

MARKET POTENTIAL AND FEASIBILITY STUDY FOR ORGANIC AGRICULTURE

FINAL REPORT



This document has been prepared by the Agrarian Movement of Georgia for the GRETA project (Co-funded by the EU and the two EU member states Sweden and Austria)



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TBILISI

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SUMMARY

Presented document, the final report of the research: “**Market potential and feasibility study for organic agriculture**“ is prepared for the GRETA project (financed and supported by the European Union the two EU member states Sweden and Austria).

The report presents the information and materials of the implementation and completion phases of the research.

The target areas of the research are the following municipalities of Georgia:

- Mestia;
- Lentekhi;
- Tsageri;
- Oni;
- Ambrolauri;
- Sachkhere;
- Chiatura;
- Tkibuli.

The goal of this research was the identification of the most suitable products (value chains) for organic production in the above-mentioned target areas.

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Introduction

Presented report contains information and materials about the conducted activities and obtained findings within the frames of the implementation phase of the research.

The goal of the report is to present the information, materials and recommendations obtained during the past period of the research focused on the identification of the most promising organic value chains in the target municipalities of the GRETA Project (Green Economy: Sustainable Mountain Tourism and Organic Agriculture).

The document consists of 3 parts and 9 main chapters.

In the first part of the report the situation overview is considered. It contains the following chapters:

Chapter I – provides the information and materials about the existing agro-climatic conditions in the target area. It contains the description of the climate conditions, information about the basic soil types, existing water resources and water supply methods of the villages of target municipalities.

Chapter II – describes the basic agricultural sectors of target area. The description contains the following information and materials:

- Existing agricultural land resources and their diversification;
- Basic agricultural fields and the volumes of the production;
- The lists of the key big-sized farm owners and cooperatives, considered in the form of the Annex (#2).

Chapter III - presents the description of existing natural resources of the target area; agro forestry and wild herb production practices and the local varieties of the wild herbs and mushrooms.

Chapter IV – describes the existing situation on the local and national markets: contains the information and materials about existing bio-certified agricultural products from target area, information and materials about the consumers, cost comparisons, demands and perspectives, value chains of the existing organic productions in the target area and the SWOT analyses of the basic agricultural fields.

The second part of the report unites the complex of the findings, situation analyses and the following recommendations. This part contains the following five chapters:

Chapter I. Risk analyses - All the basic risk-factors (biotic and a-biotic risks, also the risks associated with the project implementation) are reviewed which may occur and have negative influence upon the implementation of the project activities.

After the descriptions the following recommendations are presented focused on minimizing the possible negative influences of the identified risk-factors.

Chapter II. Climate change potential impact on agricultural sector - represents the basic descriptions regarding potential impacts of climate change on agricultural sector and the following recommendations focused on adaptation with the prospective changes.

Chapter III. Promising agricultural fields for organic production - provides the information about the most promising fields for organic production. It contains the description of the methodology which was elaborated and applied in order to identify the agricultural fields with the organic production potential and to rank them according to their priorities. This chapter of the report also presents all the ranked agricultural fields in each target municipality and the information about the starting conditions on one hand, that is, existing situation in the organic agricultural sector of the target area, and on the other hand, the main resources (cooperatives and companies) existing locally, that create the organic production potential considering the GRETA project length.

Chapter IV of this part of the report provides the information and recommendations in terms of the existing training needs of the project stakeholders in organic agriculture. It contains the methodology applied for the identification of the priority training needs in each promising agricultural field and the lists of the relevant priority training themes identified within the frames of the research.

Identified training themes are divided in two categories:

1. Recommended themes of the trainings oriented on professional capacity building;
2. Recommended themes of the trainings focused on strengthening capacities in management, existing legislation and marketing sectors.

In addition to the above-mentioned information and materials, the **chapter IV** also contains the Preliminary lists for the contents of training materials in organic agriculture.

Chapter V. Project beneficiary groups-ranking criteria. This chapter contains the complex of ranking criteria and creates the auxiliary mechanism for the selection of potential beneficiary groups for the project.

The part III of the report contains the information regarding the conducted activities within the frames of the current research, relevant references used for the creation of the presented report and the pictures representing the activities conducted during the inception phase of the research.

Annexes

The report contains two annexes:

- **The annex I** contains the information about the results of the surveys, provided within the frames of the market analyses with the purpose of identifying the existing demands on the various organic products. This annex considers the used approaches, locations and the gender disaggregated data-numbers of interviewed respondents.
- **In the annex II** more detailed information is considered regarding key big sized farms, cooperatives and companies. All these stakeholders are grouped according to the volumes of their production and such type of sorting may be used as an auxiliary mechanism for the process of selecting the most optimal beneficiary groups. Annex contains the numbers, names, contact details and production volumes of each above-mentioned actor according to the villages of the target municipalities.

Part I

Chapter I. Agro-climatic characterization of the target area

Access to the information about the existing agro-climatic conditions and the possible-potential climate change impacts on the target municipalities is one of the most important and determining factors for the process of planning project activities focused on the development of agricultural sector. Especially, in the presented case when the goal of the project is to facilitate the development process of the organic agricultural sector which in the most cases greatly depends on the favourability of the climatic conditions.

Hence, during the implementation phase of the research the study of the main agro-climatic factors was provided and the relevant information was obtained. Within the frames of the study the meetings were provided with the local extension services and the representatives of the relevant scientific institutions. As a result, the following information and materials were obtained:

- The general climate conditions of the target area;
- Description of the basic soil types;
- Water resources;
- Climate change potential impact on agricultural sector.

General climate conditions

Ambrolauri municipality. The climate in Ambrolauri municipality is variable between moderate and moist subtropical climate. In the lowland areas of the municipality the dominant type of weather is moderately cold winter and relatively warm summer. As for the mountainous part of the municipality, the main characteristic of this area is plentiful snow and moist climate.

Chart #1 contains the basic climate parameters of the municipality.

Chart # 1. Ambrolauri municipality - the basic climatic conditions



Average annual air temperature	9-10
Average temperature of the coldest month (January)	-4
Average temperature of the hottest month (July)	18-24
Absolute minimum	-19
Absolute maximum	39,2
Sum of active temperatures (above +10°C)	3200-4200
Annual precipitation	1200-1500 mm

Oni municipality. Moderately cold winter and warm, prolonged summer are the basic climate characteristics of this municipality. The detailed information about climate conditions of the municipality is presented below, in the Chart#2.

Chart # 2. Oni municipality - the basic climatic conditions

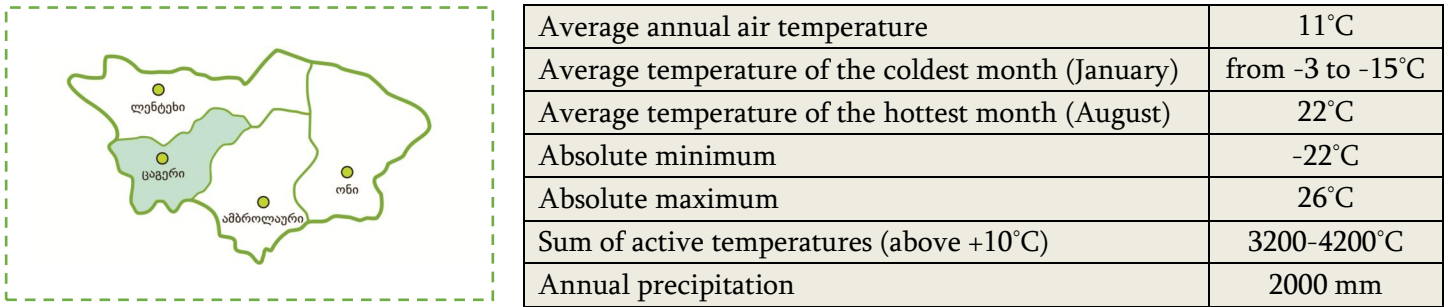
Average annual air temperature	10°C
Average temperature of the coldest month (January)	-1°C
Average temperature of the hottest month (July)	20,4°C
Absolute minimum	-27°C
Absolute maximum	36°C
Sum of active temperatures (above +10°C)	3200-4200°C
Annual precipitation	1000-1100 mm



Tsageri municipality. This municipality is located in humid subtropical area. The air temperature is variable according to the sea level altitude. The north and north-east parts of the municipality are the coldest areas. The climate of the south part of the municipality is relatively warm.

Chart #3 contains the basic climate parameters of the municipality.

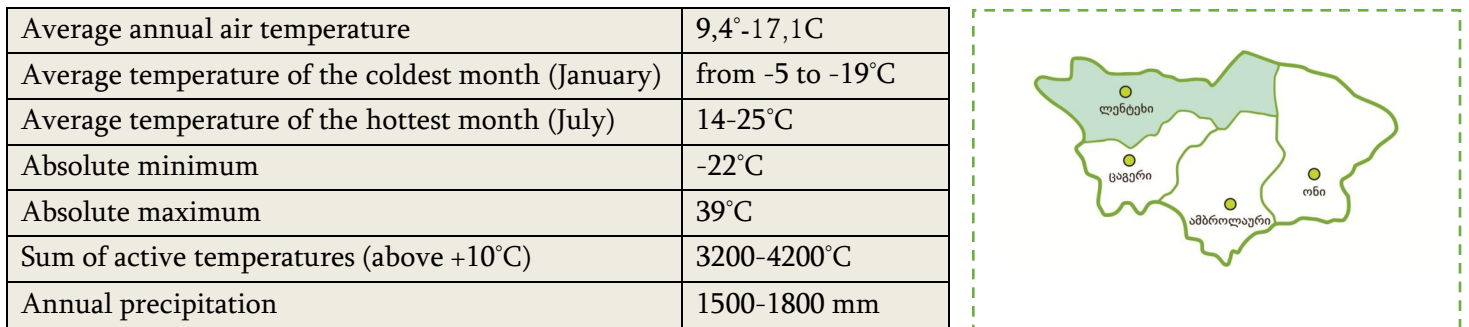
Chart # 3. Tsageri municipality - the basic climatic conditions



Lentekhi municipality. The municipality is located in humid subtropical area. The dominant type of weather is the moderately cold, very snowy winter and relatively warm summer.

The detailed information about the climate conditions of the municipality are presented below, in Chart#4.

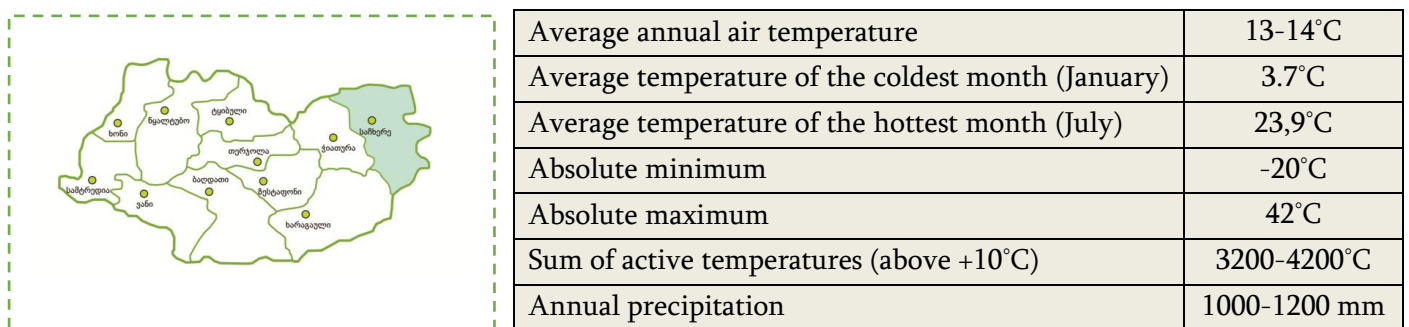
Chart # 4. Lentekhi municipality - the basic climatic conditions



Sachkhere municipality. This municipality is located in humid subtropical area. The characteristic climate conditions for this municipality are cold, prolonged winters and relatively short and cool summer periods.

Chart #5 contains the basic climate parameters of the municipality.

Chart # 5. Sachkhere municipality - the basic climatic conditions



Chiatura municipality. The climatic conditions of this municipality are similar to the climate conditions of the Sachkhere municipality. Like Sachkhere, Chiatura municipality is also located in humid subtropical area and the characteristic climate conditions for this municipality are cold, prolonged winters and relatively short and cool summer periods.

Chart #6 contains the basic climate parameters of the municipality.

Chart # 6. Chiatura municipality - the basic climatic conditions



Average annual air temperature	13-14°C
Average temperature of the coldest month (January)	2-3.7°C
Average temperature of the hottest month (July)	23,9°C
Absolute minimum	-20°C
Absolute maximum	42°C
Sum of active temperatures (above +10°C)	3200-4200°C
Annual precipitation	1000-1200 mm

Mestia municipality. Climate of Mestia municipality is humid with cold winter and prolonged cool summer. Chart #7 contains the basic climate parameters of the municipality.

Chart # 7. Mestia municipality - the basic climatic conditions

Average annual air temperature	5.7°C
Average temperature of the coldest month (January)	-6.0°C
Average temperature of the hottest month (July)	16,4°C
Absolute minimum	-35°C
Absolute maximum	35°C
Sum of active temperatures (above +10°C)	2039°C
Annual precipitation	918 mm



Tkibuli municipality. This municipality is located in humid subtropical area. The characteristic climate conditions for Tkibuli municipality are cold, prolonged winters and relatively short and cool summer periods.

Chart #8 contains the basic climate parameters of the municipality.

Chart # 8. Tkibuli municipality - the basic climatic conditions



Average annual air temperature	13-14°C
Average temperature of the coldest month (January)	3.7°C
Average temperature of the hottest month (July)	23,9°C
Absolute minimum	-20°C
Absolute maximum	42°C
Sum of active temperatures (above +10°C)	3200-4200°C
Annual precipitation	1000-1200 mm

Description of the basic soil types

The sub-chapter contains the descriptions of the basic soil types of the target area. It provides the detailed information about the characteristics of the soil types and the varieties of the agricultural plants which can be grown on the certain type of soil. It must be noted that the lists of the agricultural plants basically contain the varieties which are already grown on the target municipalities. But also, in some cases, the lists of more or less suitable agricultural plants present the new varieties having the potential to be grown in a certain municipality and this means that not only soil types, but also, the rest of the climatic conditions (temperature, humidity, duration of the vegetation periods and etc.) provide the possibility of the production of those agricultural plants, as well as these other climate conditions are taken into account in terms of all presented varieties.

All the above-mentioned information is considered below, in the charts #9-10.

In **chart #9** the basic information about each soil type of the target area is considered.

Chart #10 contains the list of soil types, their basic Characteristic pH levels and the lists of plants which can be grown on such types of soil.

Chart # 9. Description of the soil types of the target area.

Description of the soil types	
Forest brown	Brown forest soils or brown earths are well drained with brownish sub-soils where iron oxides created through weathering processes are bonded to silicate clays. Other properties such as texture and level of fertility depend on the nature of the parent material and the degree of alteration it has undergone. Under natural conditions the soils would form under broad leaf forest which promotes rapid decomposition of plant residue and consequent recycling of plant nutrients.
Raw Calcareous soils	Calcareous soils often have more than 15% CaCO ₃ in the soil. The potential productivity of calcareous soils is high where adequate water and nutrients can be supplied. The high calcium saturation tends to keep the calcareous soils in well aggregated form and good physical condition. However, where soils contain an impermeable hard pan (petrocalcic horizon) they should be deeply ploughed in order to break the pan. This should be followed by the establishment of an efficient drainage system. Furrow irrigation is better than basin irrigation on slaking calcareous soils. On undulating lands, contour and sprinkler irrigations are better options than flood irrigation. Drip irrigation may also be practiced. Calcareous soils generally have low organic matter content and lack of nitrogen.
Mountain-meadow	Mountain meadow soils are specified as an independent soil type widespread in the alpine zones of different mountain systems. These soils are formed under elevated moistening on the weathering products of various consolidated sedimentary and metamorphic rocks
Yellow soils	These soils are formed under broad-leaved forests in humid subtropical regions, chiefly on parent material from clayey shales. It has an acid reaction and low humus content, and its yellow colour is caused by the presence of ferric hydroxide. The total thickness of the soil horizons is 30-70 cm.

Chart # 10. Basic soil types and suitable plant varieties.

Municipality	Type of soil	Characteristic pH level*	Suitable agricultural plants
Ambrolauri	Forest brown	Weak acidic	Berry agricultural plants, Maize, Legume agricultural plants, Walnut, Hazel-nut, Chestnut, Pome and stone fruit, Grapes.
	Raw Calcareous	Neutral	
	Mountain -meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Oni	Forest brown	Weak acidic	Maize, Legume agricultural plants, Potato, Berry agricultural plants, Walnut, Hazel-nut, Pome and stone fruit.
	Raw Calcareous	Neutral	
	Mountain -meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Tsageri	Forest brown	Weak acidic	Berry agricultural plants, Maize, Legume agricultural plants, Pome and stone fruit, Walnut, Hazel-nut, Grapes, Cereal agricultural plants (Wheat)
	Raw Calcareous soils	Neutral	
	Mountain-meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Lentekhi	Forest brown	Weak acidic	Berry agricultural plants, Maize, Legume agricultural plants, pome and stone fruit, Grapes, Walnut, Hazel-nut.
	Raw Calcareous soils	Neutral	
	Mountain -meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Chiatura	Raw Calcareous soils	Neutral	Maize, Legume agricultural plants, Walnut, Hazel-nut, Vegetable agricultural plants, Greens, Grapes, Pome and stone fruit varieties, Tea, Subtropical agricultural plants (Laurel, Fig trees, Persimmon)
	Forest brown	Weak acidic	
	Mountain -meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Sachkhere	Raw Calcareous soils	Neutral	Maize, Legume agricultural plants, Walnut, Hazel-nut, Vegetable agricultural plants, Greens, Grapes, pome and stone fruit varieties
	Forest brown	Weak acidic	
	Mountain -meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Tkibuli	Yellow soils	Acidic	Maize, Legume agricultural plants, Walnut, Hazel-nut, Vegetable agricultural plants, Greens, Grapes, pome and stone fruit varieties
	Forest brown	Weak acidic	
	Mountain-meadow	Strongly alkaline or neutral	Varieties of grasses for pastures
Mestia	Forest brown	Weak acidic	Cold resistance vegetable agricultural plants, Some varieties of the cold resistance berry agricultural plants (can be grown on specified areas of the municipality), Potato, Walnut, Hazel-nut, Maize, Cereal agricultural plants (millet varieties - can be grown on specified areas of the municipality).
	Mountain-meadow	Strongly alkaline or neutral	Varieties of grasses for pastures

*pH levels can be corrected according to the needs of the specific agricultural plant

The new or less disseminated variety for the given municipality

Water resources

The subchapter contains the information and situation overviews regarding the existing water resources (drinking water resources and irrigation water) and water supply systems of the target municipalities.

Ambrolauri municipality - drinking water and irrigation water resources

Drinking water resources. The superficial and underground waters are used for supplying the population of the Ambrolauri municipality.

The underground water basically is used for supplying the rural areas of the municipality.

At this stage the centralized water-supply system works for the 80% of the territorial units (villages) of the municipality.

The management of the centralized water supply system is implemented by the LLC "United Water Supply Company of Georgia".

According to the reports of the local authorities, the existing drinking water resources of the municipality are potentially enough to satisfy the needs of the local population.

There is no information or provided researches focused on the quality monitoring of the underground waters. There is only supposition that the underground waters of the municipality in the past were polluted by the wastes of the arsenic (chemical element: Arsenicum - As) from the factory which was functioning in the territory of the municipality, this fact creates the opinion among the local authorities that there is some risk that underground water may be still polluted, because, currently the factory is liquidated but some wastes of the arsenic still remain on the territory of the factory.

The municipality is not supplied with the drinking water resources from other territorial units as well as it is not supplying other municipalities with drinking water.

There is no water metering system in the municipality.

Sewerage systems are functioning only in Ambrolauri town and in some large villages.

Irrigation water resources. The river Rioni flows through the territory of the municipality. This river has the following basic tributaries: Krikhula, Shareula, Ritseula and Askisstkhal.

The total length of the river Rioni is 327 km.

Approximately 30-40% of the arable land needs the irrigation in the municipality. But despite an abundance of water resources, the deficit of the irrigation water is one of the main challenges for the agricultural sector of the municipality. This deficit is caused by non-existence of the irrigation infrastructure.

There are no rain-water collecting systems on the territory of the municipality.

Agricultural land resources of the municipality do not need the drainage. Hence, there are no drainage systems in Ambrolauri municipality.

On the territory of the municipality there is water reservoir in Shaori natural catacomb. This water reservoir dams the river Shaori and its plot is approximately 9,2 square kilometres.

The water reservoir is used for hydro energetic purposes.

Fig. N1 Shaori water reservoir



Oni municipality - drinking water and irrigation water resources

Drinking water resources. The municipality is rich in water resources. There is an abundance of the superficial and underground (fresh and mineral waters) water resources.

At this stage there are no water quality monitoring systems in the municipality. Hence, there is no information about the possible existence of the water pollution levels. Also, the active hydrological stations are not exist in the municipality and this fact makes it impossible to obtain the exact information regarding possible changes of hydrological regimes. Nevertheless, according to the results of the personal, empirical observation, the local authorities claim that the annual waste of the main river (Rioni) is increased. As for the underground water resources, no changes were observed.

Superficial water resources are used for the purposes of supplying the town of Oni.

The population living in the rural area of the municipality is supplied with underground water.

The centralized water supply system works only in the town of Oni and the management of the existing water supply system is implemented by the LLC "United Water Supply Company of Georgia".

Despite an abundance of water resources, in the town of Oni the scheduled delivery system of the water is functioning.

Sewerage systems are functioning only in the few quarters in the town of Oni. But it must be noted that there are no cleaning systems of the wasted water in the municipality.

Irrigation water resources. There are no centralized irrigational systems and the relevant infrastructure in the municipality. This fact creates the problems associated with the lack of irrigation water. Basically, farmers are using underground water from the wells (made by them) or the superficial water taken from the river Rioni or its tributaries for the irrigation purposes.

Fig # 2. Riv. Rioni

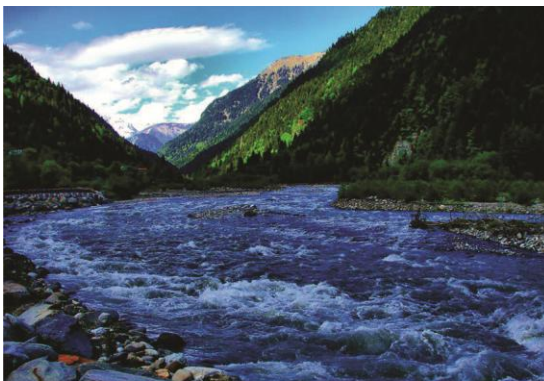


Fig # 3. Riv. Rioni and its tributary (Jejori)



Tsageri municipality - drinking water and irrigation water resources

Drinking water resources. According to the information provided by the local officials of the municipality superficial as well as underground water resources are available on the territory of the municipality.

There are no active hydrological stations in the municipality and hence, it is impossible to obtain the exact information regarding possible changes of hydrological regimes.

As for the water waste volumes, based on their empirical observation, the local authorities claim that the annual waste of the main river (Tskhenistskali) is increased.

The changes are also identified in underground waters – during the recent years when/if drought periods come, some founts are dried up and this event was not observed in the past.

At this stage there are no water resources and their quality monitoring systems in the municipality. Hence, there is no information about the possible existence of the water pollution levels.

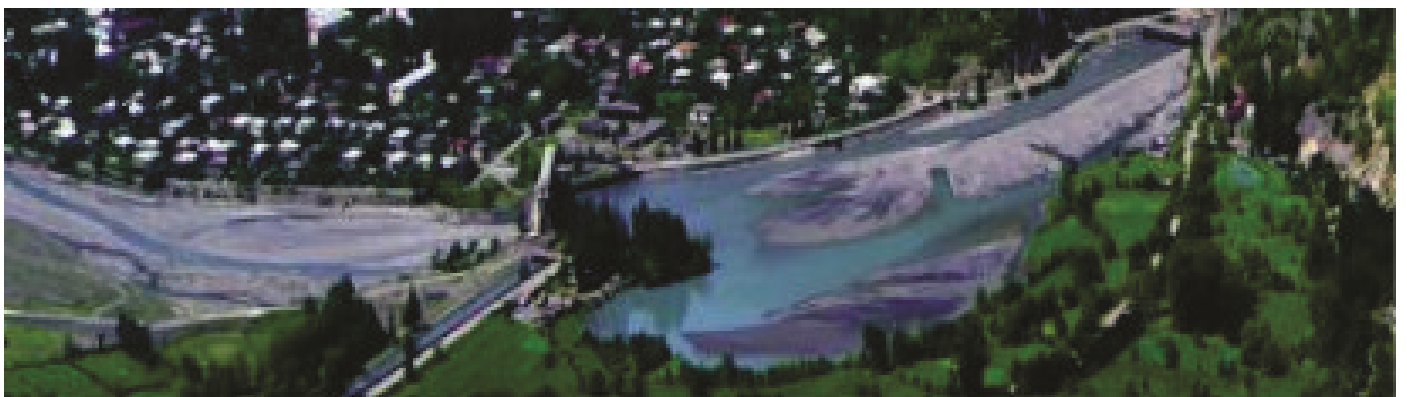
Sewerage systems (collector of canalization) are functioning only in the town of Tsageri. But there are no cleaning systems of the wasted water in the municipality.

The population living in the rural areas of the municipality is supplied with underground water. It must be noted that the existing water supply systems are not able to supply all the villages of the municipality and as a result, there is a deficit of drinking water in some villages. For example, despite of the fact that in the village of Dekhviri the water supply system was established, it is not functioning at this stage because of the deficit of water.

The local officials have no access to the information regarding the volumes of wasted water.

Irrigation water resources. There is no centralized water supply system in the villages of the municipality. Also, there are no centralized irrigational systems and the relevant infrastructure in the municipality. This fact creates the problems associated with the lack of irrigation water. Basically, farmers are using underground water from the wells (made by them) or the superficial water taken from the river Tskhenistskhali or its tributaries for the irrigation purposes.

Fig # 4. Riv. Tskhenistkhali



Lentekhi municipality - drinking water and irrigation water resources

Drinking water resources. The municipality is rich in water resources. There is an abundance of the superficial and underground water resources.

The river Tskhenistskhali (total length - 176 kilometres) with its numerous tributaries is the main source of superficial water in the municipality.

There are no active hydrological stations in the municipality, as well as underground water monitoring systems and hence, it is impossible to obtain the exact information regarding possible changes of hydrological regimes and also, there is no information about the possible existence of the water pollution levels. However, some experts of this field claim that there is some possibility of the river pollution with the wastes of arsenic (chemical element: Arsenicum - As) once the factory focused on the enrichment of the arsenic was functioning in the villages of Tsana and Koruldashi.

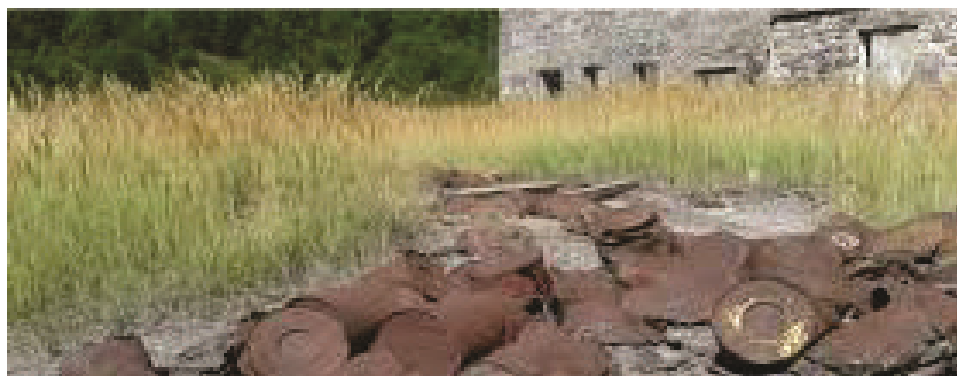
At this stage the centralized water-supply system works only in hamlet Lentekhi. There is no centralized water supply system in the majority of the villages of the municipality.

The local authorities are not involved in water management field. The management of the existing water supply system is implemented by the LLC "United Water Supply Company of Georgia". According to the data obtained from this company the annual waste of the water in this municipality is approximately 62 342 000 m³. But it is worth noting that this data shows only the volume of water which was wasted through the water supply system.

Sewerage systems (collector of canalization) are functioning only in the hamlet of Lentekhi. But there are no cleaning systems of the wasted water in the municipality.

Irrigation water resources. There are no centralized irrigational systems and the relevant infrastructure in the municipality. This fact creates the problems associated with the lack of irrigation water. Basically, farmers are using underground water from the wells (made by them) or the superficial water taken from the river Tskhenistskhali or its tributaries for the irrigation purposes.

Fig # 5. Containers with the wastes of the arsenic.



The picture was taken in 2016

Sachkhere municipality - drinking water and irrigation water resources

Drinking water resources. Both types (superficial and underground) of water resources are accessible on the territory of the municipality. The main source of superficial water is the Kvirila River (total length - 140 kilometres).

The hydro meteorological station is functioning in the municipality and according to the data, provided by the station the waste of water from the river was decreased during the last 10-20 years.

Hydro geological monitoring systems of the underground and superficial waters are not presented in the municipality and because of this fact the local authorities can only provide the information based on personal observation and according to this information the level of underground water is sinking during the last 10 years. The triggering factor of this change might be the earthquake which had taken place in the municipality a several years ago. Also, there is no possibility to obtain the exact information about the possible existence of the water pollution levels.

According to the reports of the local authorities, the existing drinking water resources of the municipality are potentially enough to satisfy the local population needs. But there is no relevant infrastructure for using this potential.

The both types of water are used for the water supply of the local population.

In the territory of the municipality the centralized water supply system works only in the town of Sachkhere and in some large villages. The management of the existing water supply system is implemented by the company “LLC Tskalkanali”. According to the data obtained from this company the annual waste of the water in this municipality is approximately 517 412 m³. But it must be noted that this data shows only the volume of water which was wasted through the water supply system.

The sewerage systems (collector of canalization) are functioning only in the areas which have the centralized water supply systems. The water metering systems are also presented in these areas.

Irrigation water resources. Farmers are using underground water from the wells (made by them) or the superficial water taken from the river Kvirila or its tributaries for the irrigation purposes.

Fig # 6. Riv. Kvirila. Sachkhere municipality



Chiatura municipality - drinking water and irrigation water resources

Drinking water resources. Both types (superficial and underground) of water resources are accessible in the municipality.

The river Kvirila (total length - 140 kilometres) with its tributaries (Jruchula and Rghanis ghele) is the main source of superficial water in the municipality.

There are no active hydrological stations in the municipality and hence it is impossible to obtain the exact information regarding possible changes of hydrological regimes. According to the results of the personal, empirical observation, the local authorities claim that the annual waste of the main river (Kvirila) is unchangeable during the last 10-20 years. Also, they suppose that the superficial water may be polluted with the wastes of the Manganese enriching factories.

Hydro geological monitoring systems are not presented in the municipality and because of this fact the local authorities can only provide the information based on the personal observation and according to this information the level of underground water is sinking during the last 10 years. The triggering factor of this change might be the earthquake which had taken place in the municipality several years ago.

Superficial water resources are used for the purposes of supplying industrial sector and the underground water is used for the needs of the local population.

The management of the existing water supply system is implemented by the company “Chiatura Service Centre”.

Water resources are delivered from other municipalities in this municipality.

There is no centralized water supply system in the majority of the villages of the municipality. This system works only in the town of Chiatura.

There is no water metering systems in the municipality.

The sewerage systems (collector of canalization) are functioning only in the town of Chiatura. But there are no cleaning systems of the wasted canalization water in the municipality.

Irrigation water resources. There are no centralized irrigational systems and the relevant infrastructure in the municipality. This fact creates the problems associated with the lack of irrigation water. Basically, farmers are using underground water from the wells (made by them) or the superficial water taken from the river Kvirila or its tributaries for the irrigation purposes.

Tkibuli municipality - drinking water and irrigation water resources

Drinking water resources. Both types (superficial and underground) of water resources are accessible on the territory of the municipality. The main source of superficial water is the river Kvirila (total length - 140 kilometres) and its tributaries (Tskaltsitela, Dzusa, Chala and Shareula).

There are no active hydrological stations in the municipality and hence it is impossible to obtain the exact information regarding the volumes of water wastes and its quality. The local authorities can only provide the information based on the personal observation and according to this information during the last 10 years important hydrological changes are identified: during summertime the waterfall located in the village of Mukhura is drying up. The changes are also observed on underground waters – during the recent years when/if drought periods come, some founts are dried up and this event was not observed in the past. According to the opinions of the local authorities the causal factor of all these changes may be the human-driven deforestation process.

As it was mentioned there are no systems of the water quality monitoring. However, based on the opinions of the local authorities, there is a possibility of the superficial water pollution with wastes of the Coal and Granite.

According to the reports of the local authorities, the existing drinking water resources of the municipality are potentially enough to satisfy the local population needs. But there is no relevant infrastructure for using this potential.

At this stage the centralized water-supply system works only in the town of Tkibuli. There is no centralized water supply system in the majority of the villages of the municipality.

The management of the centralized water supply system is implemented by the LLC "United Water Supply Company of Georgia".

The sewerage systems (collector of canalization) are functioning only in the areas which have the centralized water supply systems. But there are no cleaning systems of the wasted canalization water in the municipality.

Irrigation water resources. Farmers are using underground water from the wells (made by them) or the superficial water taken from the river Kvirila or its tributaries for the irrigation purposes.

Fig #7. Waterfall. Village Mukhura



Mestia municipality - drinking water and irrigation water resources

Drinking water resources. The municipality is rich in water resources. There is an abundance of the superficial and underground water resources.

The main sources of the superficial waters are the river Enguri and its tributaries (Adishischala, Mulkhra, Dolra, Nenskra, Ipari, Khaishura and etc.).

According to the information obtained within the frames of this research the newly established hydro meteorological station exists in the municipality. But still, there are no monitoring activities conducted to identify the exact parameters regarding the possible hydrological changes. There are only the opinions of the local civilians that the annual waste of the main river is decreased, as well as the dimensions-sizes of the glaciers are reduced (approximately 200 glaciers are located on the territory of the municipality). According to their opinions the changes are also observed on underground waters – during the recent years when/if drought periods come, some founts are dried up and this event was not observed in the past.

Due to the fact that the water quality monitoring systems are not established, there is no clear evidence or information regarding possible existence of water pollution.

The centralized water supply system is established in the most areas of the municipality and the management of the centralized water supply system is implemented by the LLC "United Water Supply Company of Georgia". According to the data obtained from the company the waste of drinking water is approximately 45 L/Sec. But it must be noted that this data shows only the volume of water which was wasted through the water supply system.

The municipality is not supplied with the drinking water resources from other territorial units as well as it is not supplying other municipalities with drinking water.

The sewerage systems (collector of canalization) are functioning only in the areas which have the centralized water supply systems. But there are no cleaning systems of the wasted canalization water in the municipality.

There is no water metering system in the municipality.

Irrigation water resources. Farmers are using underground water from the wells (made by them), the superficial water taken from the river Enguri and its tributaries or the water from centralized water supply system for the irrigation purposes.

Fig. #8 Adishi glacier. Mestia municipality

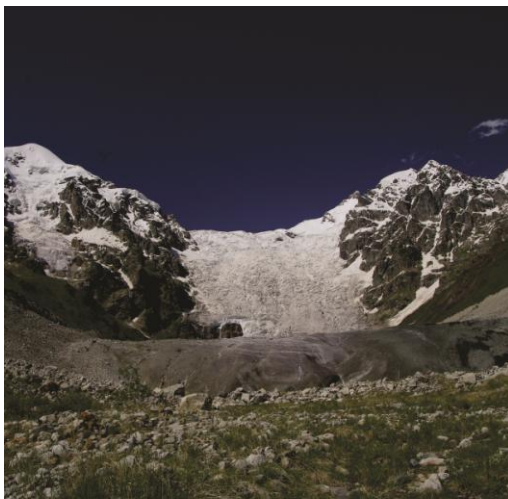
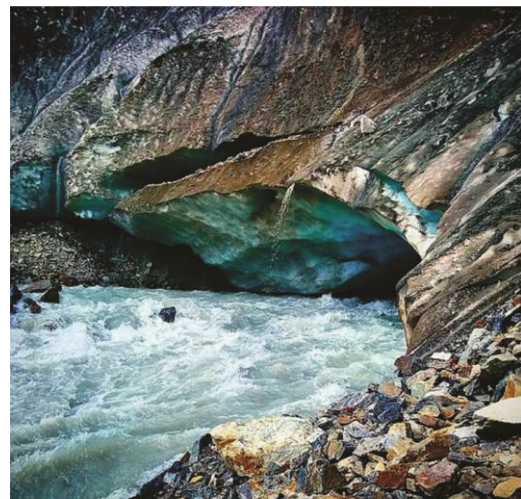


Fig. #9 Chalaali glacier. Mestia municipality



Chapter II - Description of the agricultural sectors

In this part of the report the basic agricultural sectors of the target area and their descriptions are considered. The information and materials are provided according to the target municipalities.

Each sub-chapter of this part contains the following information and materials:

- General information about the target municipalities;
- Agricultural land resources and their diversification;
- Basic agricultural fields and the volumes of the production;

For the mobilization of all the materials and information considered in this part of the report within the frames of the research implementation phase, the following activities were implemented:

- Phone-based or direct interviews of the stakeholders;
- Analyses of the documentation and researches from the relevant governmental services.

The main agricultural sectors of each target municipality were identified by means of the following main determining parameters:

1. The number of big-sized farms, cooperatives and enterprises per area unit (in the municipality);
2. Total volume of the manufactured products;
3. Total number of the involved people.

The information obtained as a result of the study shows the resources existing in each municipality and therefore it was used as one of the factors (and not the only factor) in the process of creating an initial list of promising sectors for bio production.

As already mentioned, the scope of the sector dissemination cannot be the only determining factor and consequently one of the priorities of the research is to identify less common and specific sectors having bio production in the target area. For example, the preliminary study conducted in the target area revealed the following less common fields with bio production potential:

- Gathering medicinal plants
- Production of agricultural plants and dried forest products
- Production of old breed of Georgian wheat.

Study of the main agricultural sectors as well as the fields of specific and less common activities will be continued in the next phase of the research.

The part of the above-mentioned information is considered in the charts #11- 34. It shows the total numbers of the key big sized farms, companies and cooperatives existing in each target municipality, their production volumes and numbers of involved people. Also, the current part of the report has addition in the form of **Annex (#2)** and this Annex considers more detailed information regarding key big sized farms, cooperatives and companies. Annex contains the numbers, names, contact details and production volumes of each above mentioned actors according to the villages of the target municipalities.

All actors are ranked according to their production volumes and potential. This approach provides additional possibility - one of the determining indicators during the planning selection activities of the potential project beneficiaries. Due to the specificity of the organic agricultural production sector, volume of the production-resources is one of the determining factors of successful collaboration in the process of the developing organic production line.

In total, this part of the report creates the auxiliary informational data for the identification of the priority fields for organic production and potential beneficiary groups/communities or companies in each village of the target area.

Ambrolauri municipality

Chart #11 General information (Ambrolauri municipality)

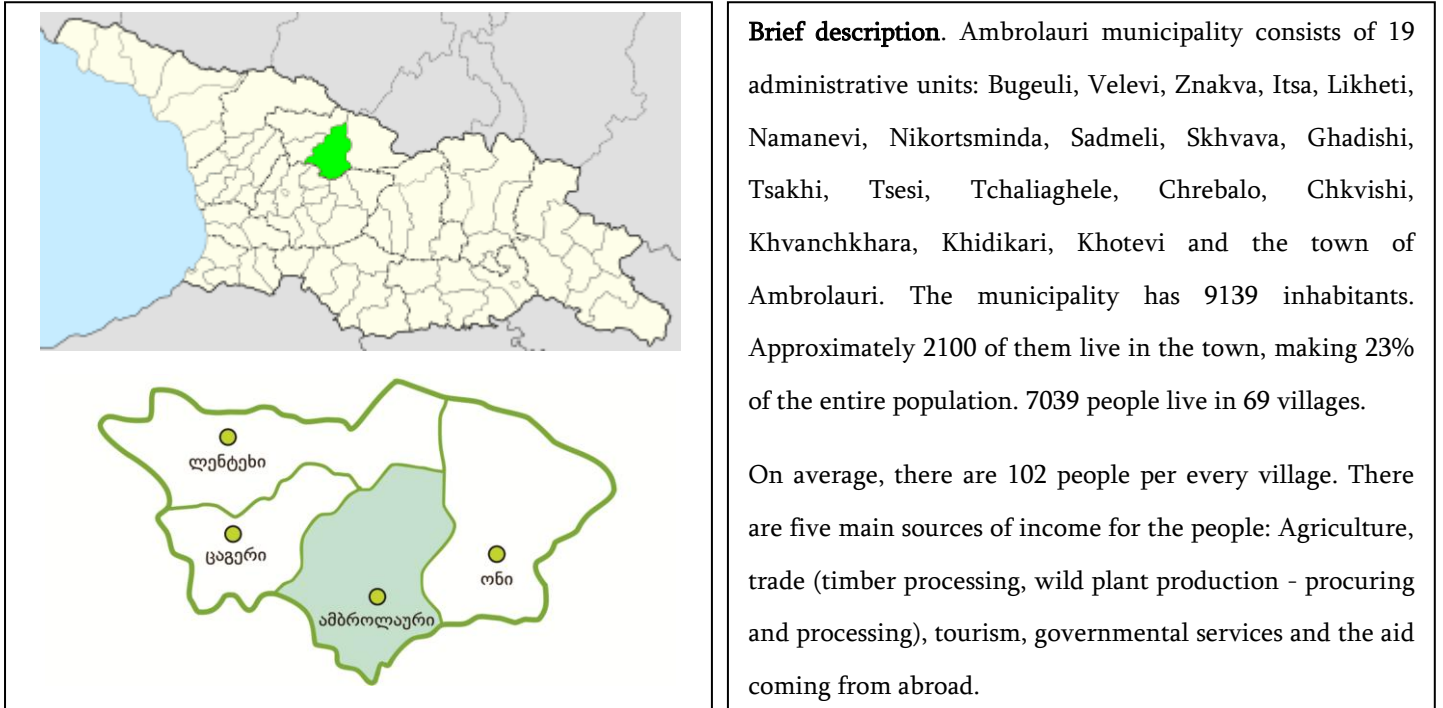


Chart # 12. Diversification of the agricultural land resources – Ambrolauri municipality

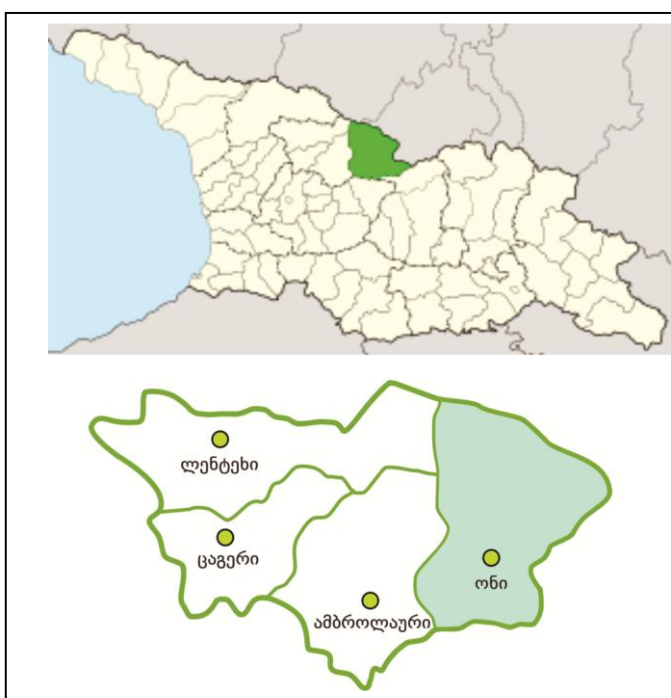
Arable land	Private property - 950 ha
	State property - 110,0 ha
Mowing land	Private property - 2197,0 ha
	In state ownership - 0,0 ha
Pastures	Private property - 0,0 ha
	In state ownership - 1049.0 ha
Homestead land	Arable - 75 ha.
	Mowing land - 2,0 ha.
	Perennial plants - 77.0 ha
Perennial plants	Private property - 1563 ha.
	State property - 0,0 ha.

Chart # 13. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production – Ambrolauri municipality

Ambrolauri Municipality			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production (Tons per year)
Beekeeping (honey production)	63	134	26.71
Animal husbandry (milk production)	26	63	153.6
Animal husbandry (cheese production)			4.8
Animal husbandry (meat production)			54.7
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production (Tons per year)
Viticulture	4	51	288.5
Grape production	2	8	4.7
Dried fruit (apple) and medicinal herbs production	1	22	410 (dried fruits)
Beekeeping (honey production)	5	25	33
Animal husbandry (milk production)	2	8	4.4
Definitions of the big-sized farms - beekeeping 10 and more beehive; Animal husbandry (cattle) - 10 units and more; agricultural land resources 5 hectares of arable land and more; poultry 300 units and more; Orchards and Grapes - 1 hectare and more			

Oni municipality

Chart #14 General information (Oni municipality)



Brief description. Oni municipality consists of 18 administrative units: Bari, Glola, Gomi, Kvashkhieti, Mravaldzali, Pipileti, Sakao, Sori, Utsera, Pharakheti, Ghari, Ghebi, Sheubani, Shkmeri, Tskhmori, Tsedisi, Tchiora and the town of Oni. The municipality has 8300 inhabitants. Approximately 3150 of them live in the town, making 38% of the entire population. 5150 people live in 65 villages.

On average, there are 80 people per every village. There are four main sources of income for the municipality and people: Equalizing transfers from governmental budget, agriculture, governmental services and the aid coming from abroad.

The priority sector for the municipality is agriculture.

Chart #15. Diversification of the agricultural land resources – Oni municipality

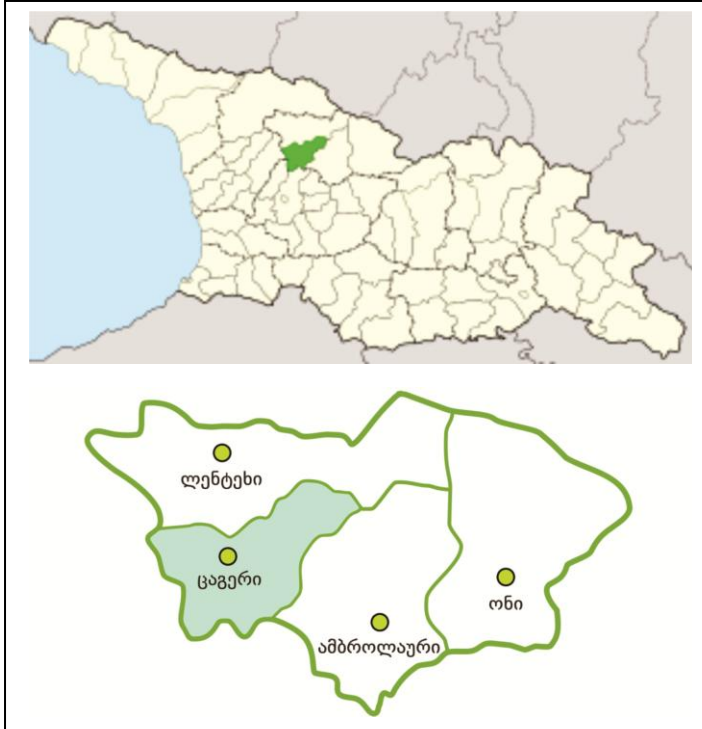
Arable land	Private property - 6271.96 ha State property - 39577.04 ha
Mowing land	Private property - 2197,0 ha In state ownership - 0,0 ha
Pastures	Private property - 39,0 ha In state ownership - 27753.3 ha
Homestead land	Arable - 294,4 ha. Mowing land - 0,0 ha. Perennial plants - 182.1 ha
Perennial plants	Private property - 130,8 ha. State property - 0,0 ha.

Chart # 16. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production – Oni municipality

Oni Municipality			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production (Tons per year)
Animal husbandry (milk production)	14	48	103.5
Animal husbandry (meat production)	8	30	25
Beekeeping (honey production)	10	19	8.8
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production (Tons per year)
Animal husbandry (meat production)	18	88	86
Animal husbandry (milk production)			151
Beekeeping (honey production)	11	63	12.29
Potato production	2	8	9
Beekeeping (milk production)	1	1	0.003
Definitions of the big-sized farms - beekeeping 10 and more beehive; Animal husbandry (cattle) - 10 units and more; agricultural land resources 5 hectares of arable land and more; poultry 300 units and more; Orchards and Grapes - 1 hectare and more.			

Tsageri municipality

Chart #17. General information (Tsageri municipality)



Brief description. Tsageri municipality consists of 19 administrative units: Alpana, Aghvi, Zubi, Lailashi, Lasuriashi, Lukhvano, Nakuraleshi, Orbeli, Okureshi, Sairme, Spatagori, Tvishi, Usakhelo, Kvemo Tsageri, Ghvirishi, Chkumi, Chkhuteli, Tsiperchi and the town of tsageri.

The municipality has 16 535 inhabitants. Approximately 1978 of them live in the town, making 10% of the entire population. 14 954 people live in 58 villages.

On average, there are 137 people per every village. There are four main sources of income for the municipality and people: incomes from hydroelectric stations, trade, agriculture and the aid coming from abroad.

The priority sector for the municipality is Agriculture.

Chart #18. Diversification of the agricultural land resources – Tsageri municipality

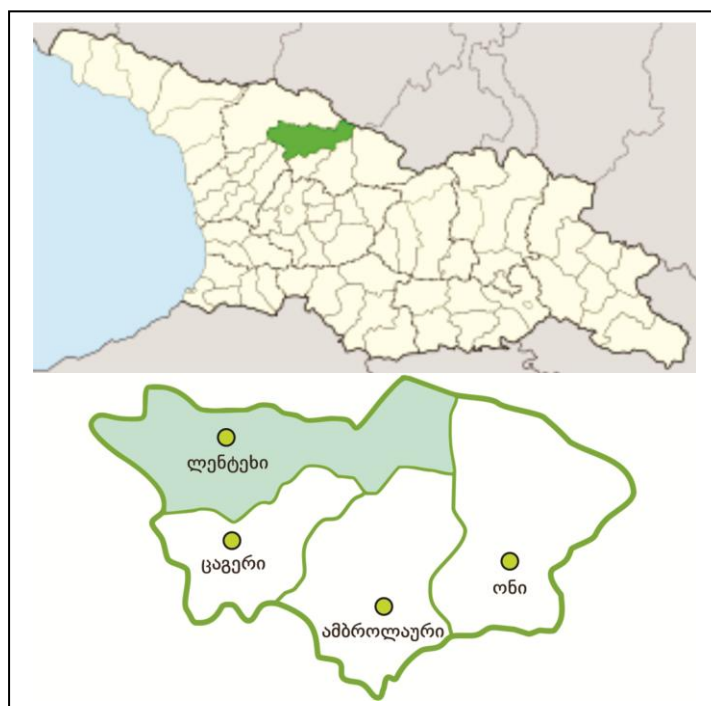
Arable land	Private property - 1393,0 ha State property - 0,0 ha
Mowing land	Private property - 55,0 ha In state ownership - 1380,4 ha
Pastures	Private property - 0,0 ha In state ownership - 8511,0 ha
Homestead land	Arable - 948 ha. Mowing land - 0,0 ha. Perennial plants - 971.0 ha
Perennial plants	Private property - 25,0 ha. State property - 0,0 ha.

Chart # 19. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production –
Tsageri municipality

Tsageri Municipality			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production (Tons per year)
Beekeeping (honey production)	49	74	44.6
Grape production	7	28	24.3
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production (Tons per year)
Beekeeping (honey production)	1	4	1
Beekeeping (honey production)	9	47	9.6
Viticulture	4	54	27
Definitions of the big-sized farms - beekeeping 10 and more beehive; Animal husbandry (cattle) - 10 units and more; agricultural land resources 5 hectares of arable land and more; poultry 300 units and more; Orchards and Grapes - 1 hectare and more			

Lentekhi Municipality

Chart #20. General information (Lentekhi municipality)



Brief description. Lentekhi municipality consists of 8 administrative units: Rgkhumeluri, Khopuri, Kheledi, Zhakhunderi Chikhareshi, Tsana and the hamlet of Lentekhi. The municipality has 8544 inhabitants. Approximately 650 of them live in the hamlet, making 8% of the entire population. 7894 people live in 58 villages.

On average, there are 137 people per every village. There are five main sources of income for the municipality and people: Agriculture, Equalizing transfers from governmental budget, timber processing, governmental services and the aid coming from abroad.

The priority sector for the municipality is Agriculture.

Chart #21. Diversification of the agricultural land resources – Lentekhi municipality

Arable land	Private property - 739 ha State property - 0,0 ha
Mowing land	Private property - 3318,0 ha In state ownership - 1988,0 ha
Pastures	Private property -5834,0 ha In state ownership - 9703,0 ha
Homestead land	Arable - 821 ha. Mowing land - 0,0 ha. Perennial plants - 18,0 ha
Perennial plants	Private property - 1563 ha. State property - 0,0 ha.

Chart # 22. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production – Lentekhi municipality

Lentekhi Municipality			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production (Tons per year)
Beekeeping (honey production)	29	44	11.92
Animal husbandry (milk- meat production)	36	62	180
Animal husbandry (cattle - meat production)	32	68	25
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production (Tons per year)
Beekeeping (honey production)	4	23	4.7
Potato production	5	28	87
Dried fruit production	1	5	5
Definitions of the big-sized farms - beekeeping 10 and more beehive; Animal husbandry (cattle) - 10 units and more; agricultural land resources 5 hectares of arable land and more; poultry 300 units and more; Orchards and Grapes - 1 hectare and more.			

Sachkhere Municipality

Chart #23. General information (Sachkhere municipality)

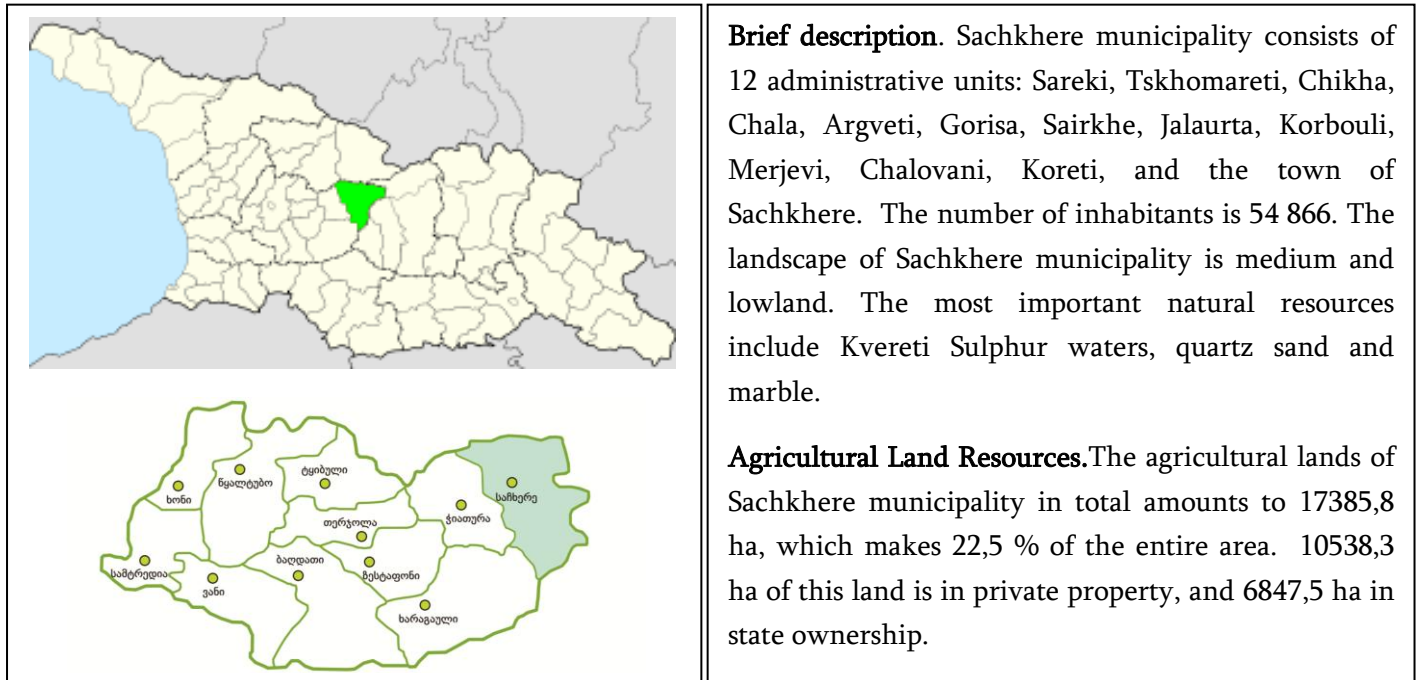


Chart #24. Diversification of the agricultural land resources – Sachkhere municipality

Arable land	Private property - 6755,3 ha. Perennial plants- 521,9 ha.
Mowing land	Private property -302,7 ha. In state ownership -89,8 ha.
Pastures	Private property - 580,0 ha In state ownership - 6198,1 ha
Homestead land	Arable - 1221,0 ha. Perennial plants- 608,0 ha.
Perennial plants	Private property -1071,3 ha. State property -37,7 ha.

Chart # 25. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production – Sachkhere municipality

Sachkhere Municipality			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production
Berry fruit production	2	5	0.2 Tons per year
Beekeeping (honey production)	29	56	10.4 Tons per year
Viticulture	9	30	18.3 Tons per year
Animal husbandry (cattle - meat production)	16	53	19.6 Tons per year
Animal husbandry (cheese production)	6	15	3.5 Tons per year
Vegetable growing	6	16	7.7 Tons per year
Hazelnut production	4	6	1.8 Tons per year
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production
Beekeeping (honey production)	5	37	7.42 Tons per year
Maize production	3	22	11.2 Tons per year
Poultry farming (meat production)	4	18	18 Tons per year
Greenhouse (greens)	1	6	1.5 Tons per year
Definitions of the big-sized farms - beekeeping 10 and more beehive; Animal husbandry (cattle) - 10 units and more; agricultural land resources 5 hectares of arable land and more; poultry 300 units and more; Orchards and Grapes - 1 hectare and more			

Chiatura Municipality

Chart #26. General information (Chiatura municipality)



Brief description. Chiatura municipality consists of 15 administrative units: Gezruli, Bachevi, Zodi, Itkhvisi, Katskhi, Mandaeti, Nigozeti, Perevisa, Rgani, Sarqveltubani, Sveri, Kvatsikhe, Tsirqvali, Khvashiti, Khreiti.

The main source of income for the population is the employment in the budget sector, mining industries, service sector and agriculture. The municipality is rich in precious bark forests.

Agricultural Land Resources. The agricultural lands of the municipality in total make 23856,8 ha. (private property - 9359,5 ha, state property - 14497,3 ha)

Chart #27. Diversification of the agricultural land resources – Chiatura municipality

Arable land	6542,0 ha. (Entirely in private property).
Mowing land	Private property -178,5 ha. In state ownership - 2,0 ha.
Pastures	Private property - 01,1 ha In state ownership - 14465,9 ha
Homestead land	870,0 ha (entirely occupied with perennial plants)
Perennial plants	Private property -1267,9 ha. State property -29,4 ha.

Chart # 28. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production – Chiatura municipality

Chiatura Municipality			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production (Tons per year)
Animal husbandry (cheese production)	5	34	28
Horticulture (cereal agro-cultural plants production)	2	10	50
Tea plantation	27	27	1.55
Beekeeping (honey production)	30	30	1.3
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production (Tons per year)
Beekeeping (honey production)	63	140	32.61
Animal husbandry (cheese production)	8	19	7.7
Animal husbandry (milk production)	2	4	45
Animal husbandry (meat production)	2	9	4.5
Hazelnut production	1	2	0.7
*Definitions of the big-sized farms - beekeeping 10 and more beehive; Animal husbandry (cattle) - 10 units and more; agricultural land resources 5 hectares of arable land and more; Orchards, tea plantations and Grapes - 1 hectare and more			

Tkibuli Municipality

Chart #29. General information (Tkibuli municipality)



Brief description. Tkibuli municipality consists of 10 administrative units: Mukhura, Satsire, Khresili, Orpiri, Tsutskhvati, Kursebi, Jvarisa, Gurna, Sochkheti, and the town of Tkibuli. The municipality has 30 100 inhabitants. 14 500 of them live in the town, making 48% of the entire population. 15 600 people live in 47 villages.

On average, there are 330 people per every village. There are four main sources of income for the people: Mining activities, agriculture, trade and the aid coming from abroad.

The priority sectors for the municipality are considered: industry, agriculture (mainly tea production) and tourism. There are balneological medicinal springs (in Kursebi, Bueti, Sochkheti, Manchiori, Mukhura and Leghva) and drinking mineral waters (in Leghva, Manchiori, Urgebi, Tsutskhvati, Dzirovani, etc).

Chart #30. Diversification of the agricultural land resources – Tkibuli municipality

Arable land	Private property - 1864,0 ha
	State property - 426,0 ha
Mowing land	Private property - 16,00 ha.
	In state ownership - 5,0 ha.
Pastures	Private property - 228,0 ha
	In state ownership - 6299,0 ha
Homestead land	Arable - 1204 ha.
	Perennial plants - 277.0
Perennial plants	Private property - 1177,0 ha.
	State property - 900,0 ha.

Chart # 31. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production –
Tkibuli municipality

Tkibuli Municipality – the main agricultural fields			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production
Poultry farming	10	30	54.5 Tons per year
Berry fruit production	2	7	2 Tons per year
Hazelnut production	6	19	8.2 Tons per year
Animal husbandry	16	61	63.3 Tons per year
Beekeeping (honey production)	43	145	61.6 Tons per year
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production
Tea plantation	5	42	31 Tons per year
Animal husbandry (cattle meat production)	2	9	10 Tons per year
Berry fruit production (raspberry plantation)	1	6	1 Ton per year
Viticulture	1	7	13 Tons per year
* Definitions of the big-sized farms - beekeeping 10 and more beehives; Animal husbandry (cattle) - 10 units and more; Tea plantation - 1 hectare and more			

Mestia Municipality

Chart #32. General information (Mestia municipality)



Brief description. Mestia municipality administratively is part of Samegrelo-Zemo Svaneti region.

The administrative centre of the municipality is borough Mestia, which is situated at the altitude of 1500 meters above the sea level.

There are 135 populated areas in the municipality: 1 borough and 134 villages.

Agricultural Land Resources. The agricultural lands of the municipality in total make 94263,18 ha. (Private property - 1793,11 ha, state ownership - 92470,07 ha.

Chart #33. Diversification of the agricultural land resources – Mestia municipality

Arable land	1014,10 ha. (entirely in private property)
Mowing land	Private property -395,61 ha. In state ownership - 1681,65 ha.
Pastures	90788,42 ha. - completely in state ownership
Homestead land	Arable - 121,90 ha Perennial plants- 261,50 ha

According to 2018 data, 728,12 ha of land has been ploughed in the municipality.

Chart # 34. Key big-sized farms, companies and cooperatives: numbers and the volumes of the production – Mestia municipality

Mestia Municipality – the main agricultural fields			
Big-sized* farms			
Type of farming-sector	Number of farms	Number of involved people	Volume of production
Honey production beekeeping	77	129	6.44 Tons per year
Enterprises and cooperatives			
Type of farming-sector	Number of Organizations	Number of involved people	Volume of production
Animal husbandry/cattle (cheese production)	1	129	9.7 Tons per year
Animal husbandry/cattle (meat production)		14	11.4 Tons per year
*Definitions of the big-sized farms - beekeeping 10 and more beehives; Animal husbandry (cattle) - 10 units and more.			

Chapter III - Natural resources of the target area

This chapter of the report provides the information about the existing agro forestry and wild herbs procurement practices on the target area of the project. The basic content of the current chapter consists of the following materials:

- Existing forest resources in each target municipality – brief descriptions;
- Forest usage volumes and purposes;
- Key existing herb varieties used by the local population for procurement and processing.

Existing forest practices

Ambrolauri Municipality. The municipality is a mountainous area and 65.3% of its territory is covered with forests. In this municipality the tendency of increased forest coverage is observed: compared to 2002 data, the forest cover in Ambrolauri municipality increased by 18% in 2016. The main causal reason of this fact is the migration process of the local population as the areas of abandoned households is now covered by forest.

The main problems associated with the forest resources are:

- Illegal logging of the forest which has an increasing tendency and causes the decrease of the wind-belt areas;
- Non-existence of the relevant measures focused on renewal of the forest coverage at least in the most sensitive areas in terms of environment and agricultural land protection.

Oni Municipality. Forest resource is also one of the major strengths of this municipality. It has huge resources of the forest. But illegal logging of the forest and non-existence of the relevant measures focused on the renewal of the forest remains the main problem of this sector in the municipality.

Tsageri municipality. The municipality abounds in forest resources - 63% (47 000 hectares) of its territory is covered with forests. There is no tradition of existence or creation of the wind-belt areas in the municipality.

During the last 10 years the fire-rising has taken place in the forests near the territories of the villages Dekhviri, Lasuriashi, Laskhara and Chkhoteli. As for small scaled fires in the forests, according to the information provided by the local officials, they occur 1 or 2 times per year.

Lentekhi municipality. The municipality abounds in forest resources - 64% (85 000 hectares) of its territory is covered with forests. There is no tradition of existence or creation of the wind-belt areas in the municipality.

According to the information provided by the local officials the annual limit of forest logging is 8 000 m³.

During the last 10 years the fire-rising has taken place in the forests. But during the last 4 years there were no fire-rising incidents in the territory of the municipality.

Sachkhere municipality. According to the results of the forest inventory provided in 2004, in Sachkhere municipality 50 000 hectares are covered with forests.

The annual limit of forest logging is 9 000 m³.

According to the information provided by the local officials, during the last years the volume of the illegal forest logging was increased by 20%. Also, the wind-belt decreasing tendency is observed.

In 2010 fire-rising has taken place in the forests and as a result, 100 hectares of forest was torched.

Tkibuli municipality. According to the results of the forest inventory provided in 2004, in Tkibuli municipality 29 183 hectares are covered with forests.

According to the information provided by the local officials, during last years the volume of the illegal forest logging is increased. Also, the wind-belt decreasing tendency is observed.

There is no information about consequences of the fire-rising incidents in the forests of the given municipality.

Chiatura municipality. The municipality abounds in forest resources including precious heartwood varieties.

According to the information provided by the local officials, illegal logging has decreased but the volume of the forest logging (provided in a legal way) has increased during the recent years.

The wind-belt decreasing tendency is observed. As for the fires the local authorities claim that periodically insignificant, small-scaled fires are occurring in the forests of the municipality but there is no exact information about the volumes of the damages.

Mestia municipality. The municipality is a mountainous area and 46% (137 000 hectares) of its territory is covered with forests.

According to the information provided by the local officials in the territory of the municipality the forest logging is implemented for social and commercial purposes. Also, the incidents of the forest illegal logging exist, but in both cases there is no exact information regarding the volumes of legal or illegal forest loggings.

The wind-belt areas are decreasing and at this stage they are almost totally destroyed.

Periodically insignificant, small-scaled fires occur in the forests of the municipality but there is no exact information about the volumes of the damages.

There is no practice of implementing the relevant measures focused on the renewal of the forest.

The Basic arboreal plant varieties

The chart #35 presented below contains the basic varieties of the arboreal plants disseminated in the forests of the target municipalities.

chart #35. The Basic arboreal plant varieties

#	Common name	Scientific name	#	Common name	Scientific name
1	Oak varieties	Quercus spp.	19	Common barberry	Berberis vulgaris L.
2	Caucasian hard beam	Carpinus caucasica	20	Wild pear	Pyrus caucasica
3	Chestnut	Cestanea sativa Mill.	21	Dogwood	Cornus mas l.
4	Oriental beech	Fagus orientalis L.	22	Chequer	Sorbus torminalis
5	Caucasian pine	Pinus sosnowskyi Nakai	23	Wild apple	L. Malus orientalis
6	Common maple	Acer campestre L.	24	Snowball	Viburnum L.
7	Ash	Fraxinus excelsior L.	25	Whortleberry	Vaccinium arctostaphylos L.
8	Caucasian lime tree	Tilia caucasica	26	Caucasian fir-tree	Abies nordmanniana
9	Elm tree	Ulmus spp.	27	Oriental spruce	Picea Orientalis
10	Common alder	Alnus barbata C. A. M.	28	Caucasian maple	Acer velutinum
11	Colchian hazel nut	Corylus colchica	29	Mountain maple	Acer pseudoplatanus
12	Hawthorn	Crataegus spp.	30	Common willow	Salix alba
13	Box tree	Buxus spp.	31	Quick beam	Sorbus aucuparia
14	Yew-tree	Taxus baccata	32	Birch	Betula spp
15	Meddler	Mespilus germanica	33	Caucasian evergreen azalea	Rhododendron caucasicum
16	Cornelian Cherry	Cornus mas L.	34	Rosehip	Rosa canina
17	Caucasian persimmon	Diospyros Lotus L.	35	Wild plum	Prunus cerasifera
18	Colchian bladder-nut	Staphylea colchica	36	Elder	Sambucus nigra

Wild herb and mushroom foraging practices

Foraging various species of the wild herbs and mushrooms grown in the forests of the target municipalities is one of the common practices among the local population.

Wild herbs and mushrooms are foraged basically for selling purposes, but this activity has a seasonal character and is not the main source of the economic incomes for the majority of the people who are engaged in this field. However, the field itself has a good potential of generating incomes and this potential is not completely digested or studied at this stage. During the field visits implemented within the frames of the current research only few big sized and completely business-oriented bodies focused on wild herbs or mushroom foraging-production were identified (annex #2 of this report contains detailed information about their production varieties, volumes, locations and contact details).

Despite of the fact that wild herb and mushroom foraging practices are considered in the target municipalities in the form of small-scaled, seasonal activities, there are two main determining factors making this field promising for organic production:

1. Existence of a small number of relatively big-sized organizations;
2. Relative simplicity of the process of converting this field into organic production.

Consequently, during the research implementation phase the relevant database was developed. It contains the lists and descriptions of all the basic varieties of wild herbs and mushrooms which have the potential to be produced in organic way on the target area. It must be noted that in some cases, especially in terms of medicinal herbs collection of the exact information was impossible because, the people engaged in this field prefer to keep in secret the names of the plant varieties they forage. Therefore, for the identification of the wild plant and mushroom varieties within the frames of this research in addition to direct questioning of the local farmer communities, the following approaches were used:

- Conducting monitoring activities of the local environment as far as it was possible in the existing format;
- Providing a small-scaled desk-research.

Based on these activities the informational database was elaborated which, as it was already mentioned, contains lists of all the possible varieties (grown in all target municipalities) of wild plants and mushrooms having the potential of producing in organic way (in case of developing the relevant production lines: greenhouses, processing infrastructure, storage-selling facilities and etc.) and their descriptions.

Elaborated informational database is presented below in the form of sub-chapters.

Varieties of the promising wild herbs-plants

Whortleberry



Scientific name. *Vaccinium arctostaphylos L.*

Botanical description. Bilberry, also called whortleberry. It is a low-growing deciduous shrub belonging to the family Ericaceae. The stiff stems, from 15 to 60 cm high, bear small egg-shaped leaves with serrated margins and small, rosy flowers tinged with green.

Berry fruit is about 5 mm, black and blue covered with purple hairs, rounded shape with a flat end.

Ripening period in Georgia: from July to August.

Medicinal Uses: A dried bilberry is markedly binding and has an antibacterial action.

Culinary Uses: Bilberries are sold fresh or processed as individually quick frozen (IQF) fruit, purée, juice, dried or infused berries. The berries in turn may be used in a variety of consumer goods such as jellies, jams, pies, muffins, snack foods, and cereals.

Blackthorn (Sloe)



Scientific name. *Prunus spinosa.*

Botanical description. Blackthorn is a large deciduous shrub or small tree growing to 5 m tall, with blackish bark and dense, stiff, spiny branches.

Leaves of the blackthorn are slightly wrinkled, oval, toothed, pointed at the tip and tapered at the base.

Fruits: blue-black coloured, measuring 1 cm. across.

Ripening period in Georgia: from July to September.

Medicinal Uses - Sloe berries are astringent and stimulate the metabolism, clean the blood and are used as a laxative and diuretic. The fruit and leaves of Blackthorn contain tannins, organic acids, sugars and vitamin C.

Culinary Uses: The fruit is more usually used in jellies, syrups and as flavouring for sloe gin and other liqueurs. Fruit should not be eaten if it is too bitter. The leaves are used as a tea substitute. The dried fruits can be added to herbal teas. The flowers are edible and can be crystallized or sugared.

Caucasian Persimmon*



Scientific name. *Diospyros Lotus L.*

Botanical description. Caucasian persimmon is a tree height of 15–30 m usually with a rounded crown and sloughing of aging bark. The leaves are shiny, leathery, oval shape with pointed ends, 5–15 cm long and 3–6 cm in width. The upper leaf surface is glossy and leaf edge is smooth. The flowers are small and unobtrusive, greenish to reddish appearing in May to June. Fruits are berries with juicy flesh, yellow-orange or bluish-black in colour at maturity period 1–2 cm in diameter.

Ripening period in Georgia: September–October.

Medicinal Uses - fruits have a wealth of health benefits packed inside them, including their ability to improve eye health, reduce signs of aging, prevent various types of cancer, improve digestion, boost your immune system, lower cholesterol, increase your metabolism, strengthen your bones, boost cognitive function, lower blood pressure, and take care of your skin.

Culinary Uses: fruits can be eaten fresh, dried, raw, or cooked.

**Can be grown in the forests of all target municipalities except Mestia municipality.*

Wild Plum



Scientific name. *Prunus cerasifera*

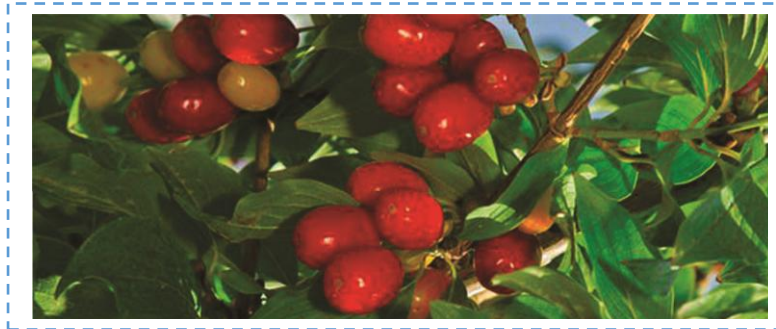
Botanical description. The Wild plum is a deciduous shrub or small tree reaching 8-10 m tall. The fruits are 2-3 cm wide, plum-like drupes, globosely, ripening to red or yellow.

Ripening period in Georgia: July–September

Medicinal Uses – contains organic acids, pectin, vitamins C, E, B1, B2, P, minerals, tannins and carotene.

Culinary Uses: Fruit can be used raw or cooked. It has a very pleasant plum-like flavour when fully ripe with a mealy though juicy flesh. In Georgia fruits usually are used to prepare Cherry plum sauce (Tkemali).

Cornelian Cherry



Scientific name. *Cornus mas L.*

Botanical description. Cornelian cherry also known as dogwood is a deciduous shrub or small tree growing 2-6 m tall, exceptionally reaching 8-9 m. The crown is regular, bushy, and hemispherical. It may expand more horizontally up to 5 m. The tree is a long living, surviving up to 300 years.

The leaves are opposite with a short stalk, oval, 3-5 cm wide and 6-8 cm long. They turn to mahogany red in autumn.

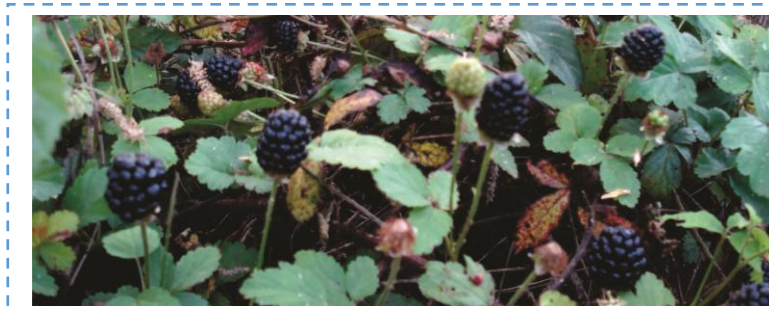
The fruit is a fleshy, bright red, once ripens It is olive-shaped, 12-15 mm long.

Ripening period in Georgia: September-October.

Medicinal Uses: The bark and the fruit are astringent, febrifuge and nutritive. The astringent fruit is a good treatment for bowel complaints and fevers, whilst it is also used in the treatment of cholera. The flowers are used in the treatment of diarrhea. It is a good source of anthocyanin.

Culinary Uses: The fruit is more usually used in jellies, compotes and marmalades.

Dewberry



Scientific name. *Rubus fruticosus.*

Botanical description. The height of the shrub reaches from 0.5 to 2 meters. The fruit has a round shape. It is olive coloured and consists of not more than 20 drupelets. Each drupelet has one hard seed inside.

Ripening period in Georgia: August-September.

Medicinal Uses: The leaves and roots can be made into tea, extracts, or an infusion to treat stomach problems such as ulcers and gastritis and kidney stones.

Culinary Uses: Dewberry is cultivated for its edible berries, as an ornamental plant and for honey production. The fruit can be consumed raw, or made into jam or jelly; it can also be used to make a purple or dull blue dye. The leaves can be used to make tea.

Rosehip



Scientific name. *Rosa canina*.

Botanical description. The rosehip is a shrub that grows up to 5 m and has multiple arching stems. Stems are covered with thorns that are stout, flattened, downward-curving and unequal in size. Leaves are alternate and pinnate divided into 5 to 7 leaflets with serrated margins.

The Fruits are smooth, bright red and 1 to 2 cm long. They become black when persist on the plant for several months.

Ripening period in Georgia: September – October.

Medicinal Uses: Rosehip is important due to its traditional pharmaceutical, nutraceutical and commercial significance. They are beneficial for health due to their appreciable levels of high-value nutrients, vitamins, minerals and bioactives.

Culinary Uses: Rosehips can be used as fresh or in dried form as a rich source of minerals (potassium, phosphorous), vitamin C, carotenoids and flavouring components. Rosehips have several culinary and food applications.

Wild Pear



Scientific name. *Pyrus caucasica*.

Botanical description. Wild pear is a tree, 20-30 m. tall, with a broadly pyramidal or oval crown. Leaves of the wild pear are green-coloured, 3- 5 cm long and 2.5-4.5 cm wide. Fruits are 1-3 cm in diameter yellow or green-yellow coloured and round, or oval shaped.

Ripening period in Georgia: August – October.

Medicinal Uses: Pears fruit is packed with health benefiting nutrients such as dietary fiber, anti-oxidants, minerals and vitamins, which are necessary for optimum health. In addition, pear fruit is one of the very low calorie fruits and contain good quantities of vitamin C. The fruit is a good source of minerals such as copper, iron, potassium, manganese and magnesium as well as B-complex vitamins such as riboflavin and pyridoxine (vitamin B-6). Also, pears have been suggested in various traditional medicines in the treatment of colitis, chronic gallbladder disorders, arthritis, and gout.

Culinary Uses: Wild Caucasian pears are eaten as a food and consumed in a variety of ways - fresh, as a juice, canned and dried. They are also used to make jams, jellies and even fermented to produce pear cider.

Dwarf elder



Scientific name. *Sambucus ebulus* L.

Botanical description. Dwarf elder grows to a height of 1–2 m and has erect, usually un-branched stems growing in large groups from an extensive perennial underground stem rhizome. The leaves are opposite, pinnate, 15–30 cm long, with 5-9 leaflets with a characteristic smell.

The stems terminate in a corymbs 10–15 cm diameter with numerous white (occasionally pink) flat-topped hermaphrodite flowers. The fruit is a small glossy black berry 5–6 mm diameter. The ripe fruit give out a purple juice

Ripening period in Georgia: August – November

Medicinal Uses: Dwarf elder is one of the best known medicinal herbs since ancient times. In view of its benefits as a widely applicable phytomedicine, it is still used in folk medicine of different parts of the world. In addition to its nutritional values, dwarf elder contains different phytochemicals among which flavonoids and lectins are responsible for most of its therapeutic effects. Dwarf elder has been used for different ailments including: joint pains, cold, wounds, and infections. Nevertheless, recent evidence has revealed its potentials for making attempts at treating cancer and metabolic disorders. This review aimed to provide a comprehensive description of dwarf elder regarding its traditional uses and modern findings which may contribute to the development of novel natural-based therapeutic agents.

Culinary Uses: In Georgia basically the fruits are used to make marinade.

Common Hawthorn



Scientific name. *Crataegus monogyna*.

Botanical description. Hawthorns are deciduous plants with simple leaves that are usually toothed or lobed. The white or pink flowers, usually in clusters, are followed by small apple-like pomes that range from red to orange to blue or black. The fruits vary in flavour and texture but are edible and sometimes used in herbal medicine. Some species are characterized by horizontal branching, a growth habit considered to enhance their ornamental value. Species readily hybridize with each other, making their taxonomy somewhat contentious.

Ripening period in Georgia: July-September.

Medicinal Uses: The leaves, flowers, and berries of hawthorn contain an abundance of phyto-nutrients (antioxidants) called oligomeric proanthocyanidins and flavonoids, which are thought to be responsible for its pharmacologic effect. Common hawthorn products are used in the treatment of Chronic Heart Failure, high blood pressure and Other Heart-Related Conditions.

Culinary Uses: The fruits are used as fresh or in dried form.

Spearmint



Scientific name. *Mentha spicata*.

Botanical description. Spearmint is a perennial plant that aggressively spreads by creeping stolons. The simple fragrant leaves are sharply serrated and arranged oppositely along the square stems. Spearmint has lax, tapering spikes of lilac, pink, or white flowers.

Medicinal Uses: Spearmint and its products (fresh or essential oil) are used for conditions such as flatulence, indigestions, nausea, vomiting, and other conditions, but there is no good scientific evidence to support these uses.

Harvesting period in Georgia: June–August.

Culinary Uses: The leaves are used fresh or dried to flavour many foods, particularly sweets, beverages, salads, soups, cheeses, meats, fish, sauces, fruits, and vegetables. The essential oil is used to flavour toothpaste, candles, candies, and jellies; its principal component is carvone.

Valerian



Scientific name. *Valeriana officinalis*

Botanical description. Valerian is an herbaceous perennial that grows 0.5-1.5 m tall. The plant grows from a small rhizome and has fibrous roots. The stems of this plant are generally pubescent, especially at the nodes.

The leaves often have a few hairs on their underside. The fragrant flowers of *Valeriana officinalis* are white or pale pink and are borne in many umbel-like inflorescences. The individual flowers measure 4 mm long.

Ripening period in Georgia: June–August.

Medicinal Uses: Medicines prepared by the valerian are most commonly used for sleep disorders, especially the inability to sleep (insomnia). Valerian is also used orally for anxiety and psychological stress, but there is limited scientific research to support these uses.

Culinary Uses: N/A

The basic Mushroom varieties

Common name: King Bolete.

Scientific name: Boletus edulis

Georgian name: Datvis Soko



Common name: Oyster mushroom

Scientific name: Pleurotus ostreatus

Georgian name: Kalmakha



Common name: Honey fungus

Scientific name: Armillariella mellea (Fr.) Karst

Georgian name: Manchkvla



Common name: False Saffron Milkcap

Scientific name: Lactarius deliciosus (Fr.) Grauf.

Georgian name: Mchada Soko



Common name: N/A(endemic sp.)

Scientific name: Amanita Caesarica (Fr.) Pers.

Georgian name: Nikvi



Common name: Russula adusta

Scientific name: Blackening Russula

Georgian name: Shavchokha



Common name: Spring polypore

Scientific name: Polyporus squamosus

Georgian name: Dzerana

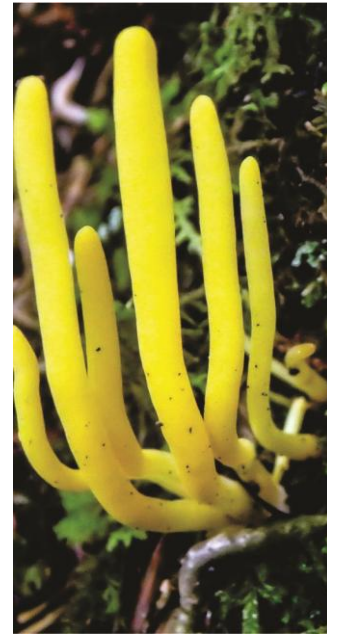


Common name: Yellow coral mushroom

Scientific name: Ramaria aurea

Georgian name: Kviteli

Sachechela



Common name: Russula deliea
Scientific name: Milk-white
brittlelegill
Georgian name: Tskheniskbila



Common name: Wood hedgehog
Scientific name: Hydnum
repandum
Georgian name: Irmis Tuchi



Common name: Peppery Milk
Cap
Scientific name: Lactarius piperatus
Georgian name: Arka



Common name: Shaggy mane
Scientific name: Coprinus
Comatus
Georgian name: Mertskhala



Common name: Humpback
brittlelegill
Scientific name: Russula latea
Georgian name: Pkvila Soko



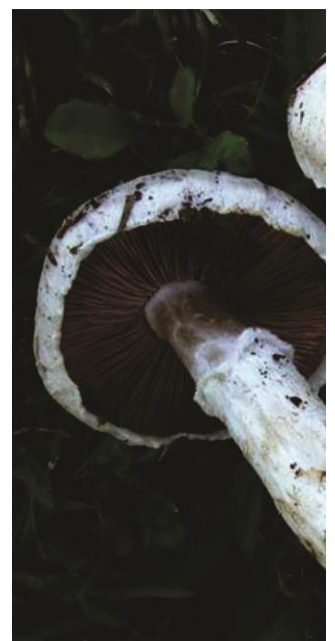
Common name: Forest
champignon
Scientific name: Agarictus
silvestris
Georgian name: Tkis Champinioni



Common name: Horse
mushroom
Scientific name: Ag. arvensis
Georgian name: Narbilis
Shampinioni



Common name: Field
champignon
Scientific name: Ag. pratensis
Georgian name: Mdelos
Shampinioni



Chapter IV – Market analyses

Applied methodology. Within the frames of the market analyses the materials were elaborated about the following issues:

- The most realized local agricultural products in the markets of the target municipalities;
- Consumption volumes and demand increasing/decreasing dynamics;
- Production volumes of each local agro-product according to the target municipalities;
- The lists of the local organic products and companies operating in the target municipalities;
- Structure of the existing organic market of Georgia and the prices of each organic product;
- Preliminary numbers of consumers of the organic production, costs, demands and prospects;
- Existing organic (certified) products and existing value chain diagrams;
- SWOT analyses of the agricultural fields;
- Existing technologies of the organic production;
- Linkages between farmers and the local guesthouse owners.

The most realized agricultural products from the target area

With the purpose of identifying the most realized local agricultural products, within the frames of the research the study of the local markets and the official documentation (provided by the relevant governmental organizations) was provided. As a result the main brand agricultural products were identified for each target municipality.

The chart presented below #36 contains the lists of the realized agricultural products, considering the main sources of economic incomes for the local population according to the target municipalities.

Chart #36. The most realized agricultural products

	Ambrolauri		Tsageri		Sachkhere		Tkibuli
Agricultural product	Honey	Agricultural product	Honey	Agricultural product	Vine	Agricultural product	Vine
	Wine		Hazelnut and walnut		Maize		Maize
	Beef		Pork		Potato		Potato
	Hazelnut, walnut		Fish		Vegetable		Vegetable
	Pork		Wine		Greens		Greens
	Milk		Milk		Honey		Honey
	Cheese		Cheese		Hazelnut and walnut		Hazelnut and walnut
	Dry fruit		Potato		Mushrooms		Mushrooms
					Raspberry, Strawberry		Raspberry, strawberry
		Beef and poultry meat	Beef and poultry meat				
		Cheese	Cheese				
	Oni		Lentekhi		Chiatura		Mestia
Agricultural product	Honey	Agricultural product	Honey	Agricultural product	Vine	Agricultural product	Honey
	Wine		Dry fruit		Maize		Potato
	Blackberry, Strawberry		Strawberry		Potato		Hazelnut and walnut
	Hazelnut, walnut		Raspberry		Vegetable		Beef
	Pork		Milk		Tea		Chevon
	Potato		Beef		Honey		Mutton
	Milk		Cheese		Fish		Pork
	Cheese		Potato		Hazelnut and walnut		Fish
					Raspberry		Milk
		Cheese, poultry meat	Cheese				
		Mushrooms	Dry fruit				

Conventional Agricultural Market - Consumption Volumes

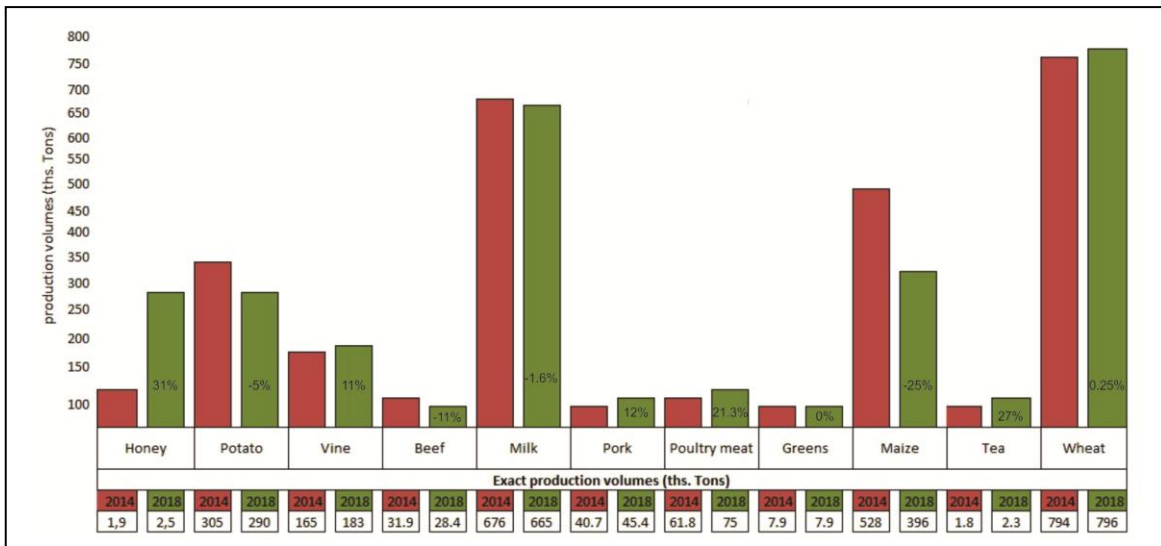
After the identification of the most realized local agricultural products of the target area, the consumption volumes of each agricultural product on the national level were studied. With this purpose, analysis of the existing materials was conducted and as a result, the consumption volumes of each local agro-product on the national level and demand increasing/decreasing dynamics during the last 5 years were identified.

The overall aim of identifying the consumption volumes and demand increasing/decreasing dynamics on the national level is to create the general picture about the existing situation in Georgia`s agricultural market in terms of the products which are produced in conventional way on the target area of the GRETA project.

The obtained materials can be used as one of the determining indicators in the decision making process for the determination of the economic potential of each agricultural product produced organically based on the principle that in cases of increasing demand on particular agricultural goods produced conventionally, in the majority of cases it is the precondition of the demand creation for the same product produced organically.

The diagram #1 considered below contains the information about the increasing and decreasing levels of the consumption volumes of the key agricultural products on the national level.

Diagram #1



Production volumes of each local agro-product according to the target municipalities

Within the framework of the given research the production volumes of each agricultural product were identified according to the villages of the target municipalities.

In terms of market analyses the production volumes of each key agricultural field is the additional needed material for the formation of the exact ideas about the sizes and existing potentials of the production in each agricultural field. Also, the existing production volumes of the conventional agricultural sector may become important for the determination of the converting potential of each agricultural field from conventional to organic agriculture because of the fact, that production volumes show the existence of the experience and the relevant conditions for the production at least in a conventional agricultural way and this factor is one of the determinatives in the identification process of the agricultural products-value chains having the potential to be produced organically.

The chart #37 presented below considers the production volumes of all the key agricultural products (the data about which was possible to identify) as of 2018 according to the municipalities.

Chart #37. Production volumes of all the key agricultural products

Agricultural field	Municipalities and production volumes (tons)							
	Ambrolauri	Oni	Tsageri	Lentekhi	Mestia	Ciatura	Sachkhere	Tkibuli
vine production	1388	205	1304	168	N/A	1060.1	1452	1152
Pome and stone fruit	250	289	1020	370	597	3250	4550.9	3339
Hazelnut	20	6	25	1	0.8	37.2	109.1	151
Walnut	17	5.25	15	0.5	60	31.1	204.7	163.5
Maize	265	73.5	404.8	173.5	110	2714	3270	2255
Haricot	45	14	25	14.8	211	176	350	N/A
Berries	16.1	26.6	N/A	2.7	N/A	41.1	54.5	33.6
Potato	N/A	N/A	N/A	N/A	4728	365	408	84
Vegetable	N/A	N/A	N/A	N/A	2658	855.2	2997.9	1180
Fish-farming	N/A	N/A	N/A	N/A	3	11.4	N/A	3
Honey	N/A	N/A	N/A	N/A	30.8	N/A	N/A	N/A
Beef	N/A	N/A	N/A	N/A	380	N/A	N/A	N/A
Pork	N/A	N/A	N/A	N/A	65	N/A	N/A	N/A

Structure of the existing organic market of Georgia

With the purpose of creating the relevant description of the existing situation of the organic market of Georgia, the following materials were obtained:

- The materials allowing to calculate approximate number of the consumers of organic products;
- Volume of the agricultural land used for the organic production;
- Existing organic certified and realized products in Georgia;
- Prices of the existing certified organic and unofficially “organic” products.

Due to the fact that at this stage organic agricultural production sector is in the very early stages of development in Georgia, the consumption volumes of the certified organic products are so small that the governmental structures and non-governmental sector do not provide the data regarding the consumption volumes. Hence, within the framework of the given research, it was not possible to identify the exact volumes of the realized organic production. The only option for calculating was to question the existing organic-certified companies about their production volumes which are the commercial secrets as a rule.

As for the above-mentioned obtained materials, they provide the possibility to calculate approximate number of the consumers of organic products and at this stage the total number of the potential consumers is less than 50 000 people who have high income, relevant access and can acquire the organic-certified products.

According to the data provided by the organizations of the relevant profile, in Georgia at present approximately 1000-1500 hectares of the agricultural land are used for the organic production, which in itself make 0.06-0.09% of the total agricultural land resources of the country. In addition to the officially certified companies, there are around 1500 farmers - the members of the various sectorial organizations that provide ecologically clean production and are practically in the process of converting their production from conventional to organic.

Within the framework of the research the existing organic certified and realized products in Georgia and the number of the basic organic certified companies were identified. At this stage around 40 organic certified organizations-companies are operating in the organic market of Georgia. The diagrams (#2, and 3) considered below show the percentage distribution of the existing companies according to the varieties of their production and the regions of Georgia. As for the quantitative distribution of the companies according to the production varieties and the locations, this information is considered in the chart # 38.

Diagram # 2. Percentage distribution of the existing companies according to the varieties of their production

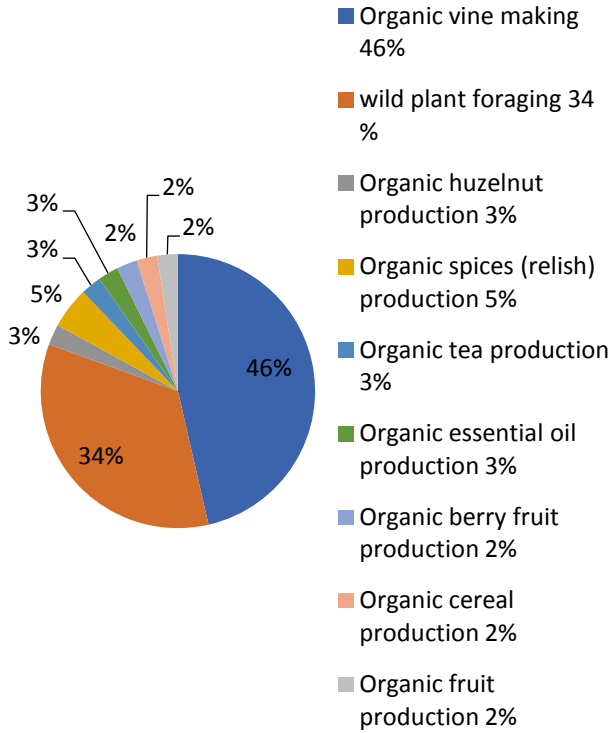
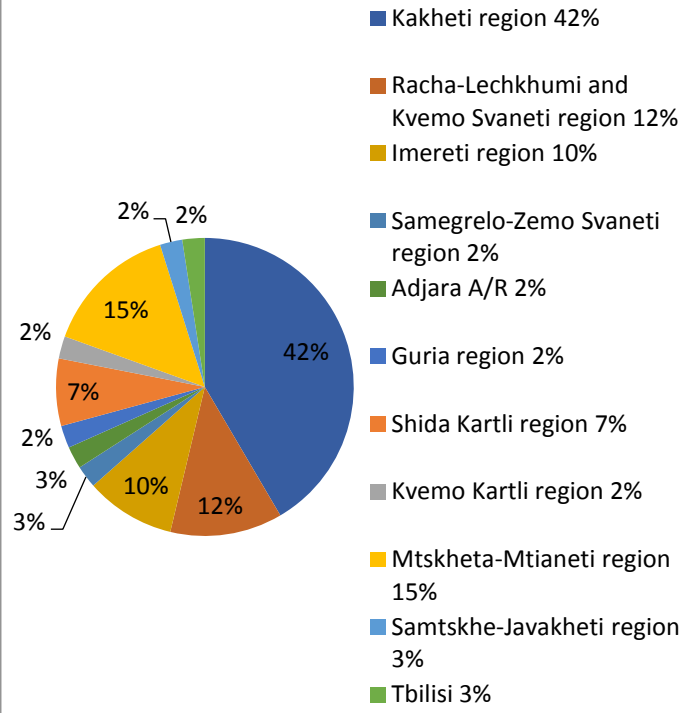


Diagram # 3. Percentage distribution of the existing companies according to the regions of Georgia



Chart#38. Quantitative distribution of the organic certified companies according to the production varieties and the locations

Type of the production	Regions and the Number of the companies										
	Kakheti	Racha-Lechkhumi and Kvemo Svaneti	Imereti	Mtskheta-Mtianeti	Samegrelo-Zemo Svaneti	Adjara A/R	Shida Kartli	Samtskhe-Javakheti	Guria	Kvemo Kartli	Tbilisi
Organic vine	16	1	1	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A
Organic essential oil	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wild plant foraging	1	3	1	6	N/A	1	N/A	1	N/A	N/A	1
Organic fruit and cereal	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Organic spices (relish) production	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Organic hazelnut	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Organic tea	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A
Organic berries	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A
Total number of companies	40										

Consumers, costs, demands and perspectives

The analysis of the scales of organic production, the number and profile of the certified companies working in this field, other existing materials and the interviews conducted within the frames of the research, shows that at this stage the orientation number of the organic production consumers is within the range of 45-50 thousand. In this case it also has to be considered that these consumers purchase not only officially certified products but also the products of the farmers who are the members of various sector organizations, that are not officially certified, but with the consideration of the producing farmer's reputation and the product quality, it is sold as an organic product.

Based on the above-said, it can be said that at this stage there are two types of products in the organic product market existing in Georgia:

1. Certified products, produced by 40 officially certified companies.
2. The products that have the status of an organic product or at least an informal status of an ecologically clean product.

As for the potential of realizing certain varieties of organic products on the local (national) and international markets, several main factors have to be considered to forecast them.

These factors are:

- price;
- purchasing power of the local population;
- consumption tradition;
- Production volume.

Considering the existing reality, the price is the main determining factor. For example, even though a large proportion (46%) of the companies with the certificate of the organic production produce organic wine, given the current price (the price of one bottle starts from 200 Euros), organic wine is less accessible for the majority of the local population and consequently, organic wine in Georgia is produced for sale not in local but in international markets.

The potential for sale of the organic products in the local market significantly depends on the purchasing power of the local population and the existing price differences between the organic and conventionally produced goods. Table # 39 compares the prices of the organic goods produced officially and “unofficially” with the same types of goods produced conventionally. Whereas the diagram #4 presents the information about the existing incomes of the population.

Besides, according to the data provided by the National Statistic Agency of Georgia the population of Georgia spend 44% of their income on food, which is a high indicator characterizing a developing country, reflecting the fact that the great majority of the population is less focused on product quality and has no potential of purchasing a better quality but expensive products.



The European Union
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გაერთიანებული ევროკავშირის მხარდაჭერით
GREEN ECONOMY: SUSTAINABLE MOUNTAIN TOURISM AND ORGANIC AGRICULTURE



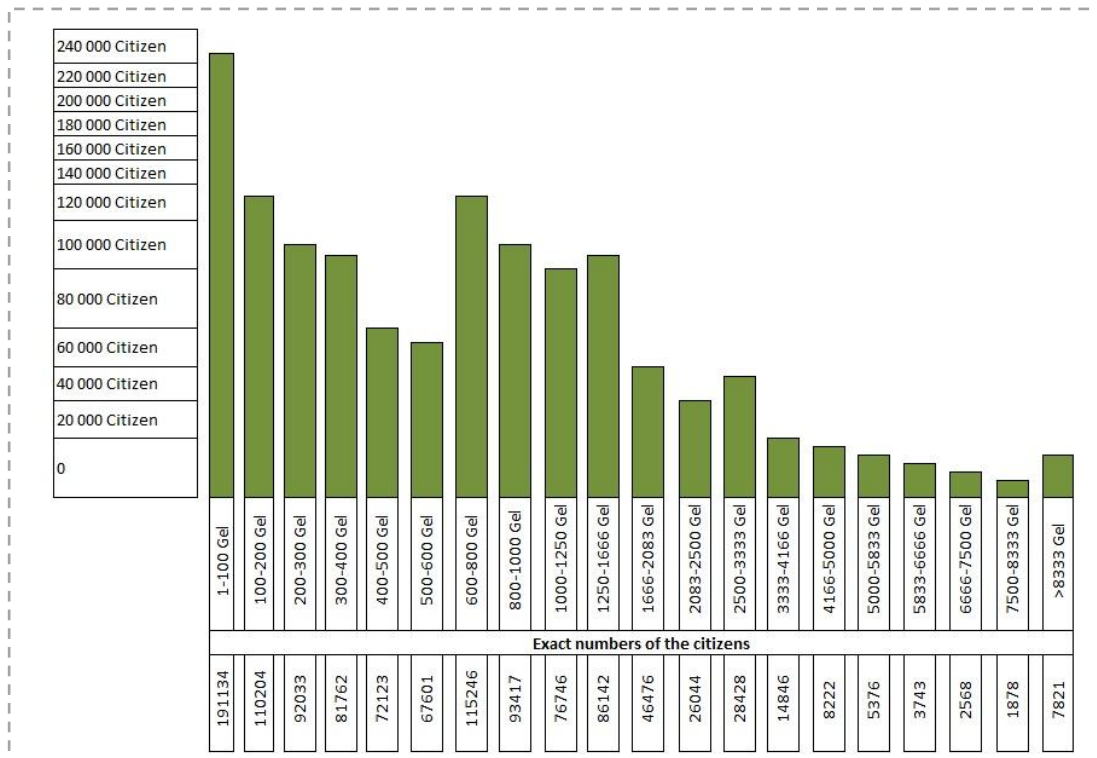
Chart # 39. Cost comparison of the organically and conventionally produced goods

Production type	Production method	Unit	Average price Gel	Difference +%
Vine (average price)	Organically	0.5 L	900	500
	Conventionally		150	
Honey	Organically	1,0 L	25	38
	Conventionally		18	
Potato	Organically	1 kg	2	34
	Conventionally		1.5	
Legumes (haricot)	Organically	1 kg	5	25
	Conventionally		4	
Spices (dried-processed)	Organically	1 kg	15	34
	Conventionally		10	
Varieties of the wild plants (average price)	Organically	1 kg	70	40
	Conventionally		50	
Hazel nut	Organically	1 kg	5	25
	Conventionally		4	
Berries (raspberry)	Organically	1 kg	300	275
	Conventionally		80	
Tea	Organically	1 kg	80	77
	Conventionally		45	
Laurel	Organically	1 kg	12	50
	Conventionally		8	
Milk	Organically	1 L	1.9	90
	Conventionally		1	

Produced "informal" producers and farmers of the organic production

Due to the fact that this product (produced organically) was not identified in the national market, the prices and differences between them was taken from the markets of EU

Diagram #4. Population of Georgia, grouped according to their monthly (officially registered) incomes



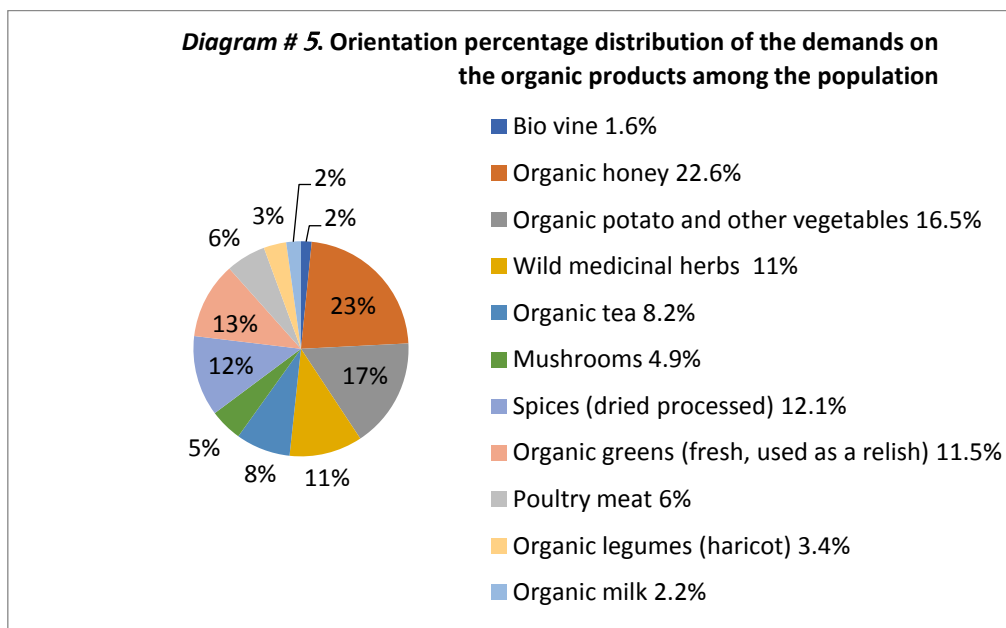
Considering the information presented in the diagram # 4, as well as the current prices of organic products, and the percentage indicator spent on food products, it can be argued that around 2,5 % of the population of Georgia have the potential of purchasing organic products. This is the category of the citizens who have the registered monthly income of 500 Euros or more. In numerical terms, the number of the people with similar income is in the range of 45-50 thousand.

Besides the price, the tradition of consuming a certain product (volume, purpose, common stereotypes), is the main determining factor influencing the decision of the buyer. For example, in most cases honey is often used in small quantities as a medicinal product, so when purchasing it, the product quality is more important than the price for the buyer. Consequently, demand for natural honey is constantly increasing in the country, which is confirmed by the increase in production volume (*Diagram #1*). Also, in terms of the greens (varieties, used as a relish), a customer in the Georgian market prefers ecologically clean products. This is confirmed by emergence of the companies producing ecologically clean greens (for example: “Herbia”, “Planta”...) in the local market. Excessive use of pesticides and agrochemicals in these agricultural crops is particularly problematic, because their green parts are used for consumption. Consequently, among the vegetable agricultural crops, greens have the potential of growth in demand in the local market.

The following activities were carried out on each type of the organic products already produced in Georgia, with the purpose of revealing the existing demands in the Georgian market and ranking them in accordance with the scales within the frames of the given research:

- Studying the price lists of the key supermarkets;
- Interviews with the representatives of companies-farmers producing organic products;
- Consumer surveys (Annex #1 presents the materials reflecting survey results);
- The analysis of the documentation with similar content produced by sectorial organizations;
- Identification of the product types realized by so-called “unofficial” producers of organic products.

As a result, orientation percentage distribution of the demands of the population for certain types of organic products produced officially and “unofficially” in the country was developed, and it is presented in diagram #5.



As for the international markets, the main factor determining the realization potential in the international market is mostly represented by production volume, because for the organic products produced in Georgia,

potentially the most promising international market is EU market and given its scale, in most cases provision of big quantities of products is required. Therefore, more potential of realization in such a market belongs to the product with the possibility of production in big volumes, created by the local resources needed for production in the target area.

Considering all the factors reviewed above, in terms of realization prospects, it is possible to identify the preferable orientation markets for each agricultural product, having the potential of being produced organically on the target area of the GRETA project.

Chart #40 considered below contains the above-mentioned information.

Chart #40. Promising target markets according to product types

Production type	National market	Foreign market	Potential of producing relatively big volumes
Organic vine			
Organic honey			
Wild berry agricultural plant			
Organic fruits			
Organic spices (relish)			
Organic hazelnut			
Organic tea			
Organic mushrooms			
Organic potato and other vegetables			
Organic berry agricultural fruits			
Wild medicinal plants			
Poultry meat			
Organic beef			
Organic Pork			
Organic cereal agricultural plants (wheat)			
Organic legumes (haricot)			
Organic milk			

Existing organic (certified) products and existing value chain diagrams

Presented sub-chapter contains the information about the existing companies operating in the project target area, having the relevant certificates and already producing the organic production. These companies were identified during field visits and the obtained results were compared with the official databases provided by the relevant certification bodies.

According to the obtained materials, at this stage 4 active companies having organic certification are operating in the project target area. These companies are:

“Geoflower” LLC - Company is located in Racha-Lechkhumi and Kvemo Svaneti region headquarters in Ambrolauri town.

The main working direction of this company is the foraging and processing of the various species of wild plants.

Also the fields of activity of the company are:

- Fruits processing;
- Dried fruit manufacturing;
- Dried fruit trade.

The company has a relevant bio-certificate.

“**Jadvari ABS**” - Company is located in Racha-Lechkhumi and Kvemo Svaneti region headquarters in Ambrolauri town and its main working direction of this company is the foraging and processing of the various species of wild plants.

The company has a relevant bio-certificate.

Sergo Arjevanidze (big sized farm owner) – The farm is located in Racha-Lechkhumi and Kvemo Svaneti region, in Tsageri municipality. The working profile of the farm is bio-certified vine production.

Cooperative “Khaverdovani Chai” - The cooperative is located in Chiatura municipality (village Gerzuli) and is planning to provide a bio-certified tea.

The diagrams (#6-7) presented below show the existing value chains of the local organic agricultural production varieties.

Diagram #6. Dried Fruit and wild plants forage Value Chain in Racha-Lechkhumi and Kvemo Svaneti Region

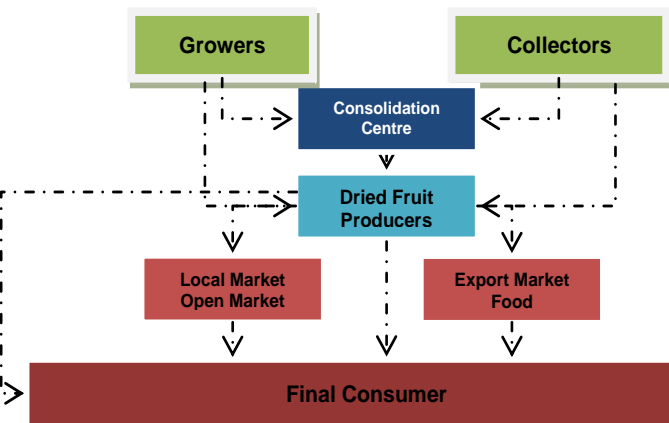
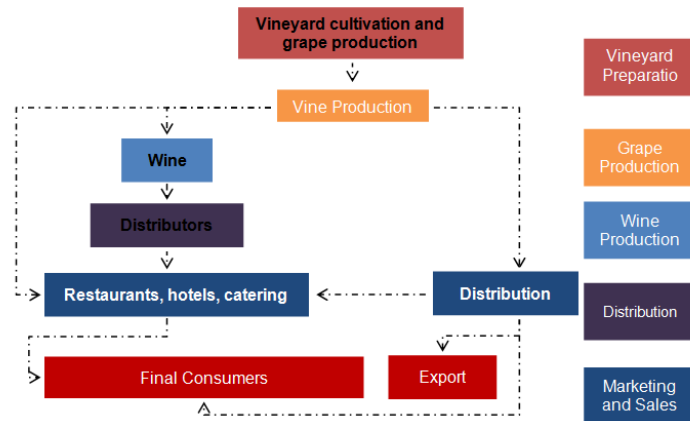


Diagram #7 Bio-vine Value Chain in Tsageri municipality



Sources:

1. Interviews with local stakeholders;
2. Research – analyses of the agricultural development potential of Racha-Lechkhumi and Kvemo Svaneti. Author organization: TABCO

SWOT analyses of the agricultural fields

The basic purpose of the prepared SWOT analyses is to provide the clear imagination about the future potential of the organic production for each agricultural field.

All the presented SWOT analyses create the auxiliary data and mechanism for the identification and ranking of the priority agricultural fields for the organic production in each target municipality.

SWOT analyses are considered in the format of diagrams (#3-26) for each agricultural field according to the municipalities.

Diagram #8. SWOT analyses of tea production - Chiatura and Tkibuli municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable climatic conditions;</p> <p>Government is implementing the activities oriented on the development of this sector.</p>	<p>Lack of the supporting mechanisms and activities from the donor organizations;</p> <p>Lack of the knowledge in this field among local farmers.</p>	<p>Improved access to local market.</p>	<p>The risk of spreading the varieties of the diseases and insect pests difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #9 .SWOT analyses of beekeeping sector – Chiatura, Sachkhere and Tkibuli municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Existing long tradition of beekeeping;</p> <p>Productive and resilient local breed of honey bee.</p>	<p>Only basic beekeeping management;</p> <p>Low food safety standards of honey production;</p> <p>Lack of information about the government's resolutions</p>	<p>Increasing demand for the ecologically clean honey on export and local markets;</p> <p>The possibility of diversification - queen bees, royal jelly, wax, propolis, bee pollen and bee bread.</p>	<p>The risk of spreading the diseases and other harmful organisms, difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #10. SWOT analyses of beekeeping sector – Ambrolauri, Oni, Tsageri and Lentekhi municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Existing long tradition of beekeeping;</p> <p>Favorable climate and environment conditions;</p> <p>Productive and resilient local breed of honey bee;</p> <p>Practically no chemicals are used in honey production;</p> <p>Associations, cooperatives and big sized beekeepers already operate in the region;</p> <p>Existence of the government supporting program – declaring these municipalities as a disease-free zone.</p>	<p>Only basic beekeeping management;</p> <p>Low food safety standards of honey production;</p> <p>Lack of information about the government's resolutions in organic production sector.</p>	<p>Increasing demand for the ecologically clean honey on export and local markets;</p> <p>The possibility of diversification - queen bees, royal jelly, wax, propolis, bee pollen and bee bread.</p>	<p>Violation risks of the sanitary conditions even in case if they are created.</p>

Diagram #11. SWOT analyses of beekeeping sector – Mestia municipality

Strengths	Weaknesses	Opportunities	Threats
<p>Existing long tradition of beekeeping;</p> <p>Productive and resilient local breed of honey bee;</p> <p>Favorable climate and environment conditions;</p> <p>No chemicals are used in honey production;</p> <p>Associations, cooperatives and big sized beekeepers already operate in the municipality.</p>	<p>Only basic beekeeping management;</p> <p>Low food safety standards of honey production;</p> <p>Lack of information about the government's resolutions in organic production sector.</p>	<p>Increasing demand for the ecologically clean honey on export and local markets;</p> <p>The possibility of diversification - queen bees, royal jelly, wax, propolis, bee pollen and bee bread.</p>	<p>Violation risks of the sanitary conditions even in case if they are created;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #12. SWOT analyses of vine-making sector – Ambrolauri, and Tsageri municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Very favorable climate and environment conditions;</p> <p>Unique grape varieties- viticulture zones and micro zones;</p> <p>Qvevri tradition – an important component for bio-wine production in terms of marketing;</p> <p>Priority sector of the country's economy;</p> <p>Free from profit tax in case of reinvestment;</p> <p>Top agricultural export product</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Old vineyards and reduced productivity as a result;</p> <p>Shortage of modern equipment and technologies;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Introduction of modern international technologies – bottling/labeling;</p> <p>Existing of the Government support programs in the sector;</p> <p>Potential of diversification – Vodka, brandy..;</p> <p>Wine tourism development perspective.</p>	<p>Price volatility;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #13. SWOT analyses of vine-making sector – Mestia, Oni, and Lenteki municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of vine-making technology;</p> <p>Qvevri tradition – an important component for bio-wine production in terms of marketing;</p> <p>Priority sector of the country's economy;</p> <p>Free from profit tax in case of reinvestment;</p> <p>Top agricultural export product.</p>	<p>Less favorable climate and environment conditions;</p> <p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Old vineyards and reduced productivity as a result;</p> <p>Shortage of modern equipment and technologies;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Introduction of modern international technologies – bottling/labeling;</p> <p>Existing of the Government support programs in the sector;</p> <p>Potential of diversification – Vodka, brandy..;</p> <p>Wine tourism development perspective.</p>	<p>Price volatility;</p> <p>Natural Disasters;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #14. SWOT analyses of vegetable production – All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of vegetable production;</p> <p>Associations, cooperatives and big sized farmers already operate in these municipalities (producing in conventional way)</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Shortage of modern equipment and technologies;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Building new sown areas and increasing production volume</p> <p>Improving the access on local markets</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #15. SWOT analyses of potato production – Racha-Lechkhumi and Kvemo Svaneti region and Mestia municipality

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable climatic conditions for producing the potato and planting material;</p> <p>The long tradition of potato production;</p> <p>Associations, cooperatives and big sized farmers already operate in these areas (producing in conventional way).</p>	<p>Lack of the supporting mechanisms and activities from the governmental sector and donor organizations;</p> <p>Lack of storage facilities;</p> <p>Fragmented land resources.</p>	<p>Building new sown areas and increasing production volume;</p> <p>Improving the access on local markets.</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #16. SWOT analyses of potato production – Chiatura, Sachkhere and Tkibuli municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of vine-making technology;</p> <p>Priority sector of the country's economy;</p> <p>Free from profit tax in case of reinvestment;</p> <p>Top agricultural export product.</p>	<p>Less favorable climatic conditions in the most areas for producing the potato and planting material;</p> <p>The scarcity of lands. Slope terrain, fragmented land resources;</p> <p>Shortage of modern equipment and technologies;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p> <p>Lack of storage facilities</p>	<p>Building new sown areas and increasing production volume;</p> <p>Improving the access on local markets</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #17. SWOT analyses of Berry fruit production – Chiatura, Sachkhere and Tkibuli municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable climatic conditions;</p> <p>Donors support in the sector;</p> <p>Incentives for farmers from agribusinesses.</p>	<p>Small-scale producers do not have access to modern, costly processing equipment and the majority of the job is done manually</p> <p>Fragmented orchards/plantations</p>	<p>Developing the new plantations and increasing production volume;</p> <p>Improved access to foreign markets</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #18. SWOT analyses of Berry fruit production – Racha-Lechkhumi and Kvemo Svaneti region and Mestia municipality

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable climatic conditions;</p> <p>Donors support in the sector;</p> <p>Incentives for farmers from agribusinesses.</p>	<p>Small-scale producers do not have access to modern, costly processing equipment and the majority of the job is done manually</p> <p>Fragmented orchards/plantations.</p>	<p>Building new plantations and increasing production volume;</p> <p>Improved access to foreign markets.</p>	<p>Low risks of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #19. SWOT analyses of Greens production – Chiatura, Sachkhere and Tkibuli municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of Greens production;</p> <p>Associations, cooperatives and big sized farmers already operate in these municipalities (producing in conventional way).</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Shortage of modern equipment and technologies;</p> <p>Non-existence of the relevant professional capacities among the local farmers</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Building new sown areas and increasing production volume;</p> <p>Improving the access on local markets.</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production, especially in greenhouse (closed field) conditions;</p> <p>Higher competition at international markets.</p>

Diagram #20. SWOT analyses of pome and stone fruit production - All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of pome and stone fruit growing.</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Old orchards and reduced productivity as a result Shortage of modern equipment and technologies;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Building new intensive orchards and increasing production volume;</p> <p>Improved access to foreign markets</p>	<p>Price volatility;</p> <p>Natural Disasters;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #21. SWOT analyses of Walnut, Hazel-nut and Almond production - All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable climate conditions;</p> <p>Donors support in the sector.</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Old orchards and reduced productivity as a result Shortage of modern equipment and technologies;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Building new intensive orchards and increasing production volume;</p> <p>Improved access to foreign markets</p>	<p>Price volatility;</p> <p>Natural Disasters;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #22. SWOT analyses of the fish (Trout) production sector – All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable conditions</p>	<p>Low sanitary conditions for organic fish production;</p> <p>Non-existence of the relevant nutritional bases;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Non-existence of the demand on such sort of product in national markets;</p> <p>Pond facilities are primitive, without concrete in some cases. There is a general lack of modern facilities/equipment</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Opportunity of creating the niche of organic beef, once at this stage there is no such sort of product in national markets;</p> <p>The spectacular mountain environment around the trout farms enabling agro tourism at farms</p>	<p>High violation risks of the sanitary conditions even in case if they are created;</p> <p>The risk of spreading the diseases and other harmful organisms, difficult to be controlled using only the methods accepted in organic production;</p> <p>Animal attacks;</p> <p>Vulnerability to changes in water temperature and quality.</p>

Diagram #23. SWOT analyses of animal husbandry (beef production) sector – All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition in animal husbandry</p>	<p>Low sanitary conditions for organic beef production;</p> <p>Non existence of the relevant nutritional bases;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Non-existence of the demand on such sort of product in national markets;</p> <p>Lack of information on regulations and government support programs</p> <p>Low access to finance.</p>	<p>Opportunity of creating the niche of organic beef, once at this stage there is no such sort of product in national markets.</p>	<p>High violation risks of the sanitary conditions even in case if they are created;</p> <p>The risk of spreading the diseases and other harmful organisms, difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #24. SWOT analyses of animal husbandry (milk and cheese production) sector - All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition in animal husbandry</p>	<p>Low sanitary conditions for organic milk production;</p> <p>Non existence of the relevant nutritional bases;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Non-existence of the demand on such sort of product in national markets;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Opportunity of creating the niche of organic milk and cheese, once at this stage there is no such sort of product in national markets</p>	<p>High violation risks of the sanitary conditions even in case if they are created;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #24. SWOT analyses of the vine-making sector – Sachkhere, Tkibuli and Chiatura municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of vine-making technology;</p> <p>Qvevri tradition – an important component of bio-wine production in terms of marketing;</p> <p>Priority sector of the country's economy;</p> <p>Favorable climatic conditions;</p> <p>Free from profit tax in case of reinvestment;</p> <p>Top agricultural export product.</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Old vineyards and reduced productivity as a result</p> <p>Shortage of modern equipment and technologies;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Introduction of modern international technologies – bottling/labeling;</p> <p>Existing of the Government support programs in the sector</p> <p>Potential of diversification – Vodka, brandy..;</p> <p>Wine tourism development perspective.</p>	<p>Price volatility;</p> <p>Natural Disasters;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production;</p> <p>Higher competition at international markets.</p>

Diagram #25. SWOT analyses of poultry meat production - All target municipalities

Strengths	Weaknesses	Opportunities	Threats
The long tradition in poultry farming	<p>Low sanitary conditions for organic meat production;</p> <p>non existence of the relevant nutritional bases;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Non-existence of the demand on such sort of product in national markets;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Opportunity of creating the niche of organic poultry meat, once at this stage there is no such sort of product in national markets</p>	<p>High violation risks of the sanitary conditions even in case if they are created;</p> <p>The risk of spreading the diseases and other harmful organisms difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #26. SWOT analyses of Wild medicinal herbs (procuring and processing) production - Racha-Lechkhumi and Kvemo Svaneti region and Mestia municipality.

Strengths	Weaknesses	Opportunities	Threats
<p>The abundance of medicinal herbs;</p> <p>Organic certified companies with the relevant profile are already operating in these areas.</p>	<p>Due to the specificity of the products the demand for local-national markets is supposed to be limited;</p> <p>Lack of qualified mechanical engineers, technicians, laboratory specialists and technologists in the region;</p> <p>lack of the supporting mechanisms and activities from the governmental sector and donor organizations</p>	<p>Improved access to foreign markets - Export potential of the products and ingredients;</p> <p>Possibilities of creating the new products.</p>	<p>The risk of spreading the Insect pests in forests;</p> <p>Lack of the knowledge in this field among local farmers;</p> <p>The risks of adverse impact on the biodiversity</p>

Diagram #26. SWOT analyses of Mushroom production - All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable environmental conditions;</p> <p>Relative simplicity of the production.</p>	<p>Lack of the supporting mechanisms and activities from the governmental sector and donor organizations;</p> <p>Low access to finance.</p>	<p>Opportunity of creating the niche of organic mushrooms, once at this stage there is no such sort of product in national markets</p>	<p>Low violation risks of the sanitary conditions even in case if they are created.</p>

Diagram #27. SWOT analyses of cereal agricultural plant (Haricot) production – All target municipalities

Strengths	Weaknesses	Opportunities	Threats
<p>The long tradition of cereal agricultural plant (Haricot) production;</p> <p>Associations, cooperatives and big sized farmers already operate in these municipalities (producing in conventional way).</p>	<p>The scarcity of lands. Slope terrain, fragmented land;</p> <p>Shortage of modern equipment and technologies;</p> <p>Non-existence of the relevant professional capacities among the local farmers;</p> <p>Lack of information on regulations and government support programs;</p> <p>Low access to finance.</p>	<p>Building new sown areas and increasing production volume</p> <p>Improving the access on local markets;</p> <p>Opportunity of creating the niche of organic Haricot, once at this stage there is no such sort of product in national markets.</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production.</p>

Diagram #28 SWOT analyses of dry fruit production – Racha-Lechkhumi and Kvemo Svaneti region

Strengths	Weaknesses	Opportunities	Threats
<p>Forests are rich with wild fruits and berries;</p> <p>Stable demand for processed fruits;</p> <p>Donors support in the sector.</p>	<p>Laboratory tests for Dried fruits are expensive;</p> <p>Small-scale producers do not have access to modern, costly processing equipment and the majority of the job is done manually.</p>	<p>Improving the access to local and foreign markets</p>	<p>Price volatility on foreign markets</p> <p>The risks of adverse impact on the biodiversity</p>

Diagram #29. SWOT analyses of the endemic wheat varieties production – Tsageri municipality

Strengths	Weaknesses	Opportunities	Threats
<p>Favorable climatic conditions;</p> <p>Unique healthful chemical composition;</p> <p>The relevant governmental sectors are involved in the process of popularization of these varieties in target Municipality</p>	<p>Low productivity comparative with the new exported wheat varieties;</p> <p>Fragmented land resources;</p> <p>Lack of the knowledge in this field among local farmers</p>	<p>Good potential of popularization on local-national markets</p>	<p>The risk of spreading the Insect pests and various fungal, bacterial and viral diseases difficult to be controlled using only the methods accepted in organic production.</p>

Existing needed technologies for the organic production

With the purpose of identifying the existing needed technologies for the organic production on the local (national) market within the framework of the research the database of the main technologies-products was created. The database contains the list of the needed specific technologies-products (production varieties, already existing in the markets of Georgia) for the organic production.

The database also mentions the needed facilities which, at this stage, are not considered on the local (national) market.

The above-mentioned list is considered below, in the chart #41.

Chart #41. Existing and needed varieties of the technologies

Agricultural plant growing		Beekeeping	
Name	Identified number of the varieties	Name	Identified number of the varieties
Fungicides	25	Preparations against parasites	N/A
Insecticides	8	Preparations against diseases	N/A
Fertilizers	6		
Animal husbandry		Mushroom growing	
Name	Identified number of the varieties	Name	Identified number of the varieties
Preparations against parasites	1	Preparations against parasites	N/A
Preparations against diseases	N/A	Nutritional preparations	N/A

The list contains the numbers of only those products which are officially produced, labelled and realized by the local or international companies in the markets of Georgia

As the chart #41 shows, at this stage certain varieties of the needed technologies-facilities for the organic production are not considered on the local (national) market of Georgia. In most cases the formal or “informal” producers of the organic products obtain the above mentioned technologies from the markets of the other countries and this operation usually increases the price of the facilities and complicates the accessibility to the needed technologies. Accordingly, in parallel with the GRETA project implementation, the demand on the above mentioned technologies will be increased.

There are no specialized markets-shops of the organic agricultural technologies in the target area, except a few small shops in each municipality, selling the technologies needed for the conventional sector of the agriculture (pesticides, fertilizers, seeds, etc.) and during the process of their monitoring within the frames of the given research there was no product identified needed for the organic production except copper-fungicides.

Identified linkages between farmers and the local guesthouse owners

Within the frames of the given research, with the purpose of identifying the business related inter-linkages between the local farmer communities and the existing guest house owners, the phone and direct interviews were provided with the representatives of the guest houses. As a result, it can be argued that at this stage the tradition of supplying the local guest-houses regularly by the contracted farmer/farmers is not significantly developed in the target area of the GRETA project. The local guest houses usually purchase the needed products from various farmers, in the local markets and supermarkets. Also, the guest house owners produce certain varieties of the needed products in their own farm-households.

In total, only 8 farmers were identified who are contracted by the local guest-house owners and regularly supply them with the needed products.

The chart #42 considered below contains the information identified within the framework of the research about the existing farmers supplying the guest-houses, production types and the names of the guesthouses.

Chart #42. List of the farmers supplying the local guest-houses

Municipality	Farmer	Supplied production	Name of the guest house
Mestia	Spartak Kvitsiani	Potato	"Ushba"
	Omar Nanskhani	Cheese and potato	„Nino Ratiani guest house“
	Mirza Vibliani	Beef and milk products	„Vanderland“
Tsageri	Beka Saginadze	Vine	“khvamli” “Oda”
	Maize Kopaliani	Honey	“khvamli” “Oda”
	Nunu Akhvlediani	Milk products	“khvamli” “Oda”
Oni	Gia Khomasuridze	Honey	“Mkhatvris sakhli”
Ambrolauri	Gogi Gotsiridze	Beef and milk products	“Edena”
Tkibuli	N/A		
Sachkhere	N/A		
Chiatura	N/A		
Lentekhi	N/A		

Organic certification - description of the existing certification body

Within the framework of the given research the study of the local certification bodies was provided. As a result, it may be argued that at this stage there is one key player from the private sector in this field.

The certification process of the organic production is provided by the private company CAUCASCERT Ltd. This company was founded in Georgia in 2005. It is the first local organic certification company in the country. Its main purpose is to inspect and certify organic products.

CAUCASCERT facilitates development of organic agriculture, protection of the rights of organic products' consumers and growth of organic market in Georgia. Besides, it facilitates exportation of Georgian organic products to the European Union and Switzerland.

CAUCASCERT Ltd has been accredited according to ISO-17065 by the German accreditation body DAkkS. It has been included in the list of third-country equivalent organic certification agencies (EC regulation 1330/2016).

The company participates in the development of national and private standards, training of qualified organic inspectors and contributes to increasing public awareness of importance of organic agriculture.

Certification rules – brief description. Implementation of certification process basically consists of the inspection/assessment of production process, in conversion period and certification.

Inspection. The objective of inspection is to conduct systematic, independent, impartial assessment of management system of production process aimed at identification of its compliance with Standard's requirements. During the control period, the whole organic production process is being assessed.

The inspection period consists of three main formats:

1. **Initial Assessment** is being processed right after providing application of certification before signing a contract with a customer. During the initial assessment the compliance with Standard and organic management plan of the applicant is going to be assessed;
2. **Annual inspections** are being processed every year during the conventional period and after issuing full organic certificate to Operator;
3. **Unannounced/non-planned inspections** are being carried out as a result of discovering non-compliances and need of corrective actions. The unannounced audits (surveillances) are being processed during the year to check the Operator's organic production or to highlight specific matters. The types of inspections and surveillances are discussed in the contract between operator and certifying body.

In conversion period. For operators, having organic plant production an in conversion period is foreseen with different duration, depending on the type of operation, and stipulated by Standard. The conversion period is the following for further productions:

- Two years before sowing- for annual and bi-annual crops;
- 36 month- for perennial crops before harvesting;
- 0 – wild collection with evidence that no prohibited substances have been used for 3 years preceding collection;
- For livestock in conversion period is relevant to the period of conversion of grazing areas.

Certification. According to standard the first organic certificate for annual or bi-annual crops has to be issued for the first crop sowed after two years and for perennial first harvest after 36 months of successful application of the Standard requirements.

For beekeeping organic certificate can be issued after full replacement of beeswax when it is required according to the Standard.

The procedural consequence of the certification process contains the following basic issues:

- Based on the report, the staff authorized for certification is making a decision about certification. A certificate is being issued to the product, proving the fact that it was produced in organic agricultural production.
- Organic certificate is showing volumes of production, the list of certified products and their quantity. Certificate is valid for 1 year;
- Certificate is being issued in 2 original copies, one of them is being kept by certification body, and another one is being given to Operator;
- In case of negative assessment, the certificate can be terminated or withdrawn;
- Certification body is using sanctions system (catalog of sanctions is being published) in relations with distributor, depending on violations of the requirements standard and/or contract provisions between operator and certification body;
- Certification body is taking control of using trademarks, logos, references on organic certification and organic labeling;
- When organic certificate is issued, the operator is getting the right to use the name of certification body, trademark of “Green Caucasus”, as well as references saying that the product was produced in organic production unit, labeling words as “organic”, ”ecological”, ”biological”. Labeling of multi ingredient products is being regulated by rules set by standard and requires authorization of certification body.

Prices. The prices for service, provided by certification body to the producer, can be revised as a result of internal audits of the organization and economic situation, in general.

At this stage the volume of the primary investment for the certification varies from 1000 to 2000 EUROS.

There was also information that besides the above-mentioned company, there is another company that carries out certification, but But the research has failed to identify the name of this company or any organic production certified by it.

Part II – Recommendations

Chapter I – Risk analyses and the following recommendations

This chapter contains the overviews of the basic risk-factors existing in the target municipalities and the following recommendations focused on minimizing each risk-factor.

The chapter consists of the following three sub-chapters:

Biotic risks – provides the information about existing biotic risk-factors for each variety of the agricultural production in each municipality. Biotic risks contain the information regarding the existing living harmful organisms (difficult to be controlled using only the methods accepted in organic production.) for the agricultural fields such as insect pests and mites, various fungal, bacterial and viral diseases of the agricultural plants, honey-bees and domestic animals. Each presented risk is classified according to the probabilities of their realization. Also, regarding each risk-factor the information about control mechanisms is presented. Moreover, in the sub-chapter the relevant recommendations are presented for the GRETA project, providing the mechanisms for minimizing the risk factors during the implementation of the project activities.

A-biotic risks – contains the information about the existing natural risks in target municipalities and provides description of each main a-biotic risk factor, such as natural disasters: rockslides and landslides, environment pollination associated risks and etc.

All the risk factors presented in this sub-chapter are considered according to the municipalities or villages of the target area.

Potential risks associated with the project implementation – sub-chapter provides the descriptions and following recommendations regarding the following possible risks associated directly with the project implementation and its goals:

- ❖ Creation of new income opportunities for organic agriculture in the target municipalities;
- ❖ Professional capacity development of the local beneficiary groups.

Biotic risks

With the purpose of the identification of the existing biotic risks in the target municipalities within the frames of the research the relevant monitoring activities were implemented during the field visits. Additionally, relevant scientific literature was mobilized and the meeting with the experts of the appropriate fields was conducted.

Based on the information obtained within the frames of the above-mentioned activities the database of the biotic risks was elaborated. It contains:

- ❖ The lists of the main biotic risk-factors: for the agricultural fields such as insect pests and mites, various fungal, bacterial and viral diseases of the agricultural plants, honey-bees and domestic animals.
- ❖ Expected areas of the impact;
- ❖ Recommendations focused on minimizing the risk factors during the implementation of the project activities.

After analyzing the obtained materials, the target municipalities were grouped according to the identified risks in the following three groups:

1. Sachkhere, Tkibuli and Chiatura municipalities;
2. Racha-Lechkhumi and Kvemo Svaneti region;
3. Mestia municipality.

The charts #43-55 considered below contain the lists of the risk-factors, probability levels and the recommendations.

Chart #43. Risk-factors and recommendations in agricultural plant production – Sachkhere, Tkibuli and Chiatura municipalities

Agricultural field	Risk-factor		Probability of existence			
	Name	Brief description	N/A	Low	Medium	High
Viticulture	Downy mildew	Fungal disease, caused by Plasmopara viticola				
	Powdery mildew	Fungal disease, caused by Uncinula necator.				
	Bacterial spots	Bacterial diseases, caused by Xanthomonas campestris				
	Viral diseases	Mosaic and leaf curl causal viruses				
	European grapevine moth	Scientific name: Lobesia botrana Schiff.				
	Assian Stink bug	Scientific name: Halyomorpha halys				
	Grapevine bud mite	Scientific name: Eriophyes vitis Nal				
Tea production	Fungal diseases	Powdery mildew, downy mildew, various rots				
	Bacterial diseases	Bacterial rots				
	Viral diseases	Mosaic and leaf curl causal viruses				
Berry agricultural plant production and Pome and stone fruit production	Anthraxnose	Fungal disease, caused by Colletotrichum acutatum J.H.				
	Blueberry leaf rust	Fungal disease, caused by Naohidemyces vaccinii (Wint.).				
	Alternariosis	Fungal disease, caused by Alternaria tenuissima (Kunze).				
	Complex of the viral diseases	Mosaic and leaf curl causal viruses				
	Assian Stink bug	Scientific name: Halyomorpha halys				
	Large Cockchafe	Scientific name: Melolontha pectoralis Germ				
Cold resistance and Warm weather vegetable varieties, Greens, legume agricultural plants, Potato growing	Fungal diseases	Powdery mildew, downy mildew, various rots				
	Bacterial diseases	Bacterial rots				
	Viral diseases	Mosaic and leaf curl causal viruses				
	Assian Stink bug	Scientific name: Halyomorpha halys				
	European mole cricket	Scientific name: Gryllotalpa gryllotalpa				

Harmful organisms presented in the red coloured area, are difficult to be controlled using only the methods accepted in organic production sector hence, in the areas (agricultural lands) of their severe dissemination it is not recommended to start project activities focused on organic production development of those agricultural field which are vulnerable against these harmful organisms.

Harmful organisms presented in the green coloured area can be controlled using the relevant bio-pesticides and other methods of integrated pest management. In case of their identification it is recommended to plan and implement the integrated measures of control before project field activities are started. Recommendations for identification:

- Implementation of the advanced phytosanitary monitoring activities directly in those areas (agricultural land/closed field and its surroundings of the potential beneficial) where project activities are planned.
- Providing the soil laboratory tests (phytosanitarian and agro-chemical).

Chart #44. Risk-factors and recommendations in animal husbandry and poultry farming – Sachkhere, Tkibuli and Chiatura municipalities

Agricultural field	Risk-factor		Probability			
	Name	Brief description	N/A	Low	Medium	High
Animal husbandry (meat, milk and cheese production)	Anti-sanitarian environment	The complex of risks associated with the possible violation of the sanitary conditions				
	Irrelevant chemical composition	The complex of risks associated with the possible existence of residues incompatible with the organic production.				
poultry farming	Anti-sanitarian environment	The complex of risks associated with the possible violation of the sanitary conditions				
	Irrelevant chemical composition	The complex of risks associated with the possible existence of residues incompatible with the organic production.				
Recommendations for identification: <ul style="list-style-type: none"> ➤ Implementation of the relevant zoo-sanitarian monitoring activities ➤ Providing the laboratory tests of the products in order to identify the defects incompatible with the organic production. 						

Chart #45. Risk-factors and recommendations in beekeeping – Sachkhere, Tkibuli and Chiatura municipalities

Agricultural field	Risk-factor		Probability			
	Name	Brief description	N/A	Low	Medium	High
Beekeeping	Anti-sanitarian environment	The complex of the problems associated with the existing canalization systems (non existence of the relevant Sewerage systems, existence of so called "open defecation" practices and existing practices of animal husbandry)				
	Antibiotics using practices	Antibiotics are used against the harmful mites of the bees.				
Recommendations: <ul style="list-style-type: none"> ➤ Selecting the areas for the organizing of the apiaries located with the relevant distance/radius (according to the various standards of EU and other countries regulations this radius is from 7 to 8 kilometers) from the domestic animals farms, cultivated lands main roads and populated areas; ➤ Providing the relevant laboratory tests of the product (honey) in order to identify residues of the antibiotics and in case of the identification, the apiary cannot be used for organic production; ➤ Providing the trainings focused on strengthening the risk-management capacities of the local stakeholders ➤ Implementing the monitoring activities of the apiaries of the potential beneficial focused on identification of the mites and other disorders. 						

Chart #46. Risk-factors and recommendations in fish (Trout) production – Sachkhere, Tkibuli and Chiatura municipalities

Agricultural field	Risk-factor		Probability			
	Name	Brief description	N/A	Low	Medium	High
Fish production	Risks associated with wild animals attack	Absence of protection against wild animals				
Recommendations: Strengthening the capacities of the potential beneficiary to obtain the relevant protection systems before project field activities is started.						

Chart #47. Risk-factors and recommendations in Dry fruit and wild medicinal herbs production – Sachkhere, Tkibuli and Chiatura municipalities

Production Variety	Risk-factor	Probability of existence			
		N/A	Low	Medium	High
Various species of wild medicinal herbs and fruits	N/A				
There were no potential more or less realistic biotic risks identified in this field within the frames of the presented research.					

Chart #48. Risk-factors and recommendations in mushroom production – Sachkhere, Tkibuli and Chiatura municipalities

Production Variety	Risk-factor	Probability of existence			
		N/A	Low	Medium	High
Various species mushrooms	N/A				
There were no potential more or less realistic biotic risks identified in this field within the frames of the presented research.					

Chart #49. Risk -factors and recommendations in beekeeping – Racha-Lechkhumi and Kvemo Svaneti region

Agricultural field	Risk-factor		Probability of existence			
	Name	Brief description	N/A	Low	Medium	High
Beekeeping	Anti-sanitarian environment	The complex of the problems associated with the existing canalization systems (non-existence of the relevant Sewerage systems, existence of so called "open defecation" practices and the existing practices of animal husbandry)				
	Antibiotics using practices	Antibiotics are used against the harmful mites of the bees.				
Recommendations: <ul style="list-style-type: none"> ➤ Selecting the areas for the organizing of the apiaries located with the relevant distance/radius (according to the various standards of EU and other countries regulations this radius is from 7 to 8 kilometers) from the domestic animals farms, cultivated lands main roads and populated areas; ➤ Providing the relevant laboratory tests of the product (honey) in order to identify residues of the antibiotics and in case of the identification, the apiary cannot be used for organic production; ➤ Providing the trainings focused on strengthening the risk-management capacities of the local stakeholders ➤ Implementing the monitoring activities of the apiaries of the potential beneficiary focused on identification of the mites and other disorders. 						

Chart #50. Risk-factors and recommendations in fish (Trout) production – Sachkhere, Tkibuli and Chiatura municipalities

Agricultural field	Risk-factor		Probability			
	Name	Brief description	N/A	Low	Medium	High
Fish production	Risks associated with wild animals attack	Absence of protection against wild animals				
Recommendations: Strengthening the capacities of the potential beneficiary to obtain the relevant protection systems before project field activities is started.						

Chart #51. Risk-factors and recommendations in animal husbandry and poultry farming – Racha-Lechkhumi and Kvemo Svaneti region, Mestia municipality

Agricultural field	Risk-factor		Probability			
	Name	Brief description	N/A	Low	Medium	High
Animal husbandry (meat, milk and cheese production)	Anti-sanitarian environment	The complex of risks associated with the possible violation of the sanitary conditions				
	Irrelevant chemical composition	The complex of risks associated with the possible existence of residues incompatible with the organic production.				
poultry farming	Anti-sanitarian environment	The complex of risks associated with the possible violation of the sanitary conditions				
	Irrelevant chemical composition	The complex of risks associated with the possible existence of residues incompatible with the organic production.				
Recommendations for identification: <ul style="list-style-type: none"> ➤ Implementation of the relevant zoo-sanitarian monitoring activities ➤ Providing the laboratory tests of the products in order to identify the defects incompatible with the organic production. 						

Chart #52. Risk-factors and recommendations in Dry fruit and wild medicinal herbs production – Racha-Lechkhumi and Kvemo Svaneti region, Mestia municipality

Production Variety	Risk-factor	Probability of existence			
		N/A	Low	Medium	High
Various species of wild medicinal herbs and fruits	N/A				
There were no potential more or less realistic biotic risks identified in this field within the frames of the presented research.					

Chart #53. Risk-factors and recommendations in mushroom production – Racha-Lechkhumi and Kvemo Svaneti region, Mestia municipality

Production Variety	Risk-factor	Probability of existence			
		N/A	Low	Medium	High
Various species mushrooms	N/A				
There were no potential more or less realistic biotic risks identified in this field within the frames of the presented research.					

Chart #54. Risk-factors and recommendations in Dry fruit and wild medicinal herbs production – Racha-Lechkhumi and Kvemo Svaneti region, Mestia municipality

Production Variety	Risk-factor	Description	Probability			
			N/A	Low	Medium	High
Foraging of the wild fruit various species from the forests	Possible negative influence on the local forest biodiversity and following risks of human health damage	Bear attacks				
According to the information provided by the state officials, during the foraging of the wild fruits in forests, the Bear attacks on human had taken place in Racha-Lechkhumi and Kvemo Svaneti region. There is an opinion that foraging of the wild fruits from the forests reduces the nutritional base for bears and causes their attacks on human. But this version may not be the direct causal reason and explanation of the bear attacks. Hence it follows it is recommended to provide the additional study of this case in order deduct the direct reason of Bear attacks which may be also caused by growing tendency of the forest areas and consequently increasing the population of Bears						

Chart #55. Risk -factors and recommendations in agricultural plant production –Racha-Lechkhumi and Kvemo Svaneti region, Mestia municipality

Agricultural field	Risk-factor		Probability of occurrence			
	Name	Brief description	N/A	Low	Medium	High
Viticulture	Downy mildew	Fungal disease, caused by Plasmopara viticola				
	Powdery mildew	Fungal disease, caused by Uncinula necator.				
	Bacterial spots	Bacterial diseases, caused by Xanthomonas campestris				
	Complex of the viral diseases	Mosaic and leaf curl causal viruses				
	European grapevine moth	Scientific name: Lobesia botrana Schiff.				
	Assian Stink bug	Scientific name: Halyomorpha halys				
	Grapevine bud mite	Scientific name: Eriophyes vitis Nal				
Berry agricultural plant production and pome and stone fruit production	Anthraxnose	Fungal disease, caused by Colletotrichum acutatum				
	Blueberry leaf rust	Fungal disease, caused by Naohidemycetes vaccinii				
	Alternariosis	Fungal disease, caused by Alternaria tenuissima (Kunze).				
	Complex of the viral diseases	Mosaic and leaf curl causal viruses				
	Assian Stink bug	Scientific name: Halyomorpha halys				
	Large Cockchafe	Scientific name: Melolontha pectoralis Germ				
Cold resistance and Warm weather vegetable varieties, Greens, legume agricultural plants, Potato growing	Complex of the fungal diseases	Powdery mildew, downy mildew, various rots				
	Complex of the bacterial diseases	Bacterial rots				
	Complex of the viral diseases	Mosaic and leaf curl causal viruses				
	Assian Stink bug	Scientific name: Halyomorpha halys				
	European mole cricket	Scientific name: Gryllotalpa gryllotalpa				
Cereal agricultural plants (wheat)	Wheat rust	Scientific name: Puccinia graminis Pers				
	Wheat smuts	Scientific names Tilletia contraversa Kuehn. Tuburcinia tritici Korn. Tilletia tritici (Bjerk.) Wint.				
	Cereal leaf beetle	Lema melanopus L.				

Recommendations:

- Selecting the areas for organizing the apiaries located with the relevant distance/radius (according to the various standards of EU and other countries regulations this radius is from 7 to 8 kilometers) from the domestic animals farms, cultivated lands main roads and populated areas;
- Providing the relevant laboratory tests of the product (honey) in order to identify residues of the antibiotics and in case of the identification, the apiary cannot be used for organic production;
- Providing the trainings focused on strengthening the risk-management capacities of the local stakeholders
- Implementing the monitoring activities of the apiaries of the potential beneficiary focused on identification of the mites and other disorders.

Existing a-biotic risks and recommendations

The sub-chapter provides the information about the existing natural risks in target municipalities and provides description of each main a-biotic risk factor, such as natural disasters: rockslides and landslides, environment pollution associated risks and etc..

All the risk factors presented in this sub-chapter are considered bellow, with following recommendations according to the municipalities or villages of the target area.

Ambrolauri municipality. The municipality is located in the mountainous area and hence is follows, the natural risks and threats are very topical for this administrative unit.

The most characteristic for this municipality are the following natural threats:

- Windstorms;
- Rainstorms;
- Water flood;
- Rockslide;
- Snow slide;
- Erosion of the riverside areas;
- Drought;
- Earthquake.

According to the information provided by the local officials during the last decade especially the rainstorms, windstorms, erosion of the riverside areas, drought and hails became more frequent.

There is a relevant disaster prior-notice system-mechanisms on the territory of the municipality and in case of need, the civilians are noticed by the local authorities regarding the expectable disasters.

Bellow considered chart #56 contains the information about basic risk-zones (areas where the concrete natural disasters were occurred) of the municipality and varieties of the natural threats.

Chart #56. Basic risk-zones and varieties of the natural threats – Ambrolauri municipality

#	Risk-factor	Location (village)	Number of the residential buildings located directly in the zone of affect
1	Rockslide	Joshkha	280
2		Skhvava	6
3		Gendushi	40
4		I and II Tola	130
5	Water flood	Sadmeli	20
6		Likheti	8
7		Kldisubani	40
8	Erosion of the riverside areas	Kvatskhuti	5
9		Ghvira	30

Tsageri municipality. The most area of the municipality is located in the mountainous area and hence it follows, the natural risks and threats are very typical for this administrative unit.

The most characteristic for this municipality are the following natural threats:

- Windstorms;
- Rainstorms;
- Water flood;
- Rockslide;
- Snow slide;
- Erosion of the riverside areas;
- Drought;
- Hail;
- Earthquake.

During the last decade especially became more frequent the rainstorms, windstorms, erosion of the riverside areas, drought and hails. But there is no hydro-meteorological station in the municipality and all these opinions are based on the personal, empirical observation, the local authorities and there is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

The chart #57 considered below contains the information about basic risk-zones (areas where the concrete natural disasters occurred) of the municipality and varieties of the natural threats.

Chart #57. Basic risk-zones and varieties of the natural threats – Tsageri municipality

#	Risk-factor	Location (village)	Number of the residential buildings located directly in the zone of affect
1	Windstorm	Lasuriashi	35
2		Ghvirishi	15
3		Dekhviri	30
4		Makhashi	50
5		Laskhana	10
6	Rockslide	Lasuriashi	15
7		Usakhelo	30
8		Lesindi	35
9		Tsinamieri	10
10		Chkhoteli	35
11	Water flood	Chkhoteli	60
12	Erosion of the riverside areas	Chkhoteli	2

Lentekhi municipality. The municipality is located in the mountainous area and hence it follows, the natural risks and threats are very typical for this administrative unit.

The most characteristic for this municipality are the following natural threats:

- Windstorms;
- Rainstorms;
- Water flood;
- Rockslide;
- Snow slide;
- Erosion of the riverside areas;
- Drought;
- Hail;
- Earthquake.

During the last decade especially the rainstorms became more frequent, windstorms, erosion of the riverside areas, drought and hails. But there is no hydro-meteorological station in the municipality and all these opinions are based on the personal, empirical observation, of the local authorities.

There is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

The charts #58-60 considered below contain the following information:

- Basic risk-zones of the municipality and varieties of the natural threats;
- Damaged territories by various risk factors and territories (agricultural land resources) located directly in the risk-zones;
- Public infrastructure located directly in the risk-zones.

Chart #58. basic risk-zones and varieties of the natural threats – Lentekhi municipality

#	Risk-factor	Location (village)	Number of the residential buildings located directly in the zone of affect
1	Windstorm	Guli and Basili	118
2		Gvimbrala and Rtskhmeluri	22
3	Rockslide	Luji	20
4		Phanaga	22
5	Water flood	Tsiplakakia	11
6		Tvbileti	10

Chart #59. Damaged territories by various risk factors and the territories (agricultural land resources) located directly in the risk-zones - Lentekhi municipality

#	Risk-factor	Category of the land	Damaged territory (ha)	Territory located directly in the zone of affect (ha)
1	Rockslide and windstorm	Residential territory	50	50
2	Rockslide	Arable land and orchards	10	10
3	Rockslide	Pastures	1000	400
4	Water flood	Riverside areas	40	30

Chart # 60. Public infrastructure located directly in the risk-zones - Lentekhi municipality

#	Risk-factor	Location	Number of the residential buildings/infrastructure located directly in the zone of affect
1	Rockslide	Village Jakhundeli	School
2		Village Babili	Road (total length – 5 km.)
3		Lentekhi-Bavari	Road (total length – 200 km.)
4	Erosion of the riverside areas	Riv. Kheleura	Bridge
5		Zeskho and Kheria	Bridge of Riv Tskhenistskhali
6		Leksusi	Bridge

Oni municipality. From the natural risks for this municipality the most topical are:

- Water flood;
- Rockslide;
- Snow slide;
- Erosion of the riverside areas.

During the last decade all the above-mentioned natural threats had taken place in the municipality but the local officials have no information about the exact economic losses.

There is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

The chart #61 considered below contains the information about basic risk-zones (the areas where the concrete natural disasters occurred) of the municipality and varieties of the natural threats.

Chart #61. Basic risk-zones and varieties of the natural threats – Oni municipality

#	Risk-factor	Location (village)	Number of the residential buildings located directly in the zone of affect
1	Rockslide	Chordi	40
2		Komandeti	All territory of the village
3	Water flood	Glola	8
4		Shovi sanitarium area	11 Cottage
5		Akhali Chordi	10
6		Shardometi	5
7		Oni town	6
8		Ghari	6

Mestia municipality. According to the information provided by the local officials the key natural risks and disasters having place on the territory of the municipality are:

- Rockslide;
- Snow slide;
- Water flood;
- Erosion of the riverside areas;
- Windstorm.

The rockslide is the most frequent natural disaster for this municipality. During the last decade as the local authorities claim, the frequency of the natural disasters occurrence is not increased and opinion is based on the personal, empirical observation, of the local authorities.

There is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

The charts (#62-64) considered bellow contain the information about the basic risk-zones, damages, varieties of the natural disasters which were occurred in the municipality during the last 10 years.

Chart # 62. Public infrastructure located directly in the risk-zones - Mestia municipality

#	Risk-factor	Location	Damaged territory
1	Rockslide	Administrative unit of Becho	Water supply system and electricity supply line
		Village Iphari	2 bridges
2	Water flood	Village Adishi	Road (total length – 9 km.)
3	Rockslide	Mestia hamlet	Central roads

Chart # 63. Damaged territories by various risk factors - Mestia municipality

#	Risk-factor	Category of the land	Damaged territory (ha)
1	Rockslide	Residential territory	Mestia hamlet Agmashenebeli and Pirtskhelani streets, villages: Tsvrimi, Chuberi, Latali, Becho, Tskhumari, Mulakhi, Ipari, Nakra, Khaishi, Etseri, Lakhamura and etc..
		Agricultural (annual and perennial plants) lands	Villages: Tsvrimi, Chuberi, Latali, Becho, Tskhumari, Ipari, Nakra, Khaishi, Etseri, Lakhamura
2	Water flood	Agricultural (arable) lands	Villages: Chuberi, Nakra, Chvabiani
3	Water flood	Riverside areas	Villages: Khaishi, Chuberi, Nakra, Chvabiani

Chart #64. Basic risk-zones and varieties of the natural threats – Mestia municipality.

#	Risk-factor	Location (village)	Number of the residential buildings located directly in the zone of affect
1	Rockslide	Tsvrimi, Chuberi, Latali, Tskhumari, Mulakhi, Ipari, Nakra, Khaishi, Etseri, Lakharula, Chvabiani	180
2		Chvabiani	32
3	Snow slide	Chuberi	2
4	Water flood	Nakra, Chvabiani, Chuberi	20

Sachkhere municipality. According to the information provided by the local authorities the basic natural risks and disasters for the municipality are:

- Rockslide;
- Water flood;
- Erosion of the riverside areas;
- Drought;
- Earthquake.

During the last decade the most frequent natural disaster were earthquakes, droughts and erosion of the riverside areas.

There is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

Bellow considered charts (#65-66) contain the information risk-zones, damages, varieties of the natural disasters which were occurred in the municipality during the last 10 years.

Chart #65. Public infrastructure located directly in the risk-zones - Sachkhere municipality

#	Risk-factor	Location	Damaged territory
1	Water flood	Chalvani	1 Bridge
2		Tskhomareti	1 Bridge
3		Savane	1 Bridge

Chart #66. Basic risk-zones and varieties of the natural threats – Sachkhere municipality

#	Risk-factor	Location	Number of the residential buildings located directly in the zone of affect
1	Erosion of the riverside areas	Sachkhere town	54
		Village Skhvitori	20
		Village Chala	5
2	Earthquake	Entire territory of the municipality	2552

Tkibuli municipality. According to the information provided by the local officials the most characteristic climate disasters for the municipality are: windstorms, rockslides, erosion of the riverside areas and drought. Also, they claim that during the last 10 years the rockslides became more frequent than it was in earlier years. But there are no the relevant hydro-meteorological stations in the municipality and this opinions are based on personal, empirical observation, of the local authorities.

There is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

The chart #67 considered below contains the information about the basic risk-zones, damages, and varieties of the natural disasters which were occurred in the municipality during the last 10 years.

Chart #67. Basic risk-zones and varieties of the natural threats – Tkibuli municipality

#	Risk-factor	Location	Number of the residential buildings located directly in the zone of affect
1	Rockslide	Leghva	10
2		Gurna	15
3		Satsire	10
4		Mukhura	7
5		Chkebi	5
6		Shukheri	12

Chiatura municipality. According to the information provided by the local officials the key natural risks and disasters occurring on the territory of the municipality are:

- Rockslide;
- Water flood;
- Earthquake;
- Drought.

The rockslide is the most frequent natural disaster for this municipality. During the last decade as the local authorities claim, the frequency and severity of the droughts is increased. But once there are no relevant meteorological stations on the territory of the municipality, this opinion is based only on the personal, empirical

observation, of the local authorities. Also, there is not any kind of disaster prior-notice system-mechanisms on the territory of the municipality.

The chart #68 considered below contains the information about the basic risk-zones, damages and the varieties of the natural disasters which were occurred in the municipality during the last 10 years.

Chart #68. Basic risk-zones and varieties of the natural threats – Chiatura municipality

#	Risk-factor	Location	Number of the residential buildings located directly in the zone of affect
1	Rockslide	Perevisa	2
2		Mandaeti	1
3		Bjinevi	1
4		Sveri	1
5		Kveda Beretisa	2
6		Darkveti	1
7		Zeda Beretisa	6
8		Khreiti	8

Recommendations. All the above-mentioned natural disasters represent the potential risk-factors and may have the negative influence upon the process of the implementation of certain significant activities planned within the frames of the project.

Due to the fact that most of these natural disasters cannot be completely prevented, the strategy of the project regarding the natural, a-biotic risks should be focused on the prevention of the possible natural disasters in its own activities and minimize the possible negative influences of the natural risks upon the project goals. This can be achieved by implementing the various preventive measures against each risk-factor taking into consideration the characters and the fields of the project intervention on the concrete target area of the project.

Within the frames of the presented research the basic preventive measures can be provided only for those agricultural fields that were identified during the implementation phase of the research.

The existing risk-factors may have the direct negative influence upon the following agricultural fields:

- Agricultural plant growing – All the identified varieties of the agricultural plants and fields (viticulture, berry agricultural plant growing, fruit production, vegetable growing and etc.);
- Animal husbandry – Cattle farming, pig farming, milk, cheese and meat production;
- Poultry farming – Poultry meat production;
- Fish production – Trout production;
- Beekeeping - Honey production.

Considering the specificity of each agricultural field and possible types of the damages which may occur in case of the natural disasters mentioned above the list of key preventive measures were elaborated during the

implementation phase of the research. All these preventive measures can minimize but not completely exclude the possible negative results of the natural disasters.

The charts #69-72 considered below contain the following information:

1. The list of the agricultural fields that are most vulnerable against the risk-factors;
2. Varieties of the risk-factors;
3. Following recommendations.

Chart #69. Agricultural plant growing - the basic a-biotic risk-factors and recommendations

Agricultural fields	Risk-factors	Prevention measures
Agricultural plant growing	Windstorms	Organization wind-belt lines or selection of the fields (for the project activities) where they already exist
	Rainstorms	Building the relevant drainage systems – ensuring their existence in the fields where the project activities may be implemented
	Water flood	<p>Providing the relevant hydro-meteorological study of the fields where the project activities may be implemented (desk research at least, or using the materials presented in the given research) in order to identify the possibilities of the risk occurrence;</p> <p>Avoiding the selection of the fields located in zones of the given risk-factor for the implementation of the project activities</p>
	Rockslide, Snow slide	<p>Providing the relevant hydro-meteorological study of the fields where the project activities may be implemented (desk research at least, or using the materials presented in the given research) in order to identify the possibilities of the risk occurrence;</p> <p>Avoiding the selection of the fields located in zones of the given risk-factor for the implementation of the project activities</p>
	Soil erosion	<p>Providing the monitoring of the fields where the project activities may be implemented in order to identify the signs and levels of the soil erosion;</p> <p>Avoiding the selection of the fields that are directly under the influence of this process</p>
	Hail	Establishing the relevant hail-protection technologies
	Drought	Ensuring the access with water resources (building drop irrigation technologies with underground water supply systems)

Chart #70. *Animal husbandry and poultry farming - the basic a-biotic risk-factors and recommendations*

Agricultural fields	Risk-factors	Prevention measures
<i>Animal husbandry and poultry farming</i>	Earthquake	<p>Providing the relevant geological data analyses in order to identify possible maximum degrees of the possible earthquake</p> <p>Providing the monitoring of the farm buildings to identify their relevance with the officially established norms of the safety</p> <p>Avoiding the selection of the farms located in zones of the given risk-factor and being in insufficient for the implementation of the project activities</p> <p>Avoiding the selection of the farm buildings that are irrelevant with with the officially established norms of the safety for the implementation of the project activities</p>
	Drought	<p>Given risk-factor may have the negative influence in case if project determines to establish animal nutritional base in the zones of the given risk-factor. Once the establishment of the relevant water-supply systems with the purpose of growing the grasses for cattle in most cases is unjustifiable and hence, avoiding to plan this sort of activities in the zones of the given risk-factor may be the only correct option</p>
	rainstorms windstorms, rockslide, snow slide	<p>Avoiding to implement the project activities in the zones of the given risk-factors</p>

Chart #71. *Fish farming - the basic a-biotic risk-factors and recommendations*

Agricultural fields	Risk-factors	Prevention measures
<i>Trout production</i>	Earthquake	<p>Providing the relevant geological data analyses and avoiding to organize the ponds in the most seismic sensitive areas</p>
	Drought	<p>Establishment of the relevant water-supply systems and ensuring their resistance against the given risk-factor</p>
	rainstorms windstorms, rockslide, snow slide	<p>Avoiding to implement the project activities in the zones of the given risk-factors</p>

Chart #72. *Beekeeping - the basic a-biotic risk-factors and recommendations*

Agricultural fields	Risk-factors	Prevention measures
<i>Beekeeping</i>	Rainstorms windstorms, rockslide, snow slide	<p>Ensuring to select the areas that are not located under the direct influence of the given risk-factors</p>

Potential risks associated with the project implementation and recommendations

During the implementation of the project activities some risks may occur especially during the selection of the beneficiary groups among farmers, companies, cooperatives and other stakeholders for cooperation in the field of the organic agricultural production.

From the project goals some risk-factors may occur during the implementation of the activities oriented on the creation of new income opportunities in the sector of organic agriculture and the professional capacity development of the local beneficiary groups.

The above-mentioned risk factors are:

- Non-fulfillment or incomplete fulfillment of the obligations by the beneficiaries undertaken within the frames of the relevant grant or sub-grant agreements;
- Low quality of the professional capacity building processes and consequently, unsatisfactory level of the obtained knowledge among the project beneficiary groups.

With the purpose to reduce the possibilities of the above-mentioned risk-factors occurrence, the GRETA project plans to implement the relevant monitoring activities that will minimize all possible risk-factors associated with the process of project implementation. Also, some additional auxiliary mechanisms may be adapted in concrete cases for excluding the possibilities of the above mentioned risk-factors occurrence as much, as possible.

In order to identify additional effective complex of the recommendations during the implementation phase of the given research the analyses of the relevant (close to similar but implemented in conventional agricultural fields) implemented projects was provided. These projects were carried out by various international donor organizations in the republic of Georgia.

According to the experience of the above-mentioned projects a list the key recommendations and their brief descriptions-justifications was elaborated.

All the above-mentioned lists of the recommendations are considered below in the charts # 73-74.

Chart # 73. Possible risks associated with the project implementation – obligations and their fulfilment

<p>Risk factors - Non-fulfilment or incomplete fulfilment of the obligations by the beneficiaries undertaken within the frames of the relevant grant or sub-grant agreements</p>
<p>Recommendations focused on minimizing the possibilities of the risk-factor occurrence</p>
<p>Recommended criteria for the selection of the project beneficial groups:</p> <ul style="list-style-type: none"> ▪ Proven experience in organic agriculture and the access to resources - The production is initiated and the organic or eco certificate is obtained. At least the production is started in the conventional way; ▪ Clear idea about the planned actions – the prepared business plan contains all actual details and realistic budget; ▪ Financial capacities - proven availability and readiness to conduct the cost-shared project; ▪ Proven experience in administrative and financial (accountancy) management - in case of cooperatives, associations or companies; ▪ Non-existence of the financial obligations - Credits in banks or in micro financial organizations or they exist, but the existing volume of production and the generated incomes ensures their coverage. ▪ Experience of participation in the similar programs - Experience of cooperation with the international donor organizations. <hr style="border-top: 1px dashed black;"/> <p>Recommended approaches and designs of the activities oriented on the creation of new income opportunities:</p> <ul style="list-style-type: none"> ▪ Conferring the privilege to implementation of the cost-shared projects – According to the existing experience, the cost-shared project implementation has the certain advantages in order to minimize the risks associated with possible difficulties associated with: <ol style="list-style-type: none"> 1. Non-fulfillment or incompletely fulfillment of the obligations or the further sustainability of the production; 2. The further sustainability of the production. ▪ Establishing the effective technology and equipment supply mechanisms – one of the maximally risk-free options in this direction may be to supply the beneficiaries with the relevant technologies and equipment in temporary use before the concrete obligations are not fulfilled within the frames of the concrete grant agreement. Only after/if the undertaken obligations are completely fulfilled by the side of the project beneficiary the technologies should be given him/her in private property. Such sort of the solution may be applied especially in case of the expensive technologies. This approach is accepted in the reality of the republic of Georgia by the various donor organizations and it is proven that it maximally ensures to keep the quality of the relevant technologies, their preservation and application directly for the project purposes; ▪ Creation of the preliminary income generation plan and the obligation of its performance – It is also an accepted practice to elaborate the official agreements containing this obligation. The solution mentioned above practically excludes the risks of possible failure to achieve the goals set within the frames of concrete grant agreement. Besides, this ensures to identify the direct target beneficiary groups in each agricultural field.

Chart # 74. Possible risks associated with the project implementation– professional capacity building

Risk factor - Low quality of the professional capacity building processes and consequently, unsatisfactory level of the obtained knowledge among project beneficiary groups

Recommendations focused on minimizing the possibilities of the risk-factor occurrence

With the purpose of elaborating the list of recommendation focused on raising efficiency of the planned activities in the direction of raising awareness of the local farmers and other project stakeholders, the desk research and analysis of the obtained materials was provided. During this process the experience of the contractor organization (in the fields of training materials elaboration, providing trainings and evaluation of the provided trainings) was also taken into account. Based on these activities the list of elaborated recommendations contain all the basic aspects for minimizing the possible risks associated with the planned activities oriented on raising awareness of the project target groups.

Below, the above-mentioned recommendations are elaborated:

Elaboration of the relevant training materials in advance – within the frames of this research the key important and needed training themes/topics were identified. It is recommended to elaborate the training materials for the identified themes in advance with the purpose of strengthening the quality of planned trainings and increasing the knowledge dissemination coverage.

The most important factor, determining the high quality of the elaborated materials is the advanced preparations of the relevant technical tasks containing all the important materials that must include each training material in each agricultural field.

Existence of the relevant evaluation mechanisms oriented on the identification of the obtained knowledge levels from each elaborated training material is also an important component.

Providing the activities of raising awareness among extension service providers – The public services of extension are the key-actors of providing the agro-consultancy and delivering the information to farmers in each target municipality. In order to ensure the high coverage of the knowledge dissemination, it is recommended to provide the short-term training courses for the local extension service providers in basic subject matters of the organic agriculture.

Ensuring the effective dissemination of the elaborated and conducted training materials in various formats - Accessibility to the knowledge and information may have a significant positive impact on the process of developing organic agricultural sector. For the dissemination of the training materials and knowledge various existing mechanisms may be used, such as:

- ✓ Web-sites;
- ✓ Innovative platforms oriented on the delivering the agro-consultancy services to the most vulnerable farmer groups that have no internet access;
- ✓ Applications, oriented on raising-demonstration of the knowledge levels (existing online agro-testing mechanisms);
- ✓ Elaboration of the relevant leaflets and catalogs (printed materials).

Dividing the responsibilities among the relevant service providers – In order to raise the quality of the provided educational activities, division of the responsibilities among the relevant service providers may be an effective approach.

Activities planned for raising awareness of the local potential beneficiary groups can be divided in four main components:

1. Preparation of the training materials;
2. Implementation of the trainings;
3. Evaluation of the obtained knowledge levels as a result of provided trainings;
4. Dissemination of the training materials.

Implementing the above mentioned activities in cooperation with more than one service provider (independent from each other) will raise the efficiency and the quality of the activities focused on raising awareness in organic agriculture.

Chapter II – Climate change potential impact on organic agricultural sector

Presented chapter contains the information about the possible impacts caused by the climate change process in the target municipalities.

With the purpose of collecting the relevant type of information and materials within the frames of the given research the meetings and interviews were provided with the local authorities and also the mobilization of the relevant researches and official documentation and their analyses were implemented.

First of all, it must be noted that there are no exact materials with detailed and proven descriptions of the climate change impacts upon the environment or various agricultural fields. Hence, some part of the below presented materials is based on personal, empirical observation of the local authorities or other experts.

This chapter contains one sub-chapter describing the expected climate change levels-parameters and their potential future impact on the existing agricultural fields of the target municipalities.

Observed changes, possible negative impacts and recommendations

Situation overview. At this stage possible changes of climatic conditions and the following impacts are not completely evaluated in the project target area. However, due to the general tendency, the local officials claim, that the future climate change associated impacts will escalate and increase the possibilities of the occurring disasters characterized for the region. The detailed descriptions of these disasters and the damages caused by them in each target municipality are considered in the chapter I of the part II of this report.

With the purpose of minimizing the possible negative impacts, at this stage each target municipality has the general recommendation packages elaborated with the facilitation of USAID program and according to these recommendations for minimizing the possible negative impacts the following key activities should be applied:

- ✓ Rehabilitation of the wind-belt lines in order to protect the agricultural lands from wind erosion;
- ✓ Preparation of the reforestation strategies and implementing it in order to prevent the certain areas of the target municipalities from the natural disasters, such as: rockslides, snow slides, water floods and soil erosion;
- ✓ Elaboration and implementation of the pasture management strategies;
- ✓ Rehabilitation of the irrigation systems with the purpose of minimizing the soil erosion levels, low productivity and vulnerability of the agricultural plants against climate change associated factors;
- ✓ Conducting the evaluation of the riverbed management methodologies in order to identify the optimal methodology for minimizing the risks of the possible natural disasters;
- ✓ Elaboration of the relevant database containing the information about the natural threats and caused damages with the purpose of creating the clear imaginations regarding possible natural disasters and the following action plans against the negative impacts;
- ✓ Elaboration of the relevant database containing the information about the volumes of the inert materials obtained from rivers in order to regulate this process.

All the above-mentioned recommendations are focused on minimizing the natural disasters occurring possibilities caused or enhanced by the climate change associated factors. As for the possible direct impact of climate change on the agricultural fields of the target municipalities, according to the materials elaborated by the company “ACT-global”, the most expected impacts are:

- Change of the vegetation periods of plants;
- Shifting of agro-climatic zones;
- Reduction of productivity of current crops;
- Increased demand on irrigation water;
- Decreased productivity of agricultural lands and increased degradation of soils;
- Increased harvest losses due to frequent extreme climate events (hail, frost, etc.).

The listed potential, possible impacts are estimated-flows out from the following officially identified (by the company “ACT-global”) materials about the target municipalities:

Sachkhere, Chiatura and Tkibuli municipalities. Expected changes:

- ✓ The average annual temperature will rise presumably by 1.51°C -1.52°C as compared to 1961-1990 baseline periods. In 20172-2100 the average annual temperature change will vary within 3.8°C-3.9°C as compared to 1961-1990 baseline periods.
- ✓ In 2021-2050 the average spring temperature will rise by 1.23°C- 1.29°C as compared to 1961-1990. The annual number of hot days will increase about 2.5 times more than in the previous projected period (2021-2050).
- ✓ The heating period, or when the average temperature is below +8°C and the population needs additional heating resources, it tends to decrease throughout the territory of Zemo Imereti. The trend is particularly notable in mountain zones, where the heating period decreases by 15 days on average.
- ✓ The number of frosty days in 2021-2050 will decrease throughout the territory of Zemo Imereti as compared to the baseline period 1961-1990. This decrease is of special importance for mountain regions, where the number of frosty days will decrease by 36 days per annum on average.

Lentekhi and Tsageri municipalities. Existing changes:

The average annual air temperature and level of precipitation in these municipalities have increased by 0.4°C and 106 mm (8%) respectively, for the past 50 years.

The rate of temperature rise is 0.3°C per 10 years, while rainfall increases by 10 mm.

Ambrolauri municipality. Expected changes:

In 2021-2050 the Average annual air temperature will rise by 1.2°C. Maximum increase of temperature is expected in fall (by 1.8°C). Absolute minimum will rise by 0.6°C, absolute maximum – by 0.9°C. By this period, annual precipitation will decrease about 4%. Sharp decrease of precipitation (12%) will be observed in spring, during other season the rate of reduction of rainfall will be lower (2%). The level of precipitation during all seasons, except summer, will be almost equal. The number of hot days will increase by about 16, while the number of frost days will decrease by 20. The number of days with heavy rainfall in the municipality will increase by 1.3.

Oni municipality. Expected changes:

- In 2021-2050 the average annual temperature will rise presumably by 1.49°C-1.50°C as compared to 1961-1990 baseline periods. The number of hot days, i.e. days when maximum temperature exceeds 25°C, in 2021-2050 is increasing throughout Georgia as compared to 1961-1990. This process will be less observable on the slopes of the Greater Caucasus. In particular, the number of such days in Oni municipality increases from 0.3 to 5 days. The annual number of frost days by 2021-2050 in Oni municipality will be increased by 22 days on average as compared to 1961-1990 periods.

Mestia municipality. The analysis of the change of climate elements in 1961-1985 and 1986-2010 periods shows, that the average annual air temperature in the middle zone of Mestia municipality has increased by 0.3°C. Warming mainly occurs in summer (+0.7°C) and fall (+0.5°C), while in winter slight cooling (-0.1°C) and in spring slight warming (+0.1°C) was recorded. Average maximums of air temperatures have slightly increased (+0.2°C), while average minimums increased considerably (+0.5°C). Annual precipitation has increased by 97 mm (10%). During the last 25 years, winter in the mentioned zone of Mestia municipality has become colder. Average annual temperature slightly decreased (-0.1°C). The seasonal number of frost days has increased by 7 on average, increasing the risk of icing. There was almost no difference between average and average minimal temperatures of these two periods in spring ($\pm 0.1^\circ\text{C}$), however average summer temperature has increased significantly (+0.7°C). Therefore, summer in Mestia became significantly hotter and relatively dry. Fall became warmer. Average temperature has increased by 0.5°C, absolute maximum has increased by 3.4°C, while absolute minimum has decreased by 1.6°C.

Recommendations. Foreseeable climate changes may have the negative impacts upon the development of the organic agricultural production in long term perspective, practically for all agricultural fields.

Possible natural disasters caused by the climate change associated impacts are described in the chapter I of the part II of this report and the following recommendations are also presented. For minimizing such types of natural disasters, the complex of expensive infrastructural activities needs to be implemented. Part of these activities are implemented or planned by the government. In any case, since the project is not designed to implement such kind of infrastructural activities, the key strategy of the project in order to minimize the potential natural risks (caused by the climate change or other factors) should be to avoid conducting the activities in the zones of direct influence of the described potential natural risks, or applying the relevant preventive measures in case of implementing certain types of activities in these areas. The lists of directly influenced areas and the relevant preventive recommendations are described in the in the chapter I of the part II of this report.

In order to avoid the possible difficulties and potential problems caused by the changes of the climatic parameters, basically by the changes of the average annual temperatures and humidity levels, the complex of the approaches needs to be applied in the process of planning and implementing the project activities in each selected type of the agricultural production. These approaches differ according to the agricultural field and the type of possible risk-factors associated with the changes of the average annual temperatures and humidity levels. However, it must be also noted that the problems caused by the temperature and humidity levels (high or low) already exist in agricultural fields of the target municipalities due to the existing infrastructural situation and other objective factors. Hence, the impact of the possible changes of the temperature or humidity is supposed to be relatively low, especially in terms of applying the rules and technologies of the organic production. However, in the long-term perspective, the most important negative impact may appear in the form of appearance of new harmful organisms and unfavourable durations of the vegetation periods for some agricultural plants.

As it was mentioned, during the implementation phase of the research the list of the recommended approaches was elaborated. *Chart #75* considered below contains the descriptions of the possible negative impacts and the recommendations oriented on minimizing the possibilities of their occurrence.

Chart # 75. Expected negative impacts on organic production caused by the changes of the average annual temperatures and humidity levels and recommended approaches

Agricultural field	Expected negative impact	Negative impact possibility			Descriptions and recommendations
		N/A	Low	Medium	
Viticulture	Shifting of agro climatic zones				Selecting the areas for the implementations of project activities directly in the officially determined zones of the concrete varieties of grape
	Occurrence of new fungal diseases and insect pests				Elaboration and implementation of the relevant IPM strategies applied in organic production sector
	Increased demand on irrigation water resources				For this agricultural field forecasted changes of the temperature and humidity levels have no influence due to the physiological characteristics of the given agricultural plant
Potato, Vegetable and cereal agricultural plant growing	Occurrence of new fungal diseases and insect pests				Elaboration and implementation of the relevant IPM strategies applied in organic production sector
	Increased demand on irrigation water resources				building drop irrigation technologies with underground water supply systems Introduction of high productive and drought-resistance species
	Changing the durations of the vegetation seasons				Selecting the new species with preferable vegetation periods
Perennial agricultural plant growing (Berries, orchards, tea)	Occurrence of new fungal diseases and insect pests				Elaboration and implementation of the relevant IPM strategies applied in organic production sector
	Increased demand on irrigation water resources				Building drop irrigation technologies with underground water supply systems Introduction of high productive and drought-resistance species
	Changing the durations of the vegetation seasons				Selecting the new species with preferable vegetation periods
Animal husbandry and poultry farming	Possible direct impacts: The direct effects are related to the increase of temperature, which increases the potential for morbidity and death.				The forecasted changes of temperature cannot cause death of the domestic animals
	Possible indirect impacts: spreading of vector-borne diseases, food-borne diseases, host resistance, and feed and water scarcity				Ensuring the proper sanitary conditions and veterinary services in the farms
Beekeeping	Possible reduction of the flowering seasons				Selecting the proper areas for the organic production
	Spreading of the new diseases and harmful organisms				Ensuring the proper sanitary conditions
Wild herb and mushroom foraging	Decreasing the various species of the plants and mushrooms due to the forecasted climate changes				Facilitating the process of initiating the production in household/greenhouse conditions
Fish production	Decreasing the water resources and quality due to the forecasted climate changes				Developing the sustainable water-supply mechanisms

Chapter III – Promising agricultural fields for organic production - ranked according to the priority

Presented chapter contains the description of the applied methodology used for the identification of the most perspective agricultural fields-production and the ranked agricultural fields according to the priority.

Applied methodology - ranking of the existing agricultural fields

For identification of the most suitable products-value chains for the organic production within the frames of the research the relevant methodology was elaborated.

According to this methodology all agricultural fields and products existing in the target municipalities are categorized according to the relevance to the special criteria elaborated for this purpose. The criteria-indicators contain the existing determining factors having the influence on the process of the further development of the given agricultural field and its potential in case of converting to organic production.

Chart #76 represents the list of the above mentioned criteria-determining indicators.

Chart #76

N	Criteria-indicators	Explanation
1	Suitable climatic conditions	There are suitable climatic conditions for the development of the given agricultural field
2	Demand in local-national markets	The demand of the given production (produced in organic or at least in ecologically clean way) exists in local markets and the product is known among the consumers
3	Existence of the big-sized farmer communities, companies or cooperatives	There are farmer communities, companies or cooperatives growing/producing the given product at least in a conventional agriculture way, having the plans and some relevant infrastructural facilities-potential for converting from conventional to organic
4 A	Existence of the biotic threats	There are harmful organisms difficult to control using only the methods accepted in organic production
4 b	Non-existence of the biotic threats	There are no such varieties of the biotic threats which are impossible to control using only the methods accepted in organic production
5A	Completely environmentally friendly	If the organic production starts, there is no possibility of the negative influence on the local environment
5 b	Possibility of the negative influence on the local environment	If the organic production starts, there may be some direct or indirect risks of the negative influence on the local environment
6	Potential of export	The product has a good export potential due to the quality characteristics and existing demands in international markets
7	Existence of the relevant input suppliers	The majority of the inputs needed for developing the organic production are accessible in local-national markets
8	Replication potential	The product has a good potential of the replication due to the relative simplicity of the production and accessibility of the relevant technologies of the production
9A	Non-existence of the environment associated with inhibitory factors	There is no such kind of environment associated with inhibitory factors making it practically impossible to develop the organic production of the given product
9b	Existence of the environment associated with inhibitory factors	There are some kinds of environment associated with inhibitory factors limiting the area of the organic production for the given product in the particular municipality

The database of materials developed within the frames of the research provides information necessary for using the above mentioned criteria for selection and ranking the existing agricultural fields according to their potential in organic agriculture for each target municipality.

Pursuing this selection methodology of the agricultural fields in the target municipalities are divided by categories by means of observing the following principles:

I category priority agricultural fields – contains agricultural sectors-production types that comply with the at least # 1, 2, 3, 4b, 5A and 9A criteria.

II category priority agricultural fields – combines agricultural sectors-production types that comply at least with 1, 4b, 5A, 8 and 9A criteria.

III category priority agricultural fields – contains agricultural sectors-production types that comply with the following numbers of criteria: 4A, 5b, or 9b and do not comply with at least one of the following numbers of criteria: 1 or 2 or 3.

All the agricultural fields and products are ranked according to this methodology for each target municipality and are considered in the format of charts (#77-84).

Ambrolauri municipality - Ranked agricultural fields

Chart #77. Ranked agricultural fields – Ambrolauri municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Beekeeping	Honey	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Viticulture	Vine	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
3	Wild herbs	Several varieties of wild herbs used for medicinal purposes	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4,A, 5b, 9b	
4	Dry fruit production	Rather varieties of the dry fruit	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
5	Berry agricultural plant production	Bio-Blackberry or Bio-Blueberry	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
6	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
7	Mushroom production	Several varieties of the mushrooms	1, 2, 4b, 5A, 7, 8, 9A	3, 6, 4A, 5b, 6, 9b	
8	Legume agricultural plants	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	
9	Fruit production	Hazelnut or walnut	1, 5A, 4A, 6, 7, 8, 9A	2,3, 4b, 5b, 9b	III
10	Pome and stone fruit production	Apple, Pear, Quince, Peach, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
11	Cereal agricultural plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Oni municipality - Ranked agricultural fields

Chart #78. Ranked agricultural fields – Oni municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Beekeeping	Honey	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Viticulture	Vine	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
3	Berry agricultural plants	Blackberry or Blueberry	1, 2, 3, 4b, 5A, 7, 9A	4A, 5b, 9b	
4	Dry fruit production	Rather varieties of the dry fruit	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
5	Wild herbs	Several varieties of wild herbs used for medicinal purposes	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
6	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
7	Mushroom production	Rather varieties of the mushrooms	1, 2, 4b, 5A, 7, 8, 9A	3, 6, 4A, 5b, 6, 9b	
8	Potato growing	Potato	1, 3, 4A, 5A, 7, 8, 9A	2, 4b, 5b, 6, 9b	
9	Legumes	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	
10	Fruit production	Hazelnut or walnut	1, 5A, 4A, 6, 7, 8, 9A	2,3, 4b, 5b, 9b	III
11	Pome and stone fruit production	Apple, Pear, Quince, Peach, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
12	Cereal agricultural plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Tsageri municipality - Ranked agricultural fields

Chart #79. Ranked agricultural fields – Tsageri municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Beekeeping	Honey	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Viticulture	Vine	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
3	Wild herbs	Several varieties of wild herbs used for medicinal purposes	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
4	Dry fruit production	Rather varieties of the dry fruit	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
5	Berry agricultural plants	Raspberry	1, 2, 3, 4b, 5A, 7, 9A	4A, 5b, 9b	
6	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
7	Mushroom production	Rather varieties of the mushrooms	1, 2, 4b, 5A, 7, 8, 9A	3, 6, 4A, 5b, 6, 9b	
8	Potato growing	Potato	1, 2, 4b, 5A, 7, 8, 9A	3, 6, 4A, 5b, 6, 9b	
9	Legumes	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	
10	Fruit production	Hazelnut or walnut	1, 5A, 4A, 6, 7, 8, 9A	2,3, 4b, 5b, 9b	III
11	Pome and stone fruit production	Apple, Pear, Quince, Peach, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
12	Subtropical agricultural plants	Persimmon	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
13	Cereal agricultural plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Lentekhi municipality – Ranked agricultural fields

Chart #80. Ranked agricultural fields – Lentekhi municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Beekeeping	Honey	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Viticulture	Vine	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
3	Dry fruit production	Rather varieties of the dry fruit	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
4	Wild herbs	Several varieties of wild herbs used for medicinal purposes	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4,A, 5b, 9b	
5	Berries	Raspberry	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
6	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
7	Mushrooms	Rather varieties of the mushrooms	1, 2, 4b, 5A, 7, 8, 9A	3, 6, 4A, 5b, 6, 9b	
8	Potato growing	Potato	1, 3 4A, 5A, 7, 8, 9A	2, 4b 5b, 6, 9b	
9	Legume plants	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	III
10	Fruit production	Hazelnut or walnut	1, 5A, 4A, 6, 7, 8, 9A	2,3, 4b, 5b, 9b	
11	Pome and stone fruit production	Apple, Pear, Quince, Peach, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
12	Subtropical plants	Persimmon	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
13	Cereal plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Sachkhere municipality - Ranked agricultural fields

Chart #81. Ranked agricultural fields – Sachkhere municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Viticulture	Vine	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Berry agricultural plant production	Strawberry, raspberry blackberry	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
2	Greens production	Greens used as a relish	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
4	Mushroom production	Rather varieties of the mushrooms	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
5	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
6	Beekeeping	Honey	2, 3, 4b, 5A, 6, 7, 8, 9A	1, 4A, 5b, 9b	
7	Warm weather vegetable	Tomato and cucumber	1, 2, 4b, 5A, 7, 9A	3, 4A, 5b, 9b	
8	Potato growing	Potato	1, 4A, 5A, 7, 8, 9A	2, 3, 4b 5b, 6, 9b	
9	Fish production	Trout	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	
10	Legume plants	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	
11	Fruit production	Hazelnut or walnut	1, 5A, 4A, 6, 7, 8, 9A	2,3, 4b, 5b, 9b	III
12	Cold-resistance vegetable production	Onion, garlic, beetroot, carrot	4b, 5b, 7, 8, 9A	1, 2, 3, 4A, 5A, 6, 9b	
13	Pome and stone fruit production	Apple, Pear, Quince, Peach, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
14	Cereal agricultural plants	Maize and wheat	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Chiatura municipality – ranked agricultural fields

Chart #82. Ranked agricultural fields – Chiatura municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Tea production	Tea	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Greens production	Greens used as a relish	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
3	Mushroom production	Varieties of the mushrooms	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
4	Poultry farming	Meat	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
5	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
6	Beekeeping	Honey	2, 3, 4b, 5A, 6, 7, 8, 9A	1, 4A, 5b, 9b	
7	Viticulture	Vine	1, 2, 4A, 5A, 6, 7, 8, 9A	3, 4b, 5b, 9b	
8	Warm weather vegetable	Tomato and cucumber	1, 2, 4b, 5A, 7, 9A	3, 4A, 5b, 9b	
9	Berry agricultural plants	Strawberry, raspberry blackberry	1, 2, 4b, 5A, 7, 9A	3, 4A, 5b, 9b	
10	Potato growing	Potato	1, 4A, 5A, 7, 8, 9A	2, 3, 4b 5b, 6, 9b	
11	Fish production	Trout	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	
12	Legume plants	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	
13	Fruit production	Hazelnut or walnut	1, 3, 5A, 4A, 6, 7, 8, 9A	2, 4b, 5b, 9b	III
14	Cold-resistance vegetable	Onion, garlic, beetroot, carrot	4b, 5b, 7, 8, 9A	1, 2, 3, 4A, 5A, 6, 9b	
15	Subtropical plants	Persimmon, fig	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
16	Pome and stone fruit	Apple, Pear, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
17	Cereal plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Tkibuli municipality – ranked agricultural fields

Chart #83. Ranked agricultural fields – Tkibuli municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Tea production	Tea	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Mushroom production	Varieties of the mushrooms	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
3	Greens production	Greens used as a relish	1, 2, 3, 4b, 5A, 7, 9A	4,A, 5b, 9b	
4	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
5	Berries	Strawberry, raspberry, Blueberry	1, 2, 3, 4A, 5A, 7, 9A	4b, 5b, 9b	
6	Viticulture	Vine	1, 2, 3, 4A, 5A, 7, 9A	4b, 5b, 9b	
7	Beekeeping	Honey	2, 3, 4b, 5A, 6, 7, 8, 9A	1, 4A, 5b, 9b	
8	Poultry farming	Meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	
9	Warm weather vegetable	Tomato and cucumber	1, 2, 4b, 5A, 7, 9A	3, 4A, 5b, 9b	
10	Potato growing	Potato	1, 4A, 5A, 7, 8, 9A	2, 3, 4b 5b, 6, 9b	
11	Fish production	Trout	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	
12	Legume plants	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	III
13	Fruit production	Hazelnut or walnut	1, 3, 5A, 4A, 6, 7, 8, 9A	2, 4b, 5b, 9b	
14	Cold-resistance vegetable	Onion, garlic, beetroot, carrot	4b, 5b, 7, 8, 9A	1, 2, 3, 4A, 5A, 6, 9b	
15	Subtropical plants	Persimmon, fig	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
16	Pome and stone fruit	Apple, Pear, Peach, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
17	Cereal plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Mestia municipality - Ranked agricultural fields

Chart #84. Ranked agricultural fields – Mestia municipality

#*	Agricultural field	Target products	Indicators complied	Indicators not complied	Category
1	Beekeeping	Honey	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	I
2	Mushroom production	Varieties of the mushrooms	1, 2, 3, 4b, 5A, 6, 7, 8, 9A	4A, 5b, 9b	
3	Berry agricultural plant production	Strawberry, raspberry	1, 2, 3, 4b, 5A, 7, 9A	4A, 5b, 9b	
4	Animal husbandry	Milk, cheese or meat	1, 3, 4b, 5A, 7, 8, 9A	2, 4A, 5b, 6, 9b	II
5	Potato growing	Potato	1, 3 4A, 5A, 7, 8, 9A	2, 4b 5b, 6, 9b	
6	Legume agricultural plants	Haricot	1, 4b, 5A, 4A, 5A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	
7	Fruit production	Hazelnut or walnut	1, 5A, 4A, 6, 7, 8, 9A	2,3, 4b, 5b, 9b	III
8	Pome and stone fruit production	Apple, Pear, Quince, Peach, Plum, Wild plum	5A, 4A, 7, 8, 9 A	1, 2, 3, 4b, 5b, 6, 9b	
9	Cereal agricultural plants	Maize	5A, 4A, 7, 8, 9A	2, 3, 4b, 5b, 6, 9b	

*The numbering is conditional and it does not reflect the advantage of the fields in relation to one another.

Existing situation VS resources and potential

The materials identified within the frames of the research of the target area allow to create the project progress orientation potential, according to promising sectors (I categories of the priority agricultural fields) and targeting municipalities.

The chart #85 below presents starting conditions on one hand, that is, existing situation in the organic agricultural sector of the target area, and on the other hand, the main resources (cooperatives and companies) existing locally, that create the organic production potential considering the GRETA project length. Also it is noticeable that in addition to the companies and cooperatives big-sized farm-households are operating in each target municipality and they also may have the potential of converting to organic farming. Nevertheless, the number of these big-sized farm-households is not mentioned in the chart #85 since the aim of the graph is to provide the numbers of the most prospective actors for the organic production and in this respect already existing companies or cooperatives have more potential and facilities to start the organic production.

As for the numbers, profiles and locations of the big-sized farm-households, they exist in all agricultural fields mentioned in the chart #85 and the annex #2 contains the relevant data – the lists of all the big sized farm-households according to the agricultural fields and target municipalities. This annex also considers the production volumes of the big-sized farm-households and companies.

Chart # 85

Existing situation in the organic agricultural sector

Active organic certified companies - general information

Total number - 2

Working profiles and the number of staff
 First company: organic vine production - 5 employees
 Second company: wild herb foraging - 30 employees

Locations
 First company: Tsageri municipality
 Second company: Racha-lechkhumi and Kvemo Svaneti region

Resources-potential

Field/production	Number of companies or cooperatives/total number of involved people	Ambrolauri	Oni	Tsageri	Lentekhi	Chatura	Sachkhere	Tkibuli	Mestia
Viticulture		7/58	N/A	8/61	N/A	N/A	2/6	1/7	N/A
Beekeeping		6/30	14/80	10/52	3/23	1/30	5/37	N/A	4/8
Wild herbs		1/2	N/A	N/A	1/5	N/A	N/A	N/A	N/A
Berries		N/A	N/A	N/A	N/A	N/A	1/3	2/16	N/A
Animal husbandry		3/29	16/41	2/17	N/A	4/35	1/3	2/9	17/40
Mushroom production		N/A	N/A	N/A	N/A	N/A	1/2	N/A	N/A
Legume agricultural plants		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hazelnut or walnut production		1/5	1/4	N/A	N/A	N/A	N/A	1/5	N/A
Tea production		N/A	N/A	N/A	N/A	5/27	N/A	5/12	N/A
Pome and stone fruit production		N/A	N/A	1/5	N/A	N/A	N/A	N/A	N/A
Dry fruit production		N/A	N/A	N/A	1/5	N/A	N/A	N/A	N/A
Cereal agricultural plants		N/A	N/A	N/A	N/A	2/10	3/22	N/A	N/A
Potato growing		N/A	10/25	N/A	5/28	N/A	N/A	N/A	N/A
Subtropical agricultural plants		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fish farming		4/20	N/A	2/12	N/A	1/5	1/3	1/3	N/A
Poultry farming	N/A	N/A	N/A	N/A	1/2	5/24	N/A	N/A	
Greens	N/A	N/A	N/A	N/A	1/2	1/3	N/A	N/A	

First category priority agricultural field

Second category priority agricultural field

Third category priority agricultural field

Chapter IV - Training needs assessments of project stakeholders in organic agriculture

Applied methodology. With the purpose of identifying the existing knowledge levels in promising agricultural fields among the project stakeholders, the following approaches were used:

- Providing the meetings and discussing these issues with the local advisory service providers: local extension agents and potential input suppliers.
- Questioning the relevant stakeholders-potential beneficiary groups of the project during the onsite visits conducted within the frames of the research;
- Using the results of the researches conducted by the contractor organization during 2018-2019 years.

Based on the above-mentioned materials and the results of the conducted activities the preliminary lists of the training needs were developed in each priority agricultural field. Professional component - contains the trainings oriented directly on professional capacity building in the selected agricultural field;

1. Raising awareness about the existing legislative base, regulations and the requirements for the certification;
2. Raising awareness in the field of marketing management.

As for the training materials - database of the information and professional recommendations for the development of the organic production in each agricultural field, within the frames of this research the key components of the training material contents were identified in each agricultural field. These key components should be presented in the contents of each developed training material.

Charts #86-93 present the results of the research provided for identification of the directions-fields and preliminary topics of the trainings focused on strengthening the knowledge in organic production of the agricultural fields and the charts #86-93 it is presented preliminary list of training materials in organic agriculture. But it must be noted that for more clarification of the training themes and the lists of the training materials, the additional small-scaled research is recommended.

It must be noted that based on the results of the provided meetings and conducted researches in this field by the contractor Organization, the component of the trainings is recommended to be involved in all the activities planned to be conducted by the project and focused on the development of the organic production sector in cooperation with the local beneficiary groups.

Themes for trainings and recommended formats for the implementation

Chart#86. Training needs - professional capacity building

Agricultural field	Recommended themes for trainings	Recommended format for implementation
Potato growing	The basic principles of organic production (agro-technological rules of growing potatoes and controlling harmful organisms, using the methods of organic farming)	A cycle of theoretical trainings
Animal husbandry (cattle)	Modern methods of care, domestic animals: prevention of diseases – the main periods of dissemination, the existing regulations and the services-programs provided by the state.	A cycle of theoretical trainings
	Basic methods and technologies of organizing nutrition bases for cattle in the farms focused on organic production.	
	Basis of farm-management	Short-term theoretical training course
Bee-keeping	Modern technologies of handling and protecting from harmful organisms using the methods accepted in organic production.	A cycle of theoretical trainings
	The basis of Organic bee-keeping technologies. The existing legislative base and regulations	Short-term theoretical training course
Vine making technology and Viticulture	Modern agro-technological rules of planting, cultivation and IMP, Soil nutrition management for organic vineyards.	A cycle of theoretical and practical trainings. Recommended demonstrative component: Providing workshops in the vineyards functioning according to the relevant standards
Berry agricultural plant production	Modern agro-technological rules of planting, cultivation and IMP, Soil nutrition management for organic vineyards.	A cycle of theoretical trainings
Mushroom production	Rules of cultivation - preparation of the substrate, planting, handling and harvesting using the applied methodology of organic production	A cycle of theoretical trainings
Tea production	Modern agro-technological rules of cultivation and IMP, Soil nutrition management for organic plantations	A cycle of theoretical and practical trainings. Recommended demonstrative component: Practical teaching in the plantation selected for demonstration
Dry fruit production**	Handling, harvesting and processing technologies accepted for the organic production	A cycle of theoretical and practical trainings. Recommended demonstrative component: Practical teaching in the relevant factory
Legume agricultural plant (haricot)	Modern agro-technological rules of planting, cultivation and IMP, Soil nutrition management for organic production.	A cycle of theoretical trainings

**for more clarification of the training themes, the additional small-scaled research is recommended*

***In selected varieties of the production*

Chart #87. Training needs - professional capacity building (continued)

Agricultural field	Recommended themes for trainings	Recommended format for implementation
Milk processing	Modern technologies of milk processing in the farms focused on organic production.	A cycle of theoretical and practical trainings. Recommended demonstrative component: Practical teaching in the relevant factory, suitable for the training purposes
	Modern methods of care: prevention of diseases – the main periods of dissemination, the existing regulations and the services-programs provided by the state.	
	Basic methods and technologies of organizing nutrition bases for cattle in the farms focused on organic production.	A cycle of theoretical trainings
Poultry farming	Modern methods of care: prevention of diseases – the main periods of dissemination, the existing regulations and the services-programs provided by the state.	A cycle of theoretical and practical trainings. Recommended demonstrative component: Practical teaching in the relevant factory, suitable for the training purposes
	Basic methods and technologies of organizing nutrition bases for cattle in the farms oriented on organic production.	
	Basis of the poultry farm-management	A cycle of theoretical trainings
Vegetable and greens	Modern agro-technological rules of planting, cultivation and IMP, Soil nutrition management for organic vineyards.	A cycle of theoretical trainings
Fish production	The basic principles of organizing the ponds, building water supply systems, the basic rules of the soil quality management, feeding and harvesting rules	A cycle of theoretical and practical trainings. Recommended demonstrative component: Practical teaching using the relevant ponds selected for demonstration

Chart#88. Training needs – Legislation and marketing

#	Recommended themes for trainings	Recommended format for implementation
1	Marketing management: the methods of elaboration and implementation of the marketing strategy focused on the demands and characteristics of the national market, including: <ul style="list-style-type: none"> ✓ Economic evaluation of technological processes of primary production of agricultural products. ✓ Determination of value chain. ✓ Classification of production costs (permanent and variable costs). ✓ Calculation and interpretation of the tech-map (marginal profit). ✓ Basic principles of the market analyses 	A cycle of theoretical trainings
2	The legislative base existing in the field of organic production for the selected agricultural field - existing regulations and demands for the certification	A cycle of theoretical trainings

Preliminary lists for the contents of training materials in organic agriculture

Chart 89. Agricultural plant growing – preliminary lists of the training materials

Agricultural field	Agricultural plant varieties	Basic components of the training materials
Viticulture Berry agricultural plants, orchards, sub-tropical agricultural plants	Grapes; Blueberry; Raspberry; Strawberry; Apple; Pear; Peach; Plum; Cherry and sweet cherry; Walnut; Hazelnut; Tea; Hascap; Persimmon.	Preferable climate conditions (temperature, air and soil humidity, optimal soil types, pH levels, needed sum of active temperature, critical temperatures - maximum and minimum)
		Description of the prospective varieties for the climatic zones of the target area
		Basic rules of selecting area for the fields and planting technology
		Modern agricultural rules of grafting and pruning
		Descriptions of the basic harmful organisms (fungal, bacterial and viral diseases, main insect pests and mites) and optimal climatic conditions (temperature, soil and air humidity) for their emergence
		Description of the integrated measures to tackle harmful organisms - mechanical, agro technical and biological methods, using bio pesticides registered in the republic of Georgia
		Description of the soil nutrition schemes applied in organic agriculture
		Descriptions of the storage and post-harvest management strategies in terms of the organic production
Cereal, greens and vegetable agricultural plants	Potato; Cabbage; Pepper (open and closed fields); Eggplant (open and closed fields); Cucumber (open and closed fields); Tomato (open and closed fields); Carrot; Beetroot; Onion; Garlic; Haricot; Lettuce (open and closed fields); Asparagus (open and closed fields); Coriander (open and closed fields); Parsley (open and closed fields); Broccoli (open and closed fields).	Preferable climate conditions (temperature, air and soil humidity, optimal soil types, pH levels, needed sum of active temperature, critical temperatures - maximum and minimum)
		Description of the promising varieties/hybrids for the climatic zones of the target area
		Basic rules of selecting the area for the fields and planting technology
		Descriptions of the basic harmful organisms (fungal, bacterial and viral diseases, main insect pests and mites) and optimal climatic conditions (temperature, soil and air humidity) for their emergence
		Description of the integrated measures to tackle harmful organisms - mechanical, agro technical and biological methods, using bio pesticides registered in the republic of Georgia
		Descriptions of the soil nutrition schemes applied in organic agriculture
		Descriptions of the storage and post-harvest management strategies in terms of the organic production

Chart 90. Beekeeping – preliminary lists of the training materials

Agricultural field	Type of production	Basic components of the training materials
Beekeeping	Honey	Bee Biology - Origin, castes, morphology, life cycles, metamorphosis, the nest as a super organism, worker duties, winter bees, foraging, flight ranges, communication, dances, and pheromones.
		Modern rules of beehive handling, including: feeding and beehive movement techniques, descriptions of the Beekeeping equipment, spring, summer fall and winter management rules, descriptions of the food crops (identification, seasonal nectar flows, pollen quality, poisonous plants, urban plants, the effect of droughts and excessive rain.)
		Harmful organisms – descriptions and management strategies in terms of the organic production

Chart 91. Animal husbandry and poultry farming – preliminary lists of the training materials

Agricultural field	Type of production	Basic components of the training materials
Animal husbandry (cattle) and poultry farming (hens)	Cattle breeding, meat production	Modern methods of care: prevention of diseases – the main periods of dissemination, descriptions of the key types of the diseases, their identification and prevention measures, the existing regulations and the services-programs provided by the state.
		Basic methods and technologies of organizing nutrition bases for cattle in the farms focused on organic production
		Applied hygiene standards (establishing and maintenance techniques) for cattle in terms of the organic production
		Perspective breeds of cattle for the project target area
		Modern pasture management strategies
		Fodder preparation and storage rules for the organic farms
		Basic rules of controlling the cattle parasites with herbal remedies
		Cattle nutritional requirements – optimal nutrient contents-schemes of feeds
	Cattle housing – basic principles of organizing the sheds	
	poultry farming (hens) – meat production	Modern methods of care: prevention of diseases – the main periods of dissemination, the existing regulations and the services-programs provided by the state.
		Perspective breeds for production
		Basis of the organic meat production technologies
		Applied hygiene standards (establishing and maintenance techniques) for cattle in terms of the organic production
		Nutritional requirements – optimal nutrient contents-schemes of feeds in the farms oriented on organic production.
		Housing – basic principles and requirements of building henhouses (suitable materials for the construction, needed equipment)
Brooding and chicken handling management strategies		

Chart 92. Fish (trout) farming – preliminary lists of the training materials

Agricultural field	Type of production	Basic components of the training materials
Fish farming	Trout	Physiological descriptions: Life cycle and development stages, optimal climate conditions for the development
		Structures and devices of water management: Water supply and drainage systems, description and using techniques of the of the Mechanical and biological filters
		Production conditions: Optimal pH level, temperature, dissolved oxygen content of water, required soil quality
		Rules and techniques of handling and propagation: <ul style="list-style-type: none"> ✓ Feeding and harvesting rules; ✓ Handling techniques of eggs and fish of different age groups; ✓ Receiving rules of eyed egg, fry, fingerlings and older age groups.
		Descriptions of the trout diseases and the modern rules of their management in terms of the organic production
		Descriptions of the modern healthcare technologies (Basic threats and prevention oriented technologies applied in organic production sector).

Chart 93. Mushroom cultivation – preliminary lists of the training materials

Agricultural field	Varieties possible to be cultivated in house-farm conditions	Basic components of the training materials
Mushroom cultivation	Agarictus silvestris; Agaricus arvensis; Agaricus pratensis; Agaricus campestris	Biological descriptions of each varieties, morphology, life cycles.
		Optimal climate conditions for the cultivation
		Substrate types and preparation rules - mushroom compost formulations used for the organic production and their preparation techniques.
		Fungi Nutrition: carbon, nitrogen, essential elements, vitamins and growth factors
		Growing house construction techniques, managing the Growing House cleanliness, heating, cooling, humidity, etc
		Description of the basic pests, diseases and environmental disorders of the mushrooms and the integrated management methodology of harmful organisms and environmental disorders.
		Harvesting, storage and labelling rules (Cool Storage rules of Mushrooms Freezing and dry freezing techniques of Mushrooms)

Chapter V

Project beneficiary groups – basic criteria for their selection

Within the frames of the research the complex of the ranking criteria was elaborated. It contains all the main objective determinative factors and creates the auxiliary mechanism for the identification of the most promising beneficiary groups of the project.

The above-mentioned complex of the criteria is recommended to be taken into consideration in the process of the selection project of the beneficiary groups in various agricultural fields. Basically, elaborated criteria or some of the criterions can be involved in the application forms and the calls for the grant competition focused on the selection of the partner beneficiary groups of the project among the cooperatives, companies and farmer communities operating in the target area.

These main criteria - characteristic factors of the potential beneficiary groups are considered in the chart #94 with the relevant descriptions.

Chart #94. Preliminary lists of the criteria for determining the potential of the project beneficiary groups

#	Criteria - characteristic factors of the potential beneficiary groups	Description
1	Proven experience in organic agriculture	The production is initiated and the organic or at least eco certificate is obtained
2	Type of farming	It is planned to develop the production of the I or at least II category* of priority agricultural field (determined by this research)
3	Clear idea about the planned actions	detailed business plan is prepared
4	Existing capacities	Financial availability to conduct a co-shared project
5	Non-existence of the financial obligations	Credits in banks or in micro financial organizations
6	Proven experience in accounting records	Only in case of cooperatives, associations or companies
7	Proven experience in administrative management (in case of cooperatives, associations or companies)	Only in case of cooperatives, associations or companies
8	Clear idea about the GRETA project requirements	Business plan and project proposal is prepared according to the regulations and rules announced by GRETA project
9	Clear idea about the types of the possible contributions from the GRETA project side	Project proposal adequately reflects the types and the volumes of the possible contributions from the GRETA project side
10	Experience of participation in the similar programs	Experience of cooperation with the international donor organizations
*In some cases the field from II category may be converted into organic production if some concrete factors are preferable for it.		

Part III - Provided activities and References

Courtesy meetings

Courtesy meetings – Chart#95

Name	Organization	Position	Outcomes
Mariam Gelashvili	Agricultural and rural development agency of the Ministry of Environmental Protection and Agriculture of Georgia	Deputy Head of Regional Coordination Department	Meetings in regional offices located in Zestafoni, Zugdidi and Ambrolauri were planned
			Meeting with Deputy Minister will be planned if needed (this meeting and consultations may be required at the implementation phase)
Teo Urushadze	Agricultural University of Georgia	Professor, Dean, School of Agricultural and Nature Science	Some materials about the soil conditions and basic types in the target municipalities are obtained
Nikoloz Meskhi	National Food Agency	Head of the Department of Plant Protection	Meetings in regional offices of the agency located in Zestafoni, Zugdidi and Ambrolauri were planned
Giorgi Teliashvili	Food and Agriculture Organization of the United Nations (FAO) Representation in Georgia	National Extension Expert	Some materials, recommendations and researches provided by FAO in the target regions are obtained
			The contact information of their regional coordinator operating in Racha-Lechkhumi and Kvemo Svaneti Region is obtained to provide the meeting
Mzagho Lobzhanidze	Professor, entomologist, plant protection specialist	Agricultural University of Georgia	Recommendations, information and materials about the basic Insect pests disseminated on the target area were obtained
Lado Baramidze	Professor, Manager of CRDF project " Oxgen "	Agricultural University of Georgia	Recommendations, information and materials about Fungal, Bacterial and Viral diseases of agricultural plants in the target municipalities are obtained
Anna Bokuchava	Professor, Master Programs Coordinator	Agricultural University of Georgia	Information and materials about existing nutritional base and the further prospects of its development on the target area

Meetings provided in target municipalities

Chart. N 96

Chiatura municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Koba Shekhlidze	Gezruli	Tea plantation	+995 577 95 48 75
Tariel chubinidze	Kvatsikhe	Tea plantation	+995 591 04 78 04
Zurab Bregvadze (cooperative “Kvatsikhe-2015”)	Sakurtse	Fish production	+995 599 43 57 83
Lamara Chikhelidze	Sakurtse	Berry fruit plantation	+995 568 85 22 44
Eka Gamezardashvili (cooperative “Bio tea”)	Kvatsikhe	Tea plantation	+995 599 72 07 96

Farm in the process of obtaining bio-certificate

Chart. N 97

Tkibuli municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Kakhaber Topadze	Satsire	Tea plantation, Berry fruit plantation Beekeeping/Honey production and Animal husbandry (cattle)	+995 595 49 06 16
Badri Darsadze	Sochkheti	Beekeeping/Honey production	+995 597 60 90 40
Gocha Tsirekidze	Akhalsopeli	Berry fruit plantation	+995 599 58 33 29
Janiko Darsadze	Gurna	Tea plantation	+995 599 10 75 82

Chart. N 98

Ambrolauri municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Cooperative “Racha Natural Products”	Ambrolauri	Beekeeping/Honey production	+995599971775

Chart. N 99

Oni municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Jaba Skhirtladze	Oni	Beekeeping/Honey production	+995 599 22 64 53

Chart. N 100

Lentekhi municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Demuri Liparleliani	Lentekhi	Beekeeping/Honey production	+995 599 852707
Elene Boguslavsky - Cooperative “Tabgaal” <i>Phone interview was provided</i>	Buleshi	Dry fruit production	+995 599 231247

Chart. N 101

Tsageri municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Bondo Khetsuriani	Larchvali	Beekeeping/Honey production	+995591644034
Manana Mamardashvili	Ophitara	Beekeeping/Honey production	+995790307419
Besiki Chabukiani	Dekhvir	Beekeeping/Honey production	+995598552021
Maia Bregvadze cooperative “Chrela - 2017”	Lasuriashi	Animal husbandry - Cheese production	+995591974707
		Animal husbandry – Pork production	
Nato Bendeliani cooperative “Gvesos` farm”	Gveso	Animal husbandry – Goat cheese production	+9955511719 99

Chart. N 102

Mestia municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Spartak Kviciani (cooperative “Becho”)	Becho	Multifunctional cooperative	+995577261325
		Production types: Beekeeping/Honey production, Vegetables, Maize, hazel nut, Berries.	
		The target products-agricultural fields and the main subject of the interview was Honey and Berry fruit production	
Omar Nanskhani	Latali	Multifunctional cooperative	+995574701390
		Production types: Vegetable production in greenhouses, Beekeeping/Honey production, Animal husbandry (cattle) and Guesthouse.	
		The target products/services and the main subject of the interview were Beekeeping/Honey production, Vegetable production in greenhouses, Animal husbandry and Guesthouse.	
Zurab Chkadua	Lakhamula	Animal husbandry (cattle)	+995551504890
Zurab Nizharadze	Khaishi	Multifunctional cooperative	+995551350049
		Production types: Vegetable production, Beekeeping/Honey production, Cereal agricultural plant production and Guesthouse.	
		The target products/services and the main subject of the interview were Beekeeping/Honey production and Guesthouse.	
Nino Philphani	Lenjeri	Guesthouse and Animal husbandry (cattle)	+995595858331
Levan Jamdeliani (Cooperative “Mazeri”)	Bechi, Mazeri	Vegetable (Potato) production and Guesthouse.	+995557252435
Jimsher Naveliani	Mestia	Vegetable (Potato) production and Beekeeping/Honey production	+995551335564

Chart. N 103

Sachkhere municipality – provided meetings			
Owner	Location	Type of farming/comment	Contact details
Manuchar Machaidze	Tskhomareti	Fish production	+995 598 44-80-74
Murman Kapanadze LTD “Otriula”	Otria	Multifunctional cooperative	+995 555 27-19-19
		Production types: Beekeeping/Honey production and guesthouse.	
Maradi Kemertelidze	Merjevi	Wine-making	+995 599 70-64-61
Maia Kharshiladze	Merjevi	Wine-making production and guesthouse.	+995 593 10 04 47
Marina Todadze	Sachkhere	Vegetable growing and the Guesthouse	+995 557 18-48-44
Manana Goshadze	Skhvitori	Vegetable growing	+995 591 33-44-91
Eka gogatishvili LTD “Perevi”	Perevi	Beekeeping/Honey production	+995 551 43-66-29
Gogi Chachanidze	Korbouli	Beekeeping/Honey production	+995 593 49-43-74
Maia Chitadze	Chala	Beekeeping/Honey production	+995 551 00-50-30

Pictures representing the field activities (inception and implementation phases of the research)

Mestia municipality. Nanskra administrative unit. Interviewing the local farmer communities



Tsageri municipality. Okureshi village Bio-vineyard



Sachkhere municipality. Meeting with local mushroom producers



Sachkhere municipality. Meeting with local mushroom factory



Sachkhere municipality. Meeting with local farmer oriented on food processing



Sachkhere municipality. Meeting with local mushroom producers



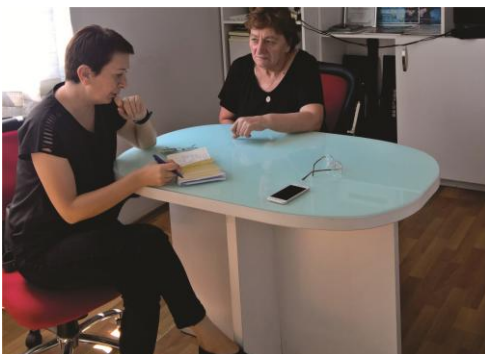
Chiatura municipality. Meeting in the local tea processing factory



Chiatura municipality. Meeting Local tea plantation



Chiatura municipality. Meeting with local guesthouse owner oriented on agro tourism development and mushroom production



Chiatura municipality. Local farmer service center



Ambrolauri municipality Local honey processing factory



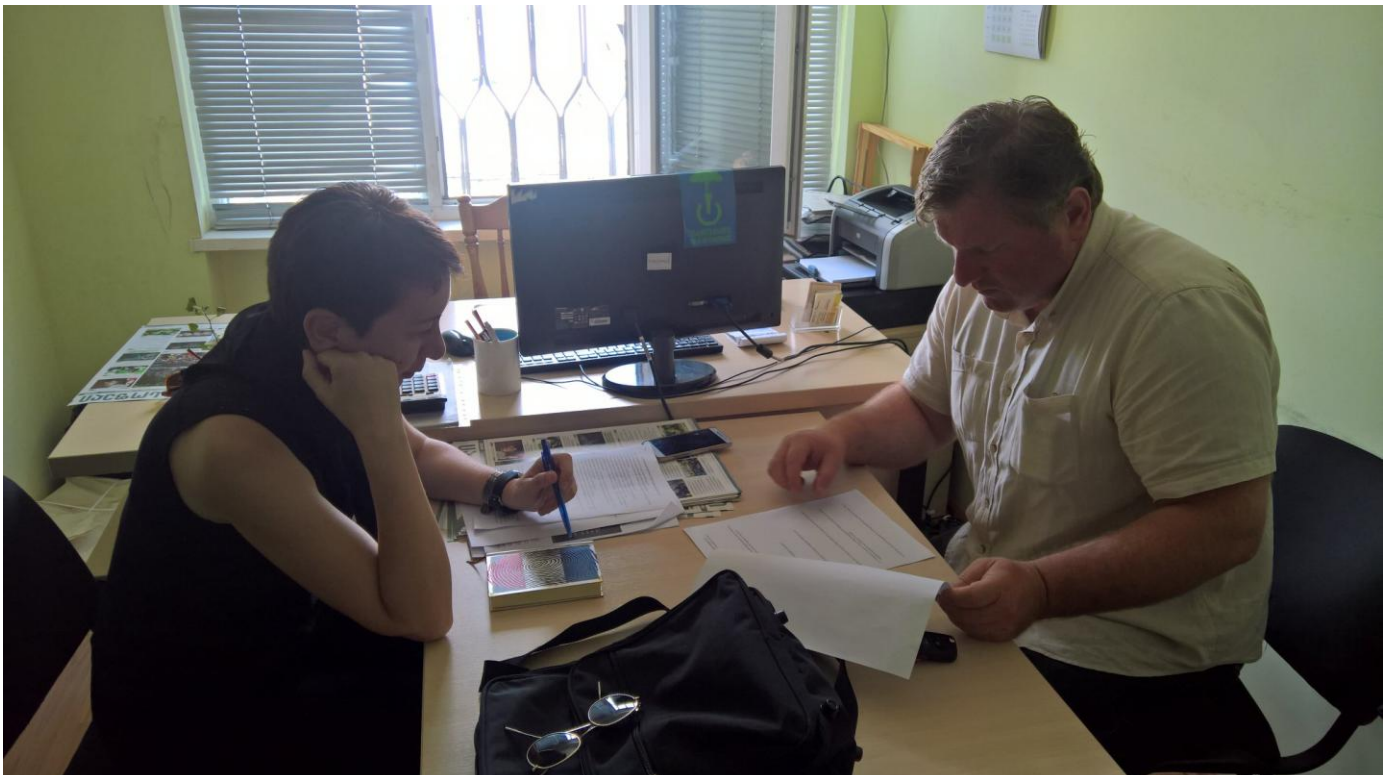
Lentehhi municipality. Meeting with the local bee-keeper and the local representative of MEPA



Tsageri municipality. Meeting with the local farmer communities



Mestia municipality. Workshop with the local representative of MEPA



Mestia municipality. Meetings with local greenhouse-owners and with the local expert



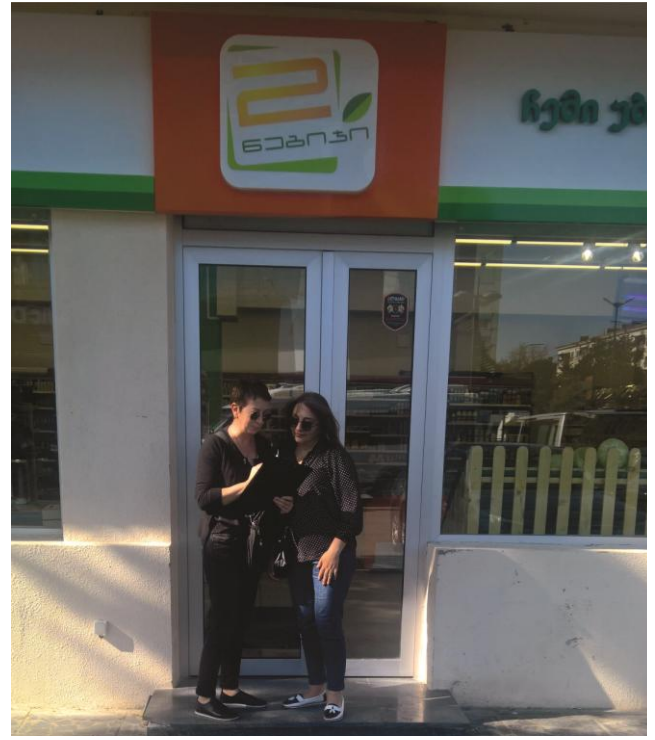
Chiatura municipality. Local tea-processing enterprise



Customer surveys. Kutaisi, supermarket "Spar"



Customer surveys. Kutaisi, supermarket "2 Nabiji"



Tkibuli municipality. Interviewing the local farmer communities



Sachkhere municipality. Workshop with the local representative of MEPA



Sachkhere municipality. Traditional wine-vanult



Chiatura municipality. Interview with the representative of the local tea producing cooperative



Tkibuli municipality. Meeting with local beekeepers



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Imereti Region – Strategy of Development for 2014-2021	
One-Year Action Plan - Racha-Lechkhumi and Kvemo Svaneti Region	UNDP, Swiss Agency for Development and Cooperation (SDC) and Austrian Development Agency (ADA) and NGO Agrarian Movement of Georgia
National Strategy of agricultural Extension 2018-201	ENPARD, Fao, Ministry of Environment and Agriculture of Georgia
Operative information of MEPA	Local extension offices operating in the target municipalities
The Georgian Trout Sector: A Regional Value Chain Study	ENPARD - European Neighbourhood Programme for Agriculture and Rural Development
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Income Opportunities in Non-Timber Forest Products	Rural Communities Development Agency (RCDA) in cooperation with OXFAM Consortia and supported by European Neighbourhood Program for Agriculture and Rural Development (ENPARD).
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Training needs assessment - testing the local extension providers operating in the target municipalities of GRETA project	UNDP, Swiss Agency for Development and Cooperation (SDC) and Austrian Development Agency (ADA) and NGO Agrarian Movement of Georgia

*The report was prepared by the expert team of the contractor Organization **Agrarian Movement of Georgia** within the frames of the GRETA Project - Green Economy: Sustainable Mountain Tourism and Organic Agriculture.*

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