

# FOOD SECURITY AND NUTRITION CHALLENGES IN THE HIGH MOUNTAINS OF GEORGIA



დაფინანსებულია ევროკავშირის მიერ  
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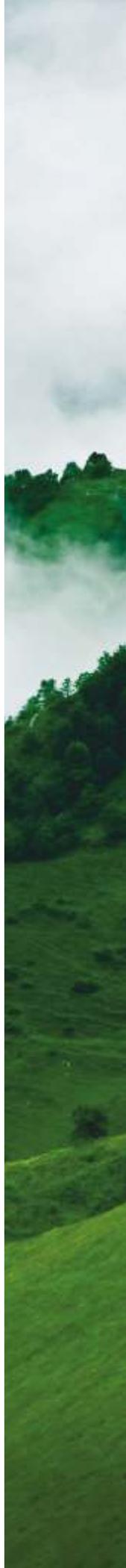
# **FOOD SECURITY AND NUTRITION CHALLENGES IN THE HIGH MOUNTAINS OF GEORGIA**

**Tbilisi  
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## Executive Summary

This study provides thorough analysis of gender sensitive food and nutrition challenges in the mountainous areas of Georgia, based on affordability, availability, quality and safety of the food, including the impact of hazards triggered by climate change on food production and affordability.

The study included both desk and field researches, with comprehensive methodology utilizing qualitative and quantitative tools of face to face and in-depth interviews, focus group discussions and structured questionnaire forms. The desk research was applied to the data available for twelve mountainous municipalities in the six regions of the country. The desk research confirmed that the data at the municipality and especially at household levels are fragmented and insufficient for proper analysis. Therefore, field research was conducted in the four selected municipalities of four regions (Mestia, Stepantsminda, Aspindza and Shuakhevi.)

The results of the analysis show, that the food security and nutrition level in the highlands of Georgia is lower compared with the country average. In the highlands of Georgia, according to the results of this study, this percentage of the undernourished population is 9-13%, compared to 7.4% for the country average.

Mountain communities are highly dependent on imported foods and food products supplied from other regions of Georgia. Although all target municipalities in the eastern and western Greater Caucasus and the Lesser Caucasus are agricultural areas, they are fully or partially self-sufficient only in several food products and most of the basic food products required for food security are supplied to the highlands from the other regions of Georgia or imported.

The highlands of Georgia have low levels of food production and limited possibility for diversification to produce various foods required for food security and nutrition, compared to the valleys. Unfavorable natural conditions, the non-existence of a comprehensive legal framework, regulating ownership of land and natural resources, the lack of land registration and cadastre, smallholder farmers' limited access to credit, depopulation of areas are some of the major factors adversely affecting the development of agriculture in the Great Caucasus mountain region.

The food affordability is lower for mountain communities. Based on the survey, in the highlands 63% of the households spend more than 50% of their total expenses on food. 22% of households spend more than 75% on food. These results are much higher than the country average of 44%. 8% of the households which do not have sufficient income to cover food expenses. The food affordability is further decreased by higher prices on food in these areas.

The low level of agricultural development and commercialization in the highlands is not compensated with the growth of non-agricultural sectors, which could entail employment diversification, increase in incomes and food affordability. The most active non-agricultural

economic sectors in the highlands are currently construction of hydropower stations and tourism development.

Just as in the other regions, poverty levels and food prices influence the households' diet in the highlands. Their increase reduces the diet and quality of the the food consumed by households. Households' food supplies increasingly depend on food purchase and consequently on their income. Families are often faced with a choice between product quality and price. 84% of the respondents opt for lower quality food products at cheap prices. In terms of the quantity and quality of daily food consumption, 72.5% assess their diet as average and 13.8% - as poor. In addition to the dietary patterns, it is important to improve existing hygienic and sanitary conditions and water supply systems.

Climate change triggered hazards to food production and availability in the highlands are serious challenges for Georgia. 18% of the respondents mentioned climate change and the frequency of natural calamities among the top three reasons of migration from highland villages.

The potential of gender equality in the development at the household level remains unutilized. The empowerment of women and the strengthening of their ownership rights will contribute to the utilization of this potential. 66.4% of respondents underlined the male preference in inheritance, while 32.9% stated that property is inherited by both male and female, depending on family circumstances. The percentage of men who have the status of the "head of a household" (85.8%) is much higher than that of women (14.2%).

Four main recommendations, further detailed in this document, were developed based on the findings of the research:

- Developing the comprehensive legal framework to enable the Government to address effectively food security and nutrition challenges in the country.
- The food and nutrition security policy of Georgia need to take into account the specificity of the highland related issues.
- Targeted state programs for the economic development of mountainous areas should be designed based on the specific needs and problems of identified areas, ensuring food availability, affordability, quality and stability in the highlands.
- Existing constraints to mountain development should be targeted, in order to integrate mountains into economic relations and address food security and nutrition issues.

## Introduction

Since September 2013 The OXFAM in Georgia has been carrying out the four-year Regional Project of the European Union “Improving National Food Security Strategy and Support of Small Holder” financed by the European Union in Azerbaijan, Georgia and Armenia.

The present study was conducted under the aforementioned Project to analyze food and nutrition challenges in the mountains of Georgia, namely in the Greater and Lesser Caucasus.

### 1.1 Research Objectives

The objective of the research is to study the food security and nutrition challenges in terms of food affordability, availability, quality and sustainability in the Georgian mountains, including hazards to food production and affordability triggered by climate change and analysis of gender equality challenges in households’ food security and nutrition.

### 1.2 Research Tasks

The following tasks were addressed to achieve the research objectives:

- Identifying major food security and nutrition constraints in the highlands of Georgia;
- Assessment of the food security and nutrition status in the highlands of Georgia in terms of challenges triggered by the climate change;
- Summary analysis of the research findings, identifying the ways to address food security and nutrition challenges in given environment, and providing recommendations to decision makers to address these challenges according to the best practices.

### 1.3 Target Regions

Georgia is a mountainous country. Mountains cover 54% of total area. In terms of geomorphology, the territory of Georgia is divided into Greater Caucasus, Lesser Caucasus and intermountain valleys. The mountain ranges of the Greater and Lesser Caucasus are connected with the Likhi Range, dividing the country into eastern and western parts. The research covers the following geomorphological areas:

- municipalities located to the West of the Greater Caucasus (Mestia and Oni municipalities);
- municipalities located to the East of the Greater Caucasus (Kazbegi, Dusheti and Akhmeti municipalities);
- municipalities located at the Lesser Caucasus (Aspindza, Adigeni, Akhalkalaki, Dmanisi, Khulo, Keda and Shuakhevi).

These mountain regions of Georgia border with the neighboring Countries.

## Research Methodology

The research strategy was defined based on the research objectives and tasks mentioned above. The study included both desk and field researches. The desk research confirmed that the data at municipality and especially at household levels are fragmented and insufficient for proper analysis. Therefore, field research was conducted in the selected municipalities of Mestia, Stepantsminda, Aspindza and Shuakhevi.

The study utilized the methods of qualitative and quantitative researches. The primary data from the local population was gathered through face-to-face interviews. The interviews were conducted using the questionnaires developed specifically for this research. Qualitative research was conducted through focus groups and in-depth interviews. In total, 200 forms and 180 questionnaires were filled out, 12 focus groups and 20 in-depth interviews were conducted. The analysis of food security and nutrition challenges is based on the data obtained through the research described above.

## Main Findings

The main findings made on the basis of this research are as follows:

1. The food security and nutrition level in the highlands of Georgia is lower compared with the Country average. According to the information of the United Nations Food and Agriculture Organization (FAO), 7.4% of the Georgian population is undernourished<sup>1</sup>. In the highlands of Georgia, according to the results of this study, this percentage of the undernourished population is 9-13%.
2. Imported foods, as well as food products from other regions of Georgia, need to be supplied to the highlands of Georgia in order to ensure food availability there.

Although all the target municipalities in the eastern and western Greater Caucasus and the Lesser Caucasus (Kazbegi, Dusheti, Oni, Mestia, Keda, Shuakhevi, Khulo, Adigeni, Aspindza, Akhalkalaki, Dmanisi) are agricultural areas, they are self-sufficient only in several food products for the following activities: potato growing, cattle and sheep breeding, which are the main subsectors in the highlands. Most of the basic food products required for food security (such as vegetables, poultry, eggs, fish and seafood, bread and baked goods, cereals, grapes, citrus, etc.) are supplied to the highlands from the other regions of Georgia or imported, which does not ensure the required level of food availability for the population of highlands of Georgia, thus there is a need to guarantee the food supply to the highlands.

3. The highlands of Georgia have low level of food production and limited possibility of diversification to produce various foods required for food security and nutrition compared to the valleys.

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<sup>1</sup> The State of Food Insecurity in the World.FAO, Rome ,2015. <http://www.fao.org/3/a-i4646e.pdf>



4. The unfavorable natural conditions in the highlands limit the development opportunities for agriculture.

5. In addition to the natural and climatic conditions a number of economic and non-economic factors affect the growth of food production in the mountainous regions. One of the major constraints is the non-existence of a comprehensive legal framework, regulating ownership of land and natural resources, lack of land registration and cadastre, impeding development of a land market and its capitalization.

6. The smallholder farmers' limited access to credit, which is one of the major constraints for the development, is mainly caused by the lack of land registration. Unregistered land cannot be used as collateral<sup>2</sup>. The other obstacle is the lack of land and production consolidation, low level of cooperation among households, limited use of cooperative management forms, etc.

7. The demographic situation, namely depopulation of areas, is an important factor adversely affecting the development of agriculture in the Great Caucasus mountain regions.

8. A household production is the basis for food security and nutrition at the family level in the highlands. However, most of households are subsistence farmers, which can only ensure availability of a few types of products for a family. The rest of the required products have to be purchased at a food market. Therefore, a household needs money to buy food products whereas its income is low due to the limited production and restricted access to markets. In such cases, food affordability is limited due to the lack of money and poverty.

9. The potential that can be developed by gender equality the household level remains unutilized. The empowering of women and strengthening their actual ownership rights will contribute to the utilization of this potential. The legislation of Georgia ensures equal rights for men and women. They also have equal rights by inheritance law. However, in the survey of gender equality in farming and property inheritance, 66.4% of respondents underlined the male preference for inheritance, while 32.9% stated that property is inherited by both male and female, depending on family circumstances. The percentage of men who have the status of the "head of a household" (the main decision maker in the household) (85.8%) is thus much higher than that of the women (14.2%).

10. The worldwide pattern that the poverty level in the mountains is higher than overall in the country is true for the mountainous regions of Georgia. Food affordability is lower for mountain communities than for valleys.

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<sup>2</sup> All over Georgia the land registration level is low and amounts to 30% only. The status of land registration in the highlands is similar to that in the valleys. However, in some cases the land registration level in the highlands is lower (e.g. the questionnaire surveys in Kazbegi and Shuakhevi municipalities show 20-17% of land registration)

In Georgia, a household's expenditures on food amount to 44% of the total expenditures<sup>3</sup>. However, in the highlands, 63% of the households spend more than 50% of their total expenses on food. 22% of households spend more than 75% on food. It is noteworthy that 8% of the households do not have sufficient incomes to cover food expenses. One of the ways to increase a household's income is seasonal or permanent migration to the other areas/towns or moving abroad. The main centers of migration are Tbilisi, Batumi and Kutaisi. Emigration to Turkey is more common in the highlands of West Georgia.

11. The low level of agricultural development and commercialization in the highlands is not compensated with the growth of non-agricultural sectors, entailing employment diversification, increase in incomes and food affordability. The structural economic changes in the highlands are spontaneous adaptations to the new market conditions. The most active non-agricultural economic sectors in the highlands are currently construction of hydropower stations and tourism development.

The tourist industry has significantly increased in Mestia (Zemo Svaneti), Stepantsminda (Khevi) and to a lesser extent in Aspindza and Shuakhevi. The development of tourism in Aspindza, Shuakhevi, Akhaltsikhe, Adigeni and Khulo is impeded by the poor road conditions on the Goderdzi Mountain Pass. The local agricultural production cannot meet the increased food demand. Therefore, food supplies for tourists in Mestia and Stepantsminda are delivered from other municipalities – to Mestia from Zugdidi and Poti and to Stepantsminda mostly from Tbilisi. Tourism generally expands the market for local food products. However, local agricultural production should keep up with the growth of the tourist industry, so that the positive effect of tourism development is enhanced.

12. The relatively high level of food insecurity in the highlands is partially caused by the high prices of food. The food products supplied to the mountainous regions are generally more expensive than in the valley or other markets. The increase in price is caused mostly by logistical constraints such as the long distance from storage facilities, high transportation costs, underdeveloped infrastructure and retail network, etc. High prices decrease the food affordability level.

13. As in the other regions of Georgia, poverty levels and food prices influence the households' diet in the highlands. Increase in poverty deteriorates the diet pattern and quality of the households' diet.

The traditional diet is gradually replaced with a new diet pattern. The share of processed foods in the households' diet is growing and fresh products are replaced with semi-processed food. Households' food supplies increasingly depend on food purchase and consequently on their incomes. In view of the above, families are often faced with a choice between product quality and price and most of them give preference to lower priced products. 84% of the

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<sup>3</sup> [http://www.geostat.ge/?action=page&p\\_id=751&lang=geo](http://www.geostat.ge/?action=page&p_id=751&lang=geo). In the developed countries expenditures on food is no more than 20% of the total expenses.

respondents state that they opt for lower quality food products due to their cheap prices (out of which 41% of respondents do so frequently and 43% - rarely).

In terms of the quantity and quality of daily food consumption, 72.5% assess their diet as average and 13.8% - as poor.

14. The risks to stable food supply are higher in the mountainous regions than overall in the country. The risks to physical availability of food in the highlands are caused by the poorly developed market, transportation and trade infrastructure. The food availability risks are exacerbated by supply delays due to harsh winters and heavy snowfalls, natural calamities cutting off villages and settlements.

15. In addition to the dietary pattern, it is important to improve existing hygienic and sanitary conditions and water supply systems. Some actual improvements in potable water supply, sewage system development, waste disposal and animal disease control need to be noted. There is a considerable increase in potable water supply and now 70.9% of the population receive their drinking water from the central water supply system. More than half of the population (54%) have water closets. Waste (garbage) disposal services have expanded to cover 44.2% of the population (instead of 5%) during the last 5 years. However, there still significant challenges in this sector, namely: About 30% of the highland population have no central water supply; 46% have neither sewage systems, nor water closets connected to the sewage network; 55.8% of the population burn, bury or dump their waste on illegal dumping grounds, rivers, streams, etc.

16. Food security and nutrition statuses have common and different aspects not only at the national and regional levels, they may vary by municipalities and even households.

The land and population ratios in the Greater Caucasus and Lesser Caucasus are significantly different from each other. By this ratio, these regions can be classified into three types:

- small size of population (the municipalities of Akhmeta<sup>4</sup>, Dusheti, Oni, Kazbegi, Mestia in the Greater Caucasus)
- small area (the municipalities of Keda, Shuakhevi, Khulo)
- adequacy of population and area (Adigeni, Aspindza, Akhalkalaki, Dmainisi)

17. The climate change triggered hazards to food production and availability in the highlands are the most serious challenges for Georgia. The population of mountainous regions of Georgia continuously adapt to the unforeseen environmental changes. At present, this process is of special significance due to the global warming. It is noteworthy that 18% of the respondents mentioned climate change and the frequency of natural calamities among the top three reasons of migration from highland villages.

18. Research results show that climate change adaptation and mitigation of its impact lack institutionalization in the surveyed municipalities. The awareness level in municipalities is

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<sup>4</sup> The part of Akhmeta Municipality covering Tusheti.

generally insufficient. Although at the local level climate change risks are perceived to be important, but there is no discussion about the potential results and impact of climate change on the economy and welfare of the population. There is no special structure to deal with these issues and no preventive measures are carried out for natural disaster mitigation. The mitigation measures are usually taken only in response to a disaster whereas 100% of the respondents state that natural disasters have occurred in their municipalities over the last 5 years.

19. The border regions of Georgia still suffer from the economic consequences of the border closure. When Georgia regained its independence, administrative boundaries became the state borders. These changes have disrupted the seasonal sheep migration from Georgia to the pastures in the Northern Caucasus. Traditional food supply chains broke up when the Northern Caucasian highlanders brought their products to the valleys of Georgia and sold (or often bartered) them for the products they needed.

20. The economic growth of the highlands, which is essential for their food security and nutrition, can be achieved through the development of agriculture and other non-agricultural sectors with competitive advantage has stalled. Local municipalities lack capacity to ensure innovative economic growth in the highlands and the government has not adopted a comprehensive development program for the mountainous regions.

21. The commitment to establish the food security and nutrition arrangement is expressed in the following current documents: **strategic documents**, e.g. “Economic Development Strategy – Georgia 2020”, “The Government Program for Strong Democratic and United Georgia”, “the Regional Development Strategy 2010-2017”, “Regional Development Program of Georgia 2015-2017” and development strategies for various regions of the country; **sectoral documents**, e.g. “the Strategy for Rural Development in Georgia 2015-2020”. However, these documents do not deal with specific issues of food security and nutrition challenges in the mountainous regions.

22. Although “The Law on the Development of Mountainous Regions of Georgia” (2015) includes the provisions on promotion of social, demographic and economic development to improve food security and nutrition, but it does not provide comprehensive solutions for food security and nutrition. Moreover, this Law includes only the high-mountain regions and does not apply to the rest of the highlands. The social and economic problems of the highlands cannot be distinguished by this criteria.

## Recommendations

The following recommendations were developed based on the findings of the research:

1. Developing the comprehensive legal framework to enable the Government to address effectively food security and nutrition challenges in the country;

In order to establish the integrated legal and policy framework for food security and nutrition in the country, including highlands, the following regulating framework document(s): Law “On Food and Nutrition Security” and/or “Food and Nutrition Security Strategy for Georgia” need to be developed. The aforementioned documents shall:

- establishing the integrated food and nutrition security policy goals, objectives, directions and their implementation arrangements at the national, autonomous republic, municipality/town, highland region and household levels;
- specifying the structure of state agencies responsible for national food and nutrition security, their responsibilities and competences, goals, objectives and functions;
- developing the state action plan for disaster reduction and management, that ensure proper functioning of food security systems in emergencies or crisis situations;
- establishing procedures for the elaboration of food and nutrition security state programs as well as mechanisms for their financing and implementation.

2. The food and nutrition security policy of Georgia shall take into account the specificity of the highland related issues, namely:

- Differentiating definitions of mountain and high-mountain regions; defining mountain and high-mountain regions as development areas without reference to their administrative-territorial location and implement special development projects for those areas. It is advisable to introduce the European definition of mountain regions. "Mountain regions" mean areas whose altitude, sloping terrain and climate create special conditions which affect the pursuit of human activities according to the “Recommendation 75 (2000) on the draft European outline convention on mountain regions”<sup>5</sup>;
- The target of high mountain regions development policy shall be neither settlements nor a village located on a mountain slope. Instead, mountain development should be considered in the context of a regional development concept, as complex economic, social-cultural and environmental systems, represented through the integrated territorial management;
- Because of specific natural and geographic conditions, mountain regions are characterized by small holdings and fragmented land plots. Agricultural production growth in the mountain regions should be based on the acceptance/development of small farms. Development approaches should be based on enhancing small farms’ productivity to

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<sup>5</sup> [https://wcd.coe.int/ViewDoc.jsp?Ref=REC\(2000\)075&Language=lanEnglish&Ver=original&Site](https://wcd.coe.int/ViewDoc.jsp?Ref=REC(2000)075&Language=lanEnglish&Ver=original&Site)

secure food self-sufficiency and access to markets, as well as to increase their competitiveness;

- It should be recognized that mountain areas vary significantly. Therefore, targeted highland development programs should consider not only similarities, but also differences of mountain regions of Georgia (as mentioned above, typology based on: a) size of population, b) size of area and c) adequacy of population and area);
- Highland's food security and nutrition policy shall be based on economic growth and this process should not be confined only/mostly by agricultural development and providing social benefits and incentives to local population. Especially since problems of the highlands to increase employment or reduce poverty cannot be solved by the revival of agriculture. Traditional agriculture should be restored with a focus on increasing economic benefit. The profitable agriculture in the highlands of Georgia can be developed through the introduction of organic and high-value agriculture and the promotion of cooperative enterprises;
- Diversifying the sources of highlands development.

Food availability should be improved not only through the commercialization of agriculture or the development of agricultural production and processing enterprises, but also by generating income from other economic activities, exploiting the advantages of the highlands compared to the valleys such as landscapes, fresh air, timber and non-timber forest products, herbs, fruit and berries, etc. It is essential to capitalize on the aforementioned opportunities.

Diversification approach should be based on the state funded tailor made development programs, specific to different mountainous zones.

3. Targeted state programs for the economic development of mountainous areas should be designed based on the specific needs and problems of the identified areas, ensuring food availability, affordability, quality and stability in the highlands.

- Mountain development programs and targeted food and nutrition security projects in highlands should be well coordinated and harmonized. Approaches should be moved from centralized to territorial/space management systems. Besides, compliance and coordination between regional and sector policies should be enhanced;
- Food and nutrition security macro policy has to be developed and implemented, taking into consideration regional characteristics;
- The Greater Caucasus program should be based on the existing situation that a number of historical settlements are abandoned and the population tends to cluster in administrative, cultural and political centers and their vicinity. Due to the similar reality, an integrated program can be elaborated. However, within this program, separate programs should be developed for various regions (Svaneti, Racha, Lechkhumi, Khevi, Khevsureti, Pshavi);
- A special state program needs to be developed for Tusheti region, taking into consideration established arrangements of sheep migration after opening of roads, addressing ownership issues of abandoned villages and pastures, identifying ways of

supporting endemic Tush sheep breed and promoting marketing of local products (meat, cheese, wool, sheepskin, etc.);

- Kedi, Shuakhevi and Khulo municipalities in Lesser Caucasus suffer from the disproportion of a high number of the population and scarce land resources and a state resettlement program is needed to improve the situation;
- Smallholder farmers' support program should be launched at the municipal level. The program should be designed to increase small farms productivity and boost the development of cooperative enterprises.

The smallholder support programs should clearly distinguish between rural poverty reduction and agricultural production commercialization objectives. While the first approach should focus on the reduction of subsistence farming risks, by increasing the income of the population engaged in agricultural production, thus reducing rural poverty and a second approach should concentrate on enhancing the competitiveness of the farmers by increasing commercialization and efficiency of production of particular products.

- An early warning system on food security should be established and the information should be available to smallholders;
- Special support policies need to be developed to promote marketing of local produce;
- Introduction of "Good agricultural practices", to ensure the production of safe and high quality agricultural products, develops efficient and sustainable agricultural production, increases soil fertility and prevents soil degradation.

4. Addressing existing constraints to mountain development, better integrating mountains into economic relations and addressing food security and nutrition issues.

- Improving and streamlining of institutional arrangements and legal procedures regulating land ownership and proper functioning of land market (identification, registration, cadastre, land transactions);
- The design of highlands policy shall take into consideration gender dynamics in ownership rights and the need to overcome the discrepancy of property inheritance with respect to gender. The legislation of Georgia ensures equal rights for men and women, but according to the survey results, in the reality women's inheritance rights are often neglected;
- Defining a legal status of a village and utilizing the potential of local self-governments in ensuring food and nutrition security through the provision of own income sources;
- Promoting the involvement and the role of local self-governments in the following activities: increasing food and nutrition security at the local level, implementing social programs for vulnerable households to improve food affordability and reduce poverty; climate change adaptation through a special structural unit; supporting the development of small farms and self-organization (cooperatives) of agricultural producers.
- Commitment to collect food security and nutrition data in the mountain areas for close monitoring and targeted policy interventions.

## Food and Nutrition Security in the Highlands

No target programs based on the territorial principle, including those in food and nutrition security, are currently being implemented for the highlands of Georgia. A uniform approach is adopted for all the regions. This common approach may involve highland related issues. However, these issues are not properly systematized and represented.

The survey of the current situation is complicated due to the fact that state and local agencies are not adjusted and oriented to address food security challenges. Besides, official food security statistics are scarce and do not provide data specifically for mountain regions in terms of food availability and in relation to municipalities, etc.

### Food Availability

Food Self-sufficiency Rate (%) of Georgia 2014 <sup>6</sup>			
Commodity	Year		
	2012	2013	2014
Wheat	9	12	8
Maize	100	96	92
Potatoes	89	100	89
Vegetables	78	75	70
Grapes	127	130	141
Meat	36	39	41
Eggs	100	95	96

Food production in the highlands of Georgia is dependent on the condition of production factors (such as human resources, land and capital). The quantity and quality (humus content) of land resources in the mountain regions are limited. The demographic resources of the highlands are also limited both in terms of population size and quality (number of able-bodied residents). The situation varies by regions.

### Land and Human Resources

Five municipalities were selected to survey food and nutrition security in the Greater Caucasus range. Three of them (Akhmeta, Dusheti and Kazbegi) are located in the East Georgia and two (Oni, Mestia) in West Georgia. Five municipalities selected for the study in

<sup>6</sup> National Statistics office of Georgia (Geostat)



the greater Caucasus range are affected by depopulation. In Mestia and Kazbegi, the population density per 1 square kilometer is 3 people, in Oni – 4, Dusheti -9, Akhmeta – 15.

The Lesser Caucasus regions do not experience the problems of depopulation and land abandonment. In Ajara autonomous republic Keda, Shuakhevi and Khulo municipalities, the density of population is 38, 26 and 33 people per 1 square kilometer respectively.

The population density in Adigeni, Aspindza, Akhalkalaki and Dmanisi municipalities is 21, 13, 36 and 13 people/1km<sup>2</sup> respectively.

The research revealed the trend that land abandonment is directly related to the altitude and distance from the district centers. The survey of the abandoned villages shows that abandoned villages are the ones at the greatest distance from the district center (Stepantsminda) and at an altitude of more 2000 m above sea level. In Oni municipalities, abandoned villages are located at 1500 m above sea level and the situation is critical in the villages at 1300 m above sea level.

It is essential, when designing the state programs and supportive measures to take into consideration the existence of abandoned villages as well as villages with seasonal and permanent population, to properly address food security and nutrition challenges. The policies implemented in Georgia do not distinguish between these settlements. The Law “On the Development of Mountainous Regions of Georgia” recognizes only a “high –mountain settlement” without differentiating the legal provisions for various settlement types. Such approach negatively affects the policy’s efficiency.

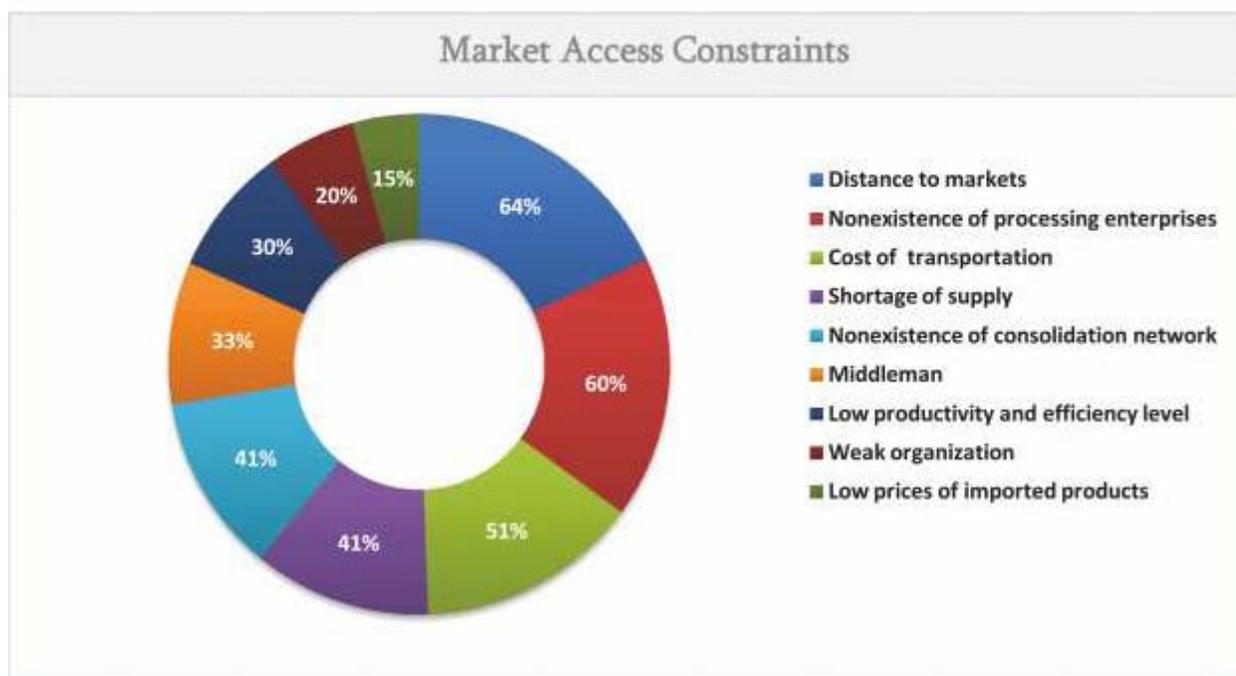
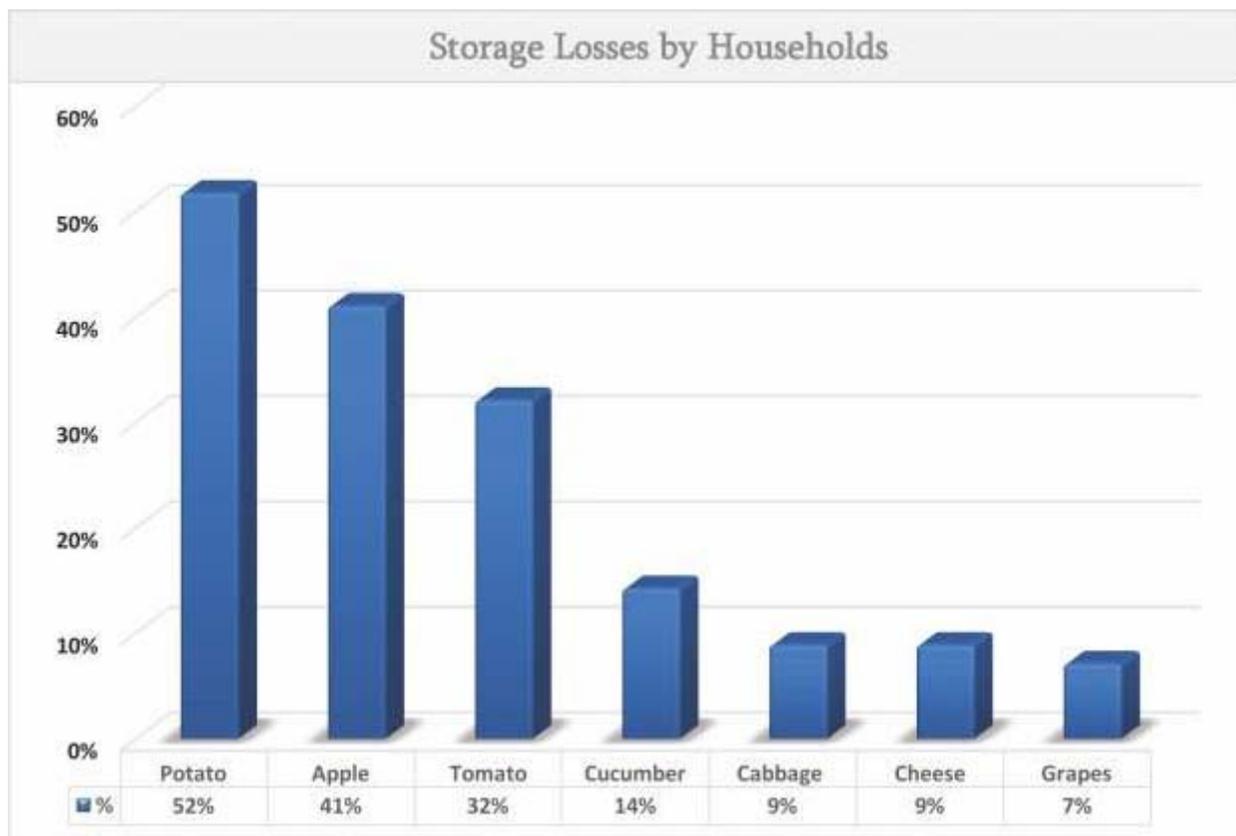
### **Food Self-sufficiency in the Highlands**

Most of the Greater Caucasus and Lesser Caucasus municipalities, including Kazbegi, Dusheti, Oni, Mestia, Keda, Shuakhevi, Khulo, Adigeni, Aspindza, Akhalkalaki, Dmanisi are areas specializing in animal husbandry. The exception is Akhmeta, which is a commercial grape production zone. Despite the agricultural profile of these municipalities, they can reach self-sufficiency only in several food products, mostly potatoes and livestock products. Lately, beekeeping has been developing. The table below shows the self-sufficiency rates in various food products produced by households.

Self-sufficiency Rates in Various Food Products Produced by Households	
Product	Rate (%)
Potatoes	94.9%
Apples	55.4%
Milk	54.8%
Cucumbers	49.0%
Yoghurt (Matsoni)	47.1%
Cheese	46.5%
Tomatoes	42.0%
Garlic	38.2%
Beetroot	37.6%
Herbs, radish, pepper	35.7%
Maize	35.0%
Carrots	33.8%
Onions	32.5%
Walnuts, hazelnuts, almonds	31.8%
Eggs	28.0%
Greens, bean sprouts, peas	27.4%
Cabbage	26.1%
Beef	24.2%
Grapes	21.7%
Butter	20.4%
Pot cheese (Nadugi)	20.4%
Poultry	16.6%
Sour cream	14.6%
Cottage cheese	14.6%
Honey	11.5%
Wheat	10.8%
Pork	8.9%
Eggplants	7.6%

The loss of agricultural products significantly reduces the self-sufficiency rates and income of households in the mountains. The losses of some products, such as potatoes, apples (in

Mestia and Aspindza) are especially important. The Table below shows the percentage of the population (%) who mentioned the storage losses (by crop) produced by them.

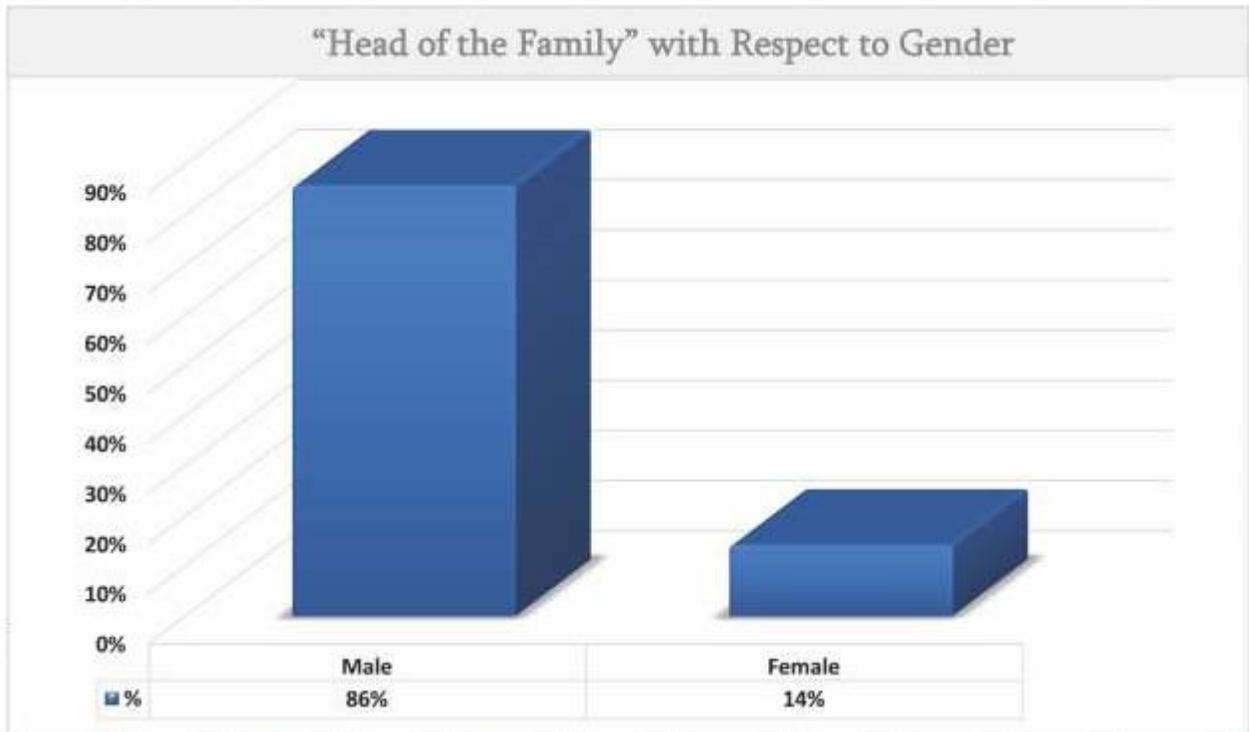


It is widely acknowledged that land scarcity is a common problem of mountain regions in Adjara. The population currently living in the highlands of Georgia, except Ajara mountains, do not experience land scarcity.

However, there is a pressing need to address the land ownership and registration issues. This problem is common for the whole country. Land registration rate is about 33%. In some municipalities the percentage of registered land plots is even lower (e.g. 17% in Kazbegi and 20% in Shuakhevi).

The survey of the gender aspect in ownership and leading an economic activity of the household shows the male preference in inheritance (66.4%). 32.9% of respondents replied that property was inherited by either male or female family member, depending on a family's circumstances.





## Capital

The mountain regions experience acute shortage of capital as investors are unwilling to invest in the highlands. Only few projects are financed in the following fields: hydropower plants, transport transit and customs facilities, mineral resource industry and tourism. Local smallholder farmers lack access to credit. The underdeveloped land market is one of the factors affecting the small-scale farmers’ access to credit and impeding the development of agro-businesses.

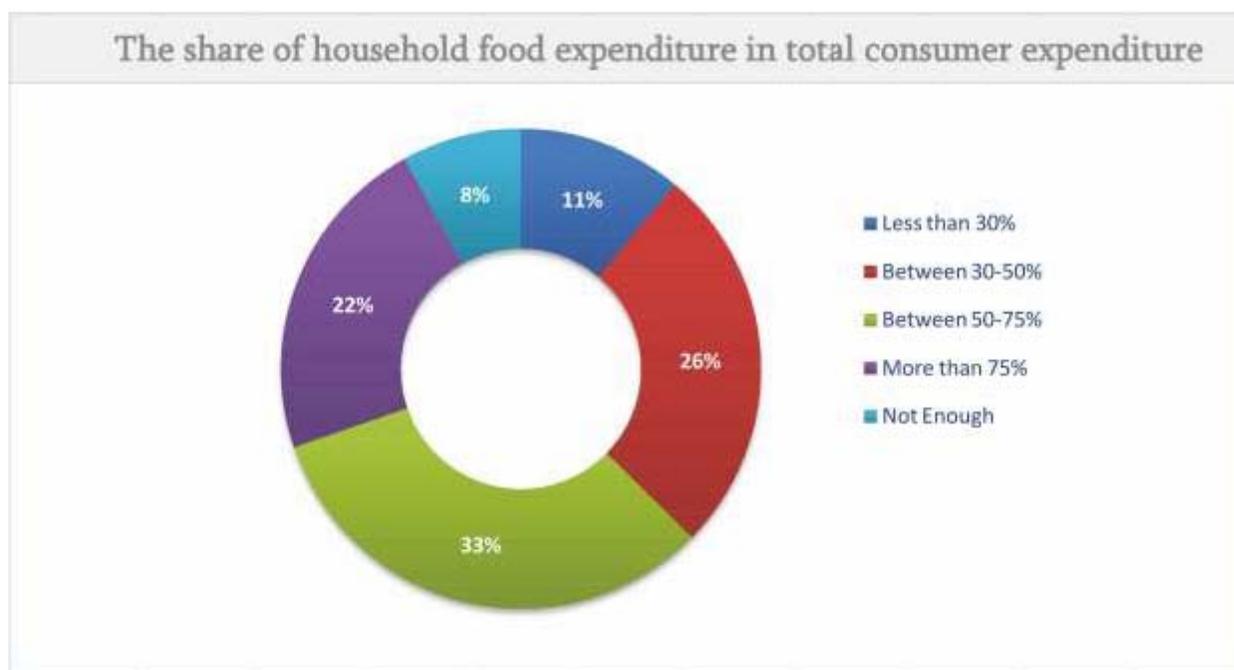
## Food Affordability

Low-income households cannot afford some food products regardless of their availability at the market. Poverty affects the affordability of food products. One of the poverty level indicators in Georgia is the households’/population’s expenditures on food which was 44.4% of their consumer spending<sup>7</sup>, according to 2014 data (in developed countries this indicator is less than 20%).

<sup>7</sup> [http://www.geostat.ge/?action=page&p\\_id=751&lang=geo](http://www.geostat.ge/?action=page&p_id=751&lang=geo)

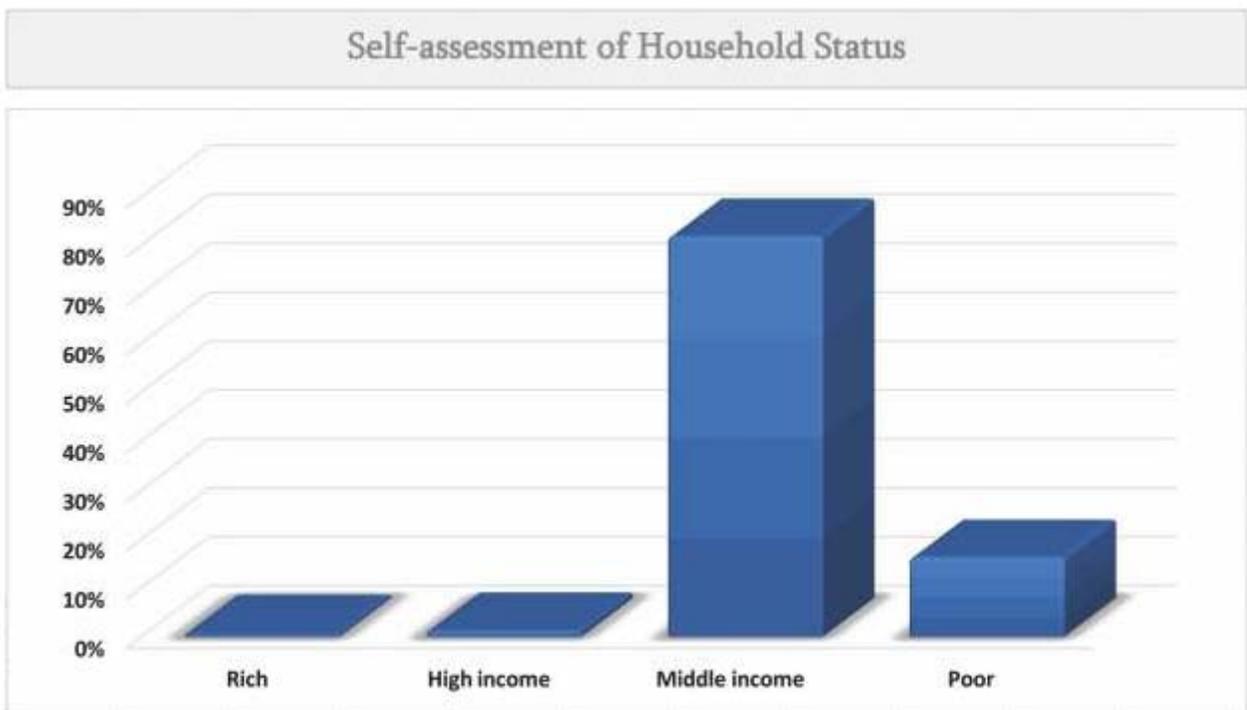
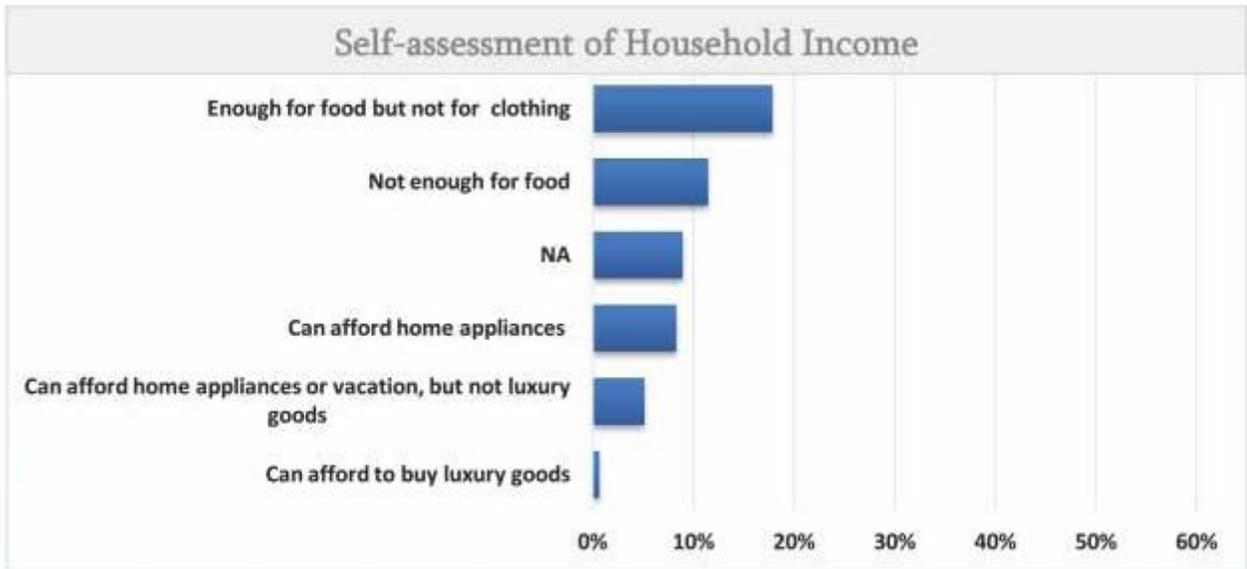
According to the “National Nutrition Study in Georgia, 2015 Oxfam”<sup>8</sup> households’ expenditures on food for low income segment represents 65% of their total spending, for the medium income segment – 52% and for the high income segment – 35%.

According to the responses of highland households’, 63% spend more than 50% of their income on food, for 22% of households' expenditures on food amount to more than 75% of total consumer spending and 8% do not have sufficient income to cover food expenses.



The same trend is observed in the respondents’ answers to the Households’ self-assessment survey questions. These answers also show that the low level of food affordability in the highlands is mainly caused by low income of the households. The assessment of the households’ economic condition shows that 11.5% do not have sufficient income to buy foods; the majority of the surveyed households (65.6%) spend almost all their income on food and only 13% have enough to spend not only on food but other needs, e.g. vehicle, vacations, cultural events, etc. 9% of the respondents did not express their opinion.

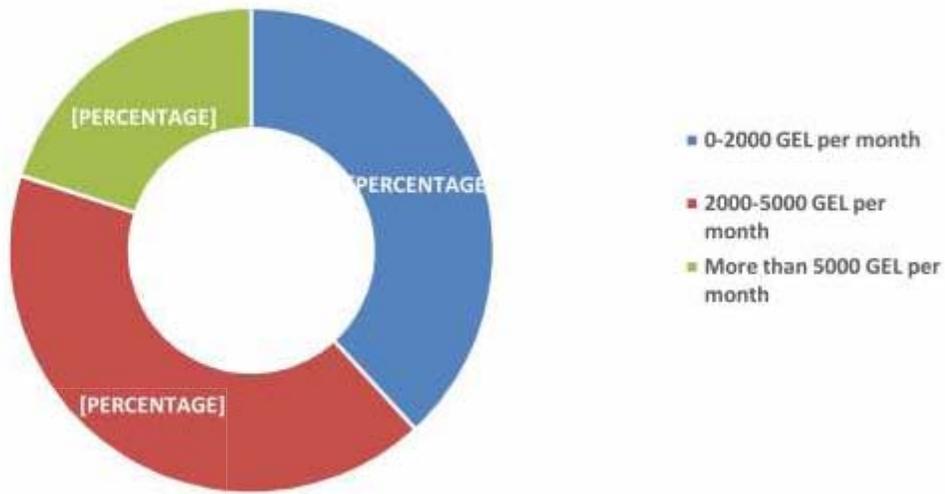
<sup>8</sup> Full report available at [www.foodsecuritySC.com](http://www.foodsecuritySC.com)



Whereas 81.9% of the surveyed households assess their property status (house, land, etc.) as medium and 16.3% state that they live below the poverty line.

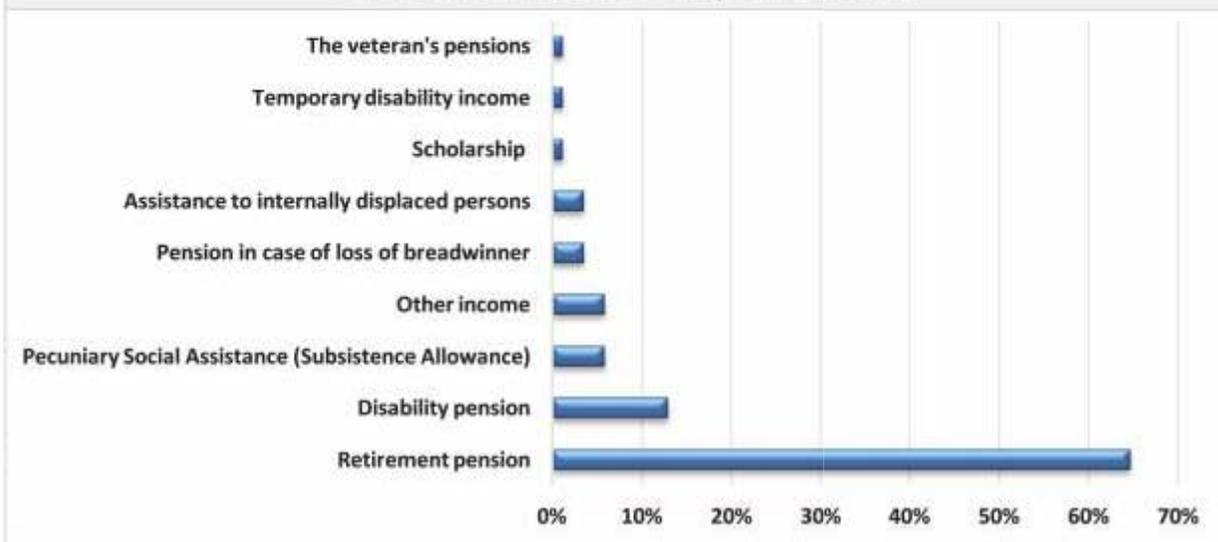
20% of the respondents define a wealthy household as one with a monthly income of GEL 2,000; 42% of respondents stated that the monthly income of a wealthy household should be GEL 5,000 and 38% - more than GEL 5,000.

### Monthly Income of Wealthy Household (GEL/month)



The Social-economic conditions in the municipalities rely heavily on the social transfers from the central budget. Pensions and social welfare payments account for the major part of these funds.

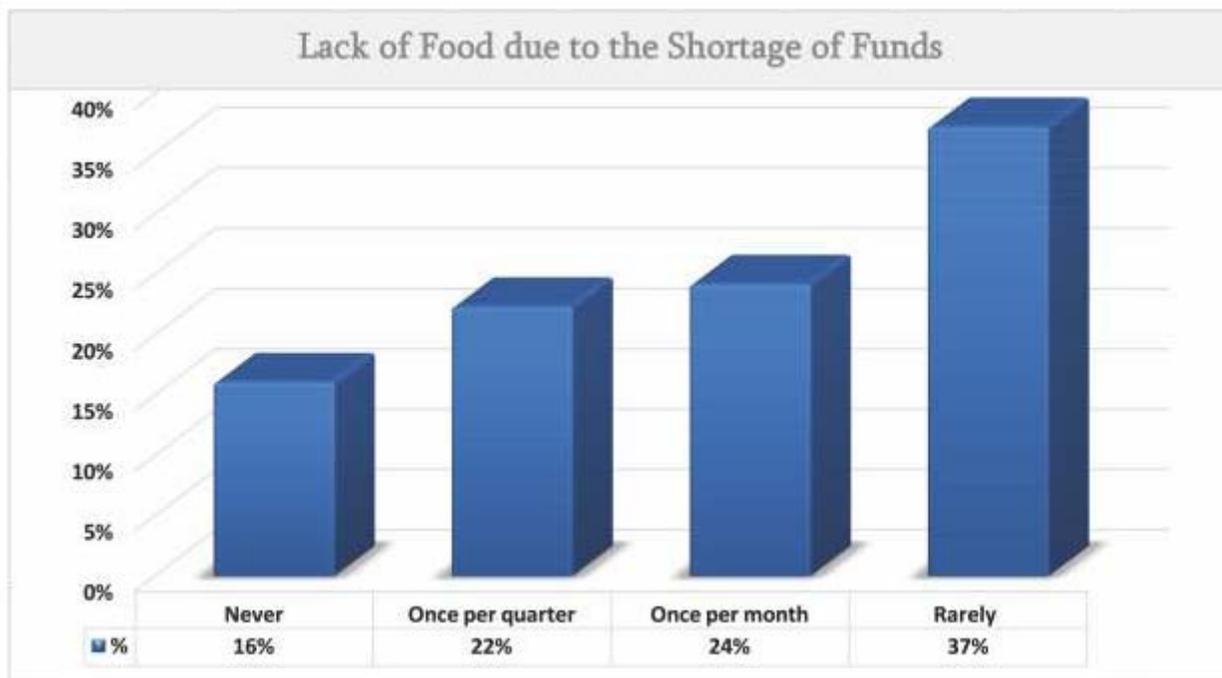
### Cash Benefits Received by Household



In the households' self-assessment survey, 73% of the respondents stated that in 2015, their conditions did not improve compared to 2014. Out of this 73%, 44% of the respondents said that their incomes did not change and 29% mentioned that their incomes decreased. It means that food affordability deteriorated for both of these groups. For the first group it was caused by indirect factors (inflation, price increase) and for the second group it was a combination of direct and indirect factors.



The lack of funds is the main reason for the low level of food affordability. Only 16% of the respondents stated that for the last 12 months, they did not have an interruption in purchasing any type of food products. The temporary solution is buying food on credit (81% of the respondents).



### Food Security and Food Supply Stability

Food safety is a significantly developed aspect of food and nutrition security system. There is a special Law “On Food products/Animal Feed Safety, Veterinary and Plant Protection Code of Georgia” and the institutional set-up to implement these activities is quite developed under the Legal Person of the Public Law – National Food Agency of Georgia. Besides, food safety is one of the priorities in EU-Georgia association process. The harmonization of the national legislation with the EU law includes a timetable for the introduction of the harmonized food safety arrangements in the country. The main weakness of the food safety monitoring system is that the current number and frequency of inspections is insufficient to cover the critical mass of food products. It is also worthy to note that food safety control has a positive effect on the consumer side, but most likely this will have a negative impact on the production side as small producers will not be able to produce, unless they will meet the relevant standards. For this reason and for the time being, the products produced by households are not subject to full food safety control.

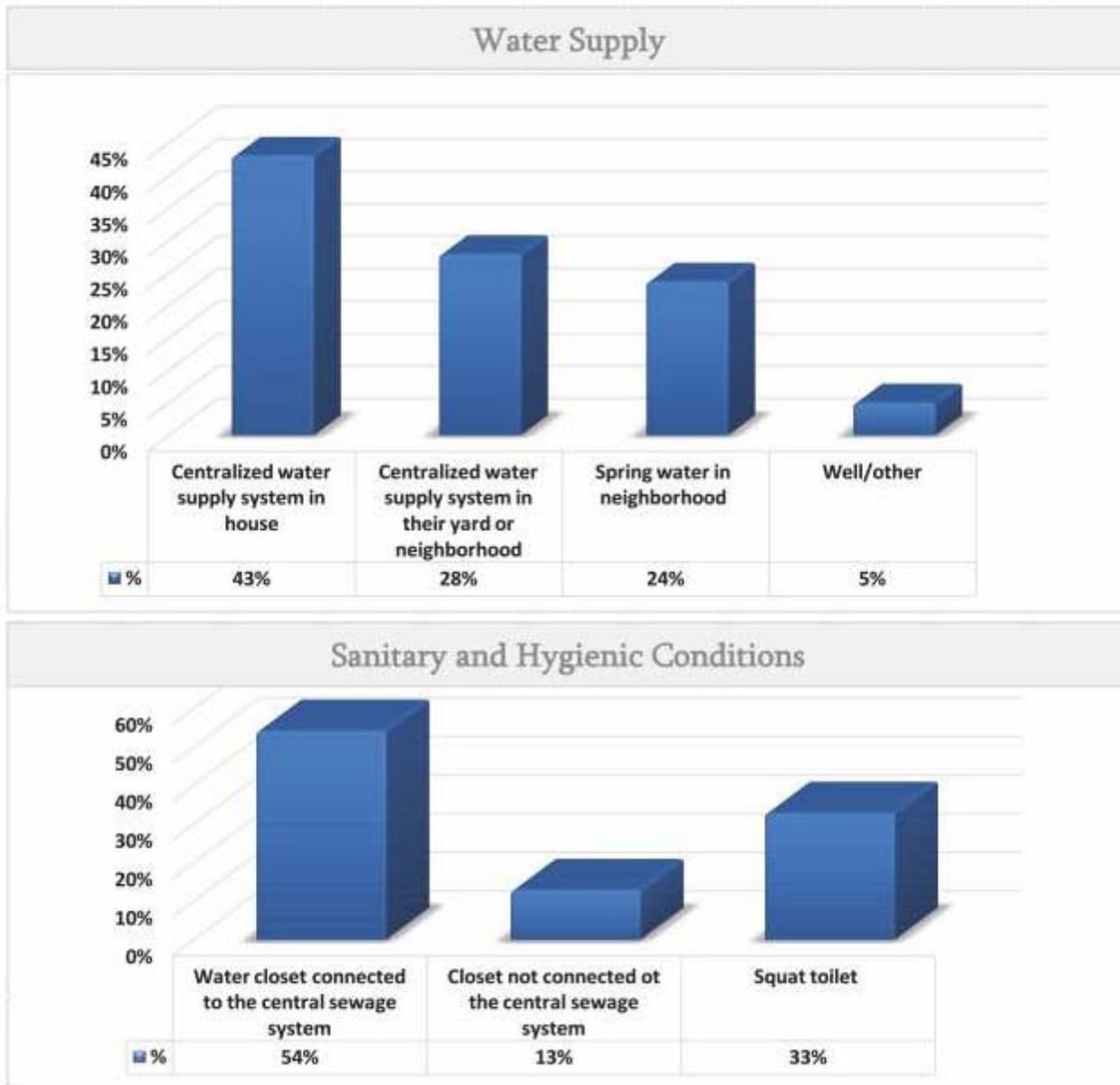
Based on the quantity and quality of the food consumed daily by their households, 72.5% of the respondents assessed their nutrition as medium, 13.8% as good and 13.8% as poor. The food group, which prevails in the surveyed households’ diet is bread and cereals.

Consumption of Main Food Products	
Food	Reported by
Bread and cereals	99,4%
Milk and dairy products	78,1%
Vegetables	55,6%
Meat	50,0%
Sugar	40,6%
Eggs	37,5%
Fruit	31,9%
Tea	24,4%
Oil	23,1%
Fat, butter, margarine	17,5%
Coffee	16,3%
Fish	10,6%
Confectionery	1,9%
Soft drinks	1,9%
Other	1.20%

There is an inconsistency between the inadequate quality control of bread and cereals and their prevalence in the households' diet. The bread quality problem is common at the municipal and national level caused by the lack of the relevant state regulations on bread and cereals.

Municipal waste management is an important aspect of the sustainable development of Georgia. It has been included in the regional development strategy of Georgia – 2010-2017. Besides, waste management is an important item in Georgia-EU Association Agreement. Georgia has adopted the Waste Management Code<sup>9</sup>. However, the level of enforcement is quite low. Centralized waste disposal is mostly carried out in administrative centers. The population has not abandoned traditional ways of waste dumping. 55.8% of the population burns, buries or dumps their waste on illegal dumping grounds, rivers, streams, etc.

<sup>9</sup> <https://matsne.gov.ge/en/document/view/2676416>



There is a significant improvement in the potable water supply. At present, 70.9% of the highland population is supplied with water from the central system, 23.6% use natural springs. Wells are not common in the mountains and only 5% use well water. 52% of the population has bathrooms and 54% washrooms connected to the central sewage system.

The food availability in the highlands is unstable due to seasonal conditions. The food availability increases in summer and autumn and decreases in winter and spring. In autumn, food products from the valley are delivered to the highlands and bartered for local produce while in winter roads are often closed due to heavy snow. Even when the local households have money, they cannot reach the trade centers and markets (most of them are located in the municipal centers). There are about 200 villages in Georgia which are inaccessible during winter. In such cases, the products produced by a household and the food stocks have a major importance.

The low food affordability level in the mountain regions is mainly caused by the low income of the highland population, high poverty rates, low efficiency and profitability of household farms and subsistence agriculture.

The traditional nutrition pattern in rural areas is gradually replaced with processed food products. Therefore, the households' nutrition is increasingly dependent on monetary income.

Due to the low income, households giving preference to the lower-quality products because of price. 41% of the respondents often give preference to low-quality products because of the price, 43% rarely and only 16% never.



In the mountain regions, the households' traditional food stocks are more and more replaced with savings, especially in the municipal centers and nearby villages as their access to roads are not usually blocked in heavy snow conditions.

### Food and Nutrition Security Levels

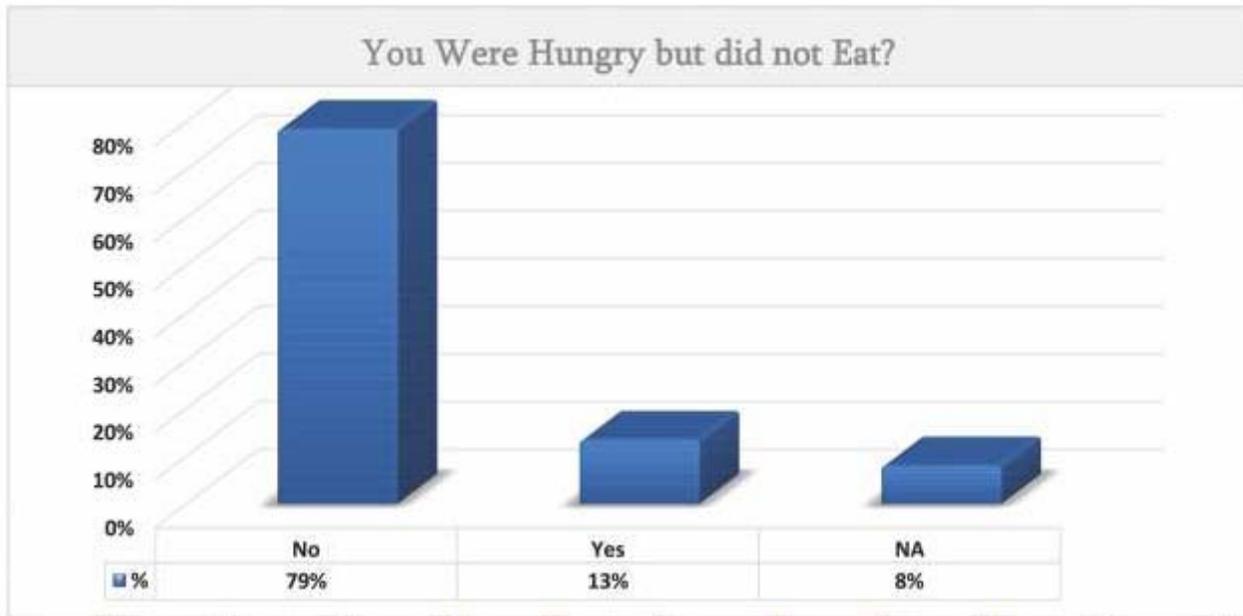
The evaluation of the existing food and nutrition security system, at the municipal and household levels was assessed based on the survey of the local population and research of the empirical data related to their nutrition. The households' food access was assessed based on the attitudes, evaluations, perceptions and key expectations of the population. This approach is based on the FAO's Food Insecurity Experience Scale and the USA Household Food Security Survey Module (HFSSM).

The household food accessibility was evaluated based on the following conditions:

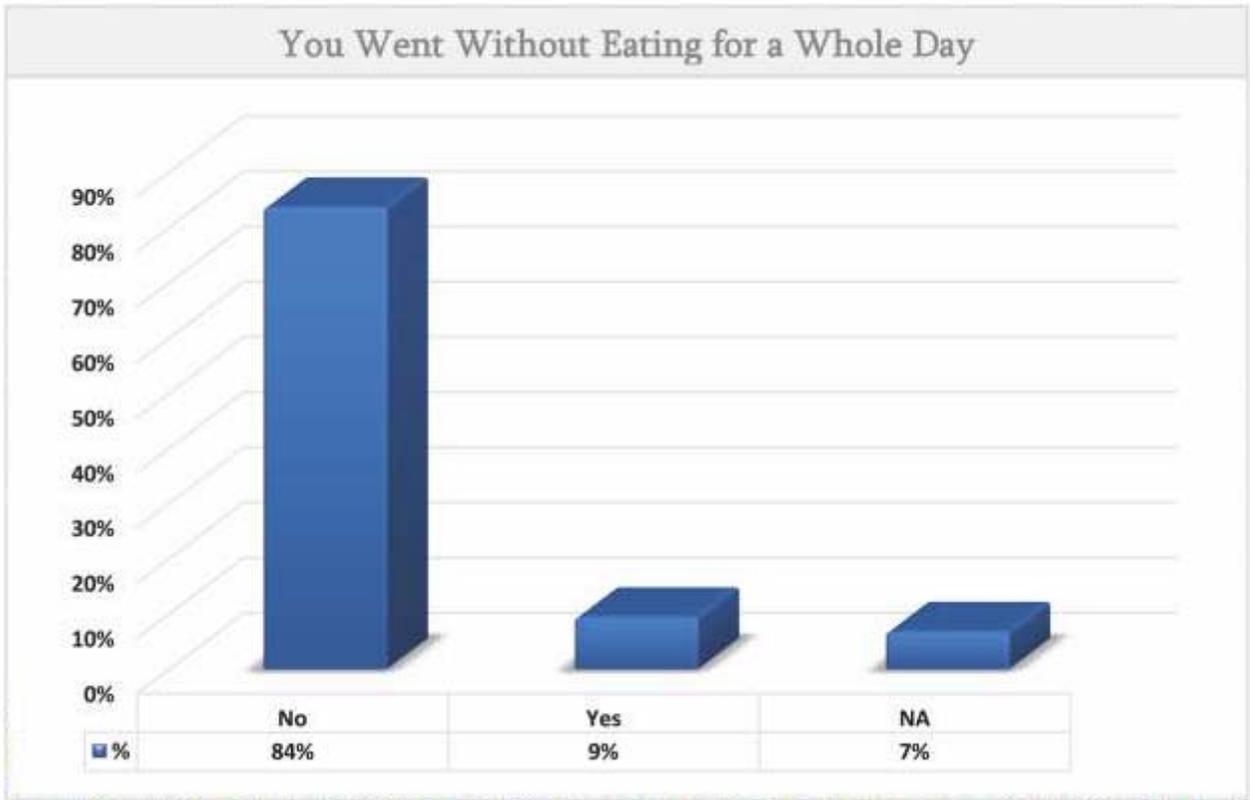
- Anxiety and uncertainty about food access;
- Deterioration of nutrition quality (less balanced and diverse diet);

- Decrease in food consumption (cutting the size of meals and skipping meals);
- Hunger.

Two crosscheck questions were asked to verify a case of hunger. The answers to the question “were you ever hungry but didn't eat because there wasn't enough money for food?” show the physical experience of hunger. 13.4% of the respondents confirmed cases of hunger.



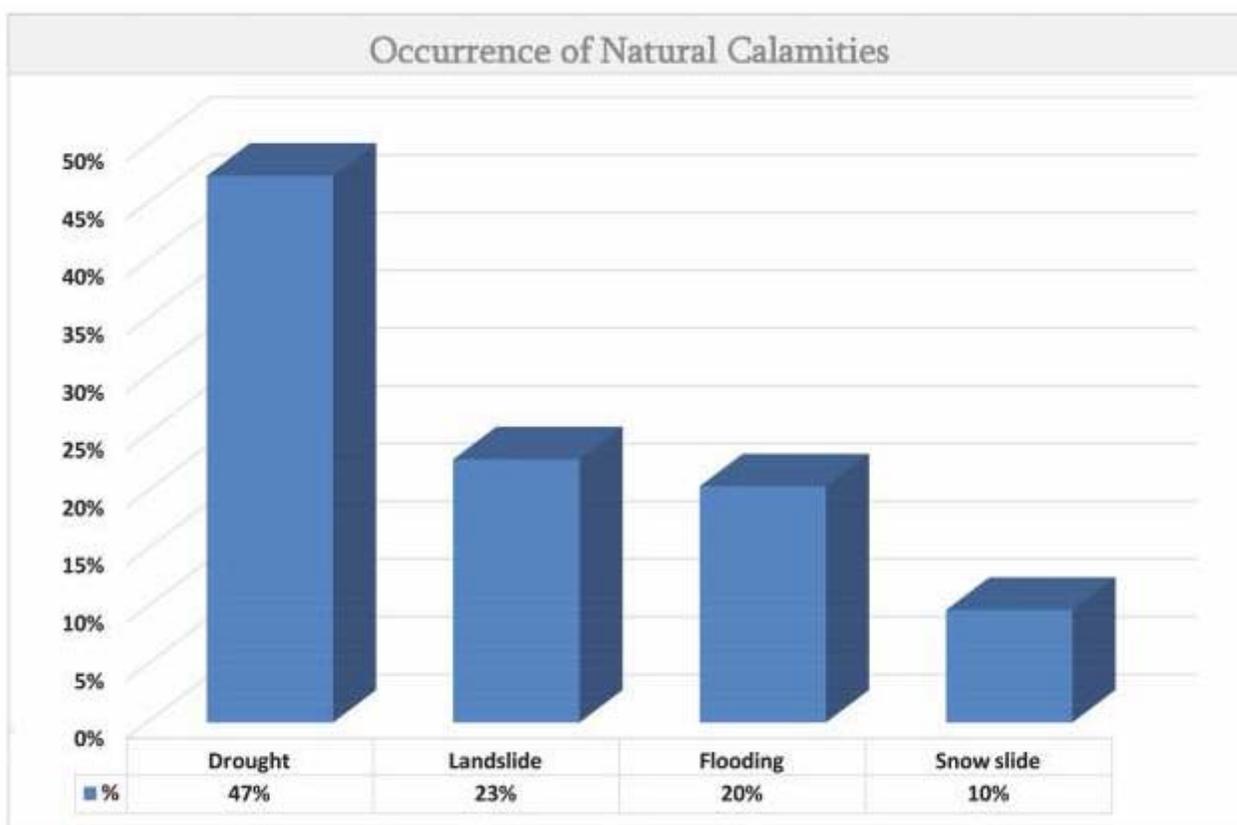
The answers to the question “Did you spend the whole day without eating?” shows the behavior pattern when respondents are hungry for a whole day due to the lack of food or money. The survey results were as follows:



9-13% of the respondents reported the cases of hunger.

## National Program of Climate Change Adaptation

One of the biggest challenges for Georgia is the hazards to food production and food availability in the highlands triggered by the climate change. The population of mountainous regions of Georgia continuously adapts to the natural environment. At present, this process is of special significance due to global warming. Georgia joined the United Nations Framework Convention on Climate Change (October 29, 1994)<sup>10</sup> and the Kyoto Protocol<sup>11</sup>. The national responsible agency to implement these activities is the Ministry of Environment and Natural Resources Protection<sup>12</sup>. The second National Environmental Action Programme for 2012-2016 is currently effective. Based on the survey results, we can conclude that in surveyed municipalities, climate change adaptation and impact mitigation are not institutionalized and are carried out spontaneously without the utilization of knowledge and resources available in the country. All local respondents reported that their settlement have been impacted by natural calamities over the past 5 years.

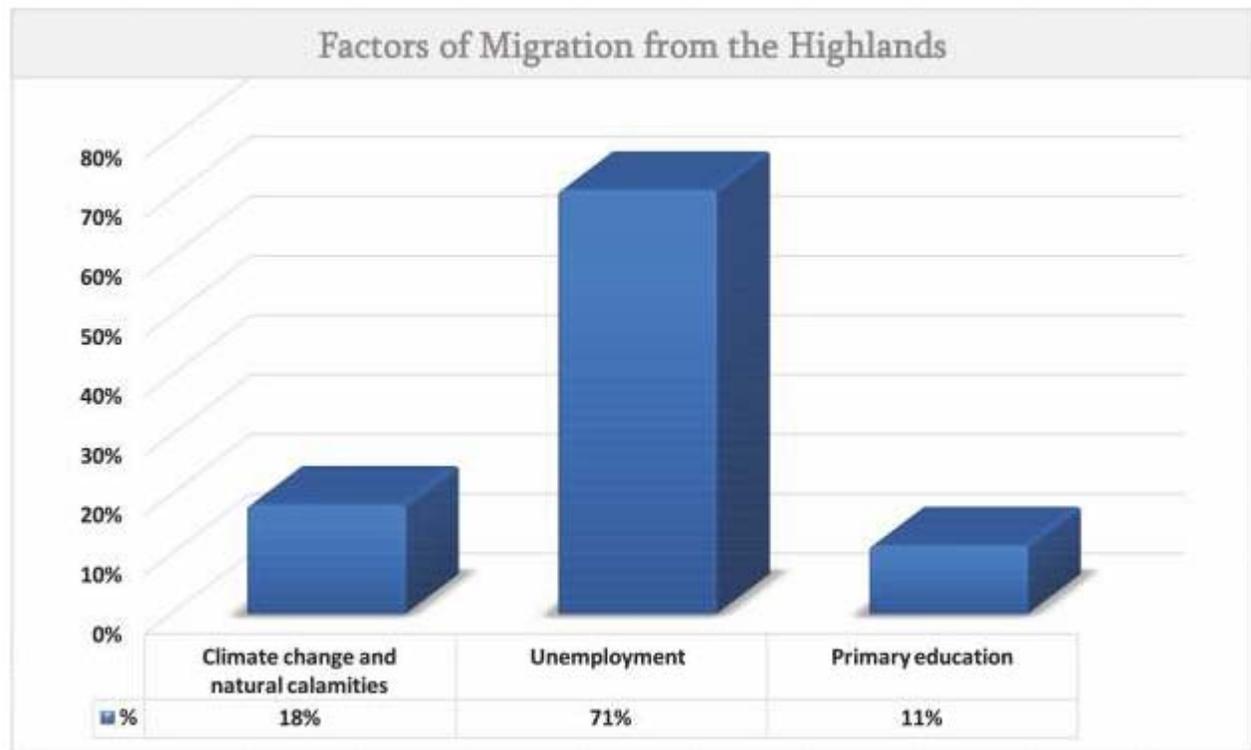


<sup>10</sup> UN Framework Convention on Climate Change (UNFCCC) was signed in Rio de Janeiro in 1992 and has been effective since March 24, 1994.

<sup>11</sup> Signed in 1997 and has been effective since 2005. Georgia joined the Kyoto Protocol in 1999.

<sup>12</sup> Regulation No2 by the Government of Georgia of January 20, 2005.

Besides, 18% of the respondents mentioned climate change and the frequency of natural disasters as the key reason for the population migration from the highlands (number one reason being the unemployment – 71%).



There is no disaster risk reduction framework currently in place in Georgia. The components of this framework, such as disaster prevention, mitigation and preparedness ensure the reduction in casualties and economic losses caused by natural disasters. The costs of disaster risk reduction are incomparably lower than the disaster-related costs. The aforementioned framework also mitigates the negative impact of natural disasters on development. In order to control disaster risks, the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework)<sup>13</sup> was developed, which is a voluntary, non-binding agreement. There is the good opportunity in Georgia to adopt this approach.

<sup>13</sup> Sendai Framework for Disaster Risk Reduction 2015-2030. <http://www.wcdrr.org/preparatory/post2015>

## Conclusion

Mountainous areas of Georgia face numerous food security and nutrition challenges related to the affordability, availability, quality and safety of the food. The aim of this study was to identify these challenges, including the hazards on food availability, affordability and access caused by Climate Change.

The combination of desk and field research in the highland areas of Greater and Lesser Caucasus areas of Georgia revealed that these challenges are present and more acute than in the lowlands of Georgia. It has been evidenced through the study that food security and nutrition levels are lower in highlands compared to the country average, food production is less diversified requiring supply of food from the lower regions of the country. Income levels in highlands are lower than the country average. High prices on imported and supplied food in the highlands trigger price-driven, rather than quality-driven dietary patterns and consequently result in large percentage of highland communities suffering from undernourishment and malnutrition. Transportation and trade infrastructure is underdeveloped, resulting in increased risks to stability of food supply. Hygienic and sanitary conditions are substandard, increasing food safety risks, and climate change is acknowledged and considered as one of the top three reasons of migration for from highland villages.

These above are only some of the issues addressed by this study and faced by the highland communities. No single or easy solution can be presented to overcome all these challenges effectively in a short period of time. A rather long-term, methodical approach is needed to strategize, plan and correctly implement the food security and nutrition strategy needed to tackle the changes faced by the mountainous communities. The recommendations for further actions include the development of a comprehensive legal framework, which will enable the government to address effectively food security and nutrition challenges in the country, through the establishing integrated food and nutrition security policy goals, objectives and their implementation. In parallel, the structure of state agencies responsible for national food and nutrition security, functions and responsibilities should be specified. Besides, the state action plan should be developed for disaster risk reduction and management that will ensure proper functioning of food security systems in emergency or crises situations.

The mountain and high-mountain regions should be defined as development areas without reference to their administrative-territorial location. Furthermore, mountain development should be considered in the context of regional development concept, as a combination of economic, socio-cultural and environmental systems represented through integrated territorial management.

Targeted state programs for the economic development of mountainous areas should be designed based on specific needs and problems of identified areas.



Existing constraints to mountain development should be addressed, better integrating mountains into economic relations and addressing food security and nutrition issues. This would include streamlining of institutional arrangements and legal procedures regulating land ownership and proper functioning of land market, taking into consideration gender dynamics in ownership rights and the need to overcome the discrepancy of property inheritance with respect to gender and increasing the involvement and the role of local-governments in the process of addressing food security and nutrition issues at local levels.

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Author of the photo: Natalia Burduli





