georgian product abroad. The Government of Georgia defines its role in agriculture as a whole in the context of the country's socio-economic development, first and foremost, in the context of regional and infrastructure development.

### **Role of Central Bodies in SLM, Desertification/Land Degradation, Agriculture and Other Relevant Fields.**

Desertification/land degradation and other related areas of the core competencies, the central government are allocated to the MOENRP and MOA. In addition, a number of other agencies and organizations in the same field have functions of supporting institutions.

#### **Ministry of Environment and Natural Resources Protection**

The mandate of the MENRP in the field of environmental protection (including desertification/land degradation issues) is defined under the regulations of the Government decree №98 approved on April 28, 2013, which is, in turn, based on the package of legislative changes held for the purposes of implementing institutional governmental reforms in the beginning of 2013, mainly for making changes to the law on “Authority and Rules of Operation of Georgian Government Structure”. The aforementioned law identified those functions, that before this law belonged to the competence of the MOENRP; and Ministry of Energy, however after the law was passed, it was spread among the newly formed MOENRP, MOA and Ministry of Justice, and on the other turn among other bodies (Ministries of Regional Development and Infrastructure).

Regulation of the Ministry reflects in an integrated manner, all the functions and competences of the Ministry, that are assigned to it according to the current legislation.

According to the regulations, the tasks and competences of the Ministry are described as follows, which have direct or indirect relation to desertification/land degradation and other related matters.

Land Resources Protection and Natural Resources Service is a structural part of the Ministry related to the issues of Desertification / land degradation .

Directly linked to this matter is also the relevant legal entity within the Ministry - the National Environmental Agency (NEA).

#### **Land Resources Protection and Natural Resources Service**

The main objectives of the Land Resources Protection and Natural Resources Service are:

- a) to participate in the development and implementation of the state policy and targeted application programmes on sustainable management of land and natural resources ;
- b) to plan the desertification and land degradation mitigation measures and to coordinate them;
- c) to Create a Database on hazardous substance and waste contaminated land;
- d) to Create the land degradation and pollution assessment systems, to participate in the formation of annual and prospective governmental programs based on the observation of soil fertility status and on the relevant researches;

The Service does not have the supervisory and/or controlling authority. Controlling and supervisory function is allocated to the Department of Environmental Supervision, an institution within the system of the Ministry.

The functionality of desertification/land degradation issues is relegated to the MOENRP and particularly to the Public Legal Entity under the auspices of the Ministry - the NEA<sup>22</sup>, the goals and objectives of it, among others, includes:

- To develop preventive measures against natural and anthropogenic disasters, including desertification and land degradation processes and to coordinate their implementation.
- Monitoring of soil erosion /degradation and fertility within its competence.

Functional structural units of the Agency are: Department of Hydrometeorology; Environmental Pollution Monitoring Department; Geological Risk Management Department and the Environmental Information Service.

Overall, the NEA has no direct legal obligation to provide a state wide systematic monitoring and/or systematic observations and analysis on desertification/land degradation. NEA activities in these areas are incomplete, fragmented and non-systematic in nature.

### **Georgian Ministry of Agriculture**

MOA of Georgia is a key institution in the implementation of the state policy in the field of agriculture.

Within the management of the Ministry are agrifood, agriprocessing, soil conservation and recovering-improving, plant-growing, cattle-breeding, fish-breeding, agri-engineering and veterinary and plant protection branches.

The Georgian Ministry of Agriculture is responsible for the development of agriculture through creation and implementation of strategic documents. It has the long-term obligations in the fields of disease control, food safety, livestock health, plant protection, increase of soil fertility, dissemination scientific research, knowledge and experience. The Ministry carries these obligations itself or by support of its subordinate organizations.

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<sup>22</sup> Agency regulation is approved by "The public legal entity - National Environment Agency," order №7 (April 13, 2011) of the Minister of Environmental and Natural Resource Defence.

The Ministry, according to its regulations, has the following specific objectives:

- to developing a strategy for the agricultural sector;
- to develop the draft regulations in order to establish a legal framework for the agricultural sector and improve it or to participate in their development;
- to implement the agricultural reforms taking into consideration the country's traditions and international experience;
- to promote the development of agricultural cooperation in the manner prescribed by the law of the country;
- to support the country's primary agricultural product processing and manufacturing of food products;
- to promote the revenue growth in the agriculture sector and food safety based on the sustainable agricultural development principles;
- to ensure harmonization of the agricultural product regulating legal acts with EU legislation;
- to promote the organic farming in the country;
- to promote the export potential, acquisition and strengthening of international market positions;
- to promote dissemination of international experience in food production and sale of agricultural products;
- to obtain and analyze information on conditions and trends in internal and external markets;
- to support the organization of scientific research and consulting services to businesses, raising professional knowledge, and training for those employed in agricultural;
- to participate in the country's financial and economic policies;
- to promote the development of competence within the international relations, to identify priority areas of cooperation and to manage the international programs;
- to issue the permits and licensing within the competences of the Ministry in accordance with the law on "Licensing and Permits" and to supervise of these processes;
- to promote formation of market infrastructure within the frames of its competency;
- to develop/take part in development of technical regulation programs within the frames of its competency;
- state supervision in the field of soil conservation and fertility restoration and improvement;
- to develop programs by their respective sectors and to promote their implementation;
- to support the NGOs in their activities within the frames of competence;
- to organize the testing and registration of new varieties of pesticides, agrochemicals, animal and/or plant life within its competence;
- to protection the territory of Georgia against penetration of agricultural quarantine facilities;
- to promote the renewal of agricultural machinery and technology and their accessibility;
- to predict the need of pesticides and agrochemicals and to promote their use;
- to support the farming activities (plant and livestock);
- to promote the harmonization of interests between producers and consumers;
- to promote accomplishment of other tasks set by the legislation within the frames of its competence;

The following structural units and the following legal entities subordinate to the MOA:

- a) National Wine Agency;
- b) Laboratory of the MOA of Georgia;
- c) National Food Agency;

- d) Scientific-Research Centre of MOA;
- e) Agricultural Cooperatives Development Agency.

The Ministry has territorial bodies.

### **Ministry of Economy and Sustainable Development Georgia**

The MOESD holds a significant role in implementing agricultural strategy and agricultural development in general in the process of forming national land management policy, as it is the Ministry that oversees the process of privatization of government owned lands.

### **Ministry of Regional Development and Infrastructure of Georgia**

The governance scope of the Ministry is: Regional development policy, water supply development in Georgia, improvement of water supply systems to the population and ensuring the implementation of supportive measures, international and domestic motorway and road network development, design and scientific-technical progress in the development and implementation of state policy.

In order to increase the competitiveness of the agricultural sector, it is important that farmers have access to the relevant infrastructure, the MRDI actively works on within its competence. Under the Georgian Regional Development Strategy, there is an active cooperation between the MOA and MRDI. Cooperation focuses mainly but is not limited to infrastructure projects.

Infrastructure development is the main factor responsible for raising the rural population to a competitive level with the city population, and increasing its labor productivity.

In this regard, the development of infrastructure provides the following key issues:

- Development of internally connected roads;
- Ensure water provision, waste recycling;
- Coastal defense works and other infrastructure, that will reduce the risks of natural disasters;

### **Ministry of Finance of Georgia**

MOENRP and MOA in cooperation with the Ministry of Finance prepare programs to determine the amount of state funds and creation of existing medium-term programs. The Ministry of Finance is the leading institution in terms of gaining financial resources from international donor organizations. The Ministry of Finance plays a major role as the structure that approves fiscal policies in terms of mobilizing resources for environmental protection and agricultural development.

### **Ministry of Education and Science of Georgia**

SLM and advancements in agriculture wholly depends on the existence of qualified personal and improvement of farmers' entrepreneurial skills. In this regard, relevant ministries and the Ministry of Education and Science should conduct close cooperation and coordination in order to improve the level of knowledge in the field. The ministries also need to work together on sustainable land management and

higher education system reforms in the agricultural sector, as well as research and extension center development processes.

### **National Statistics Office**

The National Statistics Office is a public legal entity, which is established on the basis of the "official statistics" law, with the aim of producing official statistics and the dissemination of statistical information.

Within the Executive Authority System, the National Statistics Office is an independent body that carries out its activities according to internationally recognized principles of statistics, the Georgian law on "official statistics" and other legal acts.

Accurate statistical data has great importance for the development of SLM and agricultural sector. The National Statistics Office currently collects and publishes important data relevant to these issues, which include publications like the environment and natural resources, subsistence analysis, the agricultural census, "Georgian Agriculture" - an annual publication, the National Statistics Service Quarterly Bulletin , National Statistics Service Yearbook, "Food Security Situation" - Statistical Bulletin and the others, the data covers the following areas: Protection of the environment and natural resources, employment, nutrition, food and agricultural product prices, used land in hectares, production, size of livestock, farm volume, foreign trade, food product self-reliance and the gross domestic product. For improvement of statistical data gathering methodology in the field of agriculture, further improvement of close cooperation is planned between the MOA and the National Statistics Office.

### **Supporting Institutions**

#### **Educational and Research Institutions**

Georgia has an agricultural educational System, which mainly manages the entire system through the university faculties. Ministry of Education and Science is responsible for the preparation and implementation of training programs. The goal of the agricultural educational should be the creation of a comprehensive and dynamic educational system that will supply the market with qualified and competitive staff.

In recent years a number of reforms have been implemented in the educational System. However, the reform did not effect all segments of the educational system equally. Agricultural education is such a segment, which is still far from Western standards and is in need of development and support.

Achievement of success in the agricultural sector will be largely depend on the improvement of the human resources market. Agricultural sector needs highly qualified professionals, who have a deep theoretical knowledge and practical skills. In this regard, on February 4, 2011 Agricultural University of Georgia and the MOA signed an agreement, the aim of which is active cooperation on matters of higher education and scientific research. It is also planned to extend the relationship with other higher education and vocational education institutions both within and outside the country's borders.

According to the agricultural strategy, further development in the field of agriculture can have two main objectives:

- Determining relevant priorities of the market;
- The study of existing modern technologies and methods in foreign countries and their introduction to the Georgian farmers and entrepreneurs.

### **Agricultural University of Georgia**

Academic (scientific-research) institutions in the field of Agriculture are now almost fully subordinated by the Agricultural University of Georgia and they nominally represent the so-called "structural units" of University. At present, the permanent number of staff members employed in the research institutions are 3-4 employees<sup>23</sup>.

It should be noted that on the basis of the Government of Georgia 21 March 2011 №136 decree<sup>24</sup>, a public legal entity - the State Agrarian University was reorganized as a non-profit (non-commercial) legal entity - the Agricultural University of Georgia. Non-Profit (Non-commercial) legal entity - the Agricultural University of Georgia was founded by the state, represented by Ministry of Education and Science and the non-profit (non-commercial) legal entity - Agricultural Education and Science Foundation. Earlier, in Georgia, for the purposes of development of agricultural science, establishing modern technologies and research methods in agricultural education, the government and "Agricultural Science and Education Foundation" signed the agreement on 16 March 2011 titled "Development of Georgian Agricultural Science and Education ".

On March 30 2011, on the basis of the above-mentioned agreement between the Georgian Government and "Agricultural Science and Education Foundation", the founders of Agricultural University (the State, represented by the Ministry of Education and Science Ministry and the Agricultural Education and Science Fund) made a joint decision to make Agricultural Science and Education Foundation as the sole founder of the Agricultural University of Georgia. Accordingly, the sole founder of the Agricultural University presently is the non-profit (non-commercial) legal entity - "Agricultural Science and Education Foundation"<sup>25</sup>. In turn, the aforementioned foundation was established on 31 January 2011 and its founder is the non-profit (non-commercial) legal entity – the "Knowledge Foundation".

In February of 2012 the Agricultural University successfully privatized the government owned LLC. "Agrometi"<sup>26</sup>. In turn, LLC. "Agromet", which was formed solely by efforts of the government in April

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<sup>23</sup> In addition, it should be noted that, unfortunately, since 2003 two soil research laboratories have been retired in Georgia, significantly reduced the number of scientists engaged in research fields. As a result of the reform, the institutions lost its legal status, their building were sold and research base was largely destroyed.

<sup>24</sup> The Government resolution on 21 March 2011 № 136 "On measures for the development of agricultural education and science".

<sup>25</sup> The position of the Ministry of Education and Science regarding the issue lies in the fact that the recent privatization of agricultural research institutions and research institutes of the experimental profile made the realization of the state programs unreasonable. MES contributes to the revitalization of the agricultural sector in higher education and the Technical University has created appropriate profile faculties.

<sup>26</sup> The №1-1 / 492 order of the Minister of Economy and Sustainable Development, April 4, 2011, concerning the establishment of LLC "Agromet".

2011<sup>27</sup>, and after its formation, the government allocated tens of agricultural properties – mainly former educational and experimental farms and plot, as well as buildings and other types of infrastructure.

As a result, the Agricultural University currently has a formidable basis as an organization, under the ordinance of which is the large part of former educational and experimental infrastructure within the entire territory of the Country (however the said infrastructure needs significant refurbishment and rehabilitation). The university is no longer tied to the state legally and/or financially.

### **Non-Government Sector**

In the relevant fields, Georgia has various specialized NGOs, having many years of experience and technical capabilities. The ones distinguished by the longest experience are: in the line of Biodiversity – Centre for biodiversity Conservation and Research (NACRES), whereas in agro-biodiversity and organic farming – Elkana.

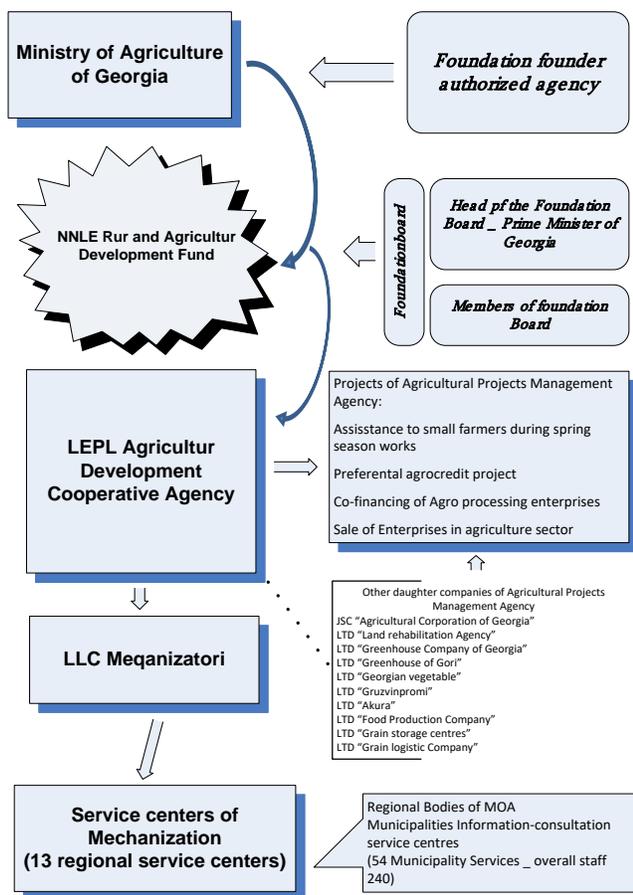
### **The Institutional ensurance of Agrarian Reform and Agricultural Development**

Here are some of currently existing institutional schemes on rural development reform. In this scheme, the central role is held by the agriculture and rural development fund created in 2013 and the Agricultural Projects Management Agency.

### **Institutional scheme of agricultural Development of Georgia (2014)**

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<sup>27</sup> №15 / 02/03 decree of the President of Georgia on February 15, 2012 on "100% privatisation of LLC " Agromet " by the Agricultural University".



## Agriculture Project Management Agency

For the support of Georgian Agricultural Development, the MOA of Georgia founded LEPL Agricultural Project Management Agency.

The agency implements the projects initiated by the Ministry and manages a variety of subordinated agricultural and processing enterprises.

The Agency's mission is to promote the agricultural development of Georgia, and its main functions are planning and management of projects initiated by the MOA, and management of agricultural and processing enterprises.

## Regional and Local Levels

### State Representative – Governor Administration

According to the Resolution №308 of November 29, 2013 of the State Representative \_ Governor approved by the Government of Georgia "about State Representative - Governor Regulation Approval", the State Representative - Governor is a representative of the Government of Georgia in certain administrative-territorial units. State Representative - Governor is accountable and responsible to the Government of Georgia.

Within the legislation competence, major tasks and functions of the State Representative – Governor are:

- to develop and implement the socio-economic development programs for the relevant administrative-territorial units;
- to participate in the events for the purposes of attracting investments and regional development;
- to promote the activities for prevention of natural disasters, catastrophes and emergency situations and liquidation of the consequences of their negative effects in coordination with State and local authority bodies;
- to ensure human rights protection guaranteed by Constitution of Georgia in the relevant administrative-territorial units.

#### The local self governance authorities (municipalities)

Since 2010, in each municipality the Agricultural Development Services were established. By 2013 the aforementioned process was almost completed, however local authorities are expected to modify their structure as of the 2014 local elections.

Assessment of the potential of the existing departments and agencies (including in terms of the compatibility of this potential with the program and policy of the complex documents on SLM, desertification/land degradation issues).

#### **Institutional capacity - national, regional and local levels**

The coordination between the existing central institutions is to be improved in Georgia.

The Body mainly responsible for land degradation issues within the MOENRP - Land Resource Protection and Natural Resources Service currently accounts only 4 employees.

As for the academic institutions – as teaching and research institutions united under the Agricultural University, their organizational status is very fragile and unstable. In addition, their funding is also unstable and personnel flow is high. Particularly, it is obvious the lack of young qualified staff in the scientific field.

Overall, the current institutional capacity at the central level is not sufficient for development of policy defining documents, to integrate SLM and desertification/land degradation issues in these documents and ensuring interdisciplinary approach, as well as effective interagency coordination within the same field.

For planning and better integration in practice of issues related to the SLM and desertification/land degradation, as well as ensuring the interdisciplinary approach, the potential of currently active institutions has to be improved at regional and local self-governing levels.

### **3.2. Strategic Approaches**

#### **Strategic approaches and recommendations on eliminating gaps in the legislation and policy documents**

##### **Strategic Approaches and Recommendations in legislation**

The gaps in the legislation related to the desertification/land degradation and other related issues are mainly connected to the fact that the norms provided under the international obligations of Georgia in this field are not fully integrated in the domestic legal regulations - these functions are partially executed by normative or individual legal acts. In fact, the legal norms related to desertification/land degradation and other subsequent issues, in legislation of Georgia mostly are not reflected as the specific norm determining rules, but they are defined as the so-called general norm-principles.

The main gap of the legislation in the field of SLM and Sustainable agriculture is the absence of relevant systematic legislation in this field.

The aforementioned gaps are important in terms of rapprochement of Georgian legislations to the EU directives. Despite the fact that EU does not have so-called horizontal policies on SLM, desertification/land degradation and other subsequent issues – these matters are regulated by strong financial instruments and within the framework of EU's general policies (EU's common agricultural policy, Rural Development Foundation and so on).

##### **Legislative Changes in Accordance with International Treaties and Agreements**

Georgia is a Party of multilateral international treaties and agreements, as are UNCCD, UNCBD and UNFCCC, which creates a solid legal basis for the further improvement of the country's domestic legislation and policy – by legal regulation of converging issues.

Accordingly the stated norms by the multilateral international treaties and agreements in the field of desertification/land degradation biodiversity and climate change is to be done such integration in legislation of Georgia, to ensure mitigation of negative impacts of desertification/land degradation and other subsequent issues. Appropriate changes and additions have to be made to the current legislation (Georgian laws on "Environmental Protection", "Protected Areas System", etc.).

##### **Eliminating gaps in Legislation in the field of SLM**

A consolidated framework legislative act has to be made in the field of SLM, which would systematize a wide range of legislation in the relevant field (eg. The Code or the law on "Land").

## **Territorial planning, protection and management of SLM, desertification/land degradation, biodiversity and climate change avoidance and its integration in spatial planning development legislation.**

An important issue is to integrate the norms related to the SLM, combating desertification/land degradation, biodiversity conservation and avoidance of climate change, on the one hand, into the protected areas and forestry, while on the other hand, into the existing spatial planning development legislation.

In this regard It should be noted, that in Georgia environmental and natural resources territorial protection (including land resources) has a long history of development of protected areas systems. Development of such system has acquired a special dynamism in the last decade and as a result, presently protected areas of Georgia constitute 7% of total area of the country. The protected areas hold more than 8% of total forest areas of Georgia.

It should be noted that, the 6<sup>th</sup> category of the protected areas - creation of multiple use lands at an early stage had not been adequately considered in Georgia. Non existence of multiple use lands (or their existence solely in declared form) has caused problems for a number of protected areas; the same is true about the local population, bordering those territories, where it is restricted or limited availability of certain natural resources.

To accomplish above mentioned functions, such areas have to function sustainably themselves, their natural ecosystems have to maintain a sustainable structure and the use of agricultural lands has to be conducted through environmental safety norms. For these purposes, it should be introduced the methods for sustainable use of resources (including lands) and on the other hand particular attention has to be paid to sustainable development oriented to local population and increase in alternative income sources. Altogether the multiple use lands create broad opportunities for successful development of tourism (particularly agrotourism and ecotourism).

As it was already mentioned above, the matters on spatial planning in Georgia are regulated by spatial planning and relevant (environmental and other) legal norms, which integrate internationally recognised norms and principles on spatial-territorial development.

The Georgian law on "Spatial Planning and Urbanization " is oriented to introduce and implement a decentralised, polycentric, diverse and balanced spatial development model. The law sets the basic functions of spatial planning (for sustainable development of the country and its integration function in Caucasian, European and world space) and spatial planning principal guidelines, of which (as it relates to processes of natural-landscape development planning and management) prioritised principals are as follows:

- the populated and uninhabited territories with balanced structures, particularly equal economical, infrastructural, social, ecological and cultural prerogatives for territorial development have to be established;
- the decentralised and policentralised structure of resettlement have to be developed;
- Activities, in terms of use and development of territories, have to be spatial-territorially concentrated and oriented on development centre systems;
- Over unpopulated areas, priority should be appointed to renewal and intensification of populated territories;

- Regional and sub-regional communicational plans have to be established;
- Information availability has to be provided on populated and uninhabited territory structure; equivalency of communicational excessibility and procuring information has to be maintained;
- Village settlements have to be intensively developed, on a basis of equal footing and partnership with cities;
- Preservation and development of unpopulated territory systems;
- To provide preservation of soil, water, flora, fauna and climate;
- Minimising effect of infrastructures on the environment;
- Infrastructure has to have a positive effect on its surrounding territory;
- Cultural and natural heritage has to be viewed as one of the main basis for development;
- Historic and cultural ties have to be preserved;
- cultural landscapes including their characteristic signs, historical and natural sites have to be preserved and protected;
- recreational areas have to be maintained and developed;
- The spatial-territorial development process should be made publicly available;
- Compatibility of plans of different fields and plans implemented on different hierarchy levels have to be ensured;
- In order to ensure proper development and planning of a territory, the interaction of interests between government and private entities has to be promoted;
- Use and development of separate parts of territories within the country have to be complied with the general terms and requirements of spatial planning, moreover, use and development of whole area has to be considered the terms and requirements of its composite areas (vertical and horizontal cooperation).

Spatial planning guideline principles are used for achieving the general aims of spatial-territorial planning within the context of natural, anthropological and management processes. They are as follows:

- Development of the territories in such a way as to minimise the negative effects on environment caused by the economic and other activities, to use territories and natural resources ensuring healthy living environment for current and future generations;
- Creation of perfect, equal living and working environment (develop “space for equal opportunities”) on a country wide scale;
- Decentralised, policentric, diversified and balanced development of the territories and settlements;
- Creation of spatial-territorial conditions needed for social-economical development;
- The interaction of interests between individuals and legal entities, local, regional and governmental bodies on use and development of territories;
- Protection and development of cultural heritage;
- Protection and recovering of ecological balance;
- Effective use and protection of natural and recreational resources;
- Creation of basis for formation of settlement and infrastructure development policy;
- Integration of sectoral development programmes and sectoral plans into spatial-territorial policies and plans.

Spatial planning basic principles and aims correlate with aims and tasks of SLM, combatting desertification/land degradation, avoidance of climate change, protection of biodiversity, sustainable agriculture.

Considering the abovementioned, it is necessary to make changes in the legislation of protected areas and forest foundation land management, as well as the Georgian legislation on "Spatial Planning and Urbanization".

### **Strategic Approaches and Recommendations in policy development**

Since policy defining national and regional documents have a weak link to SLM, combat desertification/land degradation, biodiversity protection and climate change avoidance, it is necessary to develop policy defining complex documents (targeted and thematic programmes, action plans, etc.).

დაკავშირებული საკითხების ინტეგრირებისა და დარგთაშორისი მიდგომების გამოყენების უზრუნველსაყოფად საჭიროა შემუშავებულ იქნეს მიწის რესურსების მდგრადი მართვის, გაუდაბნობის/მიწის დეგრადაციის წინააღმდეგ ბრძოლის, ბიომრავალფეროვნებისა და კლიმატის ცვლილების თავიდან აცილების დაგეგმარების სახელმძღვანელო (მეთოდური მითითებები), რომელშიაც გაშუქებული უნდა იყოს დაგეგმარებისთვის აუცილებელი ყველა ძირითადი ელემენტი (იხ. აღნიშნულთან დაკავშირებით ჩანართი 2).

For purposes of integration of relevant issues and ensuring use of intersectoral approaches, it is important to develop a guidelines (methodical instructions) for SLM, combat desertification/land degradation, biodiversity protection and climate change avoidance, in which all elements necessary for planning must be clearly shown. (see Insertion 2.)

**Insertion 2. Planning manual (methodical instructions) in policy defining complex documents (Targeted and thematic programs, action plans, etc.) on integrating issues of sustainable land management, combat desertification/land degradation, biodiversity protection and climate change avoidance with applying intersectoral approaches**

Recommendational format and list of issues:

1. Introduction

- 1.1. Planning process of policy defining complex documents and intersectoral approaches
- 1.2. Competencies of Governmental Authorities in Planning process at central and local levels
- 1.3. Planning types and general methodology

2. General

- 2.1. SLM, Elements of desertification/land degradation and subsequent basic concepts
- 2.2. The principles of SLM
- 2.3. Elements of desertification / land degradation
- 2.4. Elements of Biodiversity and climate change
- 2.5. Sustainable agriculture and food security and factors affecting it

3. Basic

- 3.1. SLM and desertification/land degradation issues in relation to biodiversity and climate change issues
- 3.2. SLM, desertification/land degradation prevention activities planning stages (by components and basic elements)

4. The reference material (practical examples and technical-economic information)
  - 4.1. Reference material including practical planning examples
  - 4.2. Reference information of technical and economic nature - sustainable land management, desertification/land degradation, biodiversity, climate change, sustainable agriculture and other related fields
  - 4.3. Recommended list of normative acts
  - 4.4. Recommended list of reference
5. Graphics
  - 5.1. Maps

### **Strategic approaches and recommendations in intersectoral approach and coordination and legal support**

For effective implementation of an interdisciplinary approach, clearly defined functions between coordinating agencies must be outlined at a legal level.

## **4. Science, technology and knowledge**

Georgia has a long tradition of carrying out scientific research. In the 30s, tens of scientific research centres were established, which encompassed humanitarian, exact and natural sciences. At the same time a foundation was formed for environmental monitoring systems and their research methods. The country completely covered by hydrometeorological checkpoint networks.

Scientific research was significantly hindered during the 90s due to the political and economic situation. It dramatically declined the activities of scientific-research institutions. The monitoring systems almost entirely destroyed and currently only some of hydrometeorological stations are left functional.

It should be noted that scientific studies conducted over several years widely implemented into practice. Works were carried out to specify soil genesis and classifications, ongoing processes in the soil, agro-production and qualitative indicators, in south Georgian mountains, brown and grey-brown soil composition and properties in meadows, causes of factors limiting productivity (soil petrification, salinity, high hydromorphic factors) and other.

A number of recommendations have been drawn from results of the research mentioned above, which were included in methodical reference: on use of compound fertilisers in grain and vegetables (1985) and in “Agrochemc’s directory” (1986).

Improvement and processing of saline and solonetz soil has been studied in East Georgia; a map of large scale soil amelioration of saline and solonetz soils has been made, development of systems for the purpose of raising fertility of ameliorated soil and agricultural productivity is underway.

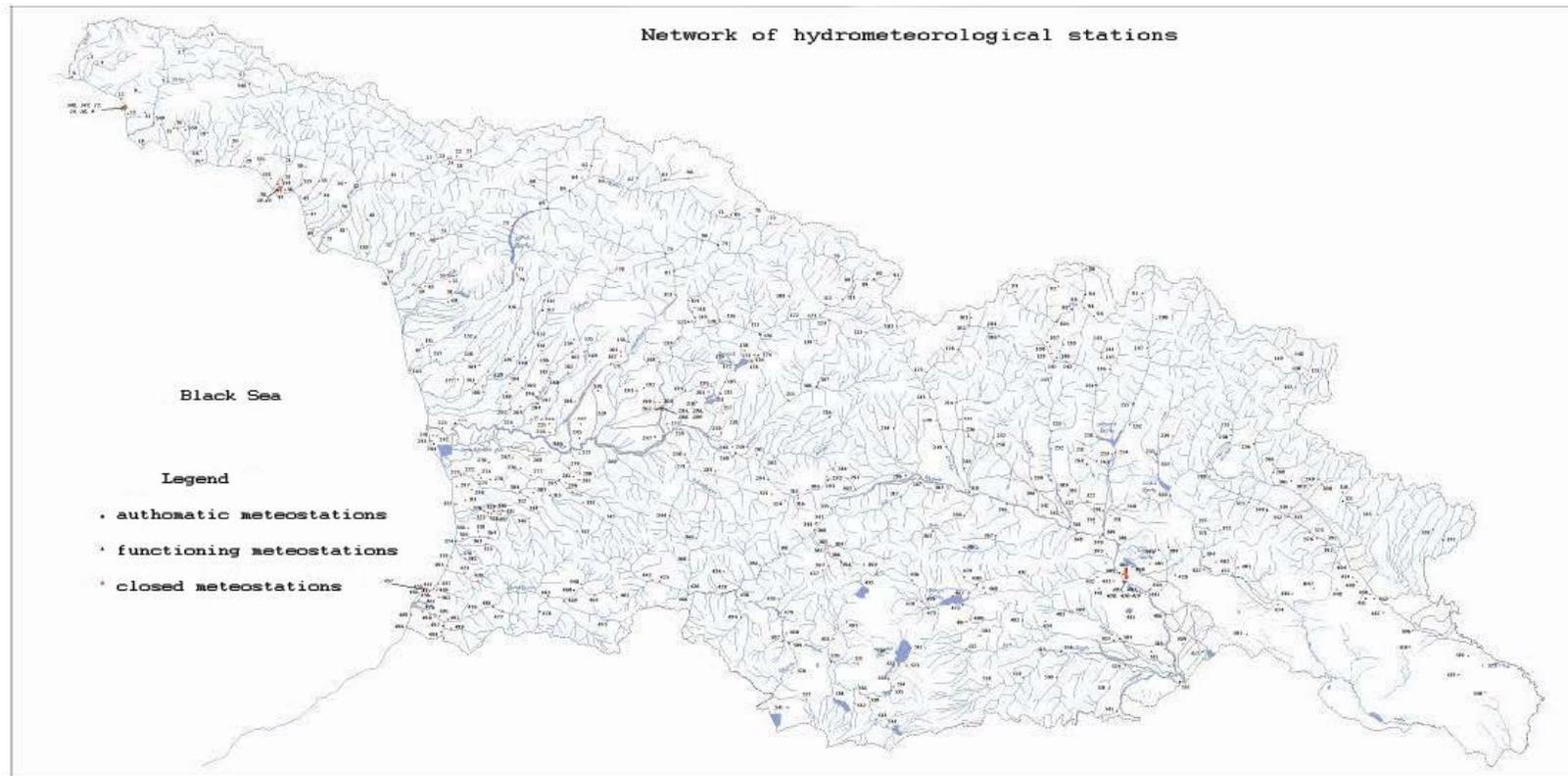
Based on the results of the research, recommendations have been formed on protecting soil from erosion and increasing its fertility, which were published in the form of brochures, as well as “Georgian Farming System” (1984) and “Agricultural Guidance System” (1986).

Large scale zoning (1:50 000) on soil erosion was conducted, which resulted in compilation of local basis maps of terrain inclination, partition and erosion. Separated notions of erosional process development intensity and areas of uniform spread of different types of erosion were produced; studies were conducted on soil agro-productivity at various stages of erosion.

On the basis of sresearch conducted by scientific establishments and the institute of soil studies, efforts where made to form a general scheme on counter erosion in 1981-1990 and pre year 2000.

Based on the research, development started on salinity and erosion counter mesures, ways of rational use of fertilisers and the proper deployment of agricultural crops. Various efforts were made to refurbish degraded soil: terracing of slopes, cultivation of windbreakes, chemical amelioration, extraction of salt from salinated soil using magnetic apparatus and other.

The above mentioned data proves that the country has a significant basis of scientific information and a decreased but still sufficient scientific potential. For the purposes of organising monitoring of desertification processes it is imperative to restore the net hydrometeorological facilities and initiate support for scientific research.



Geladze V., Geladze G. National Agency of Environment

#### 4.1. Sinopsys

The desertification process is caused by natural as well as anthropological factors. The significant among natural factors are: climate related, hydrogeological, morphodynamic, soil related and others. In terms of anthropological effects on natural environment a few important issues are: agriculture, mining works, urbanism, etc . Caused by anthropological effects a growth in semi-arid is underway, where wind and landslide related erosion processes are taking place, which causes the formation of badlands on the related territories. As a result of valley and mountain forest cutting there has been a significant increase in arid climate, activity in soil and plant degradation and desertification of the landscape. Formation of xeric scrub, steppes and semideserts has significantly shifted towards the west and hypsometric heights. These factors are caused by anthropogenic factors, which causes the change in landscape from semi-humid to semi-arid and climate aridity. All of the above mentioned processes constitute the main reasons for the partial development of desertification.

Aridisation and desertification processes intensity varies over time depending on passage of years and seasons. Because of this, it is imperative to evaluate landscapes within a specific frame of time. This allows for the possibility of pinpointing current tendencies in various landscapes as well as their possible development scenarios: increase/decrease in bioproductivity, forest growth or deforestation, diversity, fragmentation, increase/decrease in sustainability and sensitivity and other.

Part of Georgia's territory is in arid and semi-arid zone. Discussing Georgia's landscapes in light of Caucasus, shows that aridity is the least common for our country. However, it doesn't mean that Georgia doesn't have drought and aridity problems. Considering global warming, natural factors facilitating aridity are becoming more and more intense, which will cause increase of natural aridity. This is evidenced by the frequent droughts, which took place on the territory of Georgia recently. It is mentioned in scientific literature that specific species of plants inclined to dry habitats appear in places where previously they were not typical at all (Adjara and Abkhazia rocky massifs and etc.). Territories like this should be considered particularly sensitive to climate change.

According to the First National Action Programme to Combat Desertification, Kakheti and Kvemo Kartli are defined as vulnerable regions to desertification in Georgia. Areas vulnerable to climate change and anthropological impact are even more. Consequently, presenting districts like this and developing adaptation measures is very important.

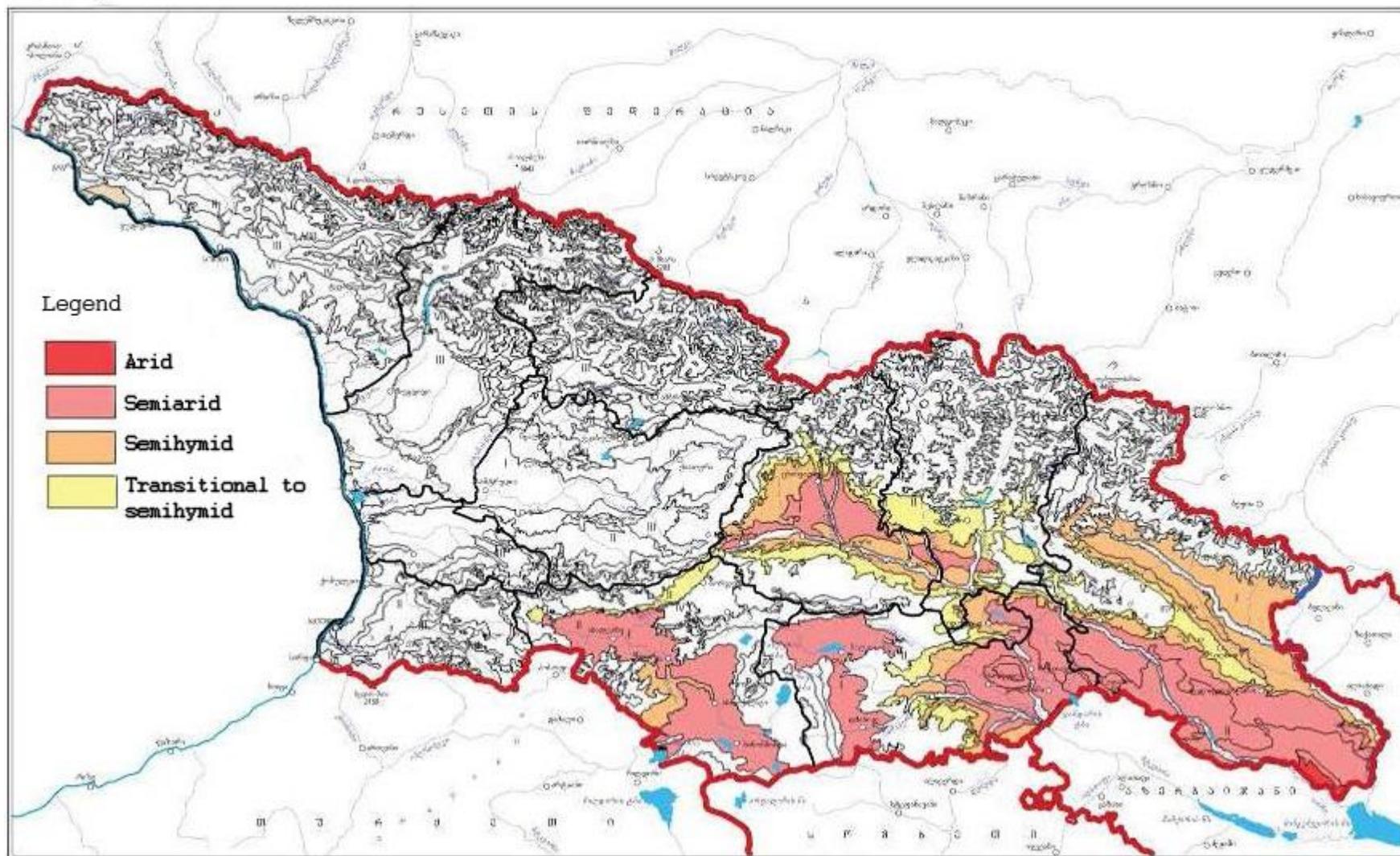
Territories vulnerable of desertification, according to the definition of the UN are in arid, semi-arid and semi-humid zones. The following Georgian regions are in such zones: Kakheti, Kvemo Kartli, Shida Kartli, Samtskhe-Javakheti, Mtskheta-Mtianeti (the capital also falls under these regions but due to the developed infrastructure, it is less effected).

During the working process, interested parties agreed to limit regions vulnerable to desertification to: Kakheti, Kvemo Kartli and Shida Kartli, although further research would be needed on the other above mentioned regions.

In Georgia, semi-humid, semi-arid and arid landscapes take up an area of 19.5 thousand km<sup>2</sup>, which is about a 1/3 of the country's land area. The majority of these landscapes are in the East region of the country.

West Georgia only has semi-humid landscapes which are much smaller in size (70 km<sup>2</sup>, 0.1% of the entire territory of the country).

## Landscapes



Dali Nikolaishvili

scale 1:200 000

Desertification processes in Georgia are confirmed by toponym analysis; For example, in the eastern lowlands of Georgia there are many areas including settlements, which take their names after the names of specific indigenous plants or their groups: "Mukhran-Teleti", "Didmukha", "Mukhrani", "Mukheti", "Telatgori", "Lower Teleti", "Upper Teleti", "Telavi", "Iapniani", "Verkhviani", "Pantiani", "Ipnari", etc. These names indicate that there could be found the matching plant groups in the vicinity of the settlements. These forests are destroyed completely in the mentioned areas and instead of them the anthropogenic landscapes are developed there. Though we talk about changing of plant – the only one component of the landscape, but along with the changing of plant, other components and the whole landscape has changed as well

Landscape components only form their characteristic climate with its corresponding landscape. Because there is a close correlation between them, climate change will change the landscape and vice versa. If the landscapes are adapted to slow and long-term climate change, they react quite painfully to short-term and rapid changes (caused by anthropogenic factors).

According to the second National Report, the most notable trends in climate change will be in the Eastern lowland landscapes. Nearly half of the population lives here (2 million.).

Landscapes that stand the greatest risk of desertification are: Foothill hillside landscapes with steppe, dry shrub (shibliak), phrigan vegetation. Apart from the main threats in tight settlements and vast area of agricultural land, intensive grazing prevents vegetation to regenerate its cover.

Natural territorial complexes (NTC) in low mountain forest landscapes, where the vegetation is highly modified and degraded (primarily felling) also has an additional risk factor of excessive grazing. This impact is particularly increased in recent years, out of the country's socio-economic situation, in some places instead of using alpine pastures for grazing people started using areas surrounding populated neighbourhoods. While, on the one hand, this has reduced the magnitude of the impact on natural resource in high mountain areas, on the other hand, it increased the impact in low mountain forest landscapes.

According to the expected results of climate change, Georgia will face a landscape change and degradation of almost 3.5%, or 2330 km<sup>2</sup>. Preventive actions will be necessary for prevention of such processes.

#### 4.1.1. Biophysical factors causing Desertification

Desertification is affected by a whole range of environmental problems, which are caused by both, natural and anthropogenic factors: climate change, deforestation, loss of biodiversity, water resources degradation and so on. Among the natural processes happening at the territory of Georgia, in most cases it is almost impossible to distinguish disaster provoking natural factors from anthropogenic factors.

#### Atmosphere Precipitation

Precipitation is one of the basic climate elements, it defines water balance of the territory. Difficult orographic conditions, latitudinal directions of the Caucasus Mountains and South highlands of Georgia and the Black Sea, transforms the circulation of atmosphere in such a way that dry steppes (less than 400 mm of annual precipitation sum) and excessively humid districts( 4000 mm of annual precipitation sum) can be found in relatively small area.

Most of the precipitation reaches Meskhети range's seaward slopes – average 4500mm (Mountain Mtirala) per year; the least (400mm) – on extreme South-East part of Eastern Georgia and on Kvemo Kartli plain. Central and Eastern parts of Shida Kartli (from city Gori to the east) are characterized by small amount of precipitations. Annual precipitation sum here is 500-600 mm.

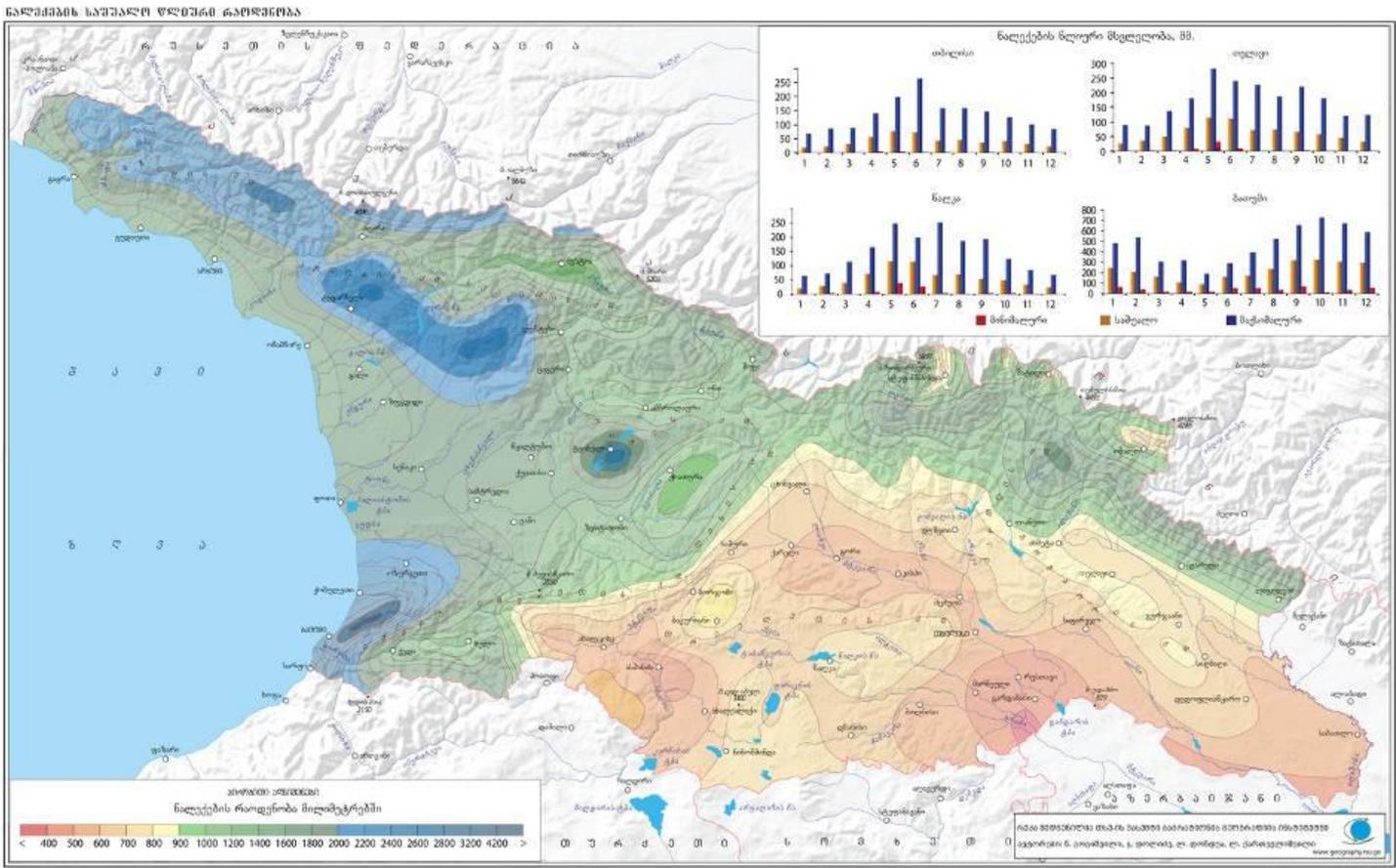
In Kakheti region, especially abundant of precipitation is Lagodekhi – Kvareli stretch. . Annual precipitation sum here is 900-1100 mm. Left bank of the river Alazani is more sedimentary than the right bank. “Piriqita” Tusheti is dry; here on the height of 2000 meter only 800-900 mm precipitation reaches.

In Southern Georgia, especially dry is Akhaltsikhe highland and upper part of the river Khrami, annual precipitation sum here is 500-600 mm.

On the territory of the country, annual movement of precipitation is characterized by two minimums and two maximums. Akhalkalaki highland and the Caucasus Mountains north slope are exceptions. Here there is only one maximum and one minimum.

In Eastern Georgia, main maximum of precipitations is in May-June (annual precipitation 12-20%), the secondary – in September-October. In Kartli and Gare Kakheti the secondary maximum is mainly in October, in Shida Kakheti – in September. Main minimum of precipitations everywhere is in January (annual Precipitations 3-7%), and the secondary in August (5-8%).

In order to meet the agricultural requirements, it is necessary to know the distribution of precipitation in the warm periods of the year. At this point the precipitation in West Georgia is 300-800 mm, whereas in the East it is 1600-600 mm. In the last 4-5 decades, Georgia has experienced an unfavourable climate conditions. Droughts, powerful winds and other have been occurring more frequently. Within the framework of the climate change project, research was conducted which determined that in Georgia, in the mountains as well as in plains, temperatures have increased by 50% and rising with the exception of winter time. Subsequently, this will cause an increase in demand of irrigation in such areas. Climate change, apart from escalating ecological problems will cause complications in agriculture, especially in the planes, where the expectable limit to exploitation of natural resources has long been exceeded.



Annual precipitation, scale 1:200 000

J.Dolidze, L.Kartvelishvili, N. Gogishvili, L.Dondua

National Atlas of Georgia, 2012

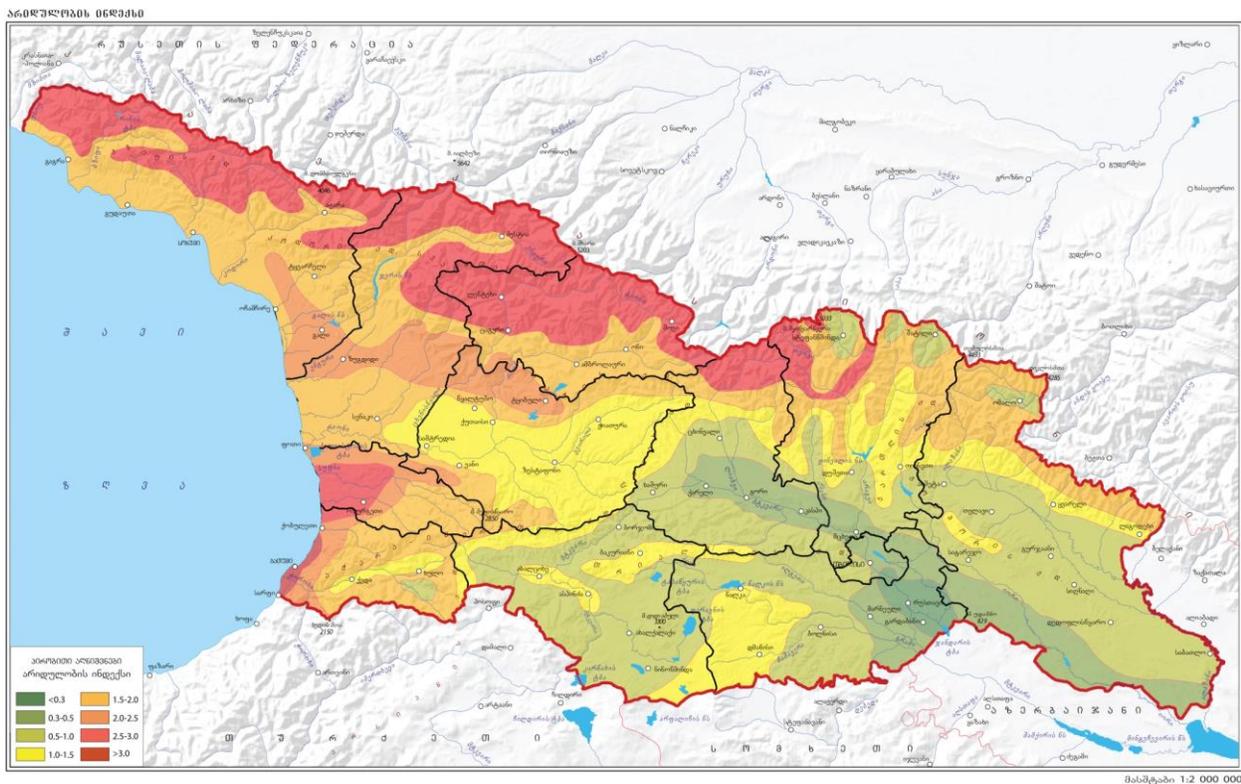
**Aridity**

Convention defines "arid, semi-arid and dry sub-humid areas" as the areas different from polar or sub-polar regions, where the ratio of annual precipitation to potential evaporation rate varies from 0.05 to 0.65.

Aridity in Georgia is significantly noticeable in warm periods of the year. The driest area in Georgia the aridity index of which is 0.3 and less in the warm periods of the year includes the Samgori - Udabno - Red Bridge - Tbilisi. There distinguishes quite large territory, the aridity index of which is less than 0.4 in the warm periods of the year. The mentioned area includes the Marneuli Plain, Iaghluji hillocks and the Kumisi Lake flatland, as well as the Tbilisi Sea surrounding area, southern part of the Iori Upland and Eldari Valley. Area where the aridity index is 0.5 and less in the warm periods of the year includes the areas of foothill zone of Kvemo Kartli, Shida Kartli Plain, northern part of the Iori Upland and the Shiraki Plain, as well as Akhaltsikhe depression area. It should be noted that in the warm periods of the year the aridity index in the Zemo Imereti area is 0.6, by which it approaches to the conditions of Shida Kartli.

During the cold period of the year, the aridity index increases in average by two times in the territory of the country, which is related to the sharp decrease in the heat in the mentioned period.

The following sensitive areas are specified according to aridity index: Kakheti, Samtskhe-Javakheti, Shida Kartli, Qvemo Kartli, Mtskheta-Mtianeti.



*Aridity Index, scale 1:200 000*  
*G.Gogichaishvili, National Atlas of Georgia, 2012*

## Drought

Drought is complex phenomena; in its formation participate independent factors simultaneously. Main meteorological conditions are aridity, high temperature and low relative humidity. This is long period in spring-summer when precipitation is below norms, air temperature is high when the moisture reserves in soil dries and set up adverse conditions for plants growth-development, the yield is reduced or completely destroyed.

In light of global warming, aridity favourable natural factors are becoming more intense. As a result, natural aridity will increase in Georgia. It is evidenced by the frequent droughts recently taken place in Georgia. Aridity will be especially noticeable in arid and semi-arid areas.

In Georgia, as well as in the Caucasus, years of drought are quite common. Most researchers associate it with global warning. Over the last decades, 1976, 1992, 1996, 1998-2000, 2006 and 2010 can be considered as years of drought.

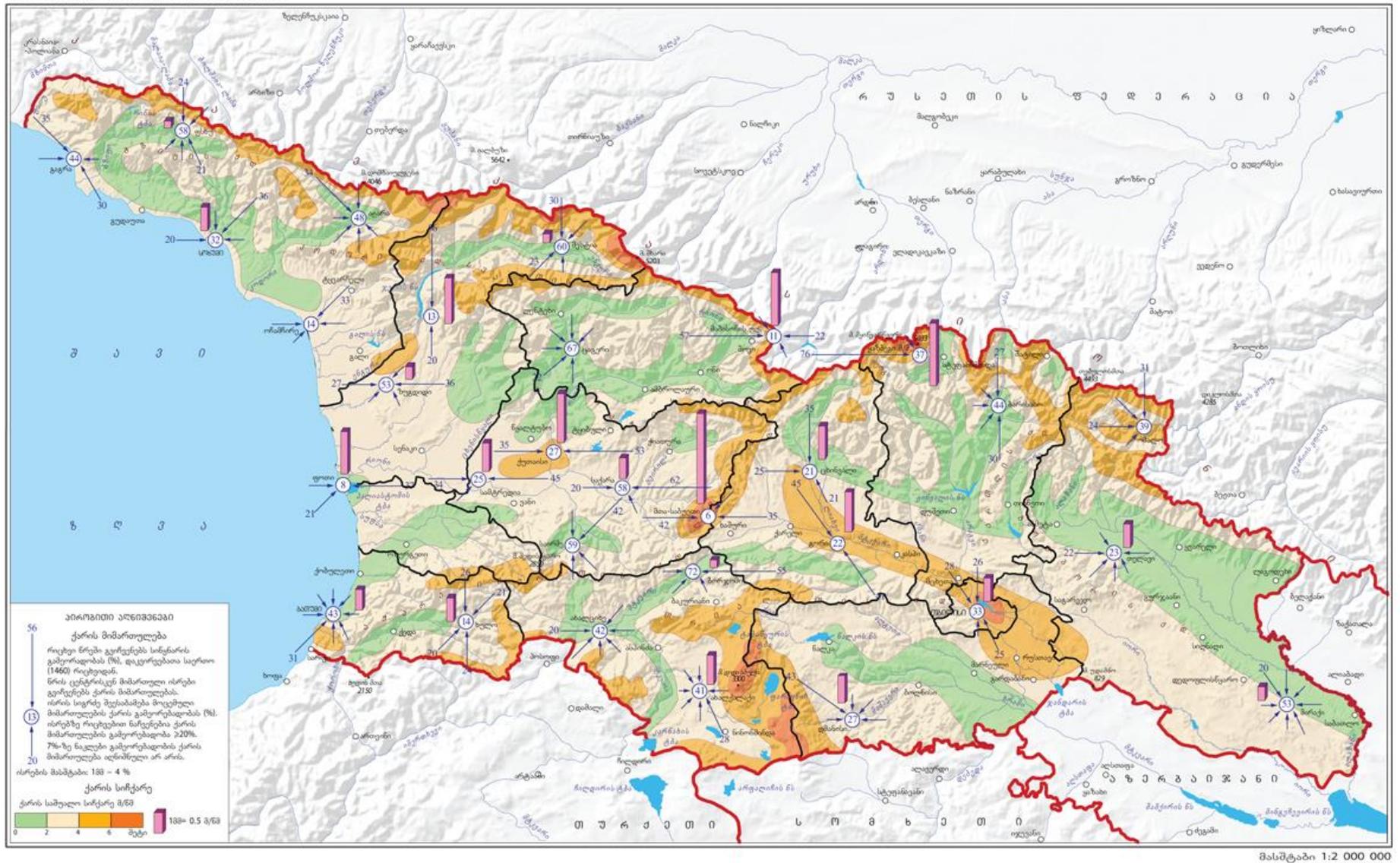
Summer drought of 2000 was the strongest, which caused the ecological disaster of eastern Georgia's plains zone. According to Tbilisi Airport data, a strong wind was blowing during the 19 days, which contributed to a strong drying of arable soil layer. The loss amounted to several hundreds of millions GEL. The summer drought of 2010 is remarkable, when the air temperature exceeded the many years norm by several (5-6°C) degrees.

## **Wind**

The origin of winds is closely linked with unequal heating and pressure distribution of territory. The formation of wind regime in our country is greatly depended on the pressure seasonal distribution over Eurasian continent, with Black and Caspian Sea basins and complex orographic conditions.

Average annual wind speed in Georgia varies from 0.6 (Abastumani) to 9.2 m/sec (Mount Sabueti). The number of strong wind (15 m/sec) days is quite common; in this turn, Kutaisi (63 days a year) is distinguished in western Georgia, while Khashuri (52 days) in eastern Georgia; in the Mount Sabueti, in the Likhi range, 162 days are windy.

ქარის სიჩქარე და მიმართულება, ვახუშტაძე



Wind speed and direction, scale 1:200 000

Ts.Basilashvili, E.Sukhishvili, National Atlas of Georgia, 2012

## Water Resources

In light of current climate change processes, rehabilitation of irrigation system is one of the most realistic, effective measures and priority in order to adapt to desertification process. Consequently, amount of the country's water resources is important.

Georgia distinguishes by abundant fresh water resources. There are more than 26000 rivers, more than 800 lakes, 40 water reservoirs, about 700 glaciers, lots of different types of sources and marshes. The total volume of water resources registered in the country is about 100 cubic km. Georgia lags behind only Norway (1190 mm), Switzerland (1040 mm) and Austria (800 mm) from the European countries by the mean height (760 mm) of fresh water layer formed within a year. The mentioned rate makes 215, 280 and 110 mm respectively in Turkey, Armenia and Azerbaijan, the countries located to the south of Georgia. Water availability of Georgia's population is 4-6 - times more than in the above-mentioned countries.

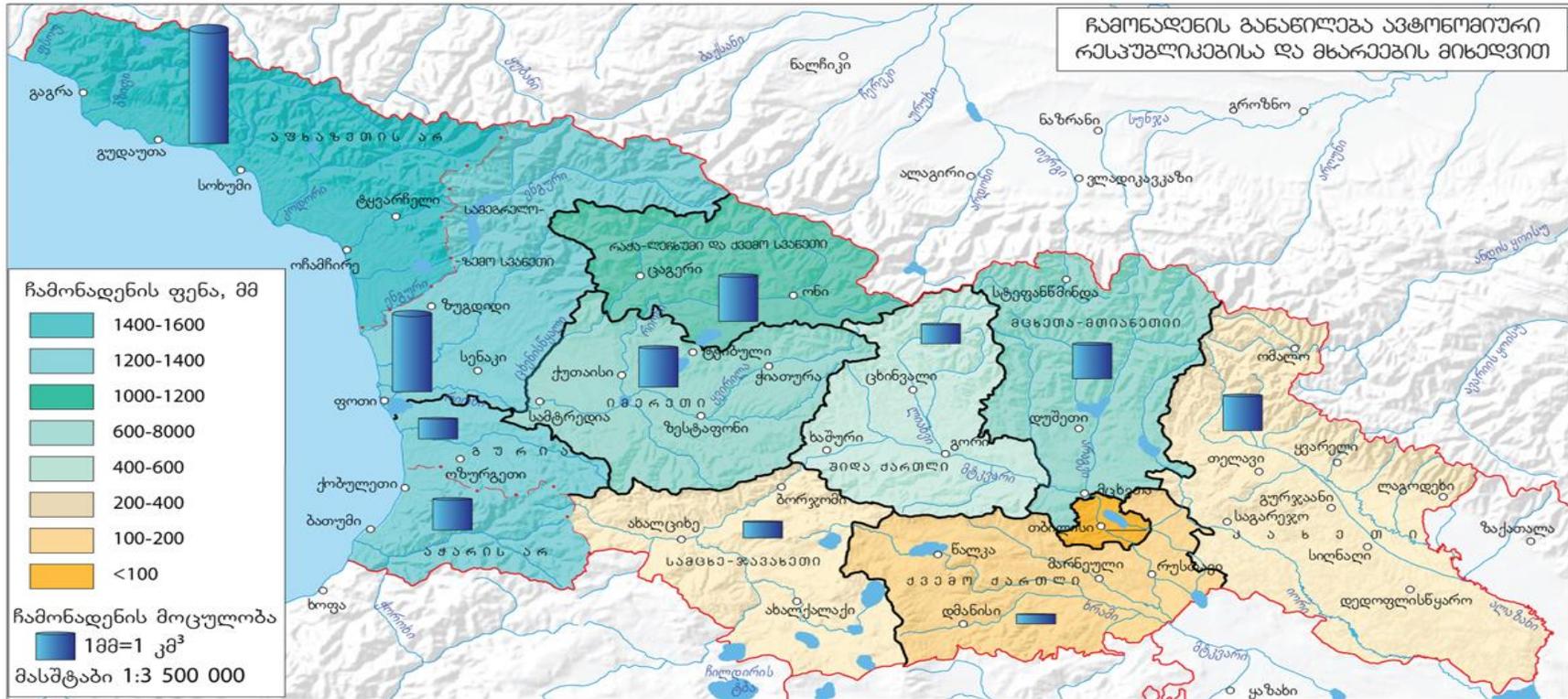
Despite the richness in water resources, there is a significant imbalance among their amount and water consumption in the different regions of the country. Water availability of the territory and population in the eastern Georgia, which is the main water consumer (irrigation), is four times less than in the western part of the country.

The problem of the water supply is very acute in the eastern part of Georgia. In the conditions of approximately equal area of western and eastern Georgia (respectively, 32.0 thousand sq.km; 37.0 thousand sq.km) and the same number of population in terms of per capita is: in the west - 17700 cubic meter of water and in the east - 4600 cubic meter per year, i.e. about 4 - times less water. In addition, the intra-annual distribution of irrigation water consumption is asynchronous. Often the river flow is low than the ecological norm in some basins (the rivers of Alazani, Iori, Khrami, etc.) during the low water periods.

The present-day climate change which is revealed in global warming has been characterized by the temperature rise in Eastern Georgia during the last 4-5 decades and by decrease of atmospheric precipitation if we leave out of account the last 4-5 years. The natural run-off of the Mtkvari (Kura) river has decreased by 25-30%. All above mentioned circumstances along with increase of anthropogenic factor will create the real danger of desertification processes in arid zones. (destroyed irrigation systems, extremely worsened agro-technique level, felling of woods and wind forest strip). Therefore, the problem of fresh water will become even more acute.

The following regions stand out for low rate of flow layer: Kvemo Kartli, Kakheti, Samtskhe-Javakheti.

## Distribution of river run-off by the regions



scale 1: 3 500 000

V.Geladze, A.Javakhishvili, *National Atlas of Georgia*, 2012

## **Natural Disasters**

More or less almost all landscape-geographical areas in Georgia are damaged by natural processes, from the Black Sea, to the highlands. Because of this the events differ from each other, according to formation conditions and genesis, also by spreading through areas and depth deformation. At present, 70% territory of the total area of the country is under damage by natural processes and or high-risk areas.

Up until the last decade of the 20<sup>th</sup> century, landslide and mudflow process activation extremes in Georgia mostly obeyed a cyclical system, and based on the geological-climate conditions repeated every 3-5 or 8-11 years. Since the 90s, the activation processes occur almost every year, but their extreme manifestation intervals have become significantly shorter. As a result, the negative processes affect newer and newer areas, residential areas and engineering-agricultural venues. Number of landslides have activated in areas of intense agricultural utilization and have reached 5000.

The factors that cause this activity in the last few years are:

1. Increased activity of high-intensity earthquakes in the Caucasus;
2. Increase of activity in hazardous natural processes in meteorological events in the context of global climate change;
3. Human influence on the environment and noticeable disturbance of natural balance, i.e.: urban settlement and unsystematic acquisition of lands, usually without any preliminary evaluation, construction of new buildings in geodynamically inappropriate spaces, barbaric decimation of forests, etc.

## **Change in Forest Areas**

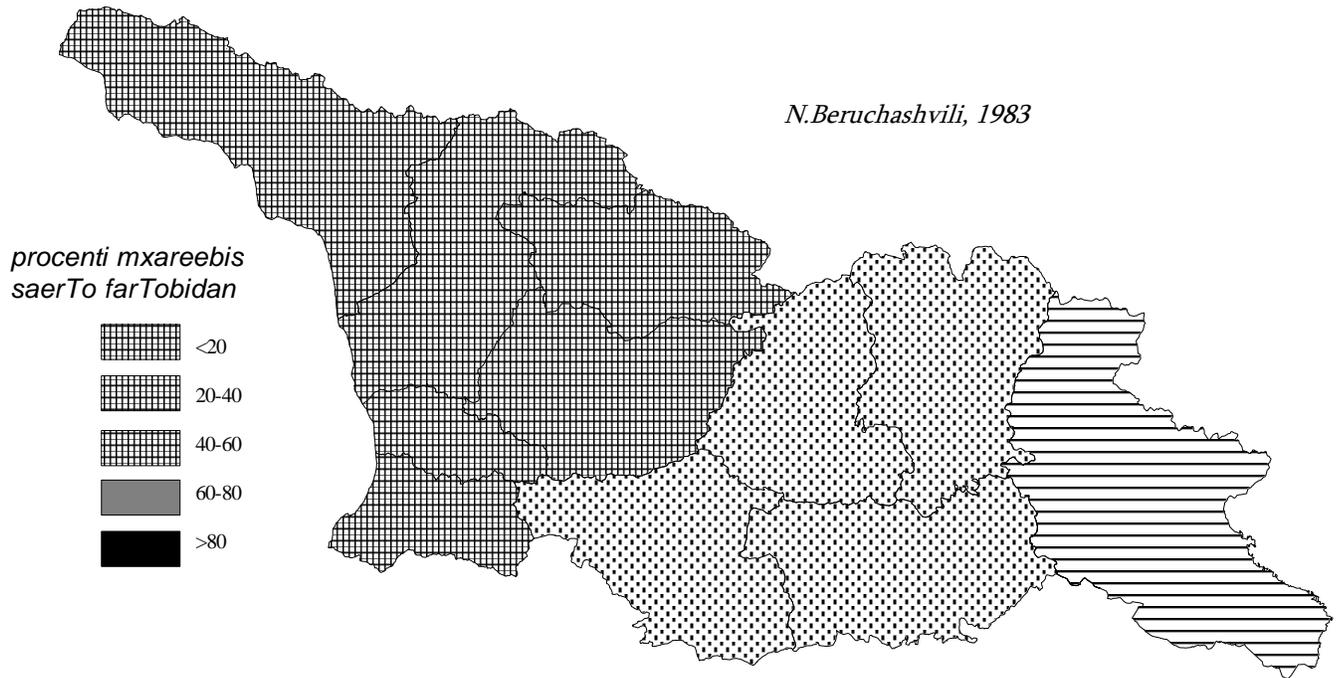
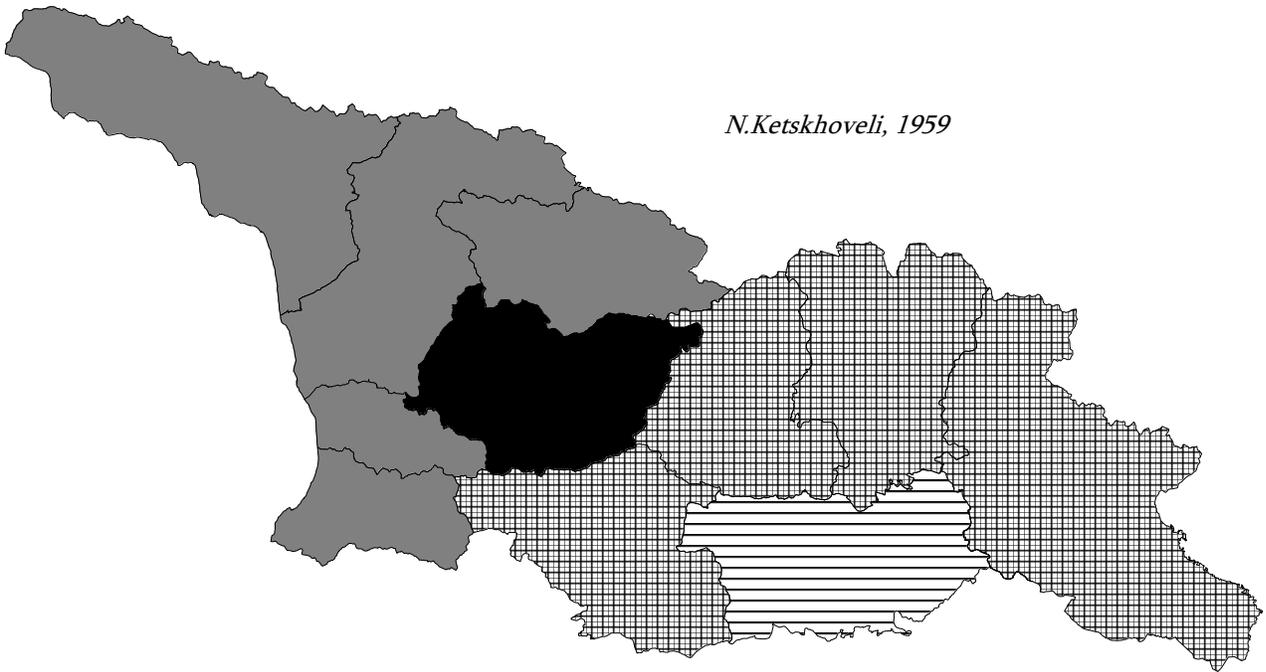
As a result of agricultural activity across the surface of earth there has been a significant amount of deforestation. In some parts of the world, there has been a clear reveal of deforestation tendencies, whereas in others, their original natural state was preserved. Georgia is considered to be one of the countries that has well preserved wide arrays of untouched forests. However this does not mean that, tendencies in change of forests is insignificant.

In Georgia, both in the West and East parts there has been major deforestation on plain territories. They have been better preserved in the mountainous areas of the Caucasus. Floodplain groves have been almost entirely decimated, whereas at the beginning of the 20<sup>th</sup> century they were thriving along the riversides in East Georgia (Mtkvari, Alazani, Ivrisi, Aragvi). Today, only fragments are left.

As a result of analysis and coordination between maps provided by N. Ketskhoveli and N. Beruchashvili, it is apparent that, the horizontal structure of the landscapes has gone through significant changes since the beginning stages of social development, which is clearly apparent on a regional level as well as in terms of units of landscape. These changes are especially noticeable in planes and forest Natural-Territorial Complexes (NTC).

The Entire Western Georgia has high levels of forest territory areas, which was placed within the 60-80% interval. In East Georgia these indicators where highest in Qartli (50 %) and Kakheti (44 %). The fact that

none of the Georgian regions are a higher than 80% forest coverage is another indicator of forest decline. In Qyemo Qartli it is less than 20%. This level of low forest coverage had not been inherent in any region of Georgia in the early stages of social development. In the past, the lowest indicator of forest coverage was Samckhe-Javakheti (30%) whereas today, Qyemo Qartli is the distinctive region (20%).



*% from region's area*

**Forest cover (%) by regions**

## Phytomass

A significant portion of Georgia's forests and a respective maximum amount of phytomass – 795.3 Million Ton (88% of all of Georgia's phytomass) is situated along the mountainous landscape. In the early stages of social development, this ration was much lower (70 %) because significant reserves of Phytomass where spread over the planes as well.

The decline is connected with anthropogenic factors. E.g. Tbilisi and it's surrounding areas where once covered (for the most part) in forests. One of the reasons for the desimation of these forests according to N. Ketskhoveli where goats, which the inhabitant population had in large quantities. Light forests, which were fairly common on the planes in the past and which reached as far as Tbilisi's doorstep, have been almost completely decimated due to irregular (not proper) grazing practices. The only place where it is still kept in it's natural state is the Vashlovani Reserve. In terms of percentage, the largest loss of phytomass reserve was in Imereti and Qvemo Qartli.

Reserves of Phytomass by Georgian Regions

Regions	Reserves of Phytomass, 10 <sup>3</sup> Ton			Reserves of Pytomass in Natural-Territorial Complexes (NTC), 10 <sup>3</sup> Ton		
	According to N.Ketskhveli's Maps	According to N.Beruchashvili's Maps	The Difference Between Them	According to N.Ketskhveli's Maps	According to N.Beruchashvili's Maps	The Difference Between Them
Imereti	222,617	115,059	107,56	215,745	112,961	102,784
Apkhazia	219,104	189,975	29,129	203,534	179,425	24,109
Samegrelo-Zemo Svaneti	183,231	122,004	61,227	161,609	117,224	44,385
Kakheti	176,13	110,561	65,569	143,691	93,09	50,601
Adjara	83,228	63,777	19,451	77,469	66,082	11,387
Racha-Lechkhumi, Kvemo Svaneti	82,53	60,874	21,656	77,258	55,406	21,852
Shida Kartli	77,561	53,222	24,339	68,16	27,978	40,182
Mtskheta-Mtianeti	70,492	64,227	6,265	53,532	46,344	7,188
Samtskhe-Javakheti	68,621	60,565	8,056	60,815	51,824	8,991
Kvemo Kartli	62,853	32,591	30,262	49,643	25,663	23,98

Guria	49,665	27,773	21,892	46,802	24,372	22,43
Total	1296,032	900,628	395,4	1158,258	800,369	357,88 9
Reduction %			30,509			27,614 2

In East Georgia, the highest quantity of phytomass is in Kakheti, which is expressed by the spread of Kolkhetian NTCs, where large deposits of phytomasses are gathered. However compared to earlier periods, the reserves of phytomass have decreased significantly (by 37%). This is caused in part by decimation of forests in Alazani planes and in particular it's right side and developing traditional viticulture in it's place. Fragments of these forests where still preserved by 1920, however those on the left side of the field survived till the end of 19<sup>th</sup> century.

In the initial stages of social development, the largest reserve of phytomass per km<sup>2</sup> was in Imereti (33.8 million T), and the lowest was in Qartli (9.2 million T). currently the situation is is quite different. The maximum phytomass per km<sup>2</sup> is in Racha-Lechkhum-Qvemo Svaneti (24.6 million T). In terms of amount of phytomass per person, the lowest reserve is found in Qartli. For the entire population however, this indicator used to be 21.6 million T, currently it is down to 14.9 million T.

#### 4.1.2. Soil degradation

##### Soils

Georgia is characterised as having a difficult terrain, clearly defined vertical zoning and large diversity in soil-climate conditions. Georgian territory is divided into three soil-geographical districts, which contain sub-districts and regions.

Eastern Georgian planes have soils of arid tendencies, whereas semi-humid and semi-arid soils are more often found in the west of the country in lower parts of the mountains and uplands.

There are two basic zones between the Eastern Georgian soil district mid-mountain plains and upland sub-districts: **desert field and field soil zones** grey-brown, field grey-brown, black-soil and saline soil; **plain crossing forest-fields and forest soil zone** field brown, black-soil, saline and alluvial soil.

The diversity of the soil cover is particularly evident the lowlands and a plain relief regions, this is less evident than in the mountains.

## Natural and Anthropogenic causes of soil degradation

### Agriculture

A significant contribution to the transformation of the natural environment belongs to agricultural activities. Its impact on the natural environment was particularly significant during the XX century in Georgia. Cultural landscapes generation, irrigation activity and soil secondary salinization, Waterlogging of the territories, or on the contrary, drying-out of wetlands, is the incomplete list of the changes, which suffered the environment of the farm lands.

As a result of irrational use of agricultural lands the quality of soil has been decreasing. Discrepancies in crop rotation and non compliance with agro-technical norms decreases soil fertility, excessive grazing causes grass cover degradation and erosion.

Agriculture is a traditional branch of economy. Climatic and soil conditions of Georgia are so favorable and diverse that the country has an opportunity for development of agricultural sectors of wide range. However, the share of agriculture in the gross domestic product of Georgia, in light of the other branches of the national economy, decreases permanently. For example, in 1990 the share of this sector was 29.7 %, in 1999 – 24.7 %, in 2001 – 21. 0 %, in 2003 – 19.3%, 2005 – 14.8 % in 2007 – 9.2% and in 2009 – 8.3%. That is, during 20 years this index was decreased by 3.6 times.

Sown areas of farm crops are significantly reduced. The reduction is particularly obvious in Kvemo Kartli (by 3.2 times) and Samtskhe - Javakheti (by 2.8 times); the reduction is relatively less but significant in Kakheti (by 1.9 time) and Shida Kartli (by 1.7 times). It is significant in other regions as well (by 2.3), which are already found having few agricultural lands.

Livestock breeding is the oldest economic activity of the country that has a leading role in the economy of the mountainous areas. However, it is among the decreased sectors of the economy. Georgia's natural lands cannot provide food for livestock and hamper its development. The most part of hay fields and pastures are in the high mountains and their use is available only in four months a year. Winter, spring and autumn pasture areas are very small. Winter pastures in the North Caucasus which Georgian shepherds benefited previously, are not available under the current conditions due to the political situation. In winter the shepherds use Shiraki and Eldari pastures and in summer - the pastures of the Caucasus and southern Georgia.

Agriculture as a priority sector of the country needs the development of a well- thought-out strategy and considerable investments.

## Irrigation

The development of the national economy requires the proper use of land and water resources. This is especially true in dry and semi-dry regions, where due to the hard natural conditions the water is essential for harvesting.

However, as a result of unsystematic irrigation farming, often operation in violation of norms the type of anthropogenic erosion occurs – "Irrigation erosion". As a result:

- Georgia loses 5 million cubic meters of soil annually;
- Large landslides are formed (e.g. Aghaiani, Aradeti, Gachani, etc.);
- Amount of swamped lands exceeded 50 thousands of hectares.

In Eastern Georgia around 50% of water resources are spent on irrigation.

The state of irrigation systems in Georgia does not meet the modern technical requirements. After the known events in the 90s of the last century, the network of irrigation systems and respectively, the irrigation areas were greatly reduced/eliminated. Currently, the rehabilitation of the system is underway across the country, but still the difference to compare with the levels of above mentioned years is considerable. For example, today the Alazani River upper irrigation system covers the area of 22464 hectares, while 44300 ha were irrigated in the 90s. Also, the Alazani River lower irrigation system covers the area of 20071 ha, while 34426 ha were irrigated in the 90s, etc.

Most of irrigation systems do not have a regulated flow; there is no strict control of water intake, and collecting - drainage network and irrigation process automation; all irrigation systems need cleaning; majority of channels have unaccomplished ground beds; there are abandoned channels and wells in many places. In addition, there is no new data of the detailed survey of the landscape of the irrigation areas, which is necessary for the selection of optimal configuration of channel contours. All of this leads to excess water consumption and irrigation inequality, has the negative impact on land amelioration state (erosion, salinization and Waterlogging) and hinders the sustainable and reliable operation of irrigation systems.

Coefficient of efficiency of most of the existing irrigation systems ranges within 0.4-0.6. 65-70 % of total water losses are stipulated by filtration, 20-30 % – by technical losses, 3-6 % – by evaporation from the water surface, etc. Almost all irrigation systems require complex reconstruction, capital planning, water availability development, arrangement of internal irrigation system, etc. Further development of irrigation farming also requires highly trained specialists and irrigators, who will pursue the irrigation technologies, specified irrigation norms and irrigation dates according to the requirements of separate regions, zones and farm crops.

The lower irrigational system of Alazani holds a significant place in Georgian agriculture, which is one of the largest systems not only in Kakheti but among irrigational systems in all of Georgia. It should also be noted that this system provides irrigation for those regions of east Georgia in which it is impossible to cultivate significant agricultural proficiency otherwise. There are three active irrigational systems in the pool of river Alazani: Upper Alazani, Naurdali and Lower Alazani.

During the functionality of river Alazani's irrigational channels, due to filtration there is a significant swamping and salinization. Over time this causes the destruction of large territories and negation of their agricultural lands.

Currently, all irrigational systems in Kakheti are functional at varying degrees, but still not a maximum capacity. The lower irrigational system of Alazani is performing comparatively better. The upper irrigational system has disruptions only up to Gurjaani municipality.

The present condition of irrigation systems and increase in water demand on irrigation makes it necessary the reconstruction of present melioration systems.

### **Mining Activity**

Mineral raw materials have been extracted from time immemorial in the territory of Georgia (manganese, iron, lead, molybdenum, tungsten, coal, barite, oil, cement -producing materials, marble, etc.). More than four hundred mines function in a whole in the territory of Georgia. The mentioned mines occupy approximately 1.4 thousand hectares of area (registration of these areas are not conducted properly). Country's recultivation area makes 20 thousands of hectares according to the Georgia's land balance data of 1997. Starting from 1984 till today 1000 hectares of land have been allocated for mining minerals and 2550 hectares of land – for clay pits, extraction of inert materials, for linear building construction and other needs.

Anthropogenic transformation of the relief reaches specific scales in the mining - production objects with a total number of over 5000 and the vast majority of them are processed by an open pit manner. As a result, the landscape is changed dramatically.

Bolnisi region is the most important mining regions of Georgia. There function different types of the enterprises. Among them one of the largest is a Joint-Stock Company "MADNEULI", which function on the bases of a copper - sulphide and barite - lead - zinc - copper complex mine. Ore mining is conducted in an open-cut manner. A significant part of the population is engaged in agriculture (viticulture, horticulture, vegetable growing and livestock farming).

Pollution with heavy metals is one of the types of soil degradation. Kvemo Kartli is distinguished by pollution with heavy metals; production of non-ferrous metals is conducted in the upstream of the Mashavera gorge, which leads to contamination of the Mashavera, Kazretula and Poladauris-Tskali rivers with sulphide heavy metals.

Soils are heavily contaminated as a result of many years of spraying the plants in Shida and Kvemo Kartli, Kakheti and Imereti.

Accumulation of large amounts of heavy metals in the hydrosphere and soil cover has a harmful impact on the region's biosphere.

## **Water Erosion**

Water erosion is a soil wash and soil wash off with temporary water (rain, irrigation water) flows. All types of water erosion directly affects the quality of land use for agricultural purposes, it is also directly and indirectly linked to the development of landslide, mudflow and other slope processes. Therefore, the erosion should be considered on the one hand, as a constant qualitative factor of farm objects and on the other hand, the constant conversion factor of modern relief's plastics.

The most common types of water erosion in Georgia are the bed and lateral erosions. Therefore, while studying the water erosion, all types should be studied as a single unit.

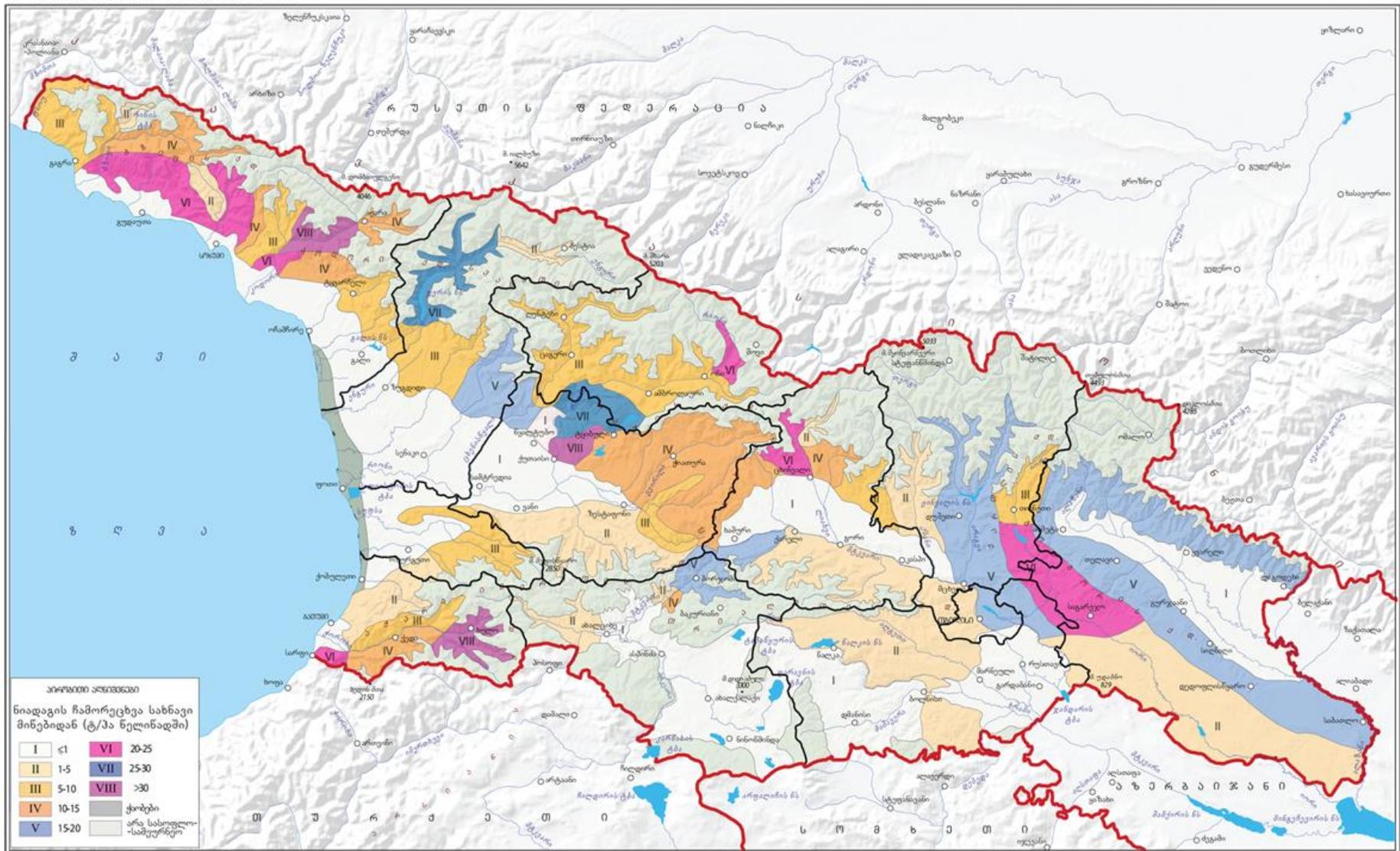
Hilly, heavily fragmented landscape, climate conditions and quite often the wrong economic activity result in the intensive development of water erosion; upper soil layers are washed away that reduces their natural fertility and therefore, the farm crops yield are being reduced correspondingly. Over time the soil becomes useless. The lands in the slopes with the inclination of more than  $380^{\circ}$  are affected to a different extent by water erosion and they need conduction of complex soil protection measures.

According to the observations the washout of soils from the arable lands located to the south of the Iori Upland is less than 1 t/ha, and the soil loss from the arable lands of the rest of the area of the same Upland as a result of the development of water erosion is 1-5 tons/hectare per year. The middle stream of the Iori river basin is distinguished by sufficient high activity of erosion processes, where the soil washout from the arable lands located on the slopes is 20-25 t/ha a year, while in the upper stream of the river gorge – 10-15 t/ha per year. Also the Alazani and Aragvi River basins are distinguished by high erosion activity, where the soil loss as a result of erosion is 15-20 t/ha per year. The soil loss as a result of erosion is 5-25 tonnes per year from the arable lands located in the foothill slopes around the Shida Kartli Plain. About 5 tones of soils are washed out as a result of erosion form the arable lands located on the Trialeti Range slopes. Erosion activity is minimal in the arable lands in the eastern part of Akhaltsikhe depression, Akhalkalaki and Dmanisi plateaus and the soil loss does not exceed 1 t/ha per year.

In Georgia, it is necessary conduction of water erosion control measures in the absolute majority of arable lands (21-40 %) located on the slopes.

The assessment and zoning of erosion fragmentation has been conducted by the Geological Service according to the surface inclination, lithological composition, permeability and landscape - climate zoning. The following categories are distinguished according to the erosion fragmentation in the territory of Georgia: Very weakly fragmented, coeff. up to 0,5 km/km<sup>2</sup>, Weakly fragmented, coeff. 0,5 - 1 km/km<sup>2</sup>, Moderately - 1-2,5 km/km<sup>2</sup>, Significantly - 2,5-3,5 km/km<sup>2</sup>, Intensively - 3,5-5 km/km<sup>2</sup>, Particularly heavily, more than 5 km/km<sup>2</sup>.

ნიადაგის ჩამორეცხვა სანეახო მიწებიდან



მასშტაბი 1:2 000 000

Washout of arable lands

Scale: 1:2 000 000

G. Gogichaishili, National Atlas of Georgia, 2012

## **Excessive Grazing**

Livestock farming is the oldest field of production in the country, the majority of grazing lands are located in the highlands and their use is only possible for four months out of the year. Highland grazing areas are only intended for nomadic sheepherding use. The grazing areas for winter, spring and fall are considerably smaller, and the north Caucasian grazing lands that were in use in the past are now inaccessible due to political reasons.

Due to improper use of grazing lands, excessive grazing and non-existence of appropriate floral cycles, there has been an increase in erosional activity in highland areas.

## **Salinization**

One of the indicators of soil degradation is salinization. This type of soil is mainly spread in Kakheti and Kvemo Kartli, as well as in Kareli region. In western Georgia, salinization causes degradation of 359.56 thousand hectares.

The salinized soil in Kakheti is 133'000 Ha, which constitutes 22% of its entire area. They are mainly spread on Alazani planes, 40% of which are medium or heavily salinized. These types of soils hold 54 thousand hectares in Signagi, 48'000 Ha in Dedoplistskaro region, 23'000 Ha in Sagarejo and 8'000 Ha in Gurjaani and Lagodekhi regions.

Salinized soils by agricultural lands in 1985  
(Thousand Ha.)

Regions	Salinized/Sodic soils, Total	Salinized Soil						Sodic Soil					
		Total	Arable	Pastures	Grazing, bushes	Forest	Perennial plants	Total	Arable	Pastures	Grazing, bushes	Forest	Perennial plants
Dedoplistskaro	85.32	46.76	2.21	4.17	0.51	0.67	39.20	38.56	4.30	24.18	7.02	2.14	0.92
Signagi	98.47	53.83	1.68	5.50	2.25	0.09	44.31	44.64	17.79	20.15	4.60	0.33	1.77
Lagodekhi	4.12	2.00	-	-	-	-	2.00	2.12	1.70	0.16	0.20	0.012	0.05
Gurjaani	10.50	5.60	0.24	0.47	0.005	-	4.89	4.90	2.46	1.89	0.019	0.017	0.51
Sagarejo	37.30	22.19	2.51	3.90	0.63	0.05	15.10	15.11	5.87	8.37	0.69	0.11	0.067
Gardabani	67.18	39.10	5.10	3.29	2.10	0.51	28.10	28.08	19.90	5.49	1.46	0.65	0.58
Marneuli	54.21	32.03	1.59	7.30	1.00	0.04	22.10	22.18	11.30	9.85	0.34	0.025	0.66
Bolnisi	1.40	0.70	-	-	-	-	0.70	0.70	0.26	0.11	0.32	0.011	0.003
Kareli	1.06	0.56	0.06	0.008	-	0.005	0.49	0.50	0.34	0.02	0.008	0.005	0.13
Total	359.56	202.77	13.32	24.60	6.53	1.36	156.73	156.79	63.67	70.81	14.64	0.33	4.33

## **Waterlogging**

Swamplands are mainly located by the Black Sea coast plains. They vary in area, depth, water volume.

A natural factor that contributes to the process of waterlogging is excessive dampening of soil, which is caused by complex natural conditions, of which the main are sediment, low water conductivity in clay and peat soils, high levels of underground waters.

In eastern Georgia regions, waterlogging is localized in nature. Due to exploitation of irrigational systems over the years, there has been an increase in underground water levels, which has caused waterlogging and salinization of irrigational lands (e.g. Riv. Alazani plains; Basins of rivers Iori and Mtkvari).

## **Wind Erosion**

Wind erosion takes place during cold period of the year – in winter and spring (December, January, February, March, April). During these periods of time, there is an increase in north-western winds, the speed of which can be up to 18-28 m/s and the average speeds in February through April are upwards of 2.2-2.5 m/s. Energy crisis and lack of control of forest management caused deforestation which in turn contributed to further development of wind erosion.

The main factors of wind erosion are: dryness of climate and speed of wind, non-existence windbreakers, also there is no grass cover in cold periods of the year. An uncovered soil is easily susceptible to wind, especially on unirrigated land. The main types of soil in wind erosion zones are: Alluvial, meadow brown, meadow grey-brown, black soil.

Wind erosion is present especially in places that have irregular soil use methods and autumn crop sowing deadlines.

In Eastern Georgia wind erosion affects 105'500 Ha of land, especially in Gare Kakheti, Shida Kartli and Qvemo Kartli. Its average speed is between 10 and 15 m/s. Wind erosion is caused also by winter drought, combined with wind speed, these are the two factors that cause wind erosion.

According to climate change models, an increase in wind erosions is to be expected, which would in turn cause an increase in area of degraded lands.

### **4.1.3. Population and Socio-Economic Circumstance**

Thousands of populated areas, agricultural lands, hydro-technical units and others in our country experience effects of natural disasters on a regular basis. Not too seldom it becomes necessary to relocate local populations and house them in safer environment, which causes abandonment of highland villages and land degradation. The damage caused as a result can cost millions of US Dollars annually.

Desertification is a social problem, which is reflected on the socio-economical circumstance of the population, living conditions, income, health and so on. The determination of its role based on the

official information in the Georgian department of statistics is impossible. It is important going forward to include desertification variables in this data.

### Dynamic of the Population

Until the 19<sup>th</sup> century, the main causes of change in population in Georgia were: various epidemics, high mortality rates caused by bad harvest years, natural disasters and permanent wars. Even though the birth-rate was counteracting against this affect, the increase in population in those years was meagre and at times negative.

Population Dinamic of Georgia

year	Population (thousand)	Among Them			
		Urban Population	Vilage Population	Urban Population	Vilage Population
		Thousand		%	
1800	784.7	-	-	-	-
1897	1919.4	303.2	1616.2	15.8	84.2
1926	2677.2	594.2	2083.0	22.2	77.8
1939	3540.0	1066.2	2473.8	30.1	69.9
1959	4044.0	1712.9	2331.1	42.4	57.6
1970	4686.4	2239.7	2446.6	47.8	52.2
1979	5014.8	2600.5	2414.3	51.9	48.1
1989	5443.4	3035.8	2407.6	55.8	44.2
2002 <sup>28</sup>	4371.5	2284.8	2086.7	52.3	47.7
2009*	4385.4	2309.1	2076.3	52.7	47.3
2010*	4 436.4	2 350.5	2 085.9	53	47
2011*	4 469.2	2 371.3	2 097.9	53.1	46.9
2012*	4 497.6	2 391.7	2 105.9	53.2	46.8
2013*	4 483.8	2 410.8	2 073.0	53.8	46.2

It should be noted that, in 1976 the population of the city exceeded the population of the vilage for the first time, in 1990-2004 we saw a dimetrically opposite effect – the populations of city and vilage inhabitants became closer in value. In the last couple of years the number has been invreasing in favour of the cities.

Since the 1990s, as a result of inner conflicts and harsh socio-economical situations instigated from outside of the country, Georgia has had a demographical crisis, the direct cause of which was large numbers in emigration and a significant decrease in birth-rate. According to the official data provided by the Statistical Department of Georgia, excluding the population of occupied territories, the population of Georgia has decreased fivefold from 1990 to 2009.

The negative processes in the dynamic of the population in the 1990s respectively effected Georgian regions. Between 1989 and 2002, the population has decreased in all regions of the country except for Samegrelo and Zemo Svaneti. The increase in the mentioned regions was the result of arrival of refugees after the Afxazia war. The decrease in population was highest in Qyemo Qartli and Imereti regions, which was due to the flow of population to foreign countries.

<sup>28</sup> \*according to reasech in Afkhazia and Tskhinvali regions

## **Natural Movement**

Since the beginning of 1990s the alarming demographic situation has been created in Georgia, which was later turned into a demographic crisis. At this time the absolute number of born children has declined by 1.9 times, while the mortality rate has increased and in 2000 amounted to 10,7 ‰. Natural growth ratio closely approached zero mark.

In recent years the birth rate increase trend is observed in Georgia. According to the official data, the total number of children born in 2008 made 56656, which exceeded the 2007 index by 7280. The birth rate continued to increase in 2009 (63377), however in decreased to 57878 by year 2013. To explain these phenomena the monitoring and special sociological survey in future is necessary.

The negative processes of the population 's natural movement had more or less corresponding affect on the regions of Georgia. For two decades the natural increase in regions' population reduced significantly, because the birth rate decreased everywhere in 2008 compared to 1990. In 2008-2009 the coefficient increased from 12,9 to 14,4 but started decreasing again since 2010 back to 12,9 by 2013.

Because of the mentioned tendencies, the majority of Georgian regions (with the exception of Adjara, Samtskhe-Javakheti and Kvemo Kartli) fall within the IV<sup>th</sup> phase of population status, during which the demographic process is directed towards stabilisation.

As for the death rate, it has had insignificant changes, in 2004-2008 in decreased form 11,3 to 9,8 ‰ and grew to 10,8 by 2013.

## **Mechanical Movement**

The mechanical movement has always played an important role in the demographic development of Georgia. Population of Georgia practically was always characterized with all forms of internal and external migrations, the causes of which and effects on demographic processes was different in certain parts of the time. People always moved to lowland from the mountainous regions, where the living conditions are harsh and agricultural development is limited. Due to population growth, people also moved to other places of settlement and new villages were formed. This fact can be clearly seen from the names of Georgian villages – Zeda (Upper) and Kveda (Lower), Zemo (Upper) and Kvemo (Lower).

After World War II the migration processes were intensified from villages to urban areas. During this period about 60% of the natural increase of rural population of Georgia settled in the urban areas. Most of the big cities, especially in Tbilisi and the growing city of Rustavi, were growing mostly on the expense of population moved from the villages.

In the second half of the 1950s (in 1957) there was a change in the migration processes – Georgia became a country of an external migration. In 1959-1989 a negative balance of external migration amounted to 278 thousand people. In the mentioned time span more than half a million people moved to cities from the villages of Georgia. It should be noted that throughout the 20th century people were

moving from the mountain villages to the plane areas, which drastically reduced the number of people in the mountainous rural areas of Georgia.

At the end of the 1980s migration processes of significant scale were observed in Georgia due to ecological reasons. In 1987 about 2500 families, affected by snow avalanches, were distributed from Kvemo and Zemo Svaneti to Marneuli, Tetrtskaro, Gardabani, Bolnisi, Sagarejo, Kaspi, Dmanisi, Tskaltubo, Ozurgeti, Lanchkhuti and Khoni regions. In 1988-1989 landslide phenomena and snow avalanches made great damage to the mountainous Adjara (Khulo, Shuakhevi and Keda regions). Affected population was resettled to the different historical - geographical regions of the plain areas of Georgia.

In the beginning of 1990s, due to the military conflicts inspired by outside forces, the total number of internally displaced persons from Abkhazia and Tskhinvali region made 228.1 thousand people for June 2009, a large part of which were settled in Tbilisi, Zugdidi, Kutaisi, Poti, Tsalenjikha and Tskaltubo regions (<http://www.mra.gov.ge>).

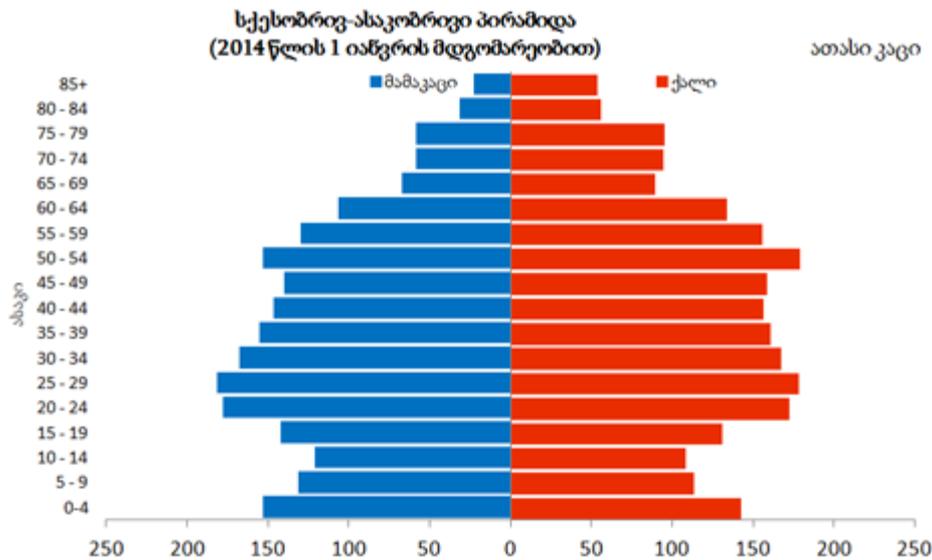
In the 1990s the scale of these processes were unrivalled in the history of the country. According to official statistical data, in 1990-2008 around 928,2 thousand people moved outside of the country. This process was especially intense in 1992-1996 when the number equalled 673,1 thousand.

According to the census of population in 2002, main vector of emigration flows was directed towards Russia and Greece. 80% of the entire emigration flow accounted for the mentioned two countries. In recent years, there have been observed the shifting of emigration flows towards the western countries. In August 2008 due to the military aggression of Russian Federation, the number of internally displaced persons amounted to 26.6 thousand. 19.4 thousand of people became refugees from Tskhinvali region, 1.9 thousand – from the Kodori Gorge, and 5,3 thousand – from Akhlagori. About a quarter of the total number of refugees were settled compactly in the village of Tserovani of Mtskheta region (<http://www.idp.ge>). The number of migrant by 2013 was 95,064 thousand, where 39,483 were male and 55,581 women.

### **Sex-Age Structure**

Due to the negative processes in the natural and the mechanical movement of population and the migration processes, the share of the children under 15 years was reduced and that of the aged population – was increased considerably in the age structure of the regions of Georgia.

By 2002, Racha-Lechkhumi and Kvemo Svaneti regions stood out with the largest number of elderly population, where every third citizen was over 60. Other regions with a high number of elderly population were Guria (23,3%), Kakheti (22,0%), Mtskheta-Mtianeti (21,9%) and Imereti (21,8%).



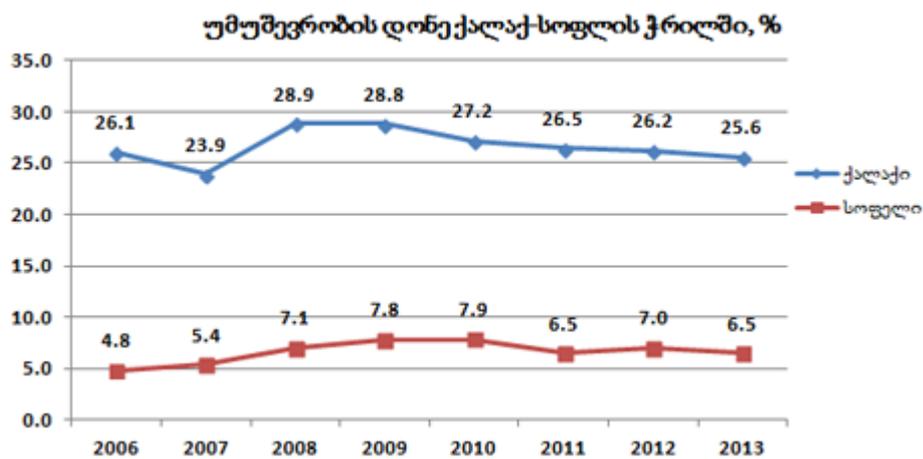
The negative processes seen in gender-age structure in Georgia has been due to socio-economically caused low birth rate and large scale emigration.

### Socio-economic Condition of the Population

Characteristics of the current socio - economic conditions of population of Georgia were formed under influence of political, economic, social, ethnic and other factors. One of the most important characteristics is the distribution of population according to economic status: 15 years old and older, who are employed and the unemployed, who are able and looking for work, in combination is the economically active population (EAP), or the workforce. Its numbers are characterized by the downward trend, which can be explained by the intensive external migration of working age population and, in part, by population aging.

In case of the unemployed, their numbers are increasing from 12.6% (year 2002) to 16.9% (year 2009), while from 2009, they are decreasing to 14% (year 2013). However, probably, these data does not draw a real picture. According to the experts, accordingly, their numbers are much higher.

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Economically active population (work force), per thousand	2023.9	2021.8	1965.3	1917.8	1991.8	1944.9	1959.3	2029.1	2003.9
Employed, per thousand	1744.6	1747.3	1704.3	1601.9	1656.1	1628.1	1664.2	1724.0	1712.1
Unemployed, per thousand	279.3	274.5	261.0	315.8	335.6	316.9	295.1	305.1	291.8
Level of unemployment, percentage	13.8	13.6	13.3	16.5	16.9	16.3	15.1	15.0	14



EAP is unequally distributed according to the regions of the country. Specifically, most of it is concentrated within the capital, Imereti is on the second place.

By the types of jobs, in 2012, the highest salary was in financing, however, overall, salaries are higher in Non-Government sectors.

One of the determining factors of the socio-economic condition of the population is salary. In 2013, minimum wage for a male was 149 GEL, for average consumer – 132 GEL, and for four-member family - 264 GEL. According to the source of the Social Services agency, in 2013, approximately 9.7% of the population is below poverty line (registered poverty).

Socio-economic condition of the population requires special attention from the government.

**The following weak aspects of fighting against desertification were revealed during the development of Action Programme of Georgia:**

- Inadequate funding
- Lack of awareness within the population (population can stop erosive processes, increase soil fertility, increase forest areas, decrease the development of dynamic processes, use resources rationally, and etc.);
- Weak material-technical base;
- No reciprocation of traditional ways of fighting against erosion
- Careless attitude of the population toward natural resources
- Lack of information within local communities.

#### **4.2. Strategic Approaches**

Historical research material was analyzed during the development of national action programme, which resulted in outlining of weak aspects to combat desertification and development of strategic approaches, which are necessary for decreasing the negative results of desertification/land degradation.

- Revealing and zoning of the territories facing the threat of desertification are necessary;
- Taking stock of land and assessing conditions are necessary (creation of Data Bank and mapping);
- Defining the events against erosion is necessary (terracing, building drainage channels, laying gypsum, etc.); requirements and criteria on land use on angled slopes need to be determined;
- Soil and water protective methods need to be established; drainage collecting channels need to be restored;
- Protection, restoration and widening of woods is necessary; Bettering highland pastures and planting bushy plants are necessary; windbreak strips restoration;
- Agricultural land exploitation norms need to be determined (amount of cattle on pasture

areas, agricultural activity type, which are appropriate in erosive areas; providing windbreak strips for territories that are vulnerable to wind erosion and etc.), in accordance with local climate conditions and the observed ongoing changes, existing anthropogenic changes and state of soil.

- Increasing the role of the local community in fighting against desertification is necessary; If advised, securing the local communities with alternative energy sources needs to happen;
- Registering, rehabilitating or abolishing abandoned irrigation systems is necessary; irrigation systems need to be improved (various methods of irrigation need to take place); rational water use is necessary;
- Creating recommendations and instructions for rational use of soil is necessary; implementing requirements and mechanisms for steady use of soil is necessary; implementing biotechnologies is necessary (choosing breeds that take drought and salt);
- Creating hydro meteorological data base (air temperature and precipitation types and amounts, relative humidity, speed of wind and repeatability, river flow and etc.) is necessary
- Assessing the impact of desertification on the health of the community is necessary;
- Scientific methods for steady development of agriculture for providing the population with healthy products and stopping the desertification process is necessary; steady infrastructure for agricultural development and its growth needs to be created (irrigation, providing chemicals, mechanisation by using modern technologies);
- Rehabilitating and adapting event planning and implementation for risks caused by extreme natural causes (drought, hail, strong winds, etc.), natural catastrophe/geodynamic processes (floods, landslides, mudflows, etc.). Assessing and taking into consideration their influence on economy and social sphere in steady regional development strategies and action programmes;
- Supporting scientific research is necessary; using traditional methodologies, their renewal and researching modern approaches, establishing modern technologies;
- Hydro meteorological surveillance network improvement is needed; monitoring and early notification systems need to be established throughout the risk zones; action plans need to be developed for emergencies caused by natural catastrophes, preventive measures need to be planned and taken.

## 5. Capacity Building

Capacity building is a process that is directed towards "Identifying and meeting the needs of capacity building for desertification / land degradation reduction and drought mitigation".

The following priority actions are to be considered for achieving this goal:

- a) Assessment, of the extent of involvement of the capacity building improvement programme (targeted on planning, research and consultations, and on governmental representatives at central and local levels) and that appropriate attention is dedicated on trainings to employees of the financial system, local bodies' staff and decision-makers on the role of land resources matters in economical development and/or why the land degradation issues are important for Sustainable Development.
- b) Assessment on how much is provided approach of trainings on specific audience (targeted on environmental education and governance), specifically intended to care on interested parties of non-governmental organisations and local development programs.
- c) Cross examination of existing national capacity assessment and requirements of 1/COP.7 and 1/COP.8 documents, in order to determine how much is considered:

1. Decentralising aspects of land use management and also existing institutional and human capabilities;
2. National Focal Points' capacity building (by position, budgetary support, human resources), their impact on the policy-making process;
3. Cooperation between government and private sector (at all levels) in the implementation of the action program;
4. Capacity Building of inter-agency cooperation and promotion of synergistic cooperation of the three Rio de Janeiro Conventions and other multilateral agreements.

### 5.1. Situation analysis

For the purposes of Global Environment in the frames of National Capacity Self-Assessment (NCSA), Georgia, in 2005, with the support of UNDP and GEF, has accomplished development of Capacity Development Strategy and Action plan for 2006-2010 in the field of biodiversity protection, climate change reduction and combat desertification.

The self-assessment process aimed assessing financial, technical, informational and human resources capabilities, identifying the existing problems, to tackle them and capacity building to develop the strategy and action plan for implementation of three global UN conventions on - climate change, biodiversity protection and combat desertification.. The document mentioned above contains systematic, institutional, and individual level problems in terms of implementing three conventions (including convention to combat desertification); contains information on ongoing governmental programs legislation, governmental, academic and non-governmental organizations' activities, skills of individuals employed in and by these organizations and institutions engaged in the field of climate change, biodiversity protection and combating desertification; common to this field and so called "interrelated" problems and tasks are analyzed. Document also presents the strategy and specific actions of the Georgian government, which supports opportunity strengthening of Georgia in an average timetable period (years 2006-2010) for implementing Rio conventions.

The self assessment process aimed to assess existing institutional, financial, technical, information and human resources, to identify problems and to develop Capacity Building Strategy and Action Plan for implementation in Georgia of three global convention on climate change, biodiversity and combating desertification. In the abovementioned document shortly is described the main existing problems at systemic, institutional and individual levels in terms of implementation of three Global conventions (including UNCCD); the information on current state programmes, legislation, activities of governmental, academic institutions and NGOs, capacities of them and the employed individuals' in the field of climate change, biodiversity protection and combat desertification/land degradation are reflected in the document; the common and so called "intercrossing" problems and targets are analysed. The strategy of the Government of Georgia and specific actions, that promote the capacity building of Georgia for implementation of Rio conventions in mid-term period (2006-2010) also is presented in the document.

According to the document, capacity building at individual level implies changing the existing views, approaches and actions, mainly through education, knowledge transfer and skills development. However, in this case, capacity building also contains to gain experience by participating in the processes, that take into account implementing reforms in the matters of management, motivation, culture, reporting and responsibilities.

Capacity Building at institutional level, aims to raise general effectiveness of institutions functionality and, also, strengthen their ability of adapting to changes. Capacity Building at the institutional level is directed toward developing the institute, as a whole system, that includes separate employed individuals and groups, as well as deepening its interrelations with other institutes. Apart from the improving of material base, the capacity building of the institutions includes clearly defining their mission, function, structure, accountability, responsibility, reforms in the procedures and communications, also function redistribution among employees.

As regards to the capacity building at systemic level, here it aims to create the “favourable working environment”, in other words, considering creation of entire political, economical and legal framework in which the institutes or individuals have to work. In this process it is very important to consider as formal as informal cooperation between institutes.

Capacity building can take place at local, national and global levels, as well as, any individual and stakeholders (include individuals and entities and institutes), and, at last the whole system levels. For unified capacity, it is very important interrelation between these levels. The capacity building is topical as a short term’s (eg.: skills for solving of existed problems -) as a long term perspective’s (ability of creating conditions for implementing certain changes) point of view.

According to the document, the term “capacity building” could imply “action” or “inaction,” depending on achieving the desired outcome. Capacity building does not always mean creation of new capacities. It can mean capacity distribution, or abolishment of unusable capacities.

While a considerable time has passed after creation of the Capacity Building Strategy and action plan for the years 2006-2010 creation, during which important institutional changes have been implemented - action plan for the years 2006-2010 (in the part of combating desertification) is still topical - in terms of systematic, insitutional, and individual level existed basic problems and possible ways of solving them, as well as in terms of capacity building of employed individuals in this field (government and local government bodies’ employees, representatives of academic institutes, NGOs and local population).

## **5.2. Strategic Approaches**

In so far as Georgia is among those countries that have already made the national capacity building needs assessment and developed the capacity building strategy and action plan in the frames of this process for the purposes of Global Environment – it would be reasonable not to develop above mentioned new capacity building strategy and action plan and not to renew the process of self assessment, but to renew/review in the field of combating desertification and at this basis develop the capacity building strategy and action plan for 2016-2018 to combat desertification – considering the fact that most of the activities from the existing capacity building strategy and action plan in the field of combating desertification has not implemented up to date.

Also, it would be important to integrate those activities in the renewed capacity building action plan in the field of combating desertification, that are presented in the document that were created in the near past - particularly, in the section of land resources (land resources/chapter VIII/) of second NEAP for 2012-2016 years, adopted by the ordinance #127 24<sup>th</sup> January, 2012 of Government of Georgia.

## **6. Implementation and Resource Mobilization**

While studying the weak aspects to combat desertification, the insufficient funding was revealed as one of the important problems..

It is noteworthy, that the first NAP to combat desertification took into consideration limited funding. Factually, it contained only small scale pilot projects, planning of scientific-research separate programmes/plans and pre-project implementation activities. The programme provided less the investment and institutional activities (legislative and institutional changes), that would be directed toward reduction or solving the problems of desertification/land degradation.

Resource mobilization is needed to implement the Action Plan by the UN party-countries to combat Desertification. The fifth goal of the strategy considers funding and technology transfer. It is possible by:

- a. integration of national action programme planning with country development programme and budget cycle.
- b. Conducting the financial capacity assessment, that usually requires intersectoral review (find out financial barriers in different fields, including policy, legislation, institutional structure, access to knowledge, etc.,) and analyzing the following elements:
  - 1) Sources (internal and external) and instruments (market, fiscal, insurance, commercial);
  - 2) different categories of barriers;
  - 3) trends of financial flow;
  - 4) financial conditions;
  - 5) initiation factors of financial resources and/or influencing at this process.
- c. formulating integrated financial strategy, which may contain optimal assessment of all existent sources and financial requirements.

“Integrated financial strategy” will take into account all existing sources of funding – as of state budget, as well as foreign donors. Also, implementation of new, innovative funding methods (e.g. partnership with a private sector) is important.

UNCCD has created financial mechanism as a Global Mechanism (GM), which plays a role of a mediator between countries and financial institutions. It has a clearly defined policy, according to which, the GM supports with resource mobilization from donor countries and international financing institutions, for those countries which defines to combat desertification/land degradation as the countries priority field.

To implement the NAP to combat desertification in Georgia, mostly will be depend on the human and financial resources allocated for it. Implementation of NAP to combat desertification must be considered not only as financial expences, but as cost saving and/or revenue as well. That, what is the financial expences in the short-term, could be considered as an investment in a long-term perspective. Financial resources, allocated for avoiding land degradation, will bring more profit in the farming and agriculture sector.

Funding the activities considered by this programme must be implemented by every institution in accordance with the annual budget approved by the law and the document of the basic features and directions of a country in a frame of marginal values of a mid-term period.

## 7. Operational objectives, strategic targets, outcomes and actions/activities

### Operational objective 1: Advocacy, awareness and education

Outcomes	Strategic objective	Consolidated Indicators	National Targets	Mandatory Conditions
<b>Outcome 1.1:</b> Public awareness is raised on Desertification/land degradation and drought issues and interrelation with climate change adaptation/mitigation and biodiversity conservation	1	1 Existing trends of the level of public awareness and education in DLDD issues. 2. number of publications and media activities (articles, radio/TV coverage)	National target By 2020 is_ at least 40% of decision makers and 30% of general public are aware of the subject of DLDD and/or its relation to climate change and biodiversity.	Evaluation of basic knowledge on desertification in various target groups.  Support of engagement of NGOs, media companies, relevant universities, local self-governing bodies.
<b>Outcome 1.2:</b> Desertification/land degradation and drought issues are addressed at relevant international forums, including those pertaining to agricultural trade, climate change adaptation, biodiversity conservation	1	Number of official documents and decisions at international, regional and subregional levels relating to DLDD issues.	By 2015 the detailed information about Convention is available in Georgian at the website of the MOENRP which includes a thematic database on relevant decisions and documents as part of the PRAIS	Government support on DLDD at the International Forums
<b>Outcome 1.3:</b> Civil society organizations (CSOs) and the scientific	1	1. Number of CSOs and science and technology institutions	By 2020, the latest, 50% of CSOs and science and technology	Existence of Financial and Human Resources.

community are engaged in the processes of implementation of the Convention		2. Number and type of DLDD-related initiatives of CSOs and science and technology institutions in the field of education.	institutions are aware of the subject of DLDD are addressed in their advocacy, awareness raising and education initiatives and engaged in implementation of the UNCCD	
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**Outcome 1.1: Public awareness raising on DLDD issues and interrelation with climate change adaptation/mitigation and biodiversity conservation**

National target By 2020, atleast 40% of decision makers and 30% of general public are aware of the subject of DLDD and its relation to climate change and biodiversity.

Actions/Activities	Timeframes	Cost Estimation (GEL)	Responsible Agency/Implementer organization	Source of funding (potential)
The capacity building trainings of staff of land protection services of the MOENRP and related state institutions are organized	2015-2020	Medium*	MOENRP	State Budget, Donor Organizations
Key messages for target groups (decision makers, business sector/natural resource users, media representatives, teachers, local communities) are developed and specific public awareness raising complains for each of this group are launched	2015	Minor*	MOENRP	State Budget, Donor Organizations
Cooperation with media activities/projects (Publish articles, radio and TV programs) is achieved to cover DLDD issues	2015-2020	Medium*	MOENRP	State Budget, Donor Organizations
Regular informational campaigns in social networks are organized	2015-2020	Minor*	MOENRP	State Budget
Needs assessment and tailor made trainings are organized for the journalists on DLDD	2015-2020	Medium*	MOENRP	State Budget, Donor Organizations
The international day to combat desecrtification is celebrated annually	2015-2022	Medium*	MOENRP	State Budget, Donor Organizations

**Outcome 1.2:** Desertification/land degradation and drought issues are addressed at relevant international forums, including those pertaining to agricultural trade, climate change adaptation, biodiversity conservation

By 2015 the detailed information about Convention is available in Georgian at the website of the MOENRP which includes a thematic database on relevant decisions and documents as part of the PRAIS

Actions/Activities	Timeframes	Cost Estimation (GEL)	Responsible Agency/Implementer organization	Source of funding (potential)
Detailed information about Convention in Georgian prepared and the web-portal created at the website of the MOENRP	2015	Minor*	MOENRP	State Budget, Donor Organizations
Manual for development of National Report prepared	2015-2017	Minor*	MOENRP	State Budget, Donor Organizations

**Outcome 1.3:** Civil society organizations (CSOs) and the scientific community are engaged in the processes of implementation of the Convention

By 2020, the latest, 50% of CSOs and science and technology institutions are aware of the subject of desertification/land degradation and drought are addressed in their advocacy, awareness raising and education initiatives and engaged in implementation of the UNCCD

Actions/Activities	Timeframes	Cost Estimation (GEL)	Responsible Agency/Implementer organization	Source of funding (potential)
Networks with the NGOs and academic institutions established and the Memorandum of understanding (MoU) on cooperation and joint implementation of the UNCCD signed	2015-2016	Minor*	MOENRP	State Budget, Donor Organizations
The local population's awareness raised and their role in combating desertification and land degradation is increased	2014-2022	Minor*	MOENRP/ MOES / MOA /Science-Research Institutions/NGOs	State Budget, Donor Organizations
Regular consultation meetings with public in the process of decision making on the subject of DLDD at national and local levels arranged.	2015-2022	Medium*	MOENRP	State Budget, Donor Organizations
Illustrated training materials on desertification/land degradation created and distributed; Pilot plots arranged.	2015-2020	Medium*	MOENRP/MOES/MOA	State Budget, Donor Organizations
Teachers' awareness-raising campaign is planned and carried out with the involvement of public organizations, science and technology institutions	2015-2020	Medium*	MOENRP/MOES	State Budget, Donor Organizations
Public awareness on food safety is increased	2014-2020	Minor*	MOA	State Budget
Local population and farmers awareness on soil protection events	2015-2020	Medium*	MOA/MOENRP	State Budget,

is carried out				Donor Organizations
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## Operational Objective 2. Policy Framework

Outcomes	Strategic Objective	Consolidated Indicators	National Targets	Mandatory Conditions
<p><b>Outcome 2.1:</b> Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to SLM are assessed, and appropriate measures to remove these barriers are recommended.</p> <p><b>Outcome 2.2:</b> The existing NAP is revised (along with the renewal of biophysical and socio-economical information) as strategic document and is outlined in the integrated investment (financial) framework document</p> <p><b>Outcome 2.3:</b> The existing NAP, as well as SLM, and land degradation aspects are integrated into the relevant sectoral investment plans and policy documents</p>	1	<p>Development of second NAP to combat desertification is completed</p> <p>National programme activities are considered in the financial-state budget frame document</p>	<p>A renewed NAP to combat desertification is developed and accepted by 2014</p> <p>By 2016, to combat desertification/land degradation is recognised as one of the priorities of national development</p> <p>By 2018 the activities under the NAP to combat desertification are integrated into sectoral and investment plans and policy documentations</p>	<p>Effective Inter-agency Cooperation is achieved</p> <p>Involvement of interested parties (state institutions, scientific-educational institutions, etc.)</p>
<p><b>Outcome 2.4:</b> The activities under the NAP to combat desertification/land degradation and biodiversity and climate change mitigation and adaptational programs are planned and their implementation are organized intercoordinated – in a way that enhances the cumulative effects of the result of these measures</p>	1	<p>Planning and implementation of actions identified in the convention to combat desertification, convention on biodiversity and the framework convention on climate change</p>	<p>By 2017 is developed at least one of:</p> <p>a) joint plan or</p> <p>b) functional mechanism for ensuring synergy in integration of action plans of all three conventions.</p>	<p>Coordination between government and other relevant organizations and effective inter-agency cooperation</p> <p>Involvement of stakeholders (government bodies, scientific-educational institutions, etc.)</p> <p>Involvement and support of public and local municipalities</p>

**Outcome 2.1: Policy, institutional, financial and socio-economic drivers of desertification/land degradation and barriers to SLM are assessed, and appropriate measures to remove these barriers are recommended**

A renewed NAP to combat desertification is developed and accepted by 2014

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
Monitoring the implementation of the renewed NAP to combat desertification	2015-2022	Minor*	MOENRP, Science-Research Institutions, NGOs	State Budget, Donor Organizations
Development of Agricultural Strategy	2014-2015	Medium*	MOA	State Budget, Donor Organizations
Development of a consolidated, framework law type legislative act in the field of SLM, accomplishing wide systematization of relevant norms (e.g. drafting of the Land Code or the law on "Land")	2015-2017	Medium*	Ministry of Justice of Georgia, MOENRP, MOA, other interested parties, Science-Research Institutions and NGOs	State Budget, Donor Organizations
The norms established under the multilateral treaties to combat desertification/land degradation, biodiversity and climate change, which will be oriented on mitigation of effects of desertification/land degradation and other relevant issues, are integrated. (Appropriate changes and amendments to the development of the draft legislation – in the Georgian laws on "Soil conservation and fertility restoration and improvement", "Environmental Protection", "Protected Area Systems", etc.,)	2015	Minor*	MOENRP, MOA, Science-Research Institutions and NGOs	State Budget, Donor Organizations and Countries
The norms regarding the SLM, to combat desertification/land degradation, biodiversity protection and climate change reduction related issues are integrated in the laws on protected areas and forestry and also in the existing spatial-territorial development policy (Georgian law on "The Basis of Spatial Planning and Urbanization")	2015-2017	Minor*	MOENRP, MOA, Science-Research Institutions and NGOs	State Budget, Donor Organizations and Countries

**Outcome 2.2:** The existing national action programme is revised (along with the renewal of biophysical and socio-economical base information) in form of strategical documentation and is outlined in the integrated investment (financial) framework document

**Outcome 2.2:** The existing national action programme is revised (along with the renewal of biophysical and socio-economical base information) in form of strategical documentation and is outlined in the integrated investment (financial) framework document

By 2016 to combat desertification/land degradation is recognised as one of the priorities of national development

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
The activities considered by the NAP to combat desertification are integrated in the relevant annual governmental and local self-governing bodies' budget projects' programme and expenditure documents during the implementation period of the updated NAP to combat desertification	2015-2022	Minor	MOENRP, MOA, MOESD, Ministry of Finance, Local self-governing Bodies	State Budget

**Outcome 2.3:** The existing NAP, as well as SLM, and land degradation aspects are integrated into the relevant sectoral investment plans and policy documents

By 2018 the activities under the NAP to combat desertification are integrated into sectoral and investment plans and policy documentations

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
The institutional reforms in the field of SLM are implemented and the management system that will be based on implementation of principles of integrated management of land resources are created.	2015-2017	Medium*	MOENRP, MOA, other interested parties, Science-Research Institutions and NGOs	State Budget, Donor Organizations and Countries

**Outcome 2.4:** The activities under the NAP to combat desertification/land degradation and biodiversity and climate change mitigation and adaptational programs are planned and their implementation are organized intercoordinated – in a way that enhances the cumulative effects of the result of these measures

By 2017 is developed at least one of:

- a) joint plan or
- b) functional mechanism for ensuring synergy in integration of action plans of all three conventions.

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
The manual on integration of interrelated issues as are SLM, to combat desertification/land degradation, biodiversity protection and climate change reduction and use of intersectoral approaches is developed	2015-2016	Medium*	MOENRP, MOA, Science-Research Institutions and NGOs	State Budget, Donor Organizations
Manual for creation of land-use planning considering environmental principles and internationally approved methods of SLM is developed	2015-2016	Medium*	MOENRP, MOA, Science-Research Institutions and NGOs	State Budget, Donor Organizations
Methodologies for pasture management planning based on internationally recognized integrated management approach is developed	2015-2016	Medium*	MOENRP, MOA, Science-Research Institutions and NGOs	State Budget, Donor Organizations
Capacity Building of laboratories is achieved and methodological approaches in food safety, animal health and phytosanitary is approved	2016-2018	Medium*	MOA	State Budget, Donor Organizations

### Operational objective 3: Science, technology and knowledge

Outcomes	Strategic Objective	Consolidated Indicators	National Targets	Mandatory Conditions
<b>Outcome 3.1:</b> National monitoring and vulnerability assessment on biophysical and socio-economic trends are carried out	2	A regional monitoring system is developed	By 2018 the Regional Monitoring System is created	Involvement of stakeholders
<b>Outcome 3.2:</b> The databases on the basis of the most reliable data of biophysical, social and economic	2	The report referring to the guidelines on basis of agreed	By 2018 a report is prepared based on the new accounting	Effective Interagency Cooperation

trends and a gradual harmonization of relevant scientific approaches are created		indicators is developed by regional accounting entities for the Convention	guidelines done by regional accounting entities for the convention	
<p><b>Outcome 3.3:</b> Knowledge on biophysical and socio-economic factors and enabling better decision-making based on their interactions.</p> <p><b>Outcome 3.4:</b> Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making.</p>	2	knowledge reflecting the leading factors of drought, desertification, soil degradation and their relationship; as well as knowledge on their interaction with Climate change and biodiversity	By 2018, the bio-physical, social and economic interaction self-assessment is implemented	Effective Interagency Cooperation, Involvement of stakeholders
<p><b>Outcome 3.5:</b> Effective knowledge-sharing systems, including traditional knowledge, are in place at the global, regional, subregional and national levels to support policymakers and end users, including through the identification and sharing of best practices and success stories.</p>	2	The description of the type and number of users of the knowledge sharing system on drought, desertification, land degradation relevant issues is provided on the website	By 2020 the Convention website has been restructured and includes a thematic database of knowledge sharing system within the format of the National Report	

**Outcome 3.1: National monitoring and vulnerability assessment on biophysical and socio-economic trends**

By 2018 the Regional Monitoring System is created

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
Rehabilitation of hydrometeorological monitoring networks, including early warning systems	2014-2017	Medium*	MOENRP	State Budget, Donor Organizations

Soil pollution and degradation monitoring	2015-2022	Medium*	MOENRP,MOA	State Budget, Donor Organizations
Natural and anthropogenic processes (water and wind erosion, mudslides, landslides, irrigation erosion, deforestation, mining operations, etc.),causing soil desertification are monitored	2014-2017	Minor*	MOENRP/MOA//Science-Research Institutions/NGOs	State Budget, Donor Organizations
Georgian land cover and land use map are developed	2015-2018	High*	MOENRP/MOA	Donor Organizations
Physical and chemical characteristics of soils are studied	2015-2018	High*	MOENRP/MOA	State Budget, Donor Organizations
Aerial photography - land inventory are carried out	2015-2018	High*	MOENRP/MOA/Ministry of Economics and Sustainable Development	State Budget, Donor Organizations
The accurate agricultural product accounting and land balance is developed.	2015-2020	High*	MOA, MOENRP, Civil Registry	State Budget, Donor Organizations
Reclamation infrastructure database is created and meliorated plot inventory carried out	2015-2020	Medium*	MOA	State Budget

**Outcome 3.2:** The databases on the basis of the most reliable data of biophysical, social and economic trends and a gradual harmonization of relevant scientific approaches are created

By 2018 a report is prepared based on the new accounting guidelines done by regional accounting entities for the convention

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
Up to date data inventorisation is carried out and data bank is created by various agencies, governmental and non-governmental organizations	2015-2017	High*	MOES/Science-Research Institutions/NGOs	State Budget, Donor Organizations
Data Bank is placed at server (providing access to all interested parties)	2014-2018	Medium*	MOENRP/MOES/ MOA/ Department of Statistics/Science-Research Institutions/NGOs	State Budget, Donor Organizations

The modern high-quality (high-yielding, disease and weed-free and drought hardy) seed production technologies are selected and introduced	2018-2020	Medium*	MOENRP/MOA /Science-Research Institutions/NGOs	State Budget, Donor Organizations
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### Outcome 3.3: Knowledge on biophysical and socio-economic factors and enabling better decision-making based on their interactions

By 2018, the bio-physical, social and economic interaction self-assessment is implemented

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
Separation of potentially dangerous natural disaster areas and zoning according to activation of processes, risks and possible geo-ecological complications	2014-2016	Medium*	MOENRP/MOES/Science-Research Institutions/NGOs	State Budget, Donor Organizations
Landscape rating within the time slot - determining the nature and direction of change of the environment for each landscape	2014-2017	Medium*	Science-Research Institutions/NGOs	State Budget, Donor Organizations
At risk areas water resources assessment; Irrigation and drinking water supply to the population;	2015-2018	Minor*	MOENRP/MOA /Science-Research Institutions/NGOs	State Budget, Donor Organizations
Protection of drinking water resources as a result of anthropogenic impacts	2016-2019	High*	MOENRP	State Budget, Donor Organizations
Development of desertification criteria at the national level	2015-2016	Minor*	MOENRP/ Government and NGOs	State Budget, Donor Organizations
Identifying desertification risk areas	2014-2017	High*	MOENRP/MOES/MOA/Science-Research Institutions/NGOs	State Budget, Donor Organizations
Determination and conservation of plant and animal species under threat by desertification; Implementation of indigenous plantlife conservation supporting projects	2014-2017	Medium*	Science-Research Institutions/NGOs	State Budget, Donor Organizations
Sociological studies - Assessment of the current situation; defining poverty limits	2014-2017	Minor*	Department of Statistics /Governmental and NGOs	State Budget, Donor Organizations
identifying leaders and "champions" in the area of sustainable land use and supporting them to increase motivation among other land users	2015 2020	Medium*	MOENRP/MOA / NGOs	State Budget, Donor Organizations
Supporting producers of raw and processed products for	2014-2020	High*	MOA	State Budget,

protection of food safety				Donor Organizations
Evaluation of the impact of desertification on health	2016-2020	Minor*	MOH/Science-Research Institutions/NGOs	State Budget, Donor Organizations
Detection and assessment of damages caused by desertification	2019-2022	Medium*	MOENRP/MOA /MOESD	State Budget, Donor Organizations

**Outcome 3.4: Knowledge of the interactions between climate change adaptation, drought mitigation and restoration of degraded land in affected areas is improved to develop tools to assist decision-making**

By 2018, the bio-physical, social and economic interaction self-assessment is implemented

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
Preparation and dissemination of instructions on climate change adaptation, drought mitigation and restoration of degraded soil	2015-2017	Minor*	MOENRP/ MOES / MOA/ Department of Statistics/Science-Research Institutions/NGOs	State Budget, Donor Organizations
The implementation of pilot projects for the development of organic farming	2014- 2018	High*	MOA/ Private Sector/ NGOs	State Budget, Donor Organizations
Introduction of sustainable land use mechanisms	2015-2018	Minor*	MOENRP/MOA	State Budget, Donor Organizations
Implementation of contaminated/degraded soil rehabilitation pilot projects	2016-2018	Medium*	MOENRP/MOA/NGOs	State Budget, Donor Organizations
Recultivation of minerals quarries	2018-2022	High*	MOENRP/NGOs/Private Sector	State Budget, Donor Organizations
Soil recultivation in selected municipalities	2017-2022	High*	MOENRP/MOA/NGOs	State Budget, Donor Organizations

Implementation of erosion control measures in areas composing the Forest Fund	2014-2022	High*	MOENRP/NGOs	State Budget, Donor Organizations
Planting/seeding of woody and herbaceous plants and using innovative bioengineering methods of erosion control	2018-2022	High*	MOENRP/NGOs	State Budget, Donor Organizations

**Outcome 3.5: Effective knowledge-sharing systems, including traditional knowledge, are in place at the global, regional, subregional and national levels to support policymakers and end users, including through the identification and sharing of best practices and success stories.**

By 2020 the Convention website has been restructured and includes a thematic database of knowledge sharing system within the format of the National Report

Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
Promotion of scientific research, organic production and so on.	2015-2018	High*	MOENRP/ MOES / MOA/ Science-Research Institutions/NGOs	State Budget, Donor Organizations
Finding traditional methods and updating them using modern approaches	2014-2017	High*	MOENRP/ MOA/ Science-Research Institutions/NGOs	State Budget, Donor Organizations
Rehabilitation measures of endemic and traditional agricultural production (wine, wheat, etc.)	2014-2020	High*	MOENRP/MOA	State Budget, Donor Organizations
Creation of communication systems (early warning, crisis management action plan, development of adaptation measures)	2015-2017	Medium*	MOENRP/ MOES/ MOA/ Science-Research Institutions/NGOs	State Budget, Donor Organizations
Introduction of sustainable pasture management practices among farmers/shepherds	2015-2020	High*	MOENRP/MOA	State Budget, Donor Organizations
Conferences and Workshops to identify and share best practices at local, global, regional and sub-regional level	2015-2018	Medium*	MOENRP/MOES/MOA/Science-Research Institutions/NGOs	State Budget, Donor Organizations The Rustaveli Scientific Foundation

**Operational objective 4: Capacity building**

Outcomes	Strategic	Consolidated Indicators	National Targets	Mandatory Conditions
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	Objective			
<b>Outcome 4.1:</b> For the purpose of Global Environmental protection national capacity building needs has been assessed and renewed; actions considered by the capacity building strategy and action plan are implemented at individual, institutional and systemic levels	4	Overview of national capabilities and renewal of capacity self-evaluation document	By 2018, Georgia has a renewed capacity building strategy.	Effective Interagency Cooperation, Involvement of stakeholders Existence of appropriate Financial insurance

<b>Outcome 4.1: For the purpose of Global Environmental Protection, national capacity building has been evaluated and renewed</b>				
<b>By 2018, Georgia has a renewed capacity building strategy.</b>				
Actions/Activities	Time-frame	Cost-estimation	Responsible Agencies/Implementing Organisations	Source of funding (potential)
For Global Environmental Protection, within the framework of National capacity self-assessment in the fields of climate change, biodiversity and desertification the Capacity Building Strategy and Action Plan (2006-2010) is revised and renewed in the part of desertification land degradation and based on it the revised plan is developed	2016-2018	Minor*	MOENRP/MOA	State Budget, Donor Organizations
The cost estimation for implementation of capacity building strategy in the field of combating desertification and 2016-2018 revised action plan	2015	Minor*	MOENRP/MOA	State Budget, Donor Organizations
implementation of activities under the revised capacity building strategy and action plan for 2016-2018 in the field of combating desertification	2016-2018	High*	MOENRP/MOA/Local Self Governing Bodies/ Science-Research Institutions/NGOs	State Budget, International Donor Organizations and Countries

\* By this document the term "minor" means a budget amounting up to 100,000 GEL, "medium" – from 100,000 to 500,000 GEL, "high" - 500,000 GEL and above.