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CLIMATE CHANGE AND ENVIRONMENTALLY FOCUSED NATIONWIDE OPINION POLL ON **KNOWLEDGE, PERCEPTION, ATTITUDES, BEHAVIOUR AND DESIRED POLICIES**

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The research was carried out by the Institute of Social Studies and Analysis (ISSA), commissioned by the Westminster Foundation for Democracy (WFD). The document was developed under the UKAID-supported programme "Advancing Environmental Protection, Climate Change and Democratic Resilience in Georgia: Phase 2"

November, 2023

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1.

METHODOLOGY

The aim of the research was to study public opinion about the awareness, perception, attitude, behavior, and desirable policy regarding environmental and climate issues throughout Georgia. More specifically, the research explored the following issues:

- Perceptions and attitudes towards climate change (the role of individuals in accelerating climate change, ways to fight climate change, etc.)
- Awareness of climate change (causes of climate change, areas that impact climate change, important ways to limit climate change, sources of information about climate change, etc.)
- Behaviour aimed at mitigating climate change (practices that mitigate climate change, underlying motives for behavior, etc.)
- Climate change mitigation policy (the need to introduce laws on climate change and relevant regulations, social and economic policies to address climate change, etc.)

To achieve the aim of the research, qualitative and quantitative research methods were used.

QUALITATIVE RESEARCH

Within the framework of the qualitative research, 9 focus-group discussions were conducted with different population groups. For a detailed breakdown, see Table #a.

Table #a

#	TARGET GROUPS	NUMBER OF FOCUS GROUPS
1	Population of Tbilisi	1
2	Urban population of West Georgia	1
3	Urban population of East Georgia	1
4	Rural population of West Georgia	1
5	Rural population of East Georgia	1
6	Ethnic Azerbaijanis	1
7	Ethnic Armenians	1
8	Members of the disabled community	1
9	Members of the queer community	1

A discussion plan consisting of open-ended questions was developed for focus groups. The plan had both shared and specific questions for each target group. The final version of the plan was agreed with the organization that had commissioned the research - WFD.

All 9 focus group discussions were conducted remotely via the online platform – ZOOM. The upside of having these discussions online was the possibility of bringing people living in different areas (cities and villages) together in one space, thus ensuring that diverse information about the research topics was obtained. Each focus group discussion was recorded only after obtaining verbal consent from all participants. The confi-

dentiality of focus group participants is protected. Namely, the below analytical report does not contain any personally identifiable information about respondents (name, surname, specific addresses, etc.).

Focus groups were held through September 14-19, 2023. Focus groups lasted for about 2 hours and had 7-9 respondents each. The total number of respondents is 73.

Data analysis: data obtained from focus groups were analyzed in several stages: in the first stage, recordings were deciphered, and transcripts were prepared. At the following stage, data were coded/categorized. At the final stage, local and inclusive integration of structured content was conducted, based on which the analytical report was prepared.

QUANTITATIVE RESEARCH

Within the quantitative research, the adult population (18+) from all 11 regions of Georgia were surveyed using a face-to-face method. A formalized questionnaire was the research instrument. Instruments used by WDF in the 2022 research were considered while developing the questionnaire. Probability sampling – stratified-cluster sampling was chosen as a sampling technique, and the sample size was determined to consist of completed interviews with 1,513 respondents. The strata in the research were represented by all regions of Georgia (including Tbilisi). Municipalities within regions and census tracts within municipalities represented clusters. Both the municipalities and census tracts were selected via random sampling. During clustering, primary, secondary and final sampling units were identified:

- Primary Sampling Unit (LPSU): census tracts in urban and rural settlements of municipalities
- Secondary Sampling Unit (SSU): households/families
- Final Sampling Unit (FSU): persons aged 18 or older. Respondents were selected randomly from households.

Study results are statistically representative in terms of the following characteristics: Tbilisi/East and West Georgia, gender, age, ethnic minority and settlement type. The sample size ensures statistically reliable results within a 2.8% sampling error. For a detailed breakdown, see Table #b.

Table #b

Levels	Number of Interviews	Margin of Error (95% confidence)
Tbilisi	401	4.9%
East	405	4.9%
West	455	4.6%
Settlement type		
Tbilisi	401	4.9%
City/Town	431	4.7%
Village	429	4.7%
Age		
18-29	295	5.5%
30-54	546	4.0%
55+	420	4.8%
Gender		
Male	528	4.3%
Female	733	3.6%
Highest level of education		
Secondary education (incomplete/complete)	486	4.4%
Incomplete higher education/vocational education	273	5.5%
Complete higher education/academic degree	500	4.4%
Ethnic minorities	383	5.0%
Total	1513	2.8%

Fieldwork: fieldwork was preceded by training the supervisors and interviewers to provide them with detailed instructions regarding the research instrument. The research was conducted through 10 supervisors and 44 interviewers. Fieldwork began on October 13 and ended on October 25, 2023.

Fieldwork quality control: control was undertaken at the time of the fieldwork. 10% of questionnaires from the sample (150 interviews) were subject to control.

Data analysis: in the preparatory stage of data analysis, the data were cleaned and weighted. Weighting was conducted by distributing the gender, age, and educational attainment of the general sample. Research data were analyzed in the SPSS programme. The data were analyzed using univariate, bivariate, and multivariate methods: one-dimensional frequency distribution, measures of central tendency, cross-tabulation, correlation, regression, etc. Data in the below analytical report are compared with the 2022 research results.

2.

MAIN FINDINGS OF QUANTITATIVE RESEARCH

PERCEPTIONS AND ATTITUDES

- The share of respondents in both rounds of the research (2022 and 2023) who indicate that the damage caused by climate change is significant (very significant or more significant) for them personally, as well as for the city/village, region, country and the world increases symmetrically with the expansion of the assessment unit (person, city/village, region, country, world). A similar tendency is observed in terms of the socio-demographic characteristics of respondents.
- The proportion of respondents from ethnic minorities who choose the positive end of the scale ('very significant', 'more significant') to assess the significance of climate change issues (in all 5 dimensions) ranges between 71% and 84%.
- Over 60% of respondents in both the 2022 (70%) and 2023 (63%) surveys believe that the accelerated pace of climate change is either completely or partially human-induced. Every other respondent in Tbilisi and over 60% in West and East Georgia demonstrate the same attitude. Analyzing the issue in terms of educational attainment reveals that the majority of respondents with higher education degrees (70%) are aware of the negative role people (population) play in changing the climate; the same opinion is found among 58% of those without higher education and 48% among representatives of ethnic minorities.
- Negative consequences of climate change that became apparent to people in recent years, according to the 2023 research, are natural disasters (flood, landslide, mudflow, etc.) – 93%. In addition, 91% mention the issue of deteriorating health. The largest share of respondents identified the latter as a problem in 2022 (96%), followed by reduced crop yields (93%).
- The population of West and East Georgia are more likely to notice the consequences of climate change as compared to Tbilisi residents, which, to some extent, is also due to different lifestyles. Namely, people in the regions are more commonly engaged in agriculture (growing crops, raising livestock, etc.) and, thus, changes, such as frequent droughts (West Georgia - 89%; East Georgia - 90%; Tbilisi - 80%) and increase in the plant and livestock diseases (West Georgia - 89%; East Georgia - 92%; Tbilisi - 68%) have a direct impact on their economic activity. Similarly, the effects of climate change are more noticeable for the rural population than for their urban counterparts. 91% of ethnic minorities note that changes in climate have had a negative impact on human health in recent years.
- Respondents in both rounds of the research identify the following behaviors/actions as their negative contribution to climate change: excessive energy consumption (2023- 29%; 2022 – 37%), waste generation (2023 - 27%; 2022 – 29%), and using private vehicles for transportation (2023 - 25%; 2022 – 29%).
- In 2023, like the previous round of research, waste generation and excessive energy consumption by city dwellers were identified as the most pressing issue in terms of climate change by the urban population. Excessive energy consumption tends to be equally significant in rural settlements in 2022-23 (2023: 33%; 2022 - 32%).

- According to the results of the 2023 research, compared to the previous year, the share of those who consume energy excessively (2023: 33%; 2022: 46%) or drive their own cars (2023: 18%; 2022: 32%) has decreased among respondents aged 18-24. Deforestation (29%) and excessive energy consumption (28.3%) are most frequently identified by ethnic minorities as their negative roles in climate change.
- Similar tendencies are observed in both rounds of research in terms of identifying actions needed to combat climate change that are most difficult to perform. Namely, in 2023 and 2022 alike, reducing energy consumption by saving electricity/heating oil is identified as a primary problem/difficulty (2023 – 39%; 2022 – 41%). Analyzing the issue according to the types of settlement reveals that, compared to the previous year, the rural population finds it more difficult to use public transport instead of their cars (which has further increased compared to the data of the previous phase) than their urban counterparts (2023: city/town - 30%; village - 35%; 2022: city/town - 18%; village - 20%); for ethnic minorities, reducing energy consumption (by saving natural gas, electricity and heating oil) (43%) has proved to be the most difficult to accomplish.
- In 2023, respondents identify unemployment as a more serious issue than climate change both for them personally (40%) and for the city/village (46%); at the country level, security/threat of war (46%) is seen as the most pressing issue. Similar trends are observed in terms of the type of settlement and age of respondents. As for ethnic minorities, unemployment proves to be a more significant issue than climate change for them, as well as the city/village; at the country level, ethnic minorities emphasize security issues.
- For the most part, the majority of respondents tend to have correct opinions and perceptions about factors causing and preventing climate change. For example, only 13% believe climate change is unreal and a myth and 12% think the negative consequences of climate change affect only large industrialized countries and not Georgia and the like.
- A large portion of respondents, both with and without higher education, mostly choose correct theses from the paired statements about climate change. For example, the share of those who believe climate change is a real/objective process that threatens life on earth and no country, including Georgia, can avoid it is over 80% in both target groups.
- The rate of incorrect opinions about the paired statements related to climate change is not particularly low among ethnic minorities. For example, the majority of this target group (57%) think climate change is an irreversible process that cannot be stopped by human efforts, and at least one-third (36%) do not consider climate change a real threat;
- According to 77% of respondents, humans treat the environment and nature disrespectfully, and 74% say the government should introduce certain restrictions for such business activities that disregard ecology and do not take ecological threats into consideration. In addition, while 38% of respondents disagree with the statement that 'creating jobs is much more important even if they have a negative impact on the environment', 31% express an opposite opinion in this regard. The statistical analysis of the research data reveals that among respondents both with and without higher education, the share of those with correct opinions is larger than that of those with false views about the effective mechanisms of fighting climate change.

- About one in three ethnic minority respondents are in favour of activities that have a negative impact on climate change and are less likely to be concerned about their negative impact on the environment/climate.

AWARENESS

- The population of Georgia considers Imereti/Racha-Lechkhumi (52%), Adjara (39%), and Guria (30%) most vulnerable to changes in climate. For representatives of ethnic minorities, Adjara ranks first among the above vulnerable regions.
- Deforestation/reduction in vegetation cover (73%) is identified as the leading contributor to climate change. The previous round of research (2022) yielded the same results in this regard. It should also be noted that the above action emerges as the primary cause when analyzing the issue in terms of the socio-demographic characteristics of respondents, as well. Representatives of ethnic minorities offer the same assessment (65%).
- Manufacturing (50%) and transportation (50%) are identified as economic sectors with the most negative impact on climate change.
- Analyzing the issue in terms of geographic regions of the country reveals that construction (45%), transport (43%), and manufacturing (36%) are the leading sectors negatively affecting climate change in Tbilisi. Manufacturing is the leading factor in West (56%) and East (57%) Georgia, followed by transport and construction. Processing the issue statistically in terms of the type of settlement (city/village) and educational attainment of respondents identifies the same sectors. Representatives of ethnic minorities consider manufacturing as the leading contributor to climate change, followed by the transport and waste industries.
- As for the most vulnerable economic sectors in terms of risks/threats associated with climate change, agriculture (58%) is in the lead, followed by healthcare (40%) and biodiversity (30%). Analyzing the issue in terms of the socio-economic characteristics of respondents identifies these sectors as the most vulnerable, too.
- Raising public awareness is identified as an optimal solution for mitigating the negative effects of climate change by the largest proportion of respondents in both 2022 (28%) and 2023 (31%). This factor is considered the most significant mechanism in both rounds of research by a) rural and urban populations alike and b) respondents with and without higher education. According to one-fifth of ethnic minorities, radical change in behavior of each individual (21%) and the improvement of technologies (20%) are the most effective ways to drastically limit climate change.
- 84% of respondents believe Georgia should switch to using alternative and renewable energy sources.

- 38% of the population identify solar energy technologies as the most significant sources of alternative and renewable energy for Georgia, whilst one-fifth (20%) indicate the benefits of introducing wind energy technologies. 37% of ethnic minority representatives consider solar energy as the most important, and 18% view small and medium hydropower plants as such.
- The largest portion of urban residents indicate the need for having high-efficiency power stations, whilst a relatively large share of the rural population (19%) think it is necessary to introduce energy-efficient heating systems. 42% of ethnic minorities cannot identify an energy-efficient technology that Georgia should prioritize.
- The vast majority of respondents note that it is very/more important to introduce special study courses on climate change at the secondary (88%) and higher (85%) education levels. 72% are in favour of creating an additional certificate course, whilst 74% believe these issues should be discussed at public seminars.
- The awareness of climate and environmentally friendly measures, programmes, projects and policies implemented in Georgia is very low among the population. Analyzing the issue in terms of the type of settlement shows that compared to the previous round of research, the level of awareness of the national climate change warning scheme has increased (2023: town - 16; village - 13%; 2022: town - 6%; village - 6%;); in addition, the share of those who have heard about the early warning system has relatively increased, too (2023: town - 15%; village - 17%; 2022: town - 4%; village - 5%;).
- Compared to the previous round, in 2023, while the lack of awareness of climate and environmentally friendly measures, programmes, and projects has decreased significantly among respondents with higher education (2023 - 56%; 2022 - 73%;), there is only a 7% decrease among those without higher education.

BEHAVIOUR

- The results of both 2022 and 2023 research confirm that the need to act on climate change is not a topic of daily discussions for respondents. In general, based on both rounds, climate change is not considered an urgent issue: 59% of those surveyed in 2023 and 54% of those surveyed in 2022 say the topic comes up in their conversations once a month or less frequently. According to the 2023 survey, a) respondents aged 35-44 (93%) and b) those with higher education are more likely to discuss the need to act on climate change (with any frequency).
- Environmental protection and climate change mitigation are not a priority for a sizeable proportion of respondents - 29% of urban and 24% of rural residents say they do not take any action. The main activities carried out in this regard are planting trees (2023 - 19%, 2022 - 30%) and saving energy (2023 - 17%, 2022 - 20%). Tree planting prevails in rural areas: 2023 - 37%, 2022 - 65%. Compared to the previous round, the share of those who insulate their houses and use less firewood to reduce their environmental footprint has relatively increased: 2023 - 13%, 2022 - 5%. In terms of geographical areas, saving energy is a dominant practice in Tbilisi (17%) and planting trees – in West (25%) and East (24%) Georgia. Such results were expected (17%) as areas outside the capital include rural settlements.
- Both rounds reveal that health concerns are the main motive for protecting the environment through various actions (2023 - 38%, 2022 - 44%). The older the respondents, the more frequent the actions taken to ensure a safe future for their children, with the highest rate in both rounds found among respondents aged 35-44: 2023 - 25%, 2022 - 32%. Respondents with higher education are more likely to be aware of the impact individual behavior can have on climate change; consequently, this factor has been identified as the motive behind activities aimed at climate change mitigation in this group: 2023 - 21% (respondents without higher education - 14%), 2022 - 12% (respondents without higher education - 9%).
- In terms of environmental protection, the majority of respondents (53% on average) would take the right stand in different situations. In hypothetical situations, individuals are likely to correctly decide which course of action would be best for the environment; however, when it comes to their own contribution, as indicated above, the main activities they undertake are tree planting and saving energy. Discussing hypothetical situations reveals that an average of 53% of respondents understand that a) individual behavior can affect the environment, b) in order to protect oneself from heat, instead of an air conditioning system, it is better to fund educational programmes about protection measures, c) spending on solar panels, insulation materials, and new doors and windows is the right course of action for reducing energy consumption. The majority of those with higher education (78% on average) and half of those without (49% on average) tend to have a correct understanding of the proposed situation; however, it should be noted that the share of those who did or could not answer is rather large (24% on average) among those without higher education. This may be the result of their low level of awareness.

POLICY

- In both rounds of the survey, respondents identify the population/citizens (2023 - 59%, 2022 - 72%) and the Government of Georgia (2023 - 47%, 2022 - 42%) as the main stakeholders in stopping/mitigating climate change. In the previous round, the role of international organizations (31%) was also considered significant; however, the rate has decreased to 22% this year. Therefore, according to respondents, people, as a group involved in practical activities, and government, as a regulatory body, are the main actors.
- Although the population is not actively involved in the implementation of environmental activities, the majority are in favour of introducing a law and relevant regulations on climate change: 2023 - 87%, 2022 - 88%; the share is larger among those with higher education: 2023 - 92%, 2022 - 90%. In the case of ethnic minorities, the proportion of those in favour is 73%. The share of those who either could not or did not answer is relatively large in this regard (18%). The majority of respondents in both rounds consider each actor (citizens, government, parliament, ruling party, local self-government authorities, opposition parties, non-governmental and international organisations) involved in combating climate change as responsible actors: 2023 – an average of 83%, 2022 - an average of 84%. Positive assessments are maintained in the case of ethnic minorities; however, the share of those who are not able to identify the responsibility of opposition parties (21%), non-governmental (22%) and international organisations (23%) is large.
- Respondents in both rounds of research identify the necessary measures that need to be taken in different policy areas (sectors): energy sector – support the production of renewable energy (2023 - 48%, 2022 - 62%), economic sector – impose high taxes on companies that pollute the environment through their activities (2023 - 34%, 2022 - 39%), transportation sector – ban highly polluting vehicles (2023 - 41%, 2022 - 36%), waste management industry – build high-standard landfills that will not pollute the atmosphere (2023 - 43%, 2022 - 48%), agriculture sector – use fertilizers moderately and replace chemical with natural alternatives (2023 - 35%, 2022 - 38%).
- One-third (32%) of respondents surveyed in 2023 believe that the state should develop an early warning system, identified as the most significant measure, to safeguard the population from frequent natural disasters. In 2022, building relevant infrastructure is identified as the key measure (25%). These two issues predominate even when examining the issue through different prisms. For example, while a sizeable share of respondents in Tbilisi (33%) and East Georgia (40%) are in favour of an early warning system, infrastructure is considered a priority in West Georgia (25%). An early warning system is more likely to be favoured by respondents with (34%) and without (31%) higher education surveyed in 2023, whilst proper infrastructure is prioritized in the 2022 research (higher education - 26%, other - 24%). Apart from early warning systems (36%), ethnic minorities also find improving the healthcare system and monitoring climate-related diseases (15%) an important measure, which is less likely to be seen as such by other target groups.
- The state has a key role in dealing with problems caused by climate change in all areas, such as transportation system, energy production and consumption, improvement of infrastructure, waste management, forest protection, oil and natural gas consumption – an average of 83% of

those surveyed in 2023 and an average of 82% of those surveyed in 2022 believe it is important for the state to be involved as a regulatory body. According to ethnic minorities, the state should take a particularly active part in developing clean transportation systems (86%), improving public transport (83%), protecting and developing forests (90%).

- Considering the issues discussed above, it is logical that the majority of respondents surveyed as part of both rounds of the research approve of developing and introducing all types of regulations aimed at climate change mitigation. The largest share are in favour of sustainable forest management and development (2023 - 95%, 2022 - 97%), and the smallest – banning new petrol-powered cars and lorries by 2050 (2023 - 58%, 2022 - 51%). The only difference that emerges between the two rounds concerns the introduction of a regulatory act on imposing realistic (high) rates for the consumed energy – in the 2023 survey, the majority of respondents are in favour of the regulation (53%), whilst, in 2022, 52% are against it. Although an average of 73% of ethnic minorities agree each regulation should be introduced to mitigate climate change, over a quarter of them, on average, cannot assess some of the issues (for example, electric car subsidies, banning petrol-powered cars and lorries by 2050, imposing realistic rates for consumed energy, etc.).

3.

MAIN FINDINGS OF QUALITATIVE RESEARCH

CLIMATE CHANGE IN THE GEORGIAN CONTEXT

- Focus group participants associate climate change with global warming and its consequences. Namely, they consider natural disasters and unusual seasonal temperatures throughout the year to be a result of climate change and global warming.
- As an example of climate change, research participants often refer to several natural disasters that took place in Georgia in the recent past, which, in their opinion, is a clear indication of the impending danger. Namely, respondents recall the disaster that occurred in the town of Shovi on 3rd August, as well as the landslides and floods in Kobuleti and Guria and floods in Tbilisi and Rustavi due to heavy rainfall.
- Respondents residing in towns and villages of East Georgia mention the heavy rainfall in 2023, which, in their opinion, is unusual. Heavy precipitation, on the one hand, triggered landslides and floods and, on the other, had a negative impact on traditional crop yields.
- In terms of climactic conditions, hail has been identified as a significant problem for Kakheti. Namely, several respondents note that hail in 2003 was larger in size compared to previous years, resulting in severe damage to grapes.
- Residents of towns and villages in the regions of West Georgia state that their region suffered a significant loss in terms of infrastructure, private property, and human lives within the year.
- Residents of Tbilisi notice environmental changes mostly in deteriorated conditions, such as the pollution of air, water and land resources.

EFFECTS OF CLIMATE CHANGE AND VULNERABLE GROUPS

- Focus group participants think that economic losses primarily impact the agriculture sector and people who grow crops, given that any unusual manifestation of the climate may prove to be crucial for crop yields.
- Considering that the whole country saw heavy precipitation for a few months in the first half of 2023, farmers had to spray their crops with pesticides and suffered economic loss.
- Focus group participants draw a connection between poor crop yields and increased prices on products throughout the country and say this causes economic harm to the whole population.
- According to participants, at the individual level, the rate of stress and anxiety has increased, which is primarily due to the natural disasters that occurred in Georgia in the recent past.
- Mostly, persons with health issues are considered a group vulnerable to climate change. Participants identify two main age groups in this regard – small children and the elderly.

- In times of natural disasters, representatives of the disabled community emphasize the problem of unobstructed action and movement and note that should there be a need for quick action, they might find it hard to perform the recommended activities.
- Participants believe that members of the queer community are vulnerable due to already existing conditions (homelessness, weak immunity, poor nutrition) and have difficulty adapting to new challenges.

CAUSES OF CLIMATE CHANGE

- Focus group participants draw particular attention to deforestation, construction of hydropower plants, pollution from industry operations, and air pollution.
- According to residents of Tbilisi, open spaces are actively used for construction throughout the city, which limits the production of clean air at the expense of green spaces and pollutes the environment with particulate matter.
- In terms of air pollution, based on the examples of different regions, factories are often identified as contributors as they emit large amounts of particulate matter into the air. On the other hand, heavy traffic is also considered a culprit in polluting the air.
- Respondents tend to be skeptical in terms of the construction and operation of hydropower plants. They criticize the practical side of it, claiming that in Georgia, they are built without prior geological and seismological studies.
- Participants identify the pollution of land and air resources as a problem. During the discussions, the harmful practice of people dumping household waste on the ground or into the water has been mentioned more than once.
- It can be suggested that participants realize the significance of individual behavior and believe that human actions have a great impact on the environment and climate change.

TRENDS IN RESOURCE USE

- Attitudes towards a rational use of resources (water, electricity, gas, etc.) vary. It can be suggested that in those regions and areas where resources are available and are not expensive, this leads to excessive consumption. Conversely, in some areas of Georgia, due to their scarcity, a minimal amount of resources is used, and they are collected/preserved.

ALTERNATIVE AND RENEWABLE SOURCES OF ENERGY

- Although research participants gave a few examples, overall, their knowledge and experience in terms of using renewable energy sources is scarce. Only several participants report owning solar panels or having seen them in their social circle.
- Participants state that renewable energy sources require large amounts of money, making them less attractive.

GEORGIA'S CLIMATE CHANGE APPROACH AND STRATEGY

- Focus group participants are aware that Georgia has joined international conventions and, at the same time, participates in environmental activities taking place at the international level. Nevertheless, respondents cannot identify which commitments or responsibilities, taken as part of the signed conventions, Georgia fulfills at the policy level.
- Respondents recall several interventions aimed at eliminating air pollution at the legislative level. On the one hand, the initiative aimed to regulate car emissions and, on the other, factories across the country.
- As for the manufacturing sector, despite legislative changes and fines, factories that violate the regulations still operate to this day – they pay the fine and continue working. In this regard, respondents believe that supervision services should be more rigorous.

SOURCES, CONTENT AND RELIABILITY OF INFORMATION ABOUT CLIMATE CHANGE

- Focus group participants mostly obtain information about climate change through mass media, especially TV and online news outlets.
- Some of the respondents obtain information in a foreign language – English or Russian because information about climate change is scarce in the Georgian language, and what is available is repetitive and sometimes unreliable.
- In the villages and towns with the majority ethnic minority populations, information about climate change is available in their native languages, along with Georgian.
- Focus group participants trust the information obtained from social media sources the least. TV and field experts enjoy a greater degree of trust.

- The information focus group participants have received recently was mostly concerned with environmental challenges such as changes in the Pacific Ocean, plates moved as a result of an earthquake, melting icebergs, ways to survive natural disasters following Japan's example, etc. Natural disasters in Guria and the resort town of Shovi are identified at the local level.
- Village population is particularly interested in receiving information about the impact of climate change on annual and perennial crops.
- Members of the queer community would like to receive more structured knowledge about the causes and the extent of the damage of climate change, responsible authorities, etc. In addition, in order to raise public awareness, they think different spaces for discussion should be created where participants can talk about the urgent issues related to the climate.

RESOURCE USE PRACTICES

- Focus group participants try to save resources mainly by consuming less electricity and natural gas. However, reducing the use of resources is motivated by saving on utility bills rather than environmental concerns.
- Respondents are less likely to consider reducing the excessive consumption of drinking and irrigation water, given that water fees are either very little or non-existent (especially in rural areas) and/or water resources (drinking and irrigation) are easily accessible and thus, talks about their excessive consumption is irrelevant.
- According to focus group participants, young people are more aware of the harm excessive consumption causes as compared to adults. Information about the ecological environment is available to adolescents and young people through different sources, for example, seminars held as part of non-formal education at school, social networks, etc.

IMPACT OF CLIMATE CHANGE ON AGRICULTURE

- Village population associate climate change with the need to use fertilizers and pesticides, without which it is becoming impossible to grow crops.
- Focus group participants who have large farms actively use harmful chemicals; otherwise, they will not be able to grow crops intended for sale.
- Fertilizers and pesticides are not used by those people in the villages who grow crops for their families.

RESPONSIBLE ACTORS ON CLIMATE CHANGE AND SOLVING PROBLEMS CAUSED BY ENVIRONMENTAL DEGRADATION

- Some respondents hold individuals and the state responsible for climate change and for solving problems caused by environmental degradation, whilst the rest assign the responsibility distinctly to the state and the private sector.
- According to focus group participants, individual responsibility means that individuals a) take care of the environment within their capabilities (no littering, no excess consumption of resources, etc.) and b) spread correct information and knowledge about environmental issues in the family (especially children), as well as the community (neighbours, relatives, etc.).
- Focus group participants believe the role of the state in environmental protection is to a) integrate environmental issues in the education system, which will increase awareness and knowledge of the population, especially the youth; 2) conduct active monitoring of environmental supervision, which will aim to detect individual cases of damage to the environment, as well as monitor the activities of harmful private organizations (factories, etc.).

ACTIONS AIMED AT REDUCING ENVIRONMENTAL DAMAGE

- Some participants of focus groups believe that environmental fines are the most effective approach, whilst others think that raising awareness about environmental issues best ensures the reduction of environmental damage.

ASSESSMENT OF THE GOVERNMENT'S EFFORTS AND AREAS THAT STATE AGENCIES SHOULD WORK ON

- According to focus group participants, the state has been putting more effort into environmental protection in recent years, which, above all, is manifested in improved knowledge and awareness of environmental issues among different population groups, especially the youth.
- The main challenge for the government is the lack of appropriate monitoring of environmental damage and its implementation.
- Focus group participants emphasize that factories that damage the ecological environment should be more tightly monitored and regulated.

- At the municipal level, the lack of proper infrastructure is a major problem (littered environment, lack of landfills and waste bins/'rooms', etc.).

EXPERIENCE IN ADDRESSING THE LOCAL GOVERNMENT AND OTHER ACTORS

- Focus group participants will call the hotline of the Public Safety Command Centre (tel.: 112) to receive help during natural disasters.
- Some respondents have applied to the local government to receive compensation for material damages caused by different natural disasters (landslides, floods, storms and fires). Most of these respondents have a negative experience in this regard (however, positive cases are also reported). Applying to local authorities for assistance, should the need arise in the future, remains a priority.
- To deal with the problems caused by climate change or environmental degradation, a small share of focus group participants have experience appealing to civic society and mass media, which mainly resulted in receiving legal consultation and reporting the issue respectively.

AWARENESS OF POSITIVE FOREIGN EXPERIENCES

- Respondents who are aware of foreign experiences approve of the early warning systems operating in these countries, which should also be introduced in Georgia due to the rise in natural disasters.
- Some participants believe the foreign practice that requires the private sector to care for the environment should be implemented in Georgia.
- Ethnic minorities (Armenians, Azerbaijanis, etc.) would like the information about climate change to be bilingual. This is all the more important considering that the majority of ethnic minorities are involved in agricultural activities.

ASSESSMENT OF HYPOTHETICAL SITUATIONS

- It should be noted that no significant differences have been observed between the opinions and attitudes of target groups in their assessments of hypothetical situations (cases).
- Assessments of the proposed hypothetical situations reveal that respondents recognize the importance of individual actions in environmental protection. However, they also emphasize the responsibility of the state and private sector in this regard.

- Based on the hypothetical situations, focus group participants are aware of the need to use various technological resources (hydropower plants, chemical industry, production of precious metals, etc.) as they contribute to economic growth and employment. However, they also realize the importance of protecting the ecosystem. Respondents believe the balance should be maintained – on the one hand, economic growth and the creation of jobs should be encouraged, but on the other, the environment and human health should be protected.

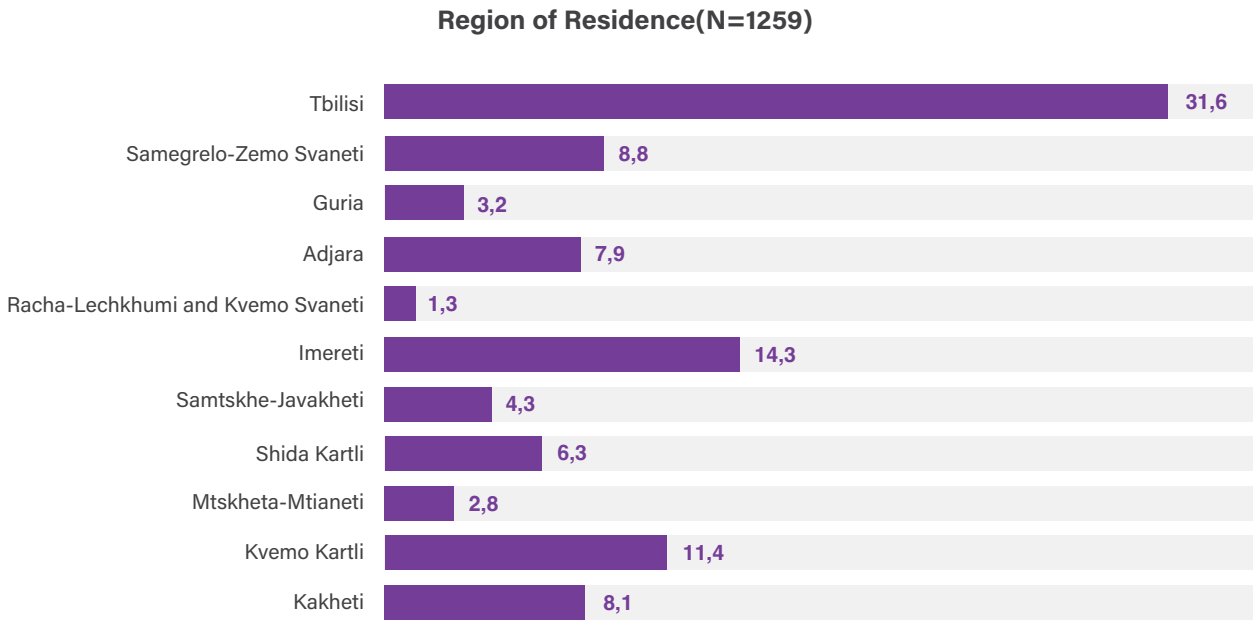
4.

COMPREHENSIVE REPORT OF QUANTITATIVE RESEARCH

SOCIO-DEMOGRAPHIC PROFILE OF RESPONDENTS

The socio-demographic characteristics of persons participating in the Climate Change and Environmentally Focused Nationwide Opinion Poll on Knowledge, Perception, Attitudes, Behaviour and Desired Policies reveal that 46% of the sample are male and 54% - female. The distribution of respondents by region of residence shows that 31.6% live in Tbilisi, 14.3% - in Imereti, and 11.4% - in Kvemo Kartli. The proportion of respondents surveyed in other regions ranges between 1.3% and 8.8% (see Diagram #1).

Diagram #1

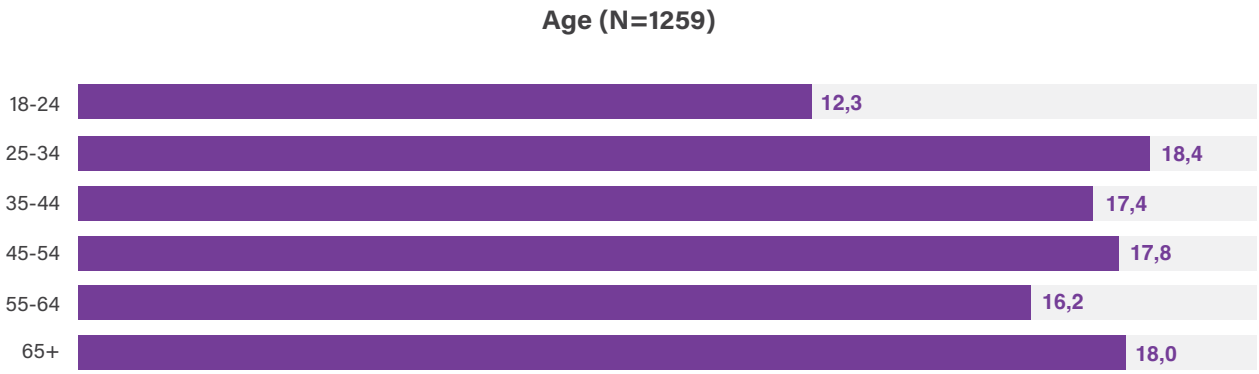


Along with the above characteristics, respondents were differentiated by the type of settlement, nationality and ethnic origin. Namely, 90.1% are ethnic Georgians and 9.9% belong to other ethnic groups. As for the type of settlement, every other participant resides in an urban settlement, and 49.7% live in rural areas.

40.4% (N=383) of ethnic minorities live in Samtskhe-Javakheti, and 44.6% in Kartli. Only 7 respondents reside in Tbilisi (N=4), Guria (N=1) and Imereti (N=2). 18% of ethnic minority representatives live in urban settlements, and 82% - in rural areas. As for their ethnic belonging, 37.3% are Armenians, and 61.2% - Azerbaijanis. Differentiation by gender reveals that 49.6% are male and 50.4% - female.

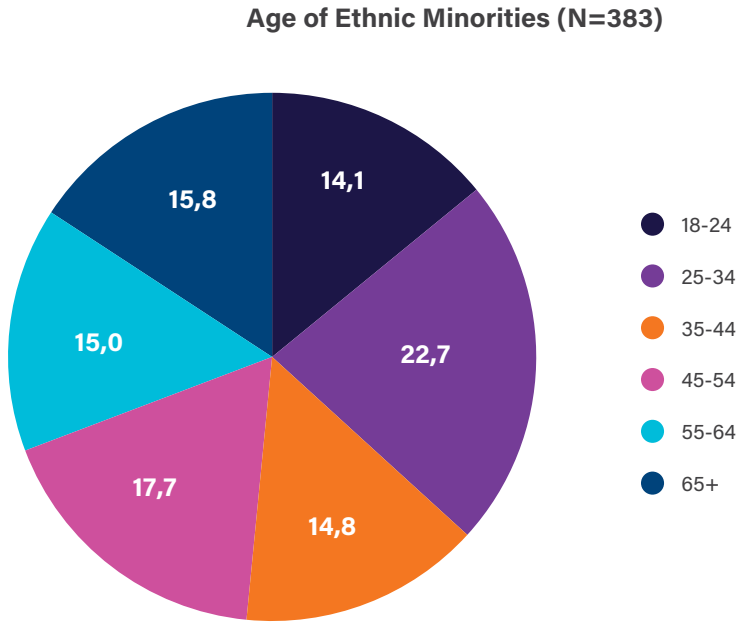
Furthermore, research participants were grouped into 6 age categories. Those aged 18-24 (12.3%) and 55-64 (16.2%) constitute the smallest share. The proportion of other categories is somewhat larger (see Diagram #2).

Diagram #2



As for the distribution of ethnic minorities by age, a little more than one-fifth (22.7%) are between 25 and 34, and 17.7% fall into the 45-54 age group. The proportion of younger and older respondents ranges between 14% and 16% (see Diagram #3).

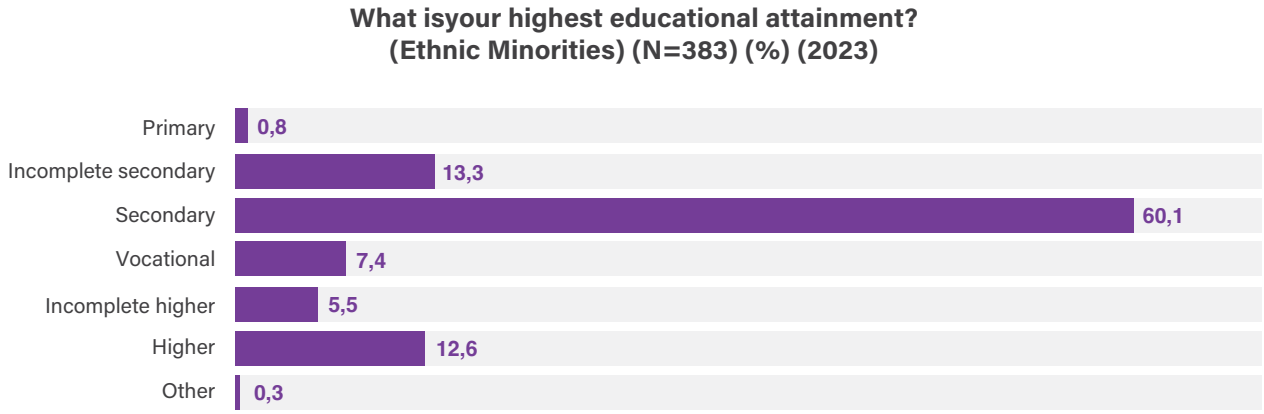
Diagram #3



39.1% of respondents have completed higher education, and 35.7% - secondary education. Almost one-fifth have a vocational education diploma (17.9%). The proportion of those who have incomplete secondary education (2.8%), incomplete higher education (3.7%), or primary education (0.6%) is less than five percent in each category.

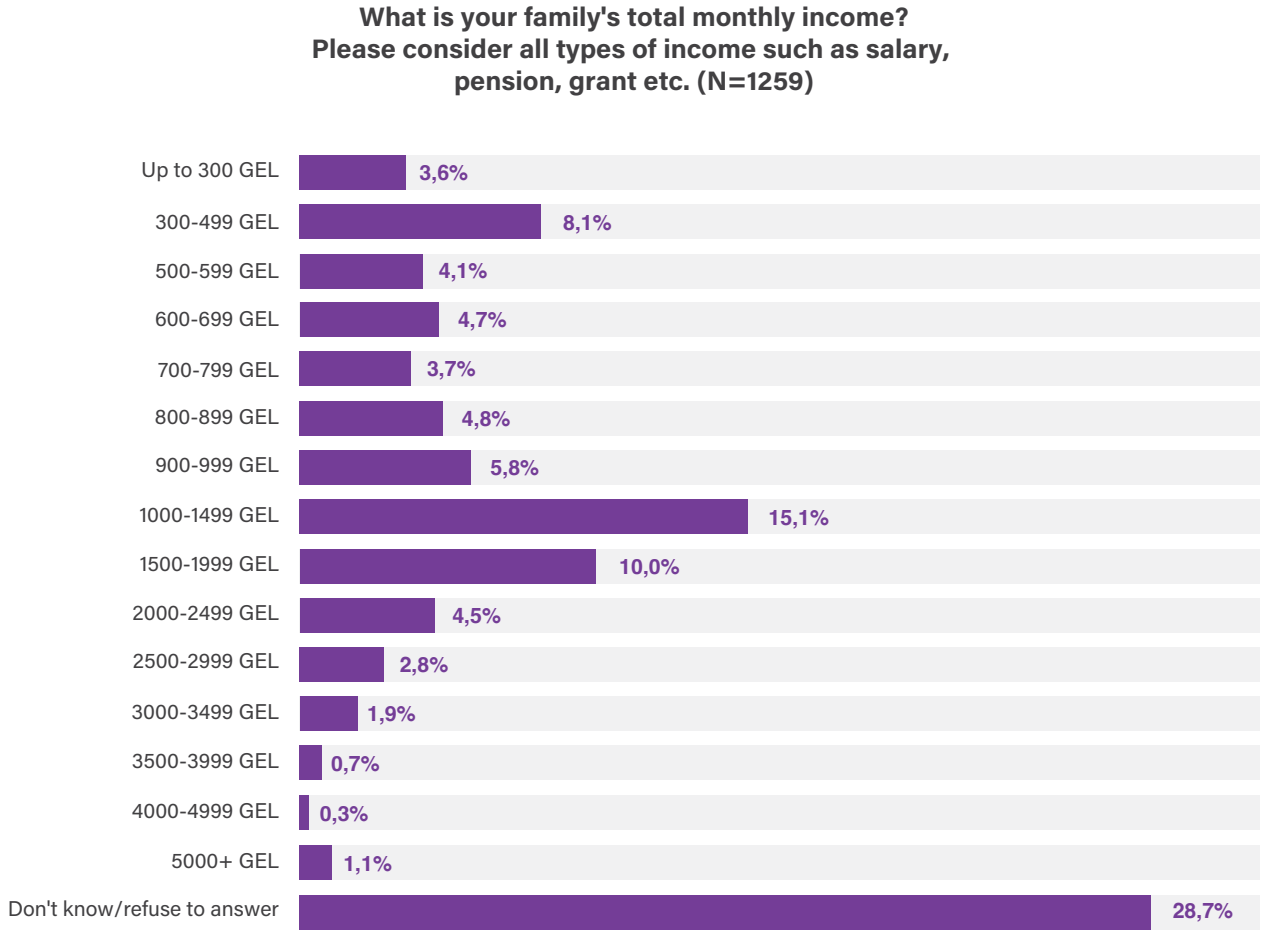
60.1% of ethnic minority representatives have a complete secondary education. The proportion of those who have incomplete secondary (13.3%) and higher education (12.6%) is over one-tenth each. The number of those with only primary education is very small (0.8%, N=3) (see Diagram #4).

Diagram #4



As for the total family income per month of the respondents, the proportion of those whose family income ranges between 1000 and 1499 GEL (15.1%) or 1500 and 1999 GEL (10%) is over one-tenth. Only a small number have a family income of 3000 GEL or more (total of 4%) (see Diagram #5).

Diagram #5

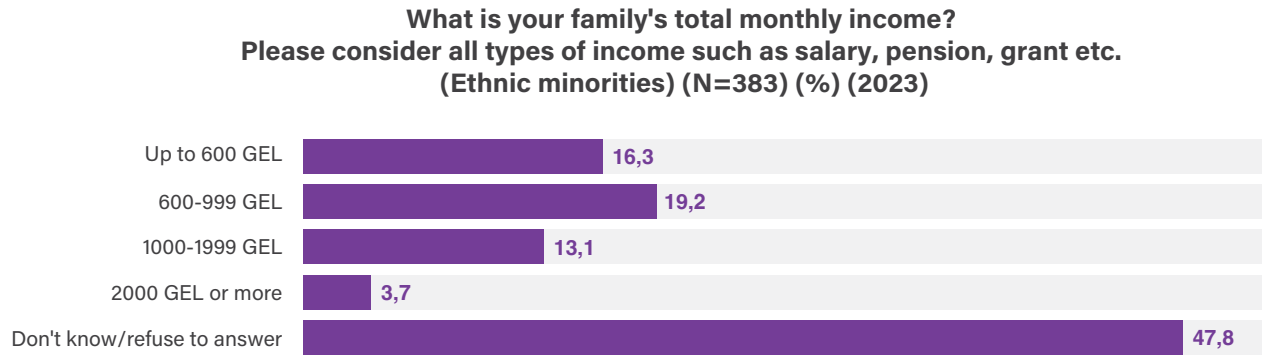


Like the previous round of the survey, income can be grouped into 5 categories: up to 600 GEL, 600-999 GEL, 1000-1999 GEL, 200 GEL or more, Don't know/Refuse to answer. The distribution of respondents across these groups is as follows:

- Up to 600 GEL - 15.8%
- 600-999 GEL - 19%
- 1000-1999 GEL - 25.1%
- 2000 GEL or more - 11.4%
- Don't know/Refuse to answer - 28.7%

As for ethnic minority representatives, according to the grouped data, almost every other respondent (47.8%) refuses to specify the monthly income of their families. Among those who indicate the amount, every fifth reports that their family income ranges between 600 and 999 GEL on average, whilst it is no more than 600 GEL for 16.3% (see Diagram #6).

Diagram #6



PERCEPTIONS AND ATTITUDES

Respondents assess the issue of climate change in 5 dimensions. Namely, how significant the challenge is for them personally, for their town/village, region, country, and the world. A 5-point scale was used for evaluation where the score of 1 was extremely negative and 5 denoted a positive assessment.

Based on the 2023 research data, the proportion of those who do not deem climate change issues important either in the local or global context ('not important at all + more unimportant than not') is very small and does not exceed 13%, which is far outweighed by those with opposite attitudes. The percentage of respondents with the same attitudes is not greater than 6.8% (at each level) in the previous round (2022). Among those surveyed in 2023, the number of respondents for whom the damage caused by climate change is 'more important than not + very important' increases proportionately with the expansion of the sphere of assessment (personal level -> global level) (for you personally - 82.8%; for your town - 86%; for your region - 86.2%; for your country - 90.3%; for the world - 91.9%). A similar trend is observed in the results from the previous year (see Table #1).

Table #1

How important is the issue of climate change…?		Not important at all	2	3	4	Very important	Don't know/Refuse to answer
		%					
2023 (N=1259)	For you	2.4	2.8	11.8	18	64.8	0.2
	For your town/village	1.6	2.3	9.4	19.3	66.8	0.7
	For your region	1.4	1.5	9.2	20.8	65.4	1.6
	For your country	0.3	0.7	7.7	19.4	70.9	1
	For the world	0.2	0.9	5.5	17.6	74.3	1.4
2022 (N=1500)	For you	4.3	2.5	12.5	21.1	59.5	0.2
	For your town/village	1.5	3	9.4	21.6	63.9	0.6
	For your region	1.2	1.3	10.6	21.9	64.6	0.4
	For your country	1	1.3	7.3	21.6	68.2	0.7
	For the world	1.2	1.3	5.3	17.4	73.2	1.6

Analyzing the issue in terms of the type of settlement reveals no significant difference between the assessments of respondents surveyed in urban (including Tbilisi) and rural areas. At least 81% of urban and rural residents state that climate change is 'more important than not + very important' both on a personal level and larger scale (their town/village, region, country, the world). In addition, it should be noted that as the range of assessment expands, the share of those who consider the said issue significant increases (both in the city and village). The proportion of respondents who deem the problem of climate change insignificant is not greater than 5.4% of urban residents and 4.7% of rural population for each assessment dimension. In this regard, the share of those who think the issue is 'not important at all + more unimportant than not' for them personally is the largest. (Data are statistically reliable; $p<0.05$) (see Table #2).

Table #2

How important is the issue of climate change...? (N=1259) (By the type of settlement)		Not important at all	2	3	4	Very important	Don't know/Refuse to answer
		%					
For you (X^2=16.565; p<0.05)	Town (including Tbilisi)	2.6	2.8	12.4	15.4	66.5	0.3
	Village	2	2.7	10.8	23.1	61.5	-
For your town/village (X^2=17.415; p<0.05)	Town (including Tbilisi)	1.5	2.9	7.8	18.1	68.7	1
	Village	1.8	1.3	12.3	21.5	63.1	-
For your region (X^2=20.969; p<0.05)	Town (including Tbilisi)	1.6	1.7	7.8	19.4	67.1	2.5
	Village	1.2	1.3	12	23.5	62	-
For your country (X^2=16.933; p<0.05)	Town (including Tbilisi)	0.5	0.8	6.6	17.3	73.3	1.4
	Village	-	0.4	9.6	23.3	66.5	0.2
For the world (X^2=17.043; p<0.05)	Town (including Tbilisi)	0.4	1.3	4.4	15.9	76.1	1.9
	Village	-	0.2	7.6	20.7	7.9	0.5

Differentiating the assessments of respondents by geographical areas of the country (Tbilisi, West Georgia, East Georgia) reveals the following trends:

- An almost equal number of respondents surveyed in East (81.4%) and West Georgia (83.6%), as well as the capital (83.6%), note that the issue of climate change is 'more important than not + very important' for them personally.
- The share of those who deem the issue significant for their town/village is larger in Tbilisi (90.9%) than in East (81%) and West (86.8%) Georgia.
- In the regional context, the populations of Tbilisi and West Georgia are more likely to identify climate change as significant compared their counterparts in East Georgia.
- An almost equal share of respondents surveyed in all three geographical areas assess the significance of the climate crisis both for the country and the world using positive end of the scale.

(Data are statistically reliable; $p<0.05$) (see Table #3).

Table #3

How important is the issue of climate change...? (N=1259) (By geographical area/Tbilisi)		Not important at all	2	3	4	Very important	Don't know/Refuse to answer
		%					
For you (X^2=25.139; $p<0.05$)	Tbilisi	1.4	2.3	12.7	17	66.6	-
	West Georgia	1.2	3.5	11.3	14.9	68.7	0.5
	East Georgia	4.3	2.6	11.5	21.8	59.7	0.2
For your town/village (X^2=42.068; $p<0.05$)	Tbilisi	-	2.4	6.2	20.7	70.2	0.5
	West Georgia	0.5	1.8	9.9	16	70.8	0.9
	East Georgia	3.9	2.8	11.7	20.9	60.1	0.6
For your region (X^2=35.326; $p<0.05$)	Tbilisi	-	1.6	8.4	20.7	66.3	3
	West Georgia	0.5	0.9	8.1	19.8	69.6	1.1
	East Georgia	3.5	2.1	10.9	21.8	60.8	0.8
For your country (X^2=22.077; $p<0.05$)	Tbilisi	-	0.6	5.1	18.3	75.0	1
	West Georgia	0.5	0.9	7	16.6	73.3	1.6
	East Georgia	0.5	0.6	10.5	22.8	65.3	0.5
For the world (X^2=19.317; $p<0.05$)	Tbilisi	-	1.3	3.5	15.7	77.9	1.5
	West Georgia	0.5	1.1	6.9	14.3	75.8	1.4
	East Georgia	0.2	0.4	6	22.1	69.8	1.4

Statistical analysis of the data in terms of educational attainment reveals that respondents with higher education are more likely to assess the issue of climate change as 'more important than not + very important' in each assessment category as compared to those with a different level of education. (Data are statistically reliable: $p<0.05$) (see Table #4).

Table #4

How important is the issue of climate change...? (N=1259) (By education)		Not important at all	2	3	4	Very important	Don't know/Refuse to answer
		%					
For you (X^2=20.178; p<0.05)	Higher education	2	2.3	8.9	14.7	72	-
	Other	2.6	3.1	13.7	20.1	60.1	0.4
For your town/village (X^2=31.380; p<0.05)	Higher education	0.7	2.2	6.5	14.4	75.5	0.7
	Other	2.2	2.4	11.2	22.4	61.2	0.6
For your region (X^2=18.118; p<0.05)	Higher education	0.5	1.6	7.1	17.7	71.3	1.8
	Other	2.0	1.5	10.6	22.8	61.6	1.5
For your country (X^2=21.730; p<0.05)	Higher education	0.2	0.8	5.3	15	78.1	0.6
	Other	0.4	0.6	9.1	22.2	66.4	1.3
For the world (X^2=20.753; p<0.05)	Higher education	0.2	1.3	4.1	12.9	80.8	0.7
	Other	0.3	0.7	6.4	20.6	70.1	1.9

In the ethnic minority group, the proportion of those who assess the climate change issue as 'very important + more important than not' for them (73.4%), for their town/village (71.1%), for the region (74.8%), for the country (79.5%) and the world (84.3%) varies between 71% and 84% (see Table #5).

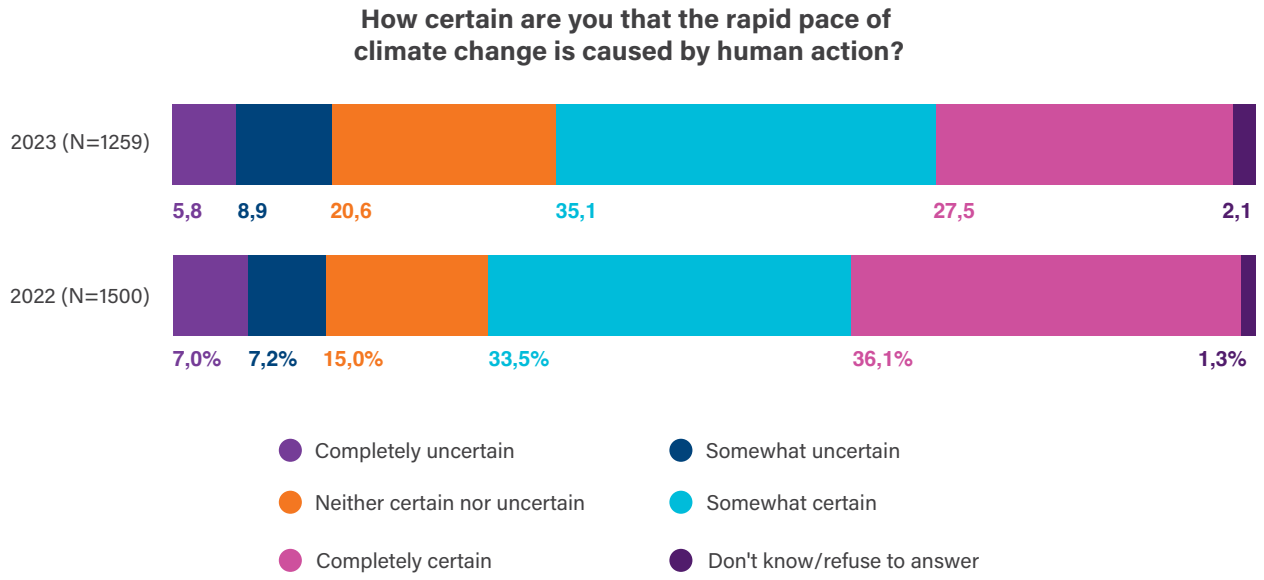
Table #5

How important is the issue of climate change...? (N=383) (Ethnic minorities)	Not important at all	2	3	4	Very important	Don't know/Refuse to answer
	%					
For you	0.3	5.6	20.7	25.6	47.8	-
For your town/village	0.3	1.8	24.4	25.4	45.7	2.5
For your region	0.3	1.4	20.1	28.1	46.8	3.3
For your country	-	0.8	16.3	29.1	50.4	3.5
For the world	-	0.3	11.4	27.9	56.3	4

Assessing the causality between climate change and human actions reveals that the majority of the population recognize the negative effect of human behavior. Namely, among respondents surveyed in 2023, 27.5%

are completely and 35.1% somewhat certain that the rapid pace of climate change is induced by people's carelessness/different everyday activities (2022: completely certain - 36.1%; somewhat certain - 33.5%). The proportion of those who do not share the same attitude is not greater than 15% in 2023 and 14% in 2022 (not completely certain + somewhat uncertain) (see Diagram #7).

Diagram #7

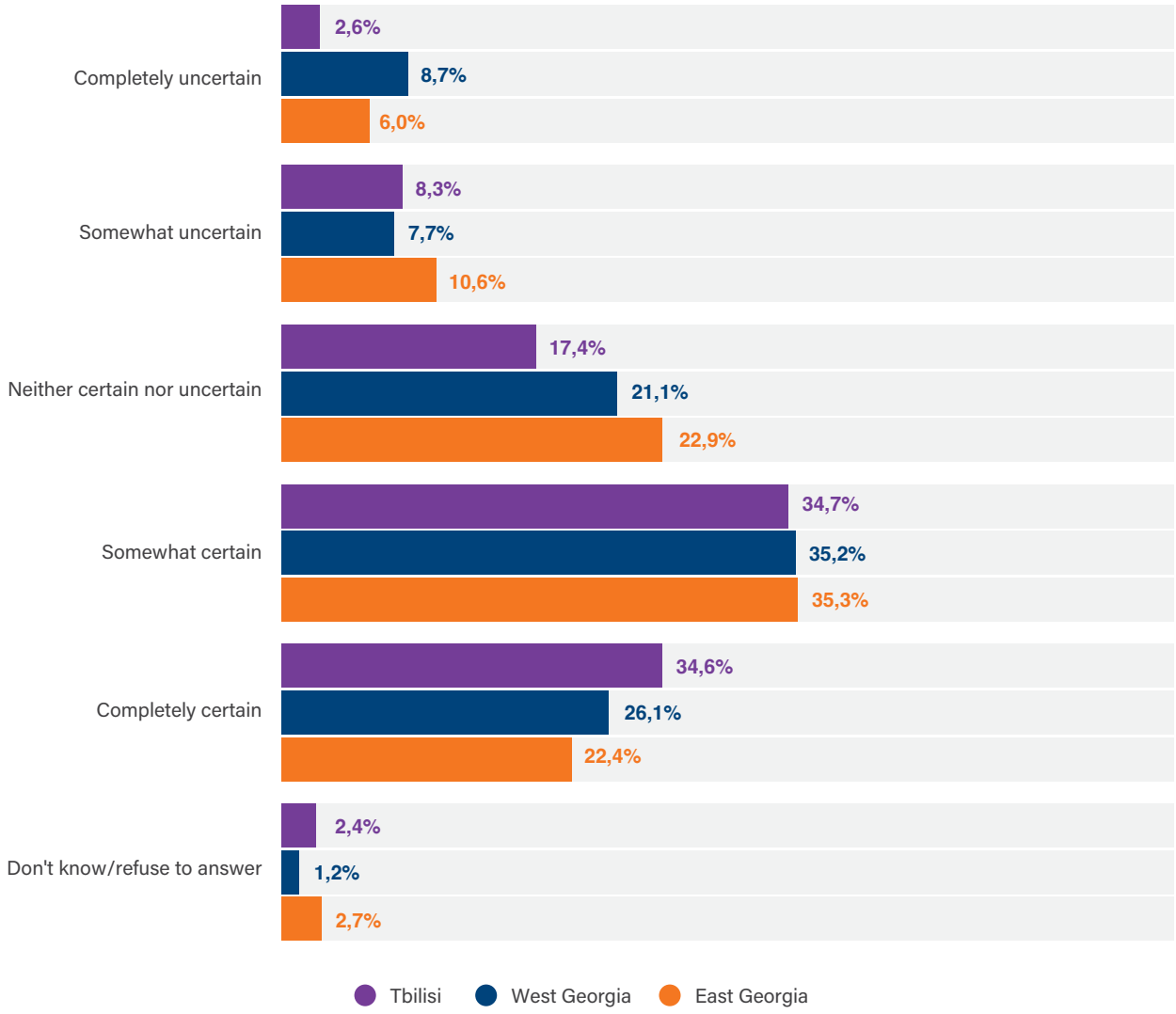


According to the statistical analysis of the quantitative data, the population of Tbilisi is more likely to consider the rapid pace of climate change human-induced (69.3%) than their counterparts in West (61.3%) and East (57.7%) Georgia ('completely certain + somewhat certain'). Furthermore, every third respondent in the capital is completely certain about the issue in question, whilst the same attitude is found among 26.1% and little over one-fifth of respondents in West and East Georgia, respectively. (Data are statistically reliable: $X^2=32.901$; $p<0.05$) (see Diagram #8).

Diagram #8

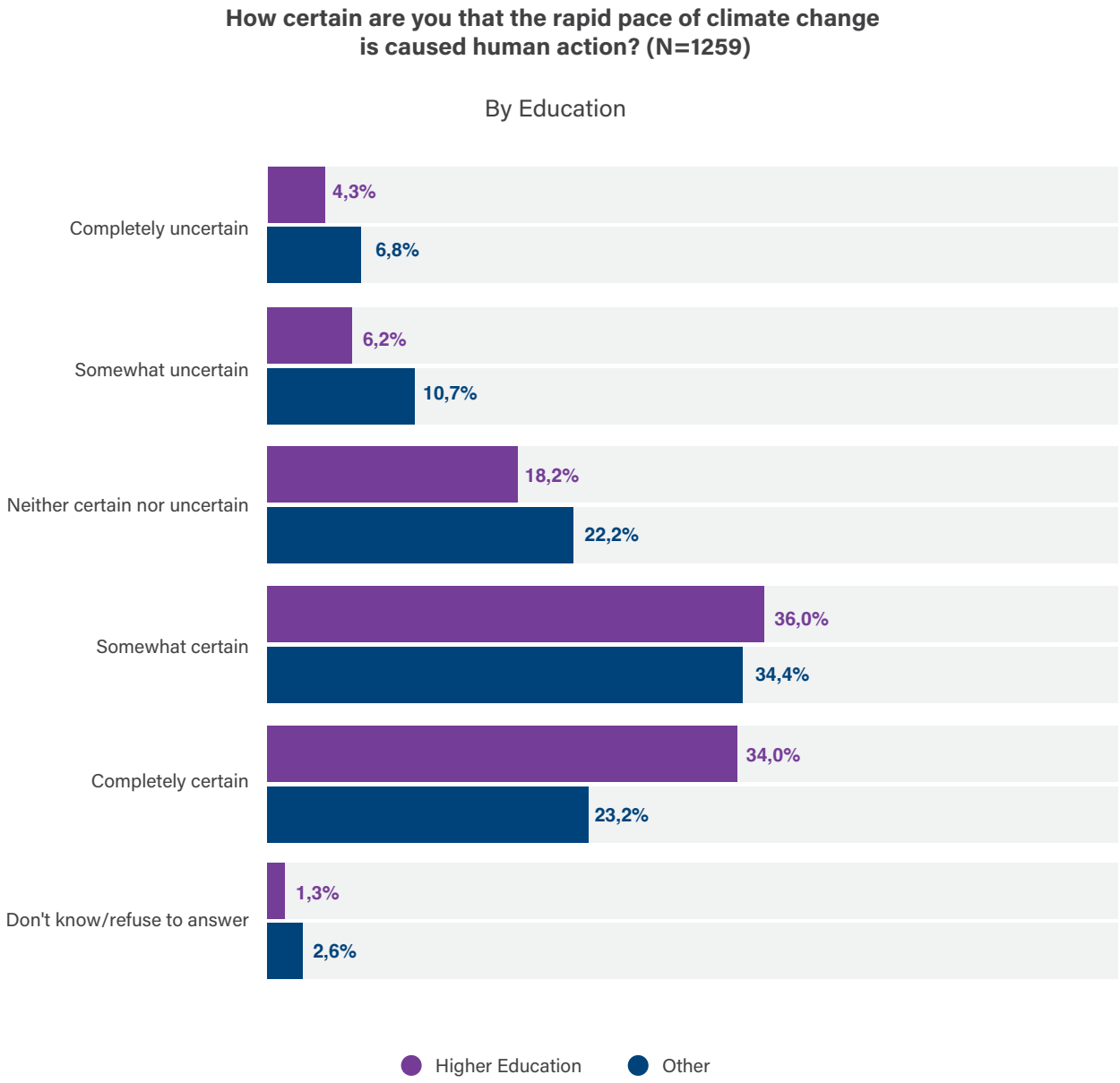
How certain are you that the rapid pace of climate change is caused human action? (N=1259)

By Geographical area/Tbilisi



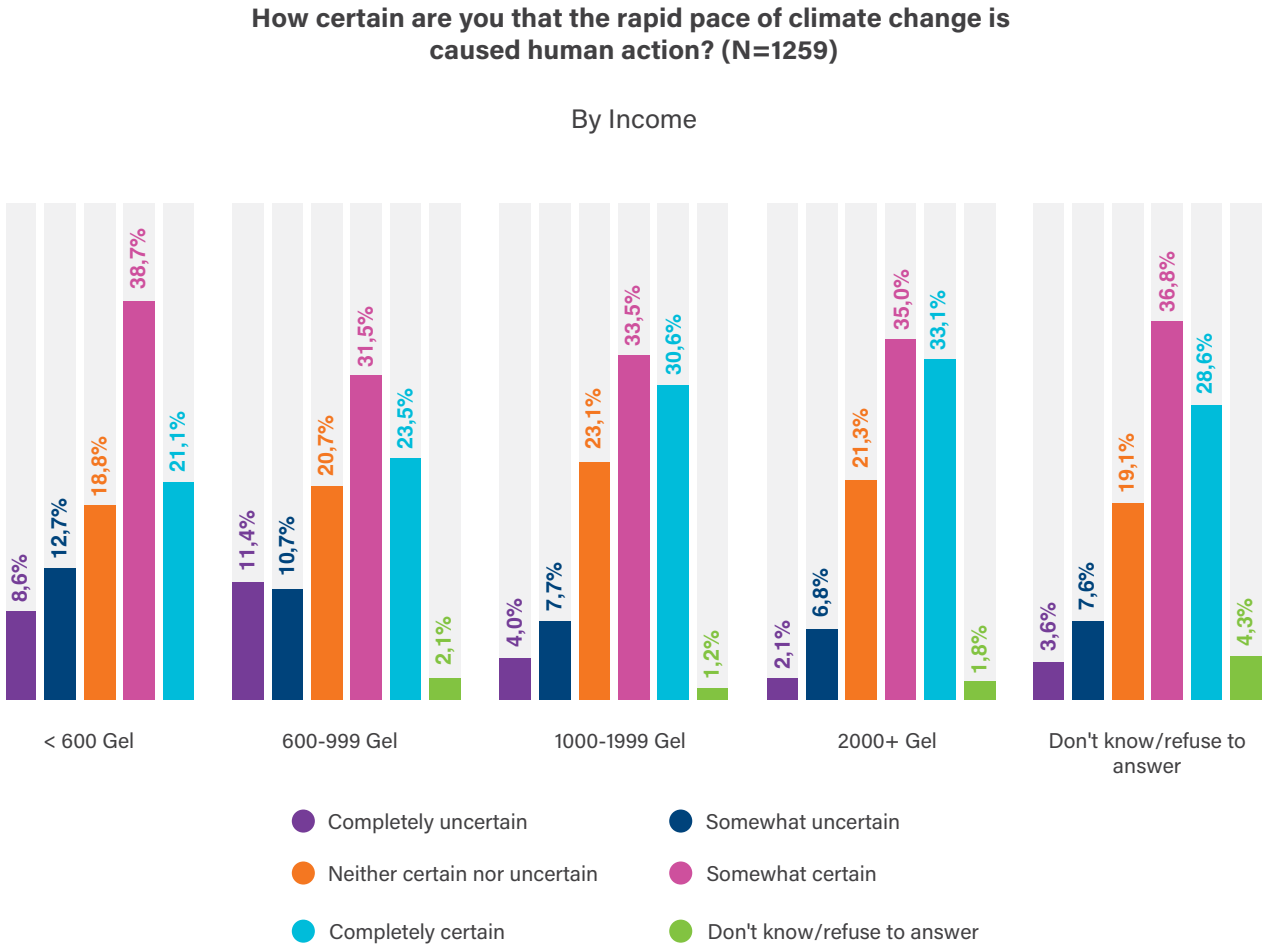
Analyzing the issue in terms of educational attainment demonstrates that a larger share of respondents with higher education (70%) believe the rapid pace of climate change is human-induced than that of those with lower academic attainment (57.7%) ('completely certain + somewhat certain'). 17.5% of the latter segment are either completely or somewhat uncertain that there is a causality between human behavior and climate change. (Data are statistically reliable: $X^2=27.353$; $p<0.05$) (see Diagram #9).

Diagram #9



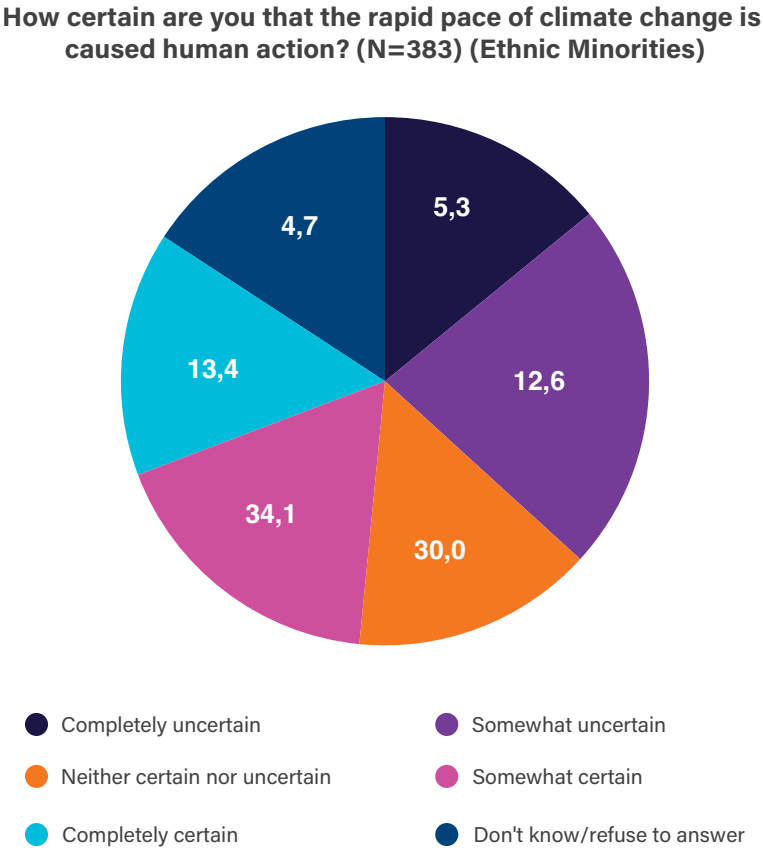
Differentiating respondents' perceptions according to the monthly income of families reveals that a clear majority of those with an income of over 1,000 GEL are 'completely + somewhat' certain the rapid pace of climate change is human-induced (1000-1999 GEL: 64%; 2000 + GEL: 68.1%). The same assessment is offered by 65.4% of those respondents who either refuse to specify or do not know the exact amount of their families' monthly income. The share of those with the opposite assessment ('completely uncertain + somewhat uncertain') is over one-fifth of respondents who have a family income of less than 1,000 GEL a month (<600 GEL: 21.4%; 600-999 GEL: 22.2%). (Data are statistically reliable: $X^2=52.109$; $p<0.05$) (see Diagram #10)

Diagram #10



47.5% of ethnic minorities are 'completely + somewhat' certain that the rapid pace of climate change is human-induced, and 17.8% offer the opposite assessment (see Diagram #11).

Diagram #11



In addition to the above, the results of the research of the last two years (2022-2023) reveal that people are more likely to notice such changes caused by the climate crisis that have tangible negative effect on their daily lives. For example, 92.8% of those surveyed in the second round state that natural disasters (floods, landslides, mudslides, etc.) have been on the rise in recent years (2022 - 84.1%), and 90.6% believe human health has deteriorated. The latter aspect (95.9%) was indicated by the largest share of respondents in the 2022 survey. 92.5% of participants in the same round emphasized the reduction in crop yields. It should also be noted that almost 89.8% of the 2022 sample identified frequent droughts (89.7%) and high temperatures (more intensive/frequent with heat waves) (89.6%) as negative consequences of the climate crisis. Based on the 2023 data, the proportion of those respondents who identify the following events as negative consequences of climate change ranges between 83.3% and 89%: more frequent droughts, high temperatures (more intensive/frequent with heat waves), more frequent extreme weather conditions (wind, snow, hail, etc.), reduction in crop yields, and increase in plant and animal diseases. Conversely, in 2022, no more than 74% of respondents were concerned about the increased frequency of extreme weather conditions, loss of biodiversity, and the reduction in the amount and size of glaciers.

It should be noted that, unlike the 2022 results, there is a relative increase in the level of awareness/knowledge of negative events that are less noticeable in everyday life and are almost impossible to receive information about without other/additional sources (TV, press, internet, etc.). Namely, 37.1% of respondents in 2023 state that they have not noticed an intensified desertification caused by climate change in recent years (2022 – 30%); comparing the results of 2022 and 2023 reveals that almost an equal share of respondents in both rounds did/do not have information about the reduction in the amount and size of glaciers (2023 – 29.3%; 2022 - 29.4%). A quarter of respondents, both in 2023 and 2022, have not noticed any changes related to the decline in biodiversity, insect and animal/plant populations, and water resources in recent years (see Table @6).

Table #6

Have you noticed any changes related to climate change in recent years?	2023 (N=1259)			2022 (N=1500)		
	Yes	No	Don't know/ Refuse to answer	Yes	No	Don't know/ Refuse to answer
	%					
Increased frequency of natural disasters (flood, landslide, mudslide, etc.)	92.8	6.8	0.5	84.1	15.1	0.8
Increased frequency of droughts	86.2	11.7	2.1	89.8	9.1	1.1
High temperatures with more intense/frequent heat waves	89	9.7	1.4	89.6	9.2	1.2
Increased frequency of other extreme weather events (wind, snow, hail, etc.)	85.2	12.8	2	73.8	24	2.1
Reduction in the amount and size of glaciers	57.8	29.3	12.9	60.8	29.4	9.8
Intensified desertification process	49.6	37.1	13.4	57.7	30	12.3
Biodiversity loss and reduced species and numbers of insects, animals and plants	66.8	26	7.3	67	25.1	7.9
Reduced water resources	71	25.3	3.7	77	20.6	2.4
Reduced crop yields	87.1	9.7	3.2	92.5	5.2	2.2
Increase in the animal and plant diseases	83.3	12.3	4.5	85.4	9.4	5.2
Deterioration of human health	90.6	7.3	2	96	3.2	1

According to the geographical distribution of respondents, in recent years, problems/challenges caused by climate change, apart from several cases, are more likely to be noticeable to the populations of East (excluding Tbilisi) and West Georgia than the capital city. Namely, while a clear majority of those surveyed in Tbilisi (98.3%) state that natural disasters (floods, landslides, mudslides, etc.) have become more frequent in recent years due to climate change, the share of those who tend to disregard other important changes in the environment is rather sizeable in the same cohort. For example, 46.6% of the Tbilisi population have not noticed the intensified desertification process. A considerable portion of those living in the regions offer the same assessment of the issue (West - 35%; East - 30.5%). Furthermore, 38% of Tbilisi residents note that there has been no decline in water resources in recent years either; at least every third respondent has not noticed a decline in biodiversity and insect, animal, and plant populations. Interestingly enough, a quarter of the capital city residents are not aware of the increase in animal and plant diseases, and one-fifth have no information about reduced crop yields.

Unlike Tbilisi, the share of those respondents to whom the negative impacts of climate change are visible is relatively large in West and East Georgia. This, on the one hand, might be due to the fact that the population in the regions are more likely to be engaged in agricultural activities (crop raising, livestock, etc.) and thus, changes, such as frequent droughts (West Georgia - 88.6%; East Georgia - 89.5%; Tbilisi - 80%) and increased animal and plant diseases (West Georgia - 88.7%; East Georgia - 91.7%; Tbilisi - 68%) have a direct impact on their economic activity. For example, over 90% of those surveyed in West (91.2%) and East (95.5%) Georgia report reduced crop yields, whilst the rate is 73.3% in Tbilisi; it is also interesting to note that compared to Tbilisi (82.1%), the percentage of those who say that human health has deteriorated due to climate change is somewhat high in the regions: West Georgia 93.3%; East Georgia - 95.7%; (Data are statistically reliable: $p<0.05$) (see Table #7).

Table #7

Have you noticed any changes related to climate change in recent years? (N=1259) (By geographical area/Tbilisi)		Yes	No	Don't know/ Refuse to answer
		%		
Increased frequency of natural disasters (flood, landslide, mudslide, etc.) ($X^2=50.905$; $p<0.05$)	Tbilisi	98.3	1.7	-
	West Georgia	94.3	4.8	0.9
	East Georgia	86.5	13.1	0.4
Increased frequency of droughts ($X^2=21.881$; $p<0.05$)	Tbilisi	80	17.1	2.9
	West Georgia	88.6	8.8	2.5
	East Georgia	89.5	9.6	1
Increased frequency of other extreme weather events (wind, snow, hail, etc.) ($X^2=17.508$; $p<0.05$)	Tbilisi	82.8	15.6	1.6
	West Georgia	81.5	15.6	2.8
	East Georgia	90.4	7.9	1.7

Have you noticed any changes related to climate change in recent years? (N=1259) (By geographical area/Tbilisi)		Yes	No	Don't know/ Refuse to answer
		%		
Intensified desertification process (X^2=31.504; p<0.05)	Tbilisi	42.6	46.6	10.8
	West Georgia	47.8	35	17.1
	East Georgia	57.3	30.5	12.3
Biodiversity loss and reduced species and numbers of insects, animals and plants (X^2=44.085; p<0.05)	Tbilisi	57.4	34.5	8.1
	West Georgia	64.1	25.9	10
	East Georgia	77.3	18.6	4.1
Reduced water resources (X^2=121.484; p<0.05)	Tbilisi	58.6	38	3.4
	West Georgia	63.4	29.6	7
	East Georgia	88.6	10.3	1.1
Reduced crop yields (X^2=113.852; p<0.05)	Tbilisi	73.3	21.8	5
	West Georgia	91.2	4.9	3.9
	East Georgia	95.5	3.3	1.2
Increase in the animal and plant diseases (X^2=105.252; p<0.05)	Tbilisi	68	25	7
	West Georgia	88.7	6.7	4.6
	East Georgia	91.7	6.2	2.1
Deterioration of human health (X^2=59.195; p<0.05)	Tbilisi	82.1	15.4	2.5
	West Georgia	93.3	4.1	2.5
	East Georgia	95.7	3.1	1.2

Processing the issue in terms of the type of settlement shows that, compared to those living in urban settlements (including Tbilisi), the rural population is more likely to have a better and clearer understanding of the negative consequences of climate change. For example, changes, such as the increase of animal and plant diseases, the reduction in the amount and size of glaciers, reduced crop yields, reduced water resources, more frequent droughts, loss of biodiversity, and intensified process of desertification, are less likely to be left unnoticed by the rural population, whilst the share is relatively small in the city. Namely, the difference between the percentages of respondents surveyed in rural and urban settlements who notice the above challenges/problems caused by climate change ranges between 13% and 18%. It should be noted that rural (96.3%) and urban (including Tbilisi) (87.7%) populations tend to notice the deterioration of human health relatively equally. (Data are statistically reliable: p<0.05) (see Table #8).

Table #8

Have you noticed any changes related to climate change in recent years? (N=1259) (By the type of settlement)		Yes	No	Don't know/ Refuse to answer
		%		
Increased frequency of droughts (X^2=14.949; p<0.05)	Town (including Tbilisi)	82.7	14.4	2.9
	Village	92.9	6.6	0.5
High temperatures with more intense/ frequent heat waves (X^2=7.258; p<0.05)	Town (including Tbilisi)	87.9	10.4	1.7
	Village	91	8.2	0.7
Reduction in the amount and size of glaciers (X^2=24.257; p<0.05)	Town (including Tbilisi)	53.6	32.2	14.2
	Village	66	23.6	10.4
Intensified desertification process (X^2=10.376; p<0.05)	Town (including Tbilisi)	45.3	40.3	14.3
	Village	57.6	30.9	11.5
Biodiversity loss and reduced species and numbers of insects, animals and plants (X^2=9.857; p<0.05)	Town (including Tbilisi)	62.1	29.3	8.5
	Village	75.6	19.6	4.8
Reduced water resources (X^2=13.596; p<0.05)	Town (including Tbilisi)	65.5	30	4.5
	Village	81.5	16.3	2.2
Reduced crop yields (X^2=16.726; p<0.05)	Town (including Tbilisi)	82.1	13.4	4.6
	Village	96.6	2.6	0.7
Increase in the animal and plant diseases (X^2=26.541; p<0.05)	Town (including Tbilisi)	77	16.6	6.4
	Village	95.1	4.1	0.7
Deterioration of human health (X^2=7.454; p<0.05)	Town (including Tbilisi)	87.7	9.7	2.7
	Village	96.3	2.9	0.8

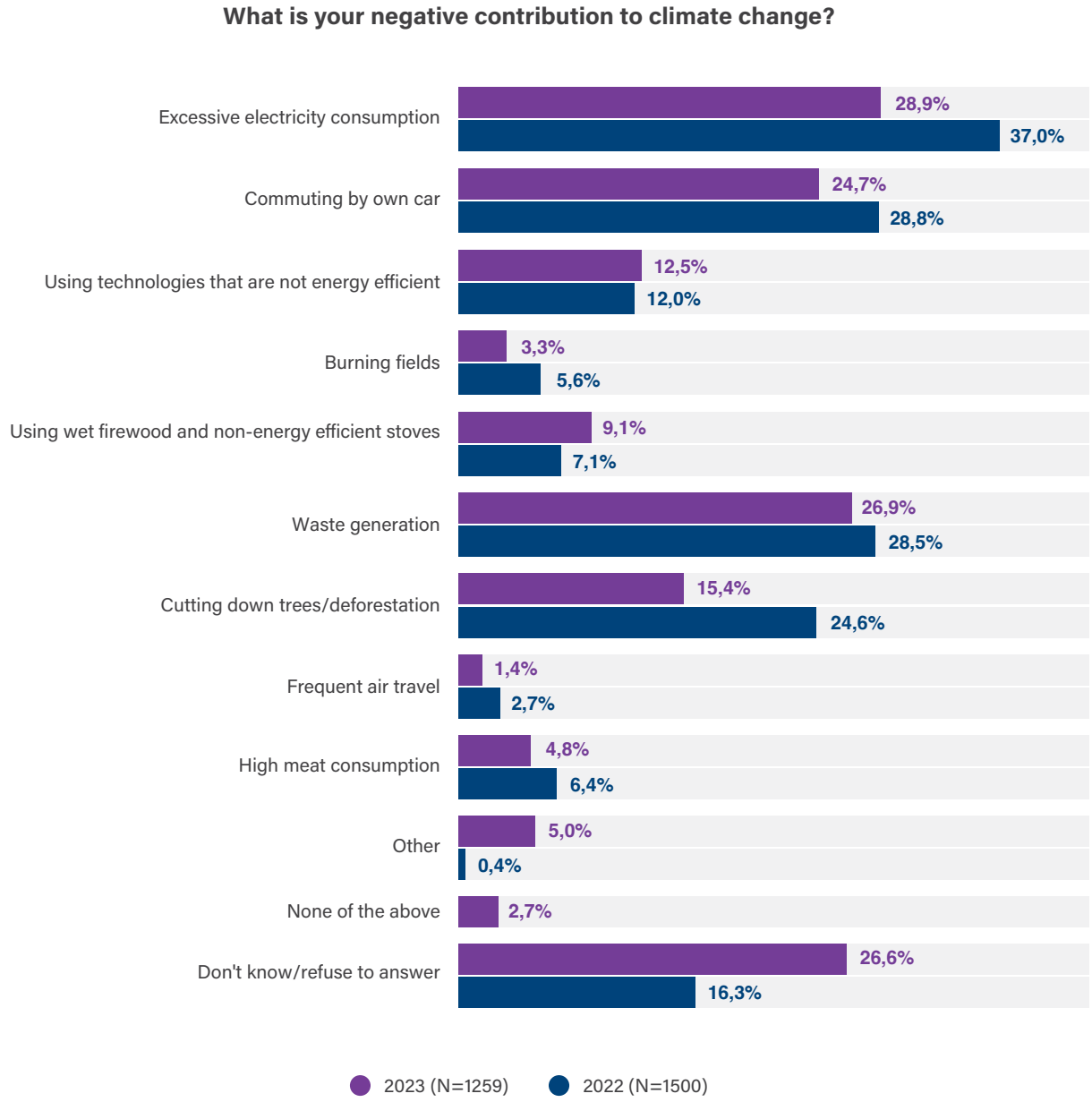
In relation to the above issues, 91% of ethnic minorities say that the negative impact of climate change noticeable in recent years is the deterioration of human health. Furthermore, over 80% also emphasize such consequences as reduced crop yields (89.5%), increased animal and plant diseases (84.6%), more frequent droughts (84.2%), high temperatures (81.8%) and reduced water resources (81%). A relatively smaller share of this group draw attention to the reduction in the amount and size of glaciers and intensified desertification (see Table #9).

Table #9

Have you noticed any changes related to climate change in recent years? (N=383) (Ethnic minorities)	Yes	No	Don't know/ Refuse to answer
	%		
Increased frequency of natural disasters (flood, landslide, mudslide, etc.)	70.5	28.9	0.7
Increased frequency of droughts	84.2	14.4	1.3
High temperatures with more intense/frequent heat waves	81.8	17	1.1
Increased frequency of other extreme weather events (wind, snow, hail, etc.)	76.3	19.3	4.4
Reduction in the amount and size of glaciers	36.9	43.2	19.9
Intensified desertification process	39.2	45.9	14.9
Biodiversity loss and reduced species and numbers of insects, animals and plants	71	26.5	2.5
Reduced water resources	81	17.1	1.8
Reduced crop yields	89.5	8.7	1.8
Increase in the animal and plant diseases	84.6	13.2	2.3
Deterioration of human health	91.2	7.3	1.5

Research participants identify what their negative contribution to climate change is. The largest proportion say it is irresponsible of them to consume energy excessively (28.9%), produce waste (26.9%), and travel in their own car (24.7%). Similar trends are observed in the previous round of the research (2022: excessive energy consumption - 37%; travelling in one's own car - 28.8%; waste production - 28.5%;). Respondents surveyed in 2023 are less likely to identify the following activities as their personal contribution to climate change: the use of non-energy efficient technologies (12.5%) and cutting trees/deforestation (15.4%), whilst in 2022, the population was more likely to report having the bad practice/habit of cutting trees/deforestation (24.6%) (see Diagram #12).

Diagram #12



Analyzing the issue in terms of gender demonstrates that both 2023 and 2022 male respondents most frequently say they contribute to climate change by driving cars (2023: 34.5%; 2022: 34.2%). It should also be noted that in 2023, excessive energy consumption as the second most negative action is identified less frequently compared to the previous year (2023: 26.7%; 2022: 31.1%). As for female respondents, research results suggest that the rate of identifying excess energy consumption as a bad practice that contributes to climate change has significantly decreased over the last year (2023: 30.8%; 2022: 41.5%). In addition, it should also be noted that the second most negative action identified by female respondents is waste production both in 2022 (30.7%) and 2023 (27.7%) (Data are statistically reliable: X^2= 75.119; $p<0.05$) (see Table #10).

Table #10

What is your negative contribution to climate changes? (By Gender)	2023 (N=1259)		2022 (N=1500)	
	Male	Female	Male	Female
	%			
Excessive electricity consumption	26.7	30.8	32.1	41.5
Commuting by own car	34.5	16.4	34.2	23.8
Using technologies that are not energy efficient	10.5	14.2	10.4	13.6
Burning fields	3.1	3.5	4.7	6.4
Using wet firewood and non-energy efficient stoves	9.6	8.8	6.4	7.7
Waste generation	26.1	27.7	26.1	30.7
Cutting down trees/deforestation	17.6	13.6	25.2	24
Frequent air travel	1.1	1.7	3.1	2.4
High meat consumption	4.7	4.8	7.6	5.4
Other	4.8	5.2	0.6	0.3
None of the above	-	-	3	2.3
Don't know/refuse to answer	22.7	29.9	16.9	15.7

Statistical analysis of the issue in terms of the type of settlement reveals that the perceptions of both urban and rural inhabitants of the negative role their behaviors/actions play in climate change have changed. Namely, while in 2022, respondents surveyed in urban settlements were the most likely to identify excessive energy consumption (40%) and travelling in their own car (32.5%) as actions negatively affecting climate change, in 2023, the rate somewhat drops (excessive energy consumption - 27.2%; travelling in their own car - 24.2%). It should also be noted that this year, compared to the last, waste production proves to be a more significant contributor to climate change than travelling in one's own car. In the case of rural settlements, excessive energy consumption is equally problematic for them in 2022 and 2023 (2023: 32.6%; 2022 - 32.1%). Furthermore, while travelling in one's own car is identified as the second most significant problem in 2023 (25.7%), cutting down trees/deforestation was reported as such in 2022 (30.9%). It should be noted that the latter harmful practice was relatively less likely to be emphasized by respondents (rural population) of the last round of the survey (2023: 18.5%; 2022: 30.9%) (Data are statistically reliable: $X^2= 50.182$; $p<0.05$) (see Table #11).

Table #11

What is your negative contribution to climate changes? (By the type of settlement)	2023 (N=1259)		2022 (N=1500)	
	Town (Including Tbilisi)	Village	Town (Including Tbilisi)	Village
	%			
Excessive electricity consumption	27.2	32.1	40	32.6
Commuting by own car	24.2	25.7	32.5	23.5
Using technologies that are not energy efficient	14.4	8.9	13.6	9.8
Burning fields	1.7	6.4	3.9	8
Using wet firewood and non-energy efficient stoves	4.5	17.9	3.9	11.6
Waste generation	28.7	23.5	29.9	26.4
Cutting down trees/deforestation	13.8	18.5	20.1	30.9
Frequent air travel	1.8	0.8	2.9	2.5
High meat consumption	5.6	3.1	8.5	3.4
Other	6.1	2.9	0.1	0.9
None of the above	-	-	3.3	1.8
Don't know/refuse to answer	26.3	27.1	13.7	20

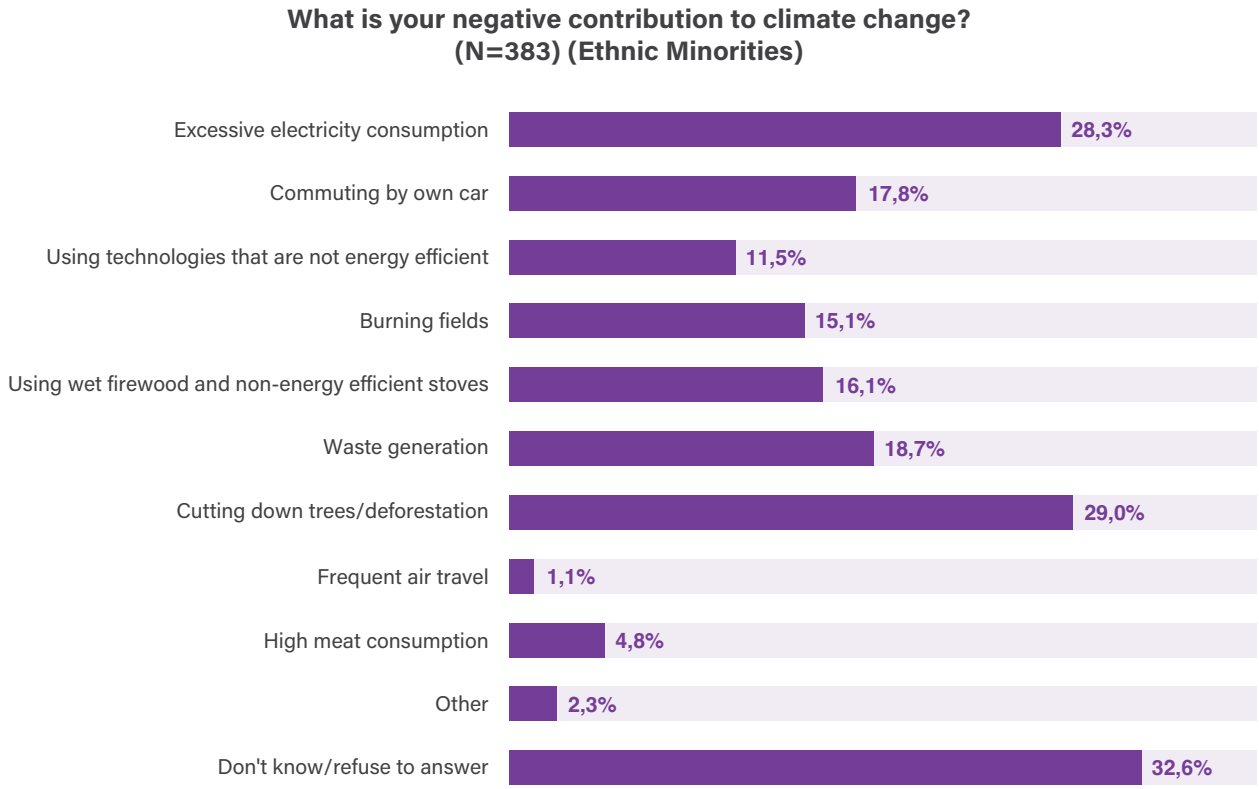
Further to the above, it is interesting to differentiate respondents' assessments by their age. Namely, comparing the statistical data of 2023-2022 confirms that the rate of young people aged 18-24 taking actions with a negative impact on climate change has decreased significantly over the last year: excessive energy consumption (2023: 33.1%; 2022: 46%) and travelling in one's own car (2023: 17.5%; 2022: 31.6%). Compared to the previous round, cutting down trees/deforestation occurs less frequently in the age groups of 25-34 (2023: 11.2%; 2022: 24.9%) and 35-44 (2023: 15.2%; 2022: 25.4%). However, it should be noted that the middle-aged population travel in their own cars more frequently and are more likely to use non-energy-efficient technologies compared to last year. As for the age group of 45-55, research results suggest that they have reduced excessive energy consumption and the frequency of travelling in their own cars; however, on the other hand, the rate of waste generation has somewhat increased as compared to last year. (Data are statistically reliable: $X^2= 137.581$; $p<0.05$) (see Table #12).

Table #12

What is your negative contribution to climate changes? 2023 - N=1053; 2022 - N=1500; (By age)		18-24	25-34	35-44	45-54	55-65
		%				
Excessive electricity consumption	2023	33.1	33.9	30.1	28.8	27.6
	2022	46	38.3	33.8	38.5	29.5
Commuting by own car	2023	17.5	30.8	34.3	24.5	22.2
	2022	31.6	33.3	27	30.2	21.8
Using technologies that are not energy efficient	2023	12.6	11.8	18.2	15.3	8.8
	2022	15.9	12.4	11.1	10.3	11.3
Burning fields	2023	2.6	1.8	3.3	3.4	4.4
	2022	3.8	6.2	4.3	7	6.2
Using wet firewood and non-energy efficient stoves	2023	8.1	7.9	9.1	7.2	10.2
	2022	6.6	5.4	7.6	9	6.7
Waste generation	2023	31.1	28.9	27.2	31.4	24.9
	2022	29.8	30.6	29.2	25.2	27.9
Cutting down trees/deforestation	2023	11.2	11.2	15.2	15.3	21.8
	2022	17.5	24.9	25.4	29.7	23.2
Frequent air travel	2023	1.5	0.4	2.2	1.5	3
	2022	3.7	4	2.9	1.5	1.8
High meat consumption	2023	7	5.4	8	2.4	4.2
	2022	8.1	7.8	4.5	5.3	6.8
Other	2023	3.6	3.3	5.5	4.2	5.2
	2022	0.3	0.4	0.3	0.8	0.4
None of the above	2023	-	-	-	-	-
	2022	2.2	2	2.2	3	3.9
Don't know/refuse to answer	2023	32.3	24.4	22	23.2	25.6
	2022	11.8	13.8	18.5	16.6	20

Representatives of ethnic minorities most frequently identify cutting down trees/deforestation (29%) and excess energy consumption (28.3%) as their negative role in climate change, followed by waste generation (18.7%) and travelling by own car (17.8%). It should be noted that ethnic minorities surveyed within the research often choose the answer category of 'don't know/refuse to answer' (32.6%) (see Diagram #13).

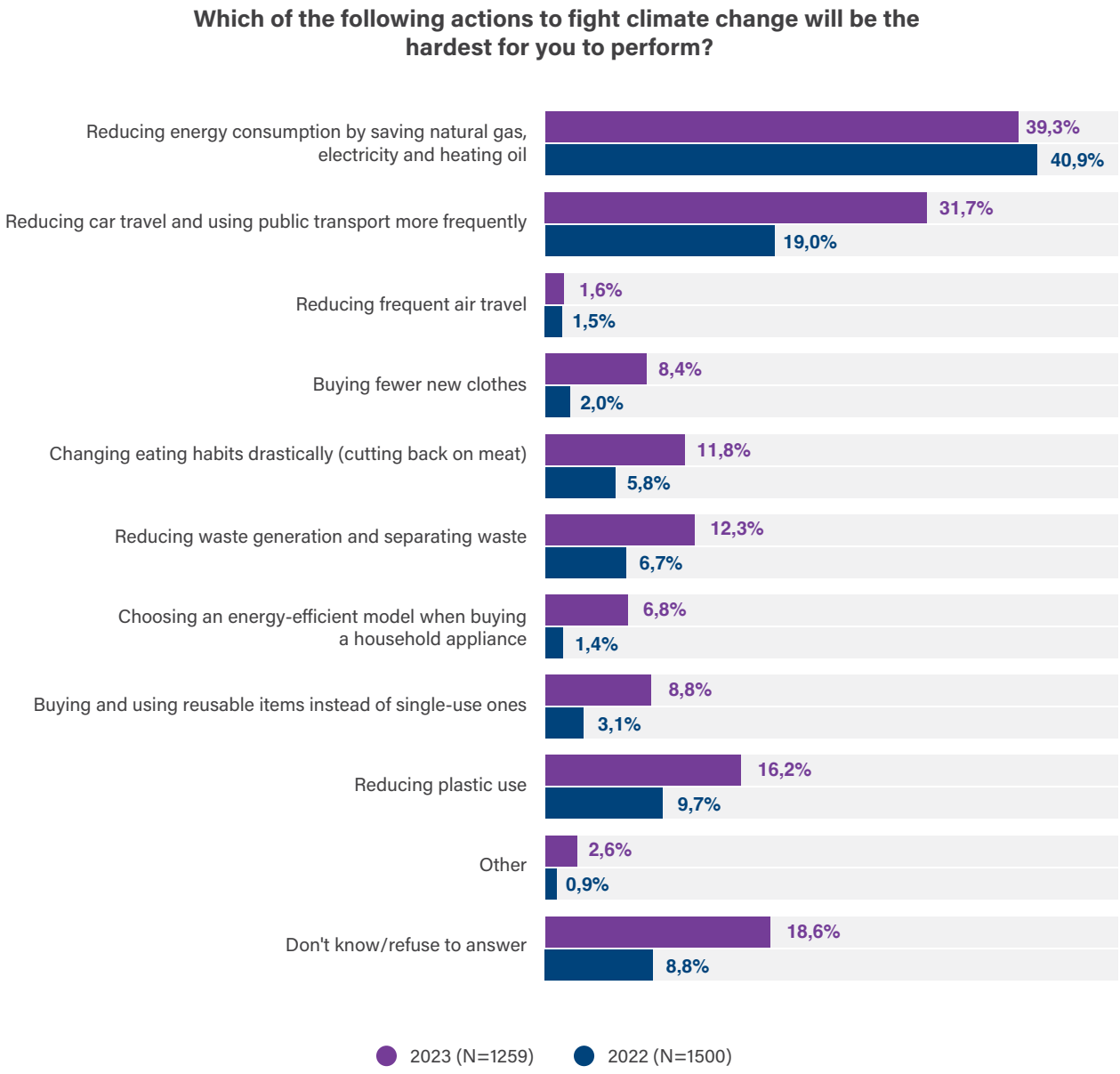
Diagram #13



Since climate change is one of the biggest challenges for humanity, whose industrial, economic, or other types of activities/habits have a huge impact on the process, it is clear that society should change its life-style. Within the framework of the research (2023, 2022), out of the activities necessary to tackle climate change, respondents identify three that they find most difficult to carry out. It should be noted that the trends observed in 2023 and 2022 are rather similar. Namely, in 2023, the number one difficulty for respondents is reducing energy consumption by saving on natural gas, electricity, and heating oil (39.3%), which was a significant problem in 2022 (40.9%) as well.

The second challenge respondents face in 2023 is using public transport more frequently instead of own car (31.7%). In 2022, 19% identified the latter activity as a difficulty. The share of those who find it hard to reduce plastic use differs across the two rounds (2023 – 16.2%; 2022 – 9.7%;) (see Diagram #14).

Diagram #14



Male and female respondents surveyed in 2022 and 2023 consider the following activities the hardest to fulfill: reducing energy consumption by saving natural gas, electricity, and heating oil and reducing travelling by own car/increasing travelling by public transport. It should be noted that a significantly larger share of both male and female respondents in 2023 identify using public transport instead of own car as the most difficult activity (Male: 2023 – 44.8%; 2022 – 26.8%; female: 2023 – 20.5%; 2022 – 11.8%). Dynamics of acquiring such habits as refraining from buying new clothes show that it is on the rise (Male: 2023 – 5.7%; 2022 – 0.8%; female: 2023 – 1.9%; 2022 – 8.2%). (Data are statistically reliable: X^2= 120.289 $p<0.05$) (see Table #13).

Table #13

Which of the following actions to fight climate change will be the hardest for you to perform? (By gender)	2023 (N=1259)		2022 (N=1500)	
	Male	Female	Male	Female
	%			
Reducing energy consumption by saving natural gas, electricity and heating oil	35.2	42.8	32.4	48.8
Reducing car travel and using public transport more frequently	44.8	20.5	26.8	11.8
Reducing frequent air travel	1.1	2	1.2	1.8
Buying fewer new clothes	5.7	10.8	0.8	3.1
Changing eating habits drastically (cutting back on meat)	11.3	12.2	7.3	4.4
Reducing waste generation and separating waste	11.6	12.9	8.1	5.5
Choosing an energy-efficient model when buying a household appliance	5.1	8.2	0.9	1.9
Buying and using reusable items instead of single-use ones	6.9	10.4	2.7	3.6
Reducing plastic use	14.5	17.7	9.6	9.8
Other	2.7	2.5	1.1	0.7
Don't know/refuse to answer	16.7	20.2	9.1	8.5

According to the statistical analysis of the issue in terms of age, compared to the previous round, in 2023, the following activities were more likely to be identified as difficult to implement: using public transport instead of own car, refraining from purchasing new clothes, sorting/reducing waste and making drastic changes in eating habits. It should also be noted that while in 2022, using public transport was the hardest for the age group of 25-34 (22.2%), in 2023, middle-aged citizens are more likely to find this activity difficult (45.3%). In addition, while the practice of using less natural gas, electricity, and heating oils to reduce excess consumption has become less difficult for each age group compared to last year, in the case of those aged between 55 and 65, opposite dynamics can be observed. (Data are statistically reliable: X^2= 188.403; $p<0.05$) (see Table #14)

Table #14

Which of the following actions to fight climate change will be the hardest for you to perform? (By age) 2023 - N=1053; 2022 - N=1500;		18-24	25-34	35-44	45-54	55-65
		%				
Reducing energy consumption by saving natural gas, electricity and heating oil	2023	46.4	40.9	37.3	37.5	37.6
	2022	47.3	43.3	39.6	41.7	33.3
Reducing car travel and using public transport more frequently	2023	26.1	37.7	45.3	33.6	25.1
	2022	15.4	22.2	18.7	19.8	17.8
Reducing frequent air travel	2023	1.3	2.2	2.3	1.5	2.1
	2022	1.8	3.2	1.5	-	1.1
Buying fewer new clothes	2023	20.8	12.4	9.1	6.1	3.8
	2022	4.9	1.3	0.9	2.5	1.2
Changing eating habits drastically (cutting back on meat)	2023	20.2	9	15.4	10.5	10.1
	2022	8.7	5.5	4.6	4.2	6.7
Reducing waste generation and separating waste	2023	14.8	11.2	14.9	14.6	10.3
	2022	6.4	6	6.3	7.7	7.2
Choosing an energy-efficient model when buying a household appliance	2023	3.4	8.5	5.6	8.6	7
	2022	1.6	2.1	1.8	0.9	0.9
Buying and using reusable items instead of single-use ones	2023	4.8	7.1	8.4	11.4	10.1
	2022	1.2	1.5	4.4	3.4	5
Reducing plastic use	2023	16.5	14.9	14.5	16.9	18.4
	2022	5.4	6	11.8	10.3	14.7
Other	2023	2.9	1.8	1.9	2	3.1
	2022	-	0.7	0.8	1.8	0.9
Don't know/refuse to answer	2023	12.7	14.6	13.3	17	22
	2022	7.2	8.2	9.6	7.9	11.2

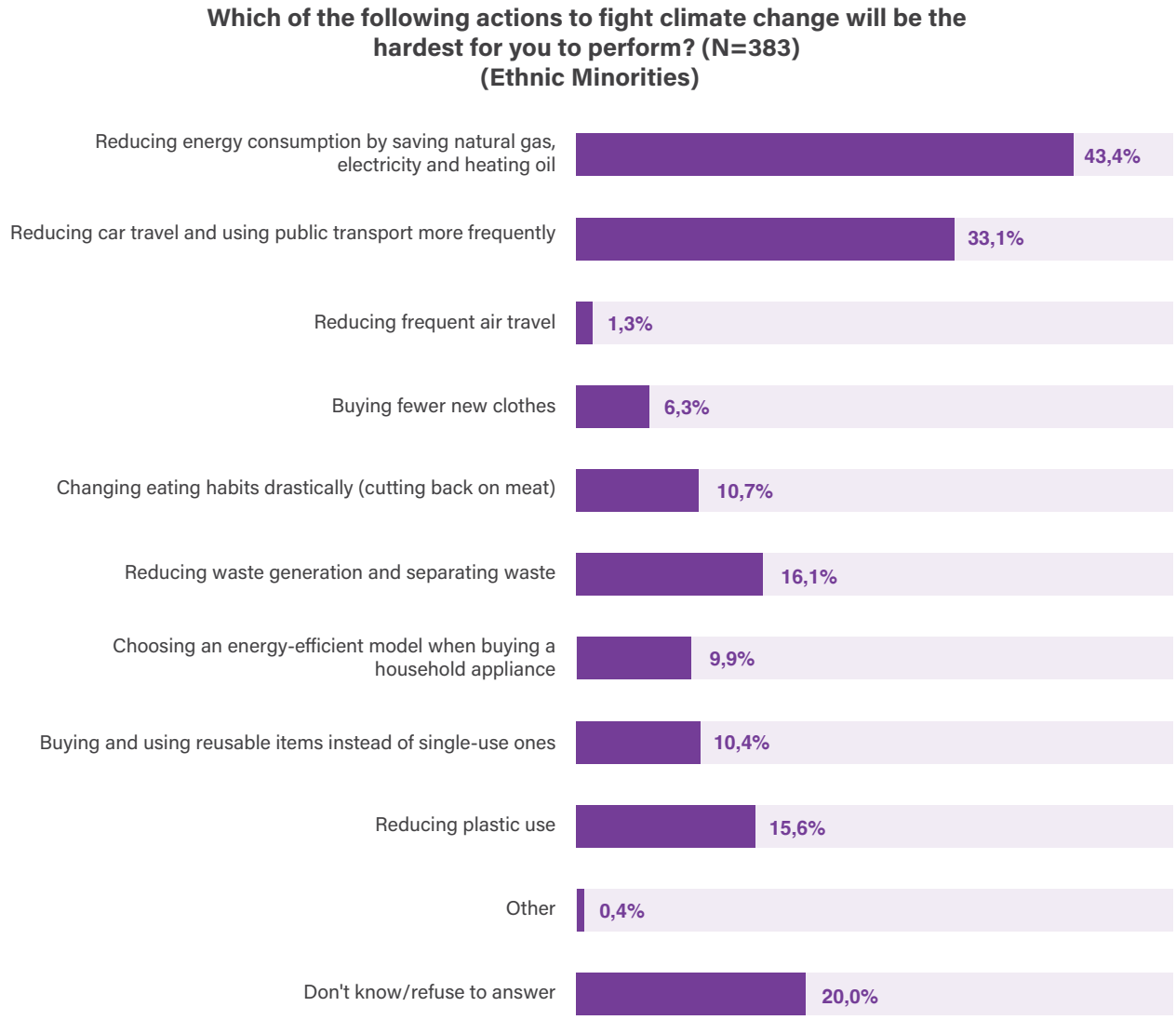
Analyzing the issue in terms of the type of settlement reveals that using public transport instead of own car is more difficult in rural areas (35.3%) than in urban settlements (29.8). It should also be noted that compared to the previous round, the latter activity is identified more frequently in 2023 as difficult by both urban and rural dwellers (2023: town - 29.8%; village - 35.3%; 2022: town - 18.2%; village - 20.1%); further to the above, comparing the statistical data of the two rounds of the research shows that the rural and urban populations are less willing to undertake the following activities to combat climate change: refraining from a frequent purchase of new clothes, changing eating habits (cutting back on meat), reducing and sorting waste, etc. (Data are statistically reliable: X^2= 32.337; p<0.05) (see Table #15)

Table #15

Which of the following actions to fight climate change will be the hardest for you to perform? (By the type of settlement)	2023 (N=1259)		2022 (N=1500)	
	Town (Including Tbilisi)	Village	Town (Including Tbilisi)	Village
	%			
Reducing energy consumption by saving natural gas, electricity and heating oil	37.6	42.4	41.2	40.5
Reducing car travel and using public transport more frequently	29.8	35.3	18.2	20.1
Reducing frequent air travel	2.3	0.2	1.8	1.2
Buying fewer new clothes	10.1	5.3	2.4	1.4
Changing eating habits drastically (cutting back on meat)	14.1	7.3	7	4
Reducing waste generation and separating waste	12	12.9	6.2	7.4
Choosing an energy-efficient model when buying a household appliance	6.4	7.6	1.3	1.6
Buying and using reusable items instead of single-use ones	9.1	8.2	3.1	3.2
Reducing plastic use	16.1	16.3	9.4	10.1
Other	3.3	1.2	0.6	1.3
Don't know/refuse to answer	18	19.8	8.6	9.2

To tackle climate change, the most difficult activity for ethnic minorities is reducing energy consumption (by using less natural gas, electricity and heating oil) (43.4%); using public transport instead of own car is also deemed problematic (33.1%). Respondents find it easier to refrain from purchasing new clothes (6.3%), buying non-energy-efficient appliances (9.9%), travelling frequently by air (1.3%), etc. (see Diagram #15).

Diagram #15



In addition to the above, within the framework of the research, respondents also identify problems that are more significant than climate change. Namely, they identify the three most problematic issues at three different levels: personal, town/village, country. In 2023, respondents consider unemployment to be a more pressing issue than climate change personally for them (40%) and their town/village (46%). At the country level, the primary challenge is security/threat of war (45.7%). 38.7% of respondents identify unemployment as a nationwide problem. In the previous round, the issue of unemployment was deemed more important than climate change on all three levels (2022: personal level - 48.2%; town/village level - 55.9%; country level - 53.9%).

In 2023, increased healthcare costs (26.6%) and national security (26.3%) are identified as almost equally more significant than climate change at the personal level. As for the second-order problem at the village/town level, national security occurs most frequently (25.3%), followed by poverty (23.7%). The latter is identified as the third most important challenge. According to the results from the previous year, poverty was identified as a second-order problem, more serious than climate change (personal level - 23.9%; town/village level - 30.7%; country level - 29.3%). In addition to the above, respondents note that at the personal level, increased healthcare costs (26.8%) and at the town/village level, increased electricity, fuel and energy costs

(22.9%) are important; at the country level, national security/threat of war is identified as a third-order problem (see Table #16).

Table #16

What is more serious than climate change…?	2023 (N=1259)			2022 (N=1500)		
	For you personally?	For your town/village?	For our country?	For you personally?	For your town/village?	For our country?
	%					
Unemployment	39.6	46.3	38.7	48.2	55.9	53.9
Corruption	5.8	8.7	13.1	7.9	8.1	13.3
Crime/public safety	9.1	12.2	13.3	8.9	6.8	9.6
Terrorism	3	2.1	4.8	2.2	0.9	1.8
Internal conflicts, including ethnic and religious conflicts	4.4	5.6	8.7	6.3	4.8	9.4
National security/threat of war	26.3	25.3	45.7	14.7	7.9	23.1
Drugs	9.6	13.3	17.2	9.9	11.2	13.1
Increased electricity, fuel and energy costs	19.3	19.2	14.6	29	22.9	18.8
Poor urban or municipal infrastructure	7.2	12.7	6.6	5.4	12.8	4.6
Poor living conditions	7.7	9.5	7.4	5.5	8.1	4.2
No access to quality education	6.7	5.3	4.9	9.3	7.8	7.6
Increased healthcare costs	26.6	16.8	14.8	26.8	20.6	19
Ineffective social security services/assistance	6	5.9	5.4	4	5.6	4.2
Poverty	24.2	23.7	21.3	23.9	30.7	29.3
Poor nutrition and diet	8.8	4	3.1	6.1	6	5.4
Political polarization	2.5	2	8.3	2.2	2.1	7.5
Don't know/refuse to answer	5.1	6	3.7	2.6	2.2	1.8

Analyzing the issue in terms of the type of settlement reveals the following trends:

- In both rounds of the research (2023, 2022), respondents from urban and rural areas alike note that unemployment is/was more problematic than climate change for them personally. However, it should be noted that the rate has somewhat decreased in the 2023 survey compared to 2022 (2023: town - 35.1%; village - 48.3%; 2022: town - 43.5%; village - 54.9%). In addition, while in 2022, national security as more important than climate change at the personal level was identified by 16.1% of urban and 12.7% of rural populations, in 2023, the rate increases to 29.1% in urban and 21% in rural areas. Furthermore, assessments made by respondents at the personal level reveal that the rate of identifying issues (as more important than climate change), such as increased costs of electricity, fuel/energy, and poverty, has decreased in 2023 compared to the previous year. (Data are statistically reliable: X^2= 72.241; $p<0.05$).
- Employment has been identified as the first-order problem more significant than climate change at the town/village level in both rounds of the research. Nevertheless, a downward trend can be observed (2023: town - 44.8%; village - 49.3%; 2022: town - 53.3%; village - 54.9%). Poverty and increased costs (electricity, fuel, etc.) also occur less frequently. Further to the above, compared to the previous year, the observed trend suggests that urban and rural residents are far more likely to consider national security as more important than climate change (2023: town - 28.5%; village - 19.2%; 2022: town - 9.2%; village - 5.9%) (Data are statistically reliable: X^2= 88.921; $p<0.05$).
- Assessing the issue at the country level demonstrates that in 2022, unemployment was more problematic than climate change, whilst in 2023, national security is in the lead in both urban and rural areas (unemployment: 2023: town - 36.8%; village - 42.2%; 2022: town - 52.5%; village - 56%; national security: 2023: town - 45.2%%; village - 46.6%; 2022: town - 20.7%; village - 26.5%). (Data are statistically reliable: X^2= 69.603; $p<0.05$) (see Table #17).

Table #17

What is more serious than climate change... (By the type of settlement)		2023 (N=1259)			2022 (N=1500)		
		For you personally?	For your town/village?	For our country?	For you personally?	For your town/village?	For our country?
		%					
Unemployment	Town (Including Tbilisi)	35.1	44.8	36.8	43.5	53.3	52.5
	Village	48.3	49.3	42.4	54.9	59.7	56
Corruption	Town (Including Tbilisi)	7.6	10.7	15	9.8	11.4	15.2
	Village	2.4	5	9.3	5.3	3.4	10.6
Crime/public safety	Town (Including Tbilisi)	11.5	16.1	16	10.7	9.5	10
	Village	4.4	4.9	8.2	6.3	2.8	9
Terrorism	Town (Including Tbilisi)	4	3	6.5	3	1	1.9
	Village	1	0.4	1.6	1	0.7	1.6
Internal conflicts, including ethnic and religious conflicts	Town (Including Tbilisi)	5.2	7	8.5	7.6	6.3	10.7
	Village	2.7	3.1	9	4.5	2.7	7.6
National security/threat of war	Town (Including Tbilisi)	29.1	28.5	45.2	16.1	9.2	20.7
	Village	21	19.2	46.6	12.7	5.9	26.5
Drugs	Town (Including Tbilisi)	12.7	18.1	21.2	10.9	14.4	14
	Village	3.6	4.1	9.5	8.5	6.6	11.8
Increased electricity, fuel and energy costs	Town (Including Tbilisi)	16.8	16.1	12.2	24.4	17.8	15
	Village	24.1	25.1	19.2	35.5	30.2	24.3
Poor urban or municipal infrastructure	Town (Including Tbilisi)	7.1	9.9	6.4	5.2	13.1	4.9
	Village	7.5	18	6.9	5.8	12.3	4.1
Poor living conditions	Town (Including Tbilisi)	8	8.9	7.8	3.7	6.7	4.2
	Village	7.2	10.8	6.7	8	10.1	4.1
No access to quality education	Town (Including Tbilisi)	8.7	6.4	5.8	10.7	9.4	8.2
	Village	2.8	3.4	3.3	7.3	5.5	6.7
Increased healthcare costs	Town (Including Tbilisi)	25.8	14.5	13	24.1	17	18
	Village	28.1	21.3	18.1	30.7	25.7	20.4
Ineffective social security services/ assistance	Town (Including Tbilisi)	4.4	5.1	4	4.2	5.3	4.2
	Village	9	7.5	8	3.8	6.2	4.4
Poverty	Town (Including Tbilisi)	21.9	22.2	20.9	25.1	29.4	31
	Village	28.6	26.5	22	22.2	32.7	27

What is more serious than climate change... (By the type of settlement)		2023 (N=1259)			2022 (N=1500)		
		For you personally?	For your town/village?	For our country?	For you personally?	For your town/village?	For our country?
		%					
Poor nutrition and diet	Town (Including Tbilisi)	9.2	3.1	2.8	6.7	6.1	6.1
	Village	8.1	5.7	3.7	5.2	5.9	4.3
Political polarization	Town (Including Tbilisi)	2.1	2.5	7.5	2	2.6	6
	Village	3.4	1.2	9.8	2.5	1.4	9.6
Other	Town (Including Tbilisi)	4.1	2.5	1.7	-	-	-
	Village	2.9	0.7	0.3	-	-	-
Don't know/refuse to answer	Town (Including Tbilisi)	4.8	4.3	3.2	3.5	2.9	2.1
	Village	5.6	9.3	4.6	1.2	1.3	1.5

Analyzing the issue by respondents' age (surveyed in 2023) reveals that unemployment is more important than climate change for each age group at the personal (18-24 age group: 40.3%; 25-44 age group: 20.5%; 35-44 age group: 40.9%; 45-54 age group: 46.5%; 55-65 age group: 35.7%) and town/village levels (18-24 age group: 50.8%; 25-44 age group: 45.2%; 35-44 age group: 46.7%; 45-54 age group: 51.3%; 55-65 age group: 39.9%). At the country level, national security is identified as the first-order problem by each age group except for the youth (18-24 age group: 36.7%; 25-44 age group: 50.5%; 35-44 age group: 47.9%; 45-54 age group: 46%; 55-65 age group: 44%). Respondents aged between 18 and 24 think unemployment is the primary challenge for the country. In addition to the above, representatives of each age group often identify poverty as more significant than climate change. Other issues emphasized by young people include access to quality education at the personal level and corruption at the country level. Some of the older respondents consider increased costs of electricity/fuel/other and healthcare more important than climate change. (Data are statistically reliable: personal level - $X^2=215.081$; city/village level - $X^2=141.479$; country level - $X^2=115.049$; $p<0.05$) (see Table #18).

Table #18

What is more serious than climate change... (By age) 2023 - N=1053; 2022 - N=1500;		18-24	25-34	35-44	45-54	55-65
		%				
Unemployment	For you personally?	40.3	20.5	40.9	46.5	35.7
	For your town/village?	50.8	45.2	46.7	51.3	39.9
	For our country?	39.1	44.9	34.1	41.6	37.6
Corruption	For you personally?	7.7	1.8	3.9	9.3	5.1
	For your town/village?	11.3	11	7.4	9.7	9.4
	For our country?	21.3	13.5	10.9	10.6	12.4
Crime/public safety	For you personally?	15.7	5.3	10.6	9	6.5
	For your town/village?	15.2	11	13.7	16.9	8.5
	For our country?	13	14.2	10.8	16.7	11.6
Terrorism	For you personally?	2.7	2.1	3.3	2.7	4
	For your town/village?	1.4	2.2	3.7	1	1.8
	For our country?	7.6	4	4.1	4.7	3.9
Internal conflicts, including ethnic and religious conflicts	For you personally?	2.9	2.4	3.7	4.4	5.4
	For your town/village?	3	5.9	6.4	7	6
	For our country?	6.8	9.2	10.2	9.8	7.8
National security/threat of war	For you personally?	24.9	13.3	26.1	25.2	26.2
	For your town/village?	21.2	23.3	25.1	30	24.4
	For our country?	36.7	50.5	47.9	46	44
Drugs	For you personally?	10.2	3.9	10.1	11.4	9.3
	For your town/village?	15.3	13.6	10.6	15.9	10.2
	For our country?	15.7	13.1	18	14.3	19.5
Increased electricity, fuel and energy costs	For you personally?	12.8	10.8	20.8	17.4	21
	For your town/village?	19	21.8	17.7	15	22.4
	For our country?	11.4	13.8	14.6	13.5	19
Poor urban or municipal infrastructure	For you personally?	7.9	4.2	5.6	4.8	6.4
	For your town/village?	12.3	15	13.2	11.5	11.5
	For our country?	7.5	6.4	5.5	10.9	4.3

What is more serious than climate change... (By age) 2023 - N=1053; 2022 - N=1500;		18-24	25-34	35-44	45-54	55-65
		%				
Poor living conditions	For you personally?	6	2.6	8.5	7.6	11
	For your town/village?	8.2	8.2	10.8	9.9	7.4
	For our country?	9.4	6.4	7.3	4.8	7.8
No access to quality education	For you personally?	17.9	3.6	6.2	4	4
	For your town/village?	8.1	6.6	4.4	3.7	5.1
	For our country?	6.2	5.4	4.4	5.3	3.6
Increased healthcare costs	For you personally?	15.3	10.4	23.1	20.7	35.1
	For your town/village?	8.6	13.4	18.7	13.1	22.5
	For our country?	9	14.6	16.9	14.4	14.5
Ineffective social security services/assistance	For you personally?	6.2	2.8	6.4	6.9	6.1
	For your town/village?	6.8	8.1	4.6	6.5	4.8
	For our country?	5.7	5.4	5.8	3.5	5.5
Poverty	For you personally?	17.9	8.1	23.6	27.2	25.2
	For your town/village?	18.3	21	22.3	27.5	24.6
	For our country?	15.3	26.3	22	19.9	22.6
Poor nutrition and diet	For you personally?	2.9	3.1	8.7	8.9	12.9
	For your town/village?	1.5	4.1	4.4	5.3	2.1
	For our country?	1.5	4.5	4.6	1.1	3.2
Political polarization	For you personally?	3.5	0.6	2.3	1.8	2.2
	For your town/village?	2.2	0.8	1.2	2.4	2.8
	For our country?	7	6.1	9.8	8	8.4
Other	For you personally?	3	1	4.8	4.9	3.1
	For your town/village?	2.1	1.8	1.1	1.8	1.8
	For our country?	2.2	-	2.3	0.5	0.5
Don't know/refuse to answer	For you personally?	8.4	3.4	4.9	4.4	3
	For your town/village?	11.4	8.9	6	1.8	4
	For our country?	6.6	3.7	3.3	2.4	3.2

In addition to the above, it was interesting to determine what representatives of ethnic minorities find more important than climate change for themselves, their town/village, and the country. Based on the study results, at the personal level, unemployment (52.4%), increased healthcare costs (32.2%), and poverty (24.5%) are in the lead. At the town/village level, unemployment (60.4%) remains an issue, followed by increased costs of electricity/fuel (23%) and healthcare (21.5%). At the country level, employment (43.6) gives way to national security/threat of war (48.8%) as the key problem. Another issue that often occurs in this group is internal, including ethnic and religious, conflicts (every fourth answer) (see Table #19).

Table #19

What is more serious than climate change... (N=383) (Ethnic minorities)	For you personally?	For your town/village?	For our country?
	%		
Unemployment	52.4	60.4	43.6
Corruption	1.2	4.8	4.8
Crime/public safety	1	3.6	4.5
Terrorism	0.5	0.9	1.9
Internal conflicts, including ethnic and religious conflicts	3.3	5.5	26.1
National security/threat of war	16.2	20	48.8
Drugs	1.7	4.8	4.9
Increased electricity, fuel and energy costs	23.5	23	17.9
Poor urban or municipal infrastructure	6.9	14	7
Poor living conditions	9.6	9.9	4.7
No access to quality education	4.2	4.2	5.2
Increased healthcare costs	32.3	21.5	16.3
Ineffective social security services/assistance	14.4	12.7	7.4
Poverty	24.5	17.6	11.1
Poor nutrition and diet	9	4.2	2.4
Political polarization	0.8	1.1	7.2
Don't know/refuse to answer	3	0.9	5.5

Out of paired statements with conflicting content related to climate change, respondents chose theses corresponding to their views and perceptions. Based on the observed trends, a sizeable share of the Georgian population demonstrates the right position/attitude towards the issue. Namely:

- In the case of the first binary pair, which describes the reversibility/irreversibility of climate change, 48.7% agree that 'climate change is an irreversible process, which cannot be stopped with the efforts of humans/mankind', and 42.4% believe that 'climate change, as well as its harmful consequences can be reversed with human effort";
- Only 12.8% of the population identify climate change as an unreal process/myth ('Climate change is a myth invented by some scientists and their lobbyists from certain groups of businessmen and politicians in order to block various types of economic activity (e.g. coal production) for their own business interests'). About 6 times as many respondents express the opposite attitude ('Climate change is a real/objective process that threatens life on Earth' – 81%);
- In terms of the scale of climate change repercussions, a vast majority of respondents have the right position, stating that it is a global challenge and that 'no country, including Georgia, can avoid climate change' (83.3%). Conversely, 12.1% of the population believe that the negative impact of climate change only affects big industrialised countries and does not extend to such geographical areas as Georgia and the like (12.1%);
- According to almost a quarter of respondents, the risks and threats associated with climate change are a matter of the future and such difficulties have not yet occurred (24.3%). The opposite, and at the same time valid, perspective is expressed by a larger share. Namely, 64.8% are aware that climate change is not a future threat, but its negative consequences are tangible and real at present;
- The majority of respondents (62.2%) express valid opinions about the optimal ways to mitigate climate change and indicate that the best solution is to enhance individual responsibility. Namely, they believe that individual behavior/lifestyle can help alleviate the threats of climate change. Conversely, 28.4% agree with the opposite thesis. According to the latter, changing individual lifestyles and behaviors/habits is not sufficient to contribute to climate change mitigation, as the key driver behind the issue is the economic activities of big structures/companies;
- In the case of one of the paired statements, every third respondent (33.8%) agrees, and 60.6% disagree that there is nothing they can personally do to combat global warming/climate change. The latter believe that each person plays a very important role in reducing the risks and threats of the climate crisis;
- At least every other respondent (56.1%) states that climate change is a very real threat; however, some businessmen try to portray it as an unrealistic or exaggerated phenomenon and convince people that it is not a real threat. Almost a quarter of respondents (24.7%) agree with the opposite statement and note that such attitudes towards businessmen are unjustified and that climate change is not a real threat either (see Table #20).

Table #20

Several pairs of statements are listed below; please, choose the statement from each pair you most agree with: (N=1259)		%
First pair	Climate change, as well as stopping the harmful consequences of climate change, is possible by the efforts of humans/mankind	42.4
	Climate change is an irreversible process, which cannot be stopped by the efforts of humans/mankind	48.7
	Don't know/Refuse to answer	8.9
Second pair	Climate change is a myth invented by some scientists and their lobbyists from certain groups of businessmen and politicians in order to block various types of economic activity (e.g. coal production) for their own business interests	12.8
	Climate change is a real/objective process that threatens life on Earth	81
	Don't know/Refuse to answer	6.2
Third pair	Climate change does not affect Georgia and countries similar to it; It is a problem of large industrialized countries (USA, Russia, China, etc.)	12.1
	No country, including Georgia, can avoid climate change	83.3
	Don't know/Refuse to answer	4.6
Fourth pair	When discussing climate change, potential future threats are normally pointed out; these threats are not imminent yet	24.3
	Climate change is not just a future threat, it is a current, real threat for the world today	64.8
	Don't know/Refuse to answer	10.9
Fifth pair	Reduction of the threats caused by climate change does not depend on the behavior/lifestyle of individuals; this is the responsibility of large structures/companies	28.4
	Individuals can contribute to neutralizing the threats caused by climate change through their behavior/lifestyle	62.6
	Don't know/Refuse to answer	8.9
Sixth pair	Personally, I cannot do anything about global warming/climate change	33.8
	Individuals can contribute to reducing global warming/climate change	60.6
	Don't know/Refuse to answer	5.6
Seventh pair	Climate change is a real threat. However, some businessmen try to portray climate change as not a real/ overstated phenomenon and, thus, convince the public that it is not a real threat	56.1
	I think such an attitude towards businessmen is overstated. I do not really consider climate change as a real threat.	24.7
	Don't know/Refuse to answer	19.2

Analyzing the issue in terms of educational attainment reveals that the majority of respondents with higher education, as well as those without, from paired provisions about climate change, normally choose correct one. Namely, the proportion of those in both groups who believe that climate change is a real/objective process that threatens life on Earth and no country, including Georgia, can avoid it exceeds 80%; in addition, over 60% think climate change is not a distant threat but rather - a challenge for the modern world and individuals can contribute to mitigating global warming/climate change. There was only one exception when the share of respondents with higher education was equally distributed between correct and incorrect theses:

- Valid statement: climate change, as well as its negative consequences, can be stopped with the efforts of humans/mankind - 47.6%;
- False statement: climate change is an irreversible process which cannot be stopped with the efforts of humans/mankind - 47.4%;

It should also be noted that the share of respondents who tend to have misconceptions is not always low. For example, over one-fifth of those with higher education, as well as those with different educational attainment, share incorrect opinions. Namely:

- 25.5% of respondents with higher education believe that when discussing climate change, they are referring to possible future threats that have not yet occurred. 23.5% of respondents without higher education share the same view;
- 29.9% of those with higher education and 27.5% of those without agree that reducing threats of climate change does not depend on individual behavior/lifestyle but rather is a responsibility of large structures/companies;
- Some of the respondents believe there is nothing they can personally do to tackle global warming/climate change – those with higher education: 29.6%; those without higher education: 36.5%;
- The belief that climate change is not a real threat is found among 24.5% of respondents with higher education and 24.8% of those without.

(Data are statistically reliable: $p<0.05$) (see Table #21)

Table #21

Several pairs of statements are listed below; please, choose the statement from each pair you most agree with: (N=1259) (By education)		Higher education	Other
		%	
First pair (X^2=18.485)	Climate change, as well as stopping the harmful consequences of climate change, is possible by the efforts of humans/mankind	47.6	39.2
	Climate change is an irreversible process, which cannot be stopped by the efforts of humans/mankind	47.4	49.5
	Don't know/Refuse to answer	5	11.3
Second pair (X^2=9.995)	Climate change is a myth invented by some scientists and their lobbyists from certain groups of businessmen and politicians in order to block various types of economic activity (e.g. coal production) for their own business interests	14	12
	Climate change is a real/objective process that threatens life on Earth	82.4	80.1
	Don't know/Refuse to answer	3.6	7.9

Several pairs of statements are listed below; please, choose the statement from each pair you most agree with: (N=1259) (By education)		Higher education	Other
		%	
Third pair (X^2=15.562)	Climate change does not affect Georgia and countries similar to it; It is a problem of large industrialized countries (USA, Russia, China, etc.)	13.4	11.2
	No country, including Georgia, can avoid climate change	84.9	82.2
	Don't know/Refuse to answer	1.7	6.5
Fourth pair (X^2=11.213)	When discussing climate change, potential future threats are normally pointed out; these threats are not imminent yet	25.5	23.5
	Climate change is not just a future threat, it is a current, real threat for the world today	67.3	63.2
	Don't know/Refuse to answer	7.2	13.3
Fifth pair (X^2=9.084)	Reduction of the threats caused by climate change does not depend on the behavior/ lifestyle of individuals; this is the responsibility of large structures/companies	29.9	27.5
	Individuals can contribute to neutralizing the threats caused by climate change through their behavior/lifestyle	64.1	61.7
	Don't know/Refuse to answer	6	10.8
Sixth pair (X^2=14.977)	Personally, I cannot do anything about global warming/climate change	29.6	36.5
	Individuals can contribute to reducing global warming/climate change	66.7	56.6
	Don't know/Refuse to answer	3.7	6.9
Seventh pair (X^2=33.154)	Climate change is a real threat. However, some businessmen try to portray climate change as not a real/overstated phenomenon and, thus, convince the public that it is not a real threat	63.9	51.1
	I think such an attitude towards businessmen is overstated. I do not really consider climate change as a real threat.	24.5	24.8
	Don't know/Refuse to answer	11.6	24.1

The rate of selecting false theses from paired statements on climate change is not very low among ethnic minorities. Namely, every other respondent from this group thinks that climate change is irreversible and cannot be stopped with human effort (56.8), and at least one-third (36.2%) do not consider climate change a real threat; 28.2% state that there is nothing they can personally do to stop climate change/global warming. As for correct opinions, the proportion of those who deem climate change a) a real and b) current threat, c) think that no country can avoid climate change, believe that individual effort can greatly contribute to d) neutralizing, and e) mitigating climate change threats ranges between 61% and 76% approximately (see Table #22).

Table #22

Several pairs of statements are listed below; please, choose the statement from each pair you most agree with: (N=383) (Ethnic minorities)		%
First Pair	Climate change, as well as stopping the harmful consequences of climate change, is possible by the efforts of humans/mankind	19.5
	Climate change is an irreversible process, which cannot be stopped by the efforts of humans/mankind	56.8
	Don't know/Refuse to answer	23.8
Second Pair	Climate change is a myth invented by some scientists and their lobbyists from certain groups of businessmen and politicians in order to block various types of economic activity (e.g. coal production) for their own business interests	13.2
	Climate change is a real/objective process that threatens life on Earth	72.7
	Don't know/Refuse to answer	14.1
Third Pair	Climate change does not affect Georgia and countries similar to it; It is a problem of large industrialized countries (USA, Russia, China, etc.)	11
	No country, including Georgia, can avoid climate change	76.3
	Don't know/Refuse to answer	12.7
Fourth Pair	When discussing climate change, potential future threats are normally pointed out; these threats are not imminent yet	15.7
	Climate change is not just a future threat, it is a current, real threat for the world today	59.3
	Don't know/Refuse to answer	25
Fifth Pair	Reduction of the threats caused by climate change does not depend on the behavior/lifestyle of individuals; this is the responsibility of large structures/companies	19.1
	Individuals can contribute to neutralizing the threats caused by climate change through their behavior/ lifestyle	60.3
	Don't know/Refuse to answer	20.6
Sixth Pair	Personally, I cannot do anything about global warming/climate change	28.2
	Individuals can contribute to reducing global warming/climate change	60.5
	Don't know/Refuse to answer	11.3
Seventh Pair	Climate change is a real threat. However, some businessmen try to portray climate change as not a real/ overstated phenomenon and, thus, convince the public that it is not a real threat	25.1
	I think such an attitude towards businessmen is overstated. I do not really consider climate change as a real threat.	36.2
	Don't know/Refuse to answer	38.6

Within the framework of the research, respondents expressed their position/attitude towards different factors related to or affecting climate change on a 5-point scale. A score of 1 was 'completely disagree', and the other end of the scale – a score of 5 was 'completely agree'. The middle point of the scale – a score of 3 described a

neutral position. It should be noted that the share of those who use the latter score (3) for assessment is not particularly low. Namely, every third respondent has a neutral position regarding the following: 'Air pollution caused by car emissions is not a good enough reason for giving up the comfort of owning a car' – 36.4%; 'People should not take jobs that pollute the environment - 33.8%; 'Problems caused by climate change can always be overcome with scientific and technological progress' - 34.5%; the smallest share of respondents express the same attitude towards the following statements: 'People are very disrespectful to the environment and nature' - 17.1%; 'The government should provide tax benefits for those business activities that care for the ecology and consider ecological threats' - 19.9%. In the case of other provisions, the proportion of those with a neutral position varies between 24.4% and 30.6%.

In addition to the above, it should be noted that the majority of respondents are likely to make correct assessments about climate change. Namely, 77.3% of them believe that people are very disrespectful to the environment and nature, and 73.7% agree with the statement that the government should offer tax benefits to those business activities that care for the ecology and consider ecological threats ('More likely to agree than not + completely agree'). Furthermore, a sizeable share of respondents use the same scores to assess the following statements: 'Without intervention, each generation will become exceedingly vulnerable to natural disasters caused by climate change' - 66.4%; 'I am deeply concerned about the problems caused by climate change' - 60%; 'We can reduce the negative risks of climate change by moderate use of electricity' - 51.3; 'People should not take jobs that pollute the environment' - 47.9%; as for those statements that describe undesirable scenarios for climate change, the majority of respondents tend to make correct assessments (more likely to disagree than not + completely disagree'); however, on the other hand, the percentage of those with opposite opinions is not very low either. For example, while 37.5% do not agree that 'creating jobs is far more important even if they have a negative impact on the environment', 31.1% agree with the statement. In addition, 36.6% disagree, and 31.3% agree with the opinion that 'Man has always won and will win over nature.' 23.1% of respondents believe global concerns about climate change are exaggerated, whilst 47.7% have the opposite opinion about the statement (see Table #23).

Table #23

To what extent do you agree with each of the following statements? (N=1259)	Totally disagree	2	3	4	Totally agree	Don't know/Refuse to answer
	%					
Creating jobs is far more important even if they have a negative impact on the environment'	20.5	17	28.6	17.9	13.2	2.8
Global concerns about climate change are exaggerated	28.3	19.4	25.4	14.3	8.8	3.8
People are very disrespectful to the environment and nature	2.3	2.6	17.1	29.8	47.5	0.6
The government should provide some benefits for those businesses that care for the ecology and consider ecological threats	1.6	2	19.9	31.6	41.7	3.1
People should think about ecological/environmental protection after they solve economic problems	15.6	14.6	28.3	22.8	15.3	3.4
Man has always won and will win over nature – 'we will find the way our'	24.1	12.5	26	18.7	12.6	6.1
Air pollution caused by car emissions is not a good enough reason to give up the comfort of owning a car	13.2	11.5	36.4	22.8	12	4.3
People should not take jobs that pollute the environment	5.8	9.2	33.8	29.4	18.5	3.3
We can reduce the negative risks of climate change by moderate use of electricity	3.8	7	30.3	28.5	22.8	7.6
I am deeply concerned about the problems caused by climate change	3.6	4.8	30.6	28.3	31.6	1.1
If no one intervenes, each generation will become exceedingly vulnerable to natural disasters caused by climate change	2.2	2.5	24.4	27.6	38.9	4.5
Scientific-technical progress can always overcome the problems caused by climate change.	5	6.3	34.5	27.4	16.9	9.9
Women are more vulnerable to the risks caused by climate change than men.	29.1	10.2	27.3	17	9.9	6.6

Analyzing the issue in terms of the place of residence reveals that a considerable share of respondents agree with statements describing undesirable scenarios for climate change; however, statistical data from West Georgia particurly stand out in this regard. Namely, among respondents surveyed in this region:

- Every other respondent (51.3%) believes that people should start thinking about ecological/ environmental protection after they solve economic problems (Tbilisi - 32.5%; East Georgia - 31.3%);
- 43.7% believe it is far more important to create jobs even if they have a negative impact on the environment ('Completely agree + more likely to agree than not) (Tbilisi - 28.6%; East Georgia - 22%);
- More than every third respondent thinks that man has always won and will win over nature – 'we will find the way out' (Tbilisi - 26.3%; West Georgia - 39.2%; East Georgia - 28.7%) and air pollution caused by car emissions is not a good enough reason for giving up the comfort of owning a car (Tbilisi - 36.2%; West Georgia - 39.5%; East Georgia - 29.2%); 30% think that global concerns about climate change are exaggerated (Tbilisi - 27.1%; West Georgia - 30.3%; East Georgia - 13.2%).

In addition to the above, research results suggest that over 40% of respondents surveyed in each geographical area 'completely agree + are more likely to agree than not' to statements that describe activities that have a positive effect on climate change. For example, 78.6% surveyed in the capital, 74.8% - in West Georgia, and 67.4% - in East Georgia believe the government should offer some benefits for businesses that care about the environment and take environmental threats into account. Furthermore, the proportion of those in all three target locations who state that without intervention, each generation will become increasingly vulnerable to natural disasters caused by climate change is over 60%. (Data are statistically reliable: $p<0.05$) (see Table #24).

Table #24

To what extent do you agree with each of the following statements? (N=1259) (By geographical area/Tbilisi)		Completely disagree	2	3	4	Completely agree	Don't know/Refuse to answer
		%					
Creating jobs is far more important even if they have a negative impact on the environment (X^2=64.126)	Tbilisi	19	21.4	29.5	18	10.6	1.5
	West Georgia	17.1	10.5	25.7	23.4	20.3	3
	East Georgia	24.9	19.1	30.4	12.8	9.2	3.7
Global concerns about climate change are exaggerated (X^2=69.617)	Tbilisi	25.4	21.2	25.3	18.5	8.5	1.1
	West Georgia	24.9	13.7	27.2	19.5	10.8	3.9
	East Georgia	33.8	23	24	6.1	7.2	5.9
The government should provide some benefits for those businesses that care for the ecology and consider ecological threats (X^2=45.997)	Tbilisi	0.5	1.4	17.9	36.9	41.7	1.6
	West Georgia	1.2	1.1	21.5	32.8	42	1.5
	East Georgia	3	3.5	20.2	25.9	41.5	6

To what extent do you agree with each of the following statements? (N=1259) (By geographical area/Tbilisi)		Completely disagree	2	3	4	Completely agree	Don't know/Refuse to answer
		%					
People should think about ecological/environmental protection after they solve economic problems (X^2=106.567)	Tbilisi	11.9	20.6	34.3	22.6	9.9	0.7
	West Georgia	12.8	5.9	26.5	30.8	20.5	3.5
	East Georgia	21.2	17.1	24.7	15.9	15.4	5.8
Man has always won and will win over nature – 'we will find the way our' (X^2=41.063)	Tbilisi	24.9	14.6	26.4	19.1	7.2	7.8
	West Georgia	23.8	7.6	23.8	23.5	15.6	5.6
	East Georgia	23.7	14.9	27.6	13.9	14.8	5.1
Air pollution caused by car emissions is not a good enough reason to give up the comfort of owning a car (X^2=56.598)	Tbilisi	14	13.7	32.3	29.1	7.1	3.9
	West Georgia	9.6	7.3	37.9	26.1	13.4	5.7
	East Georgia	15.6	13.3	38.5	14.2	15	3.4
People should not take jobs that pollute the environment (X^2=70.454)	Tbilisi	1.9	7.8	37.2	38.3	13	1.9
	West Georgia	7.3	6.5	30.2	30.8	22.3	2.9
	East Georgia	8	12.8	34	20.3	19.9	5
We can reduce the negative risks of climate change by moderate use of electricity (X^2=74.992)	Tbilisi	2	11	31.7	35.2	13	7.2
	West Georgia	4.7	5.1	29.1	30.2	27.1	3.8
	East Georgia	4.6	5.3	30.1	21.1	27.6	11.3
I am deeply concerned about the problems caused by climate change (X^2=64.082)	Tbilisi	2.5	6.6	33.6	36.4	19.6	1.2
	West Georgia	4.8	2.9	27	30.4	34.2	0.7
	East Georgia	3.3	4.8	31.2	19.4	39.9	1.4
If no one intervenes, each generation will become exceedingly vulnerable to natural disasters caused by climate change (X^2=43.288)	Tbilisi	1.4	1.5	27.4	34.3	29.6	5.8
	West Georgia	1.8	3.6	21.8	27.4	43.5	1.9
	East Georgia	3.2	2.4	24.2	21.8	42.8	5.7
Scientific-technical progress can always overcome the problems caused by climate change (X^2=53.395)	Tbilisi	3.5	8.4	38.2	32.3	8.5	9.1
	West Georgia	3.8	3.5	31.6	28.4	22.8	9.8
	East Georgia	7.4	7.1	33.8	22.3	18.8	10.6
Women are more vulnerable to the risks caused by climate change than men (X^2=60.900)	Tbilisi	35.5	13.7	21	19.3	4.2	6.2
	West Georgia	25.6	8.6	27.6	19.9	13.8	4.5
	East Georgia	26.6	8.5	32.6	12.3	11.2	8.8

Statistical analysis of the data reveals that the share of those with correct opinions is larger than that of those with misconceptions about effective mechanisms to combat climate change irrespective of their educational attainment, i.e., respondents with or without higher education. Namely, over 70% of both groups believe that the government should provide some benefits for businesses that care about the environment and take environmental threats into account, and more than 60% agree that without intervention, each generation will become exceedingly vulnerable to natural disasters caused by climate change. Every other respondent with higher education thinks that people should not take jobs that pollute the environment. The same sentiment is shared by 46% of those without higher education. (Data are statistically reliable; $p<0.05$) (see Table #25)

Table #25

To what extent do you agree with each of the following statements? (N=1259) (By education)		Completely disagree	2	3	4	Completely agree	Don't know/Refuse to answer
		%					
Global concerns about climate change are exaggerated	Higher education	29.9	21.5	22	16.3	9.1	1.3
	Other	27.2	18.1	27.6	13.1	8.6	5.4
The government should provide some benefits for those businesses that care for the ecology and consider ecological threats	Higher education	1.9	2.3	16.6	33	45.5	0.6
	Other	1.4	1.9	22	30.7	39.2	4.7
People should think about ecological/ environmental protection after they solve economic problems (X^2=21.032)	Higher education	15.9	18.3	26.5	23.7	14.3	1.3
	Other	15.3	12.2	29.5	22.2	15.9	4.8
People should not take jobs that pollute the environment (X^2=12.268)	Higher education	5.9	8	32.8	34.4	16.3	2.6
	Other	5.8	10	34.4	26.1	19.9	3.8
We can reduce the negative risks of climate change by moderate use of electricity (X^2=21.355)	Higher education	3.2	6.7	31.1	34	20.4	4.6
	Other	4.2	7.2	29.8	24.9	24.4	9.5
If no one intervenes, each generation will become exceedingly vulnerable to natural disasters caused by climate change (X^2=15.074)	Higher education	2.4	1.6	23.4	32.2	37.6	2.8
	Other	2	3.1	25	24.6	39.6	5.6
Scientific-technical progress can always overcome the problems caused by climate change (X^2=19.719)	Higher education	5.3	7.2	36	30.4	15.4	5.7
	Other	4.9	5.8	33.5	25.5	17.8	12.6
Women are more vulnerable to the risks caused by climate change than men (X^2=19.715)	Higher education	30.2	10.8	25.2	20.8	9.3	3.7
	Other	28.3	9.8	28.7	14.5	10.2	8.5

Based on the survey results, every or almost every third respondent representing ethnic minorities is in favour of activities with a negative effect on the climate and is not very concerned about their negative impact on the environment/climate. Namely, 36.2% of respondents are 'more likely to agree than not + completely agree' that creating jobs is much more important even if they have a negative impact on the environment, and 32.1% believe that people should think about ecological/environmental protection after they solve economic problems; almost the same number of respondents share the opinion that air pollution caused by car emissions is not a good enough reason for giving up the comfort of owning a car (31.2%). Furthermore, 27.6% of ethnic minorities believe that man has always won and will win over nature – 'we will find the way out.'

Further to the above, it should also be noted that the proportion of those who believe that people should not take jobs that pollute the environment is not greater than 22.2% among ethnic minorities. A relatively large number of respondents agree that people are very disrespectful to the environment/nature (64.6%) and that the government should provide some benefits for businesses that care about the environment and take environmental threats into account (54%) (see Table #26).

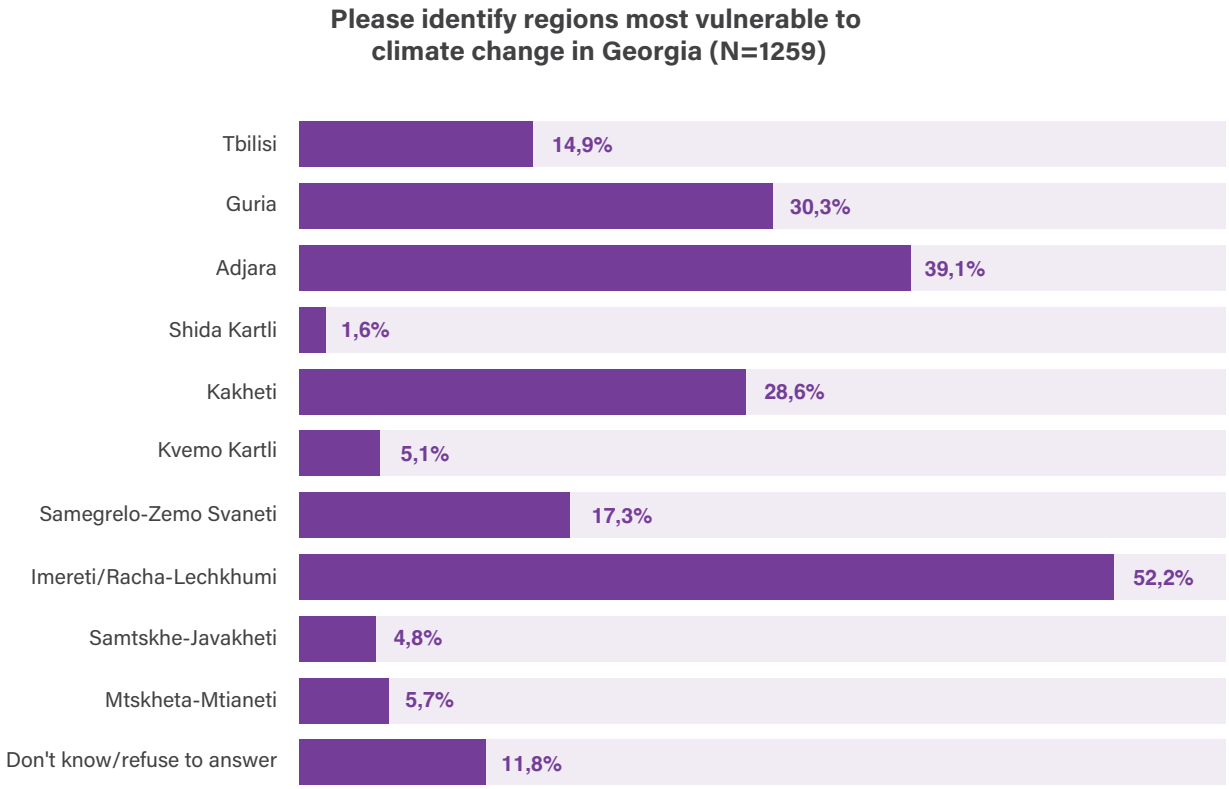
Table #26

To what extent do you agree with each of the following statements? (N=383) (Ethnic Minorities)	Completely disagree	2	3	4	Completely agree	Don't know/refuse to answer
	%					
Creating jobs is far more important even if they have a negative impact on the environment	4.3	14.8	41.5	26	10.2	3.3
Global concerns about climate change are exaggerated	15.3	29	31	14.4	1.8	8.5
People are very disrespectful to the environment and nature	0.5	6.4	28	39.2	25.4	0.5
The government should provide some benefits for those businesses that care for the ecology and consider ecological threats	0.5	5.5	27.3	35	19	12.7
People should think about ecological/environmental protection after they solve economic problems	4	15.3	35.5	26.4	5.7	13.2
Man has always won and will win over nature – 'we will find the way our'	8.8	12.2	41.4	21	6.6	10
Air pollution caused by car emissions is not a good enough reason to give up the comfort of owning a car	5.4	11.6	47.1	24.8	6.4	4.7
People should not take jobs that pollute the environment	4.4	16.4	50	15.3	6.8	6.9
We can reduce the negative risks of climate change by moderate use of electricity	2.7	6.4	37.8	23.2	9.9	19.9
I am deeply concerned about the problems caused by climate change	1.6	6.6	45.4	25.3	18.7	2.4
If no one intervenes, each generation will become exceedingly vulnerable to natural disasters caused by climate change	0.9	5.5	35.5	24.4	20.9	12.9
Scientific-technical progress can always overcome the problems caused by climate change.	7	6.2	33.6	24.7	6.1	22.4
Women are more vulnerable to the risks caused by climate change than men.	21.3	6.5	40.9	15.5	2.5	13.2

KNOWLEDGE

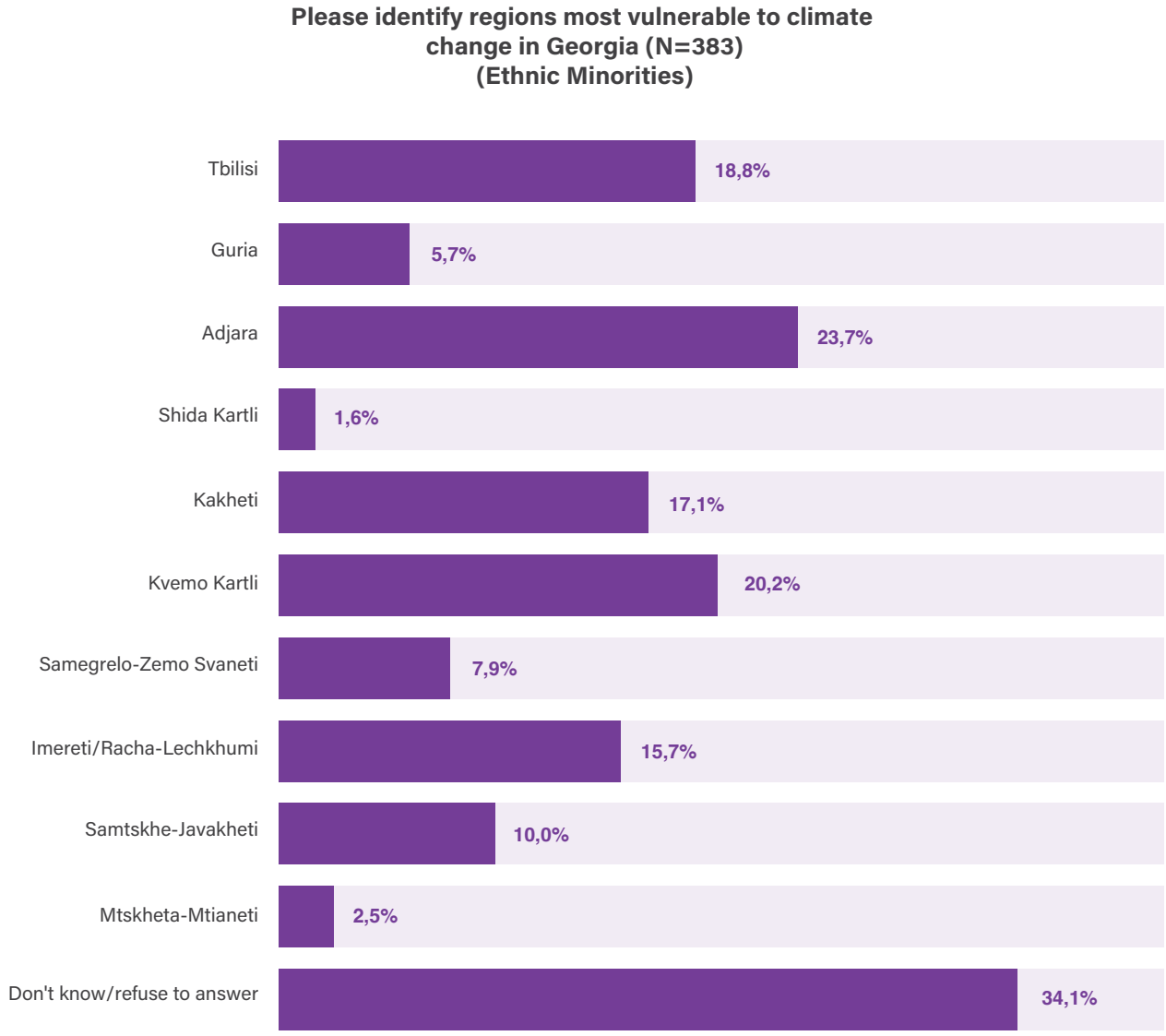
Other than assessing public awareness by examining the attitudes of the population towards climate change and their household behaviours/habits that negatively affect or mitigate climate change, it was also important to evaluate their level of knowledge. Analyzing the quantitative data of the research suggests that the population of Georgia considers Imereti/Racha-Lechkhumi (52.2%), Adjara (39.1%), and Guria (30.3%) most vulnerable to climate change, which must be due to the recent deadly natural disasters. Kakheti occurs in this category relatively less frequently (28.6%) (see Diagram #16).

Diagram #16



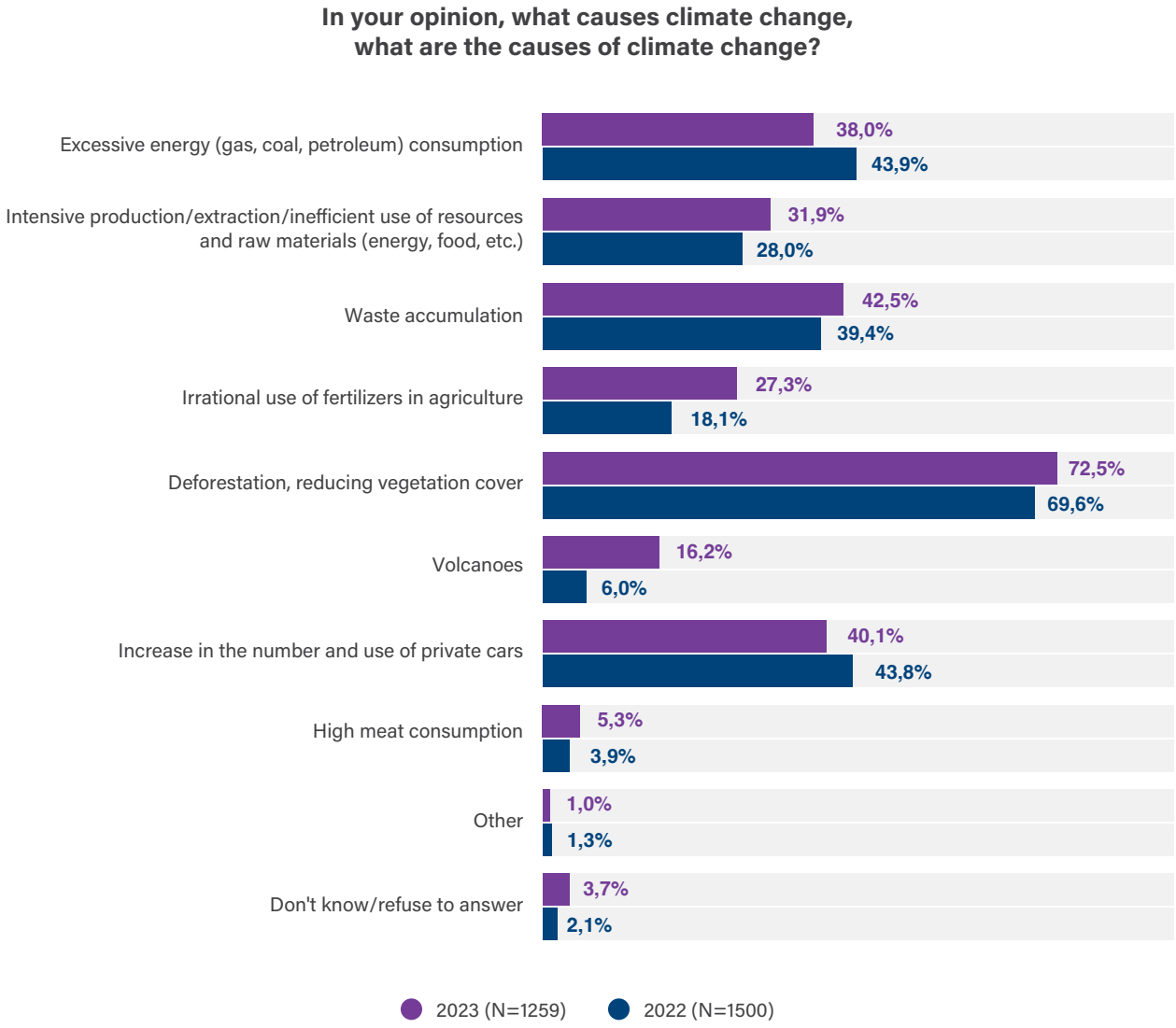
Ethnic minorities name Adjara (23.7%) and Kvemo Kartli (20.2%) as the most vulnerable regions to climate change. Mtskheta-Mtianeti (2.5%), Shida Kartli (1.6%), and Gurai (5.7%) are less likely to be identified as such (see Diagram #17).

Diagram #17



According to respondents surveyed in 2023, the following factors are key contributors to climate change: cutting down trees/reduction in vegetation cover (72.5%), waste accumulation (42.5%), increased number and use of private cars (40.1%), excess energy (gas, coal, petroleum) consumption (38%), intensive production/extraction/inefficient use of resources and raw materials (energy, food, etc.) (31.9%); a relatively smaller share of respondents name the following factors: irrational use of fertilizers, volcanoes, excess meat consumption, etc. The main drivers of climate change identified in the second round of the research are consistent with the results of 2022 (see Diagram #18).

Diagram #18

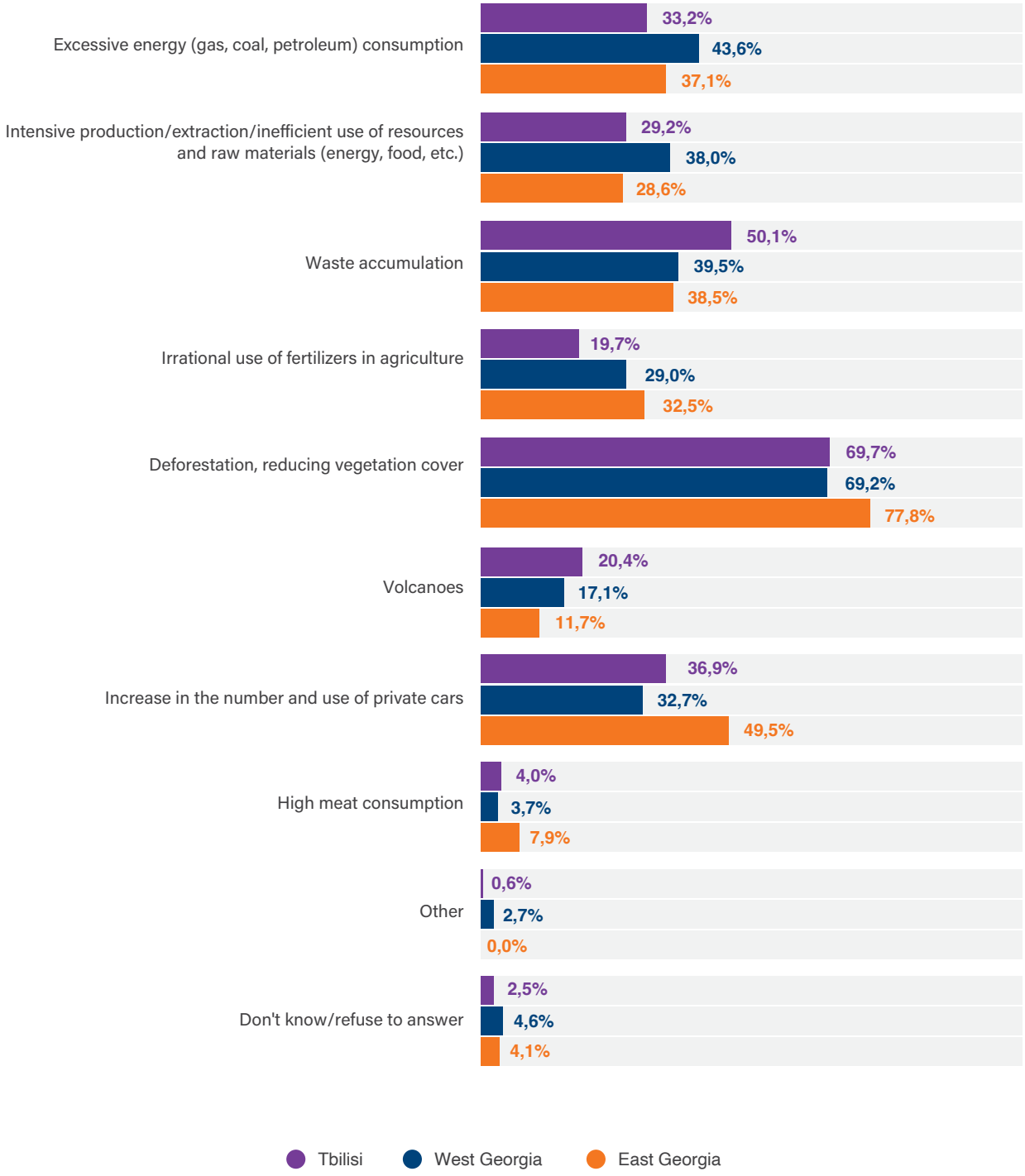


Analyzing the issue in terms of the regions reveals that deforestation and reduction in the number of plants are most frequently identified as key drivers of climate change in Tbilisi (69.7%), as well as West (69.2%) and East Georgia (77.8%). Residents of the capital name waste accumulation (50.1%) as the second most significant contributor to climate change, while excess energy consumption (43.6%) and increase in the number and use of private cars (49.5%) are identified as such by those living in West and East Georgia, respectively. (Data are statistically reliable; X^2=132.961; p<0.05) (see Diagram #19).

Diagram #19

In your opinion, what causes climate change, what are the causes of climate change? (N=1259)

By Geographical area/Tbilisi



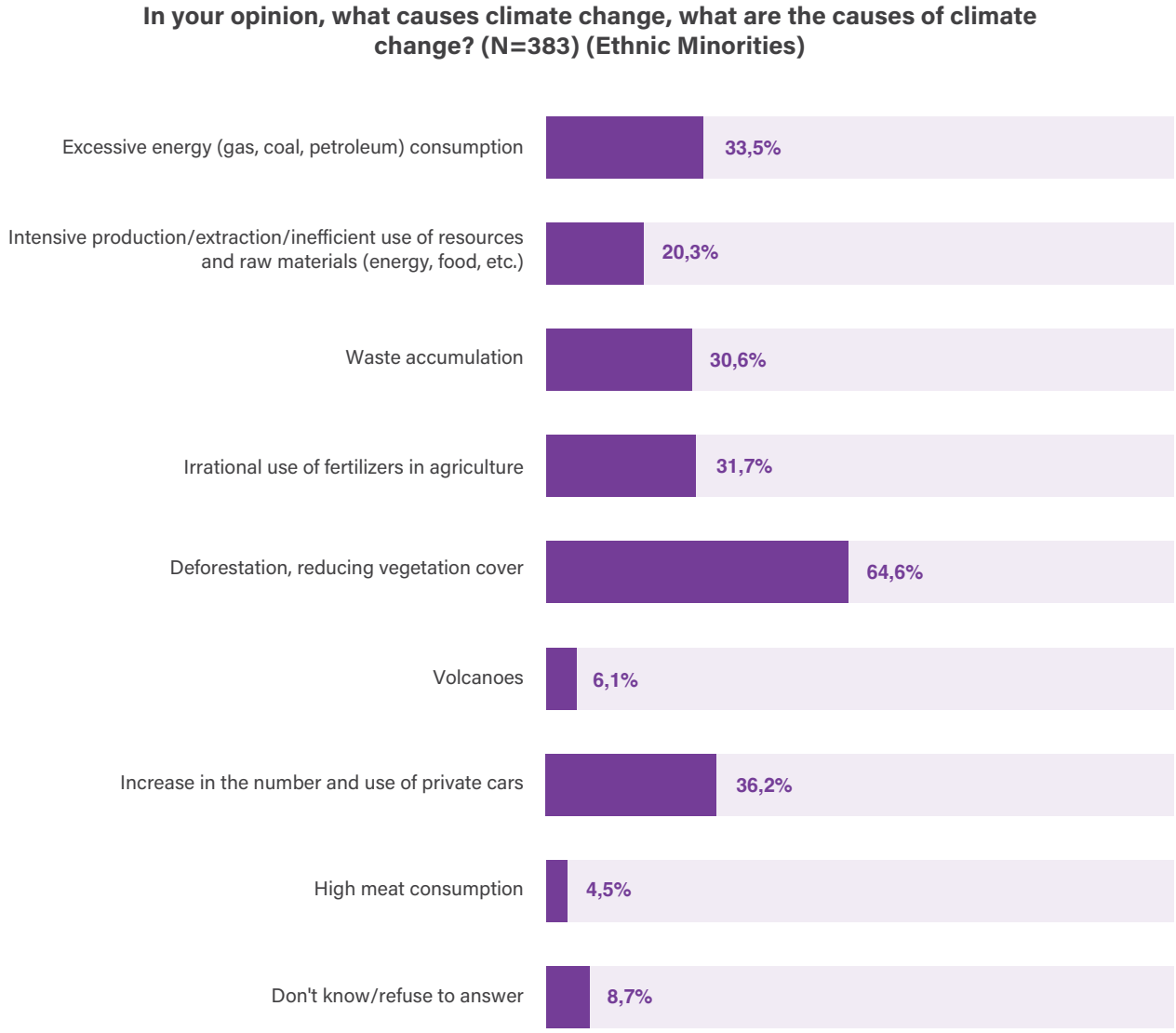
According to the trends that emerge as a result of processing the data in terms of the type of settlement of respondents, like the previous round, both rural and urban residents identify waste accumulation, deforestation, reduction in vegetation cover, and increase in the number and use of private cars as key drivers behind climate change. Concerns about the irrational use of fertilizers in agriculture have become somewhat more prominent in both target groups. Namely, while in 2022, the latter was identified at the rate of 16.9% in the villages and 18.1% in the cities, upward dynamics can be observed in 2023: village - 34.8%; town - 23.4%. (Data are statistically reliable; X^2=37.292; p<0.05) (see Table #27).

Table #27

In your opinion, what causes climate change, what are the causes of climate change? (By the type of settlement)	2023 (N=1259)		2022 (N=1500)	
	Town (including Tbilisi)	Village	Town (including Tbilisi)	Village
	%			
Excessive energy (gas, coal, petroleum) consumption	33.1	47.3	43.9	44.5
Intensive production/extraction/inefficient use of resources and raw materials (energy, food, etc.)	31.9	31.8	28	30.2
Waste accumulation	43.2	41.3	39.4	39.8
Irrational use of fertilizers in agriculture	23.4	34.8	18.1	16.9
Deforestation, reducing vegetation cover	70.4	76.4	69.6	71.1
Volcanoes	16.9	14.9	6	5.3
Increase in the number and use of private cars	37.5	45.1	43.8	46.9
High meat consumption	5.5	5	3.9	4.9
Other	1.1	1	1.3	1.1
Don't know/Refuse to answer	3.4	4.5	2.1	2.1

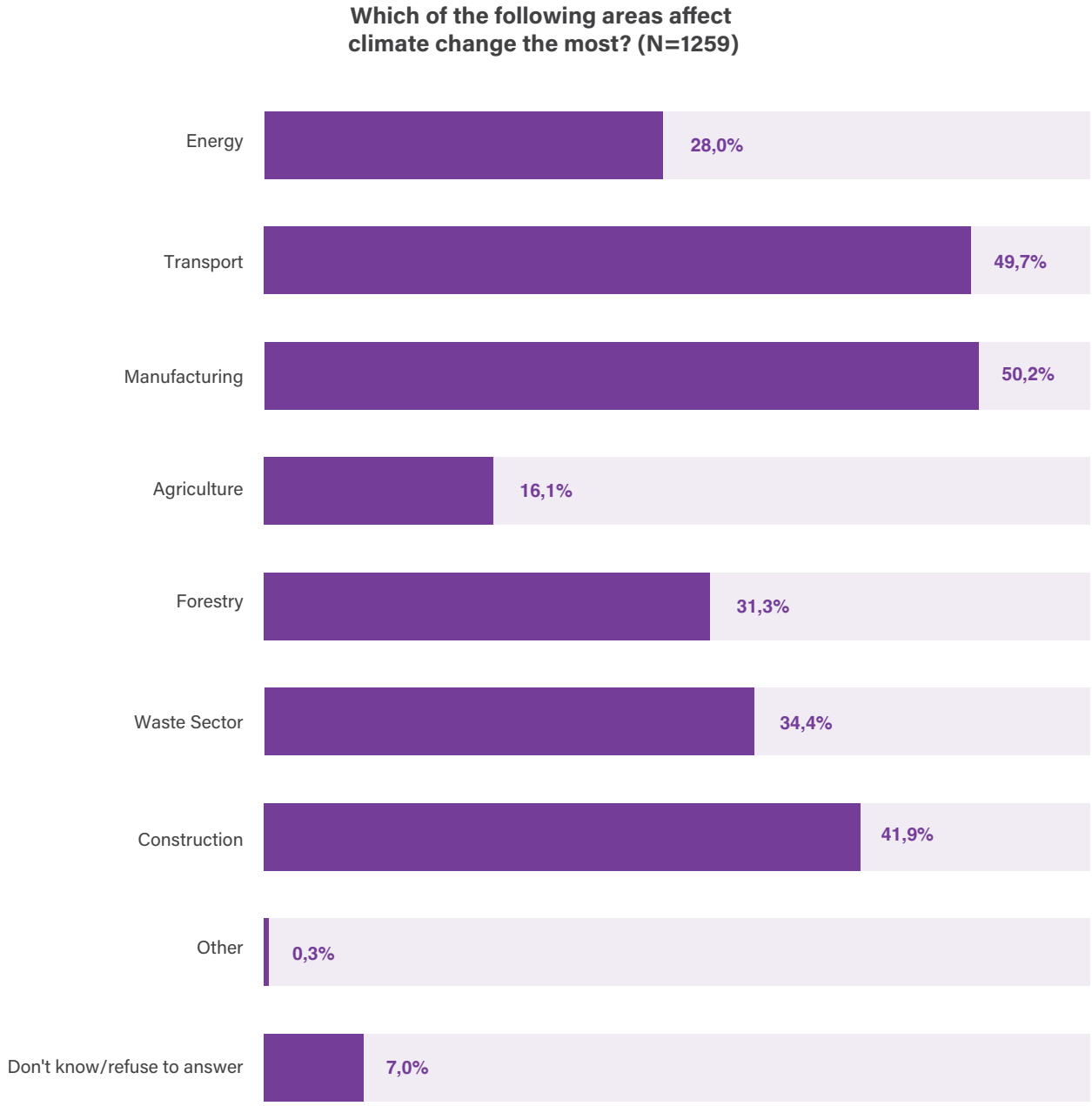
While discussing causes of climate change, ethnic minorities name cutting down trees/reducing vegetation cover (64.6%) most frequently. In addition, the following factors are identified at almost the same rate: an increase in the number and use of private cars (36.2%), excess energy consumption (33.5%), irrational use of fertilizers in agriculture (31.7%), and resource and waste accumulation (30.6%) (see Diagram #20).

Diagram #20



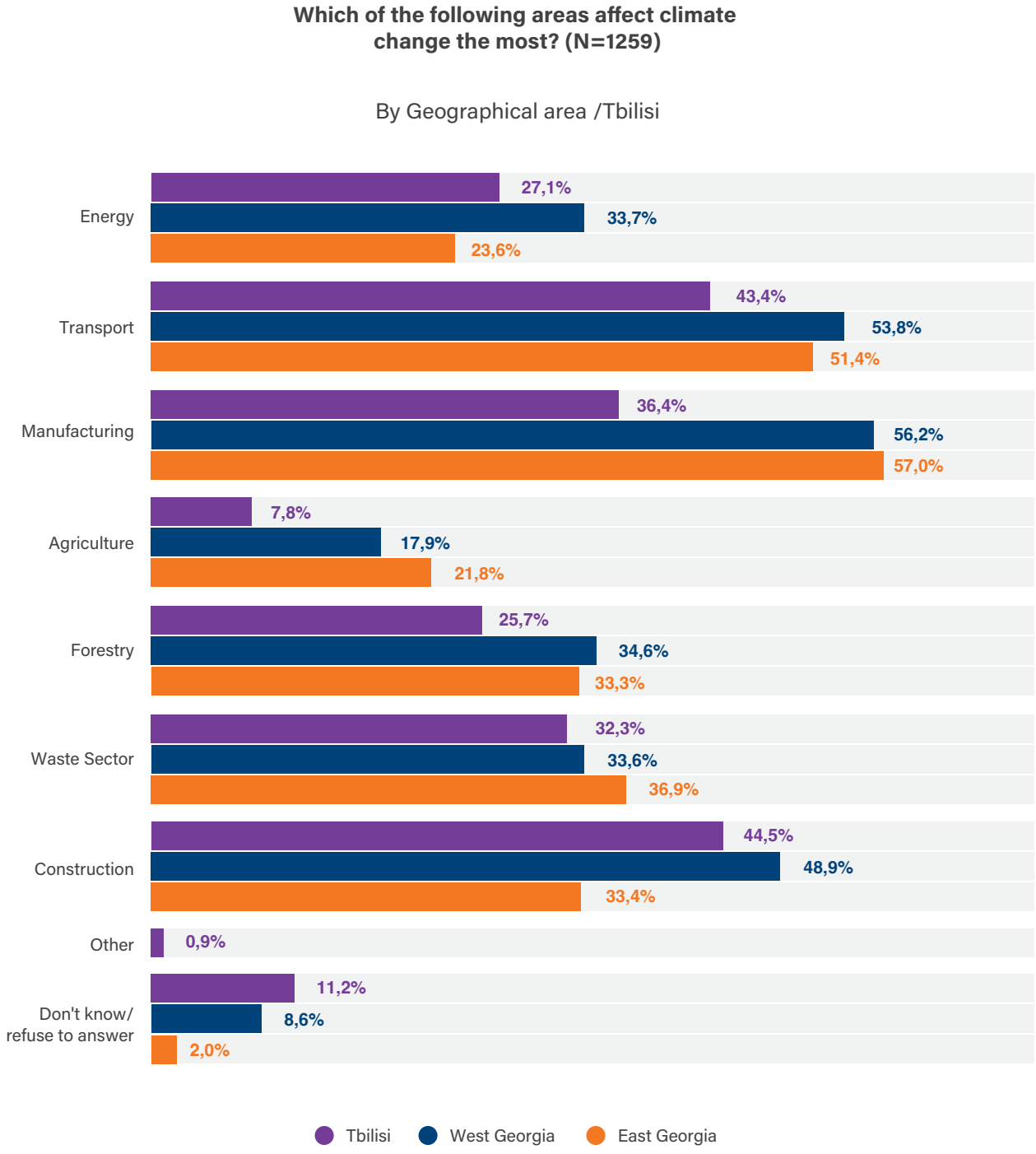
Within the framework of the research, respondents were asked to rate areas of economic activity with the strongest impact on climate change. The results suggest that industry (50.2%) and transport (49.7%) are almost equally identified as leading contributors to climate change, followed by the construction (41.9%) and waste management sectors (34.4%). In addition, respondents also tend to believe that the energy and forestry sectors have a very negative effect on climate change (see Diagram #21).

Diagram #21



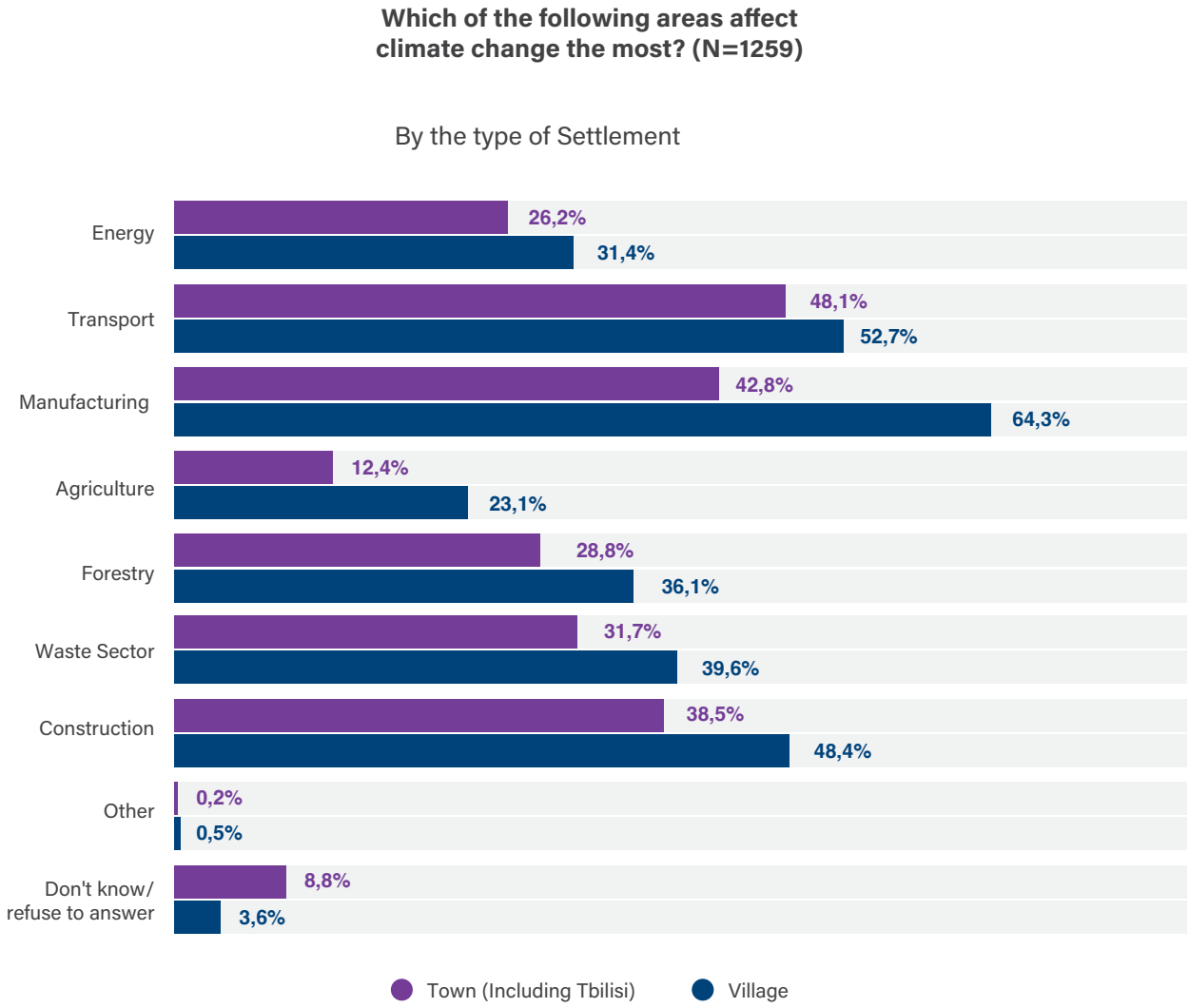
In Tbilisi, construction (44.5%), transport (43.4%), and industry (36.4%) are believed to be the leading causes of climate change. Industry is in the lead in West (56.2%) and East (57%) Georgia, followed by transport and construction. It should be noted that all three target regions name agriculture least frequently (Tbilisi: 7.8%; West Georgia: 17.9%; East Georgia: 21.8%). (Data are statistically reliable: X^2=168.715; p<0.05) (see Diagram #22).

Diagram #22



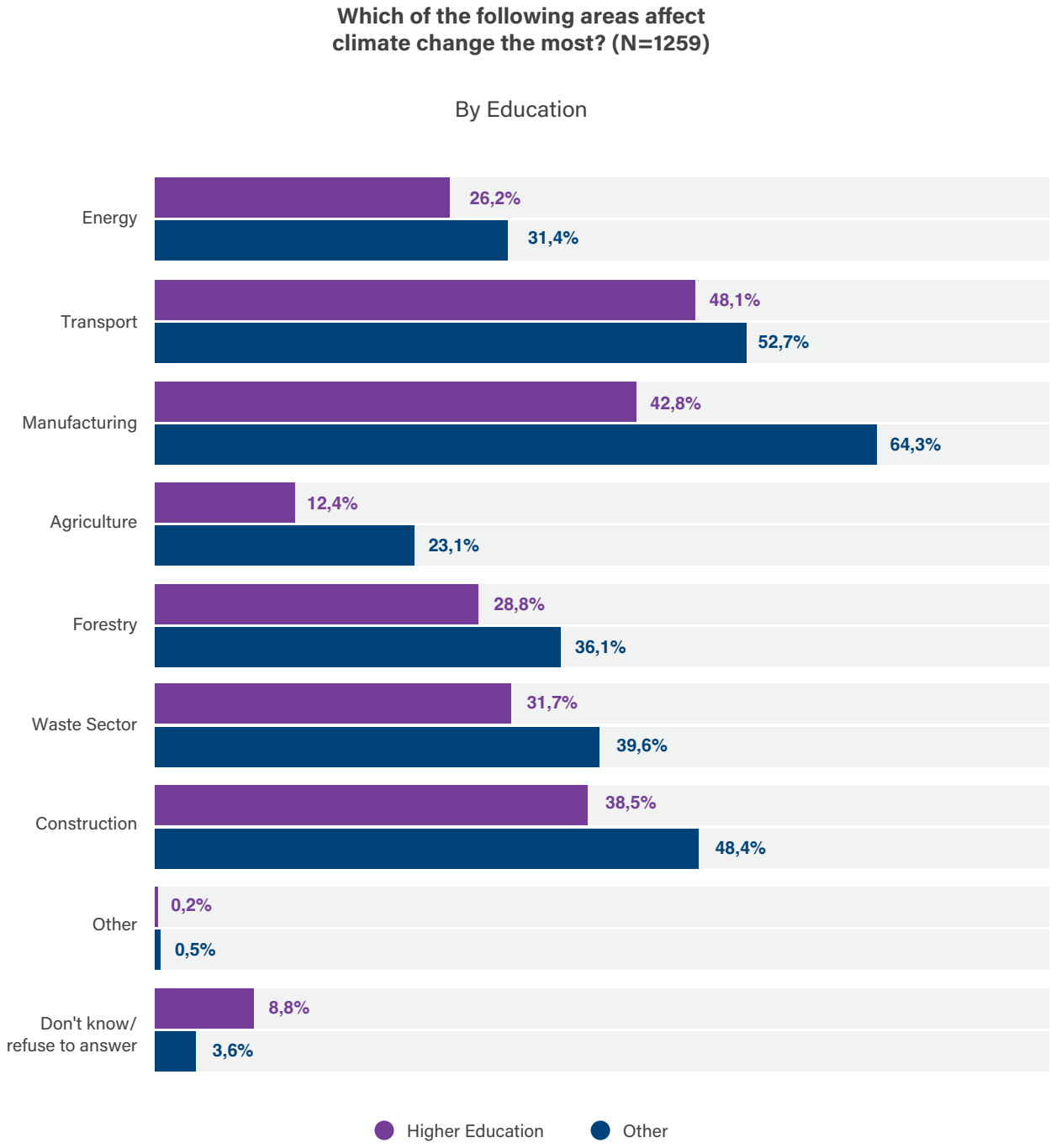
Statistical analysis of the issue in terms of the type of settlement suggests that both urban and rural populations identify industry, transport and construction as the biggest culprits of climate change. However, it should be noted that differences between the two groups emerge when ranking economic sectors that have a negative impact on climate change. Namely, while transport (48.1%) gets the highest rank among the urban population, followed by industry (42.8%) and construction (38.5%), among the rural population, industry (64.3%) ranks first, followed by construction and transport ranked second and third by almost equal shares of respondents. (Data are statistically reliable; $X^2=63.307$; $p<0.05$) (see Diagram #23).

Diagram #23



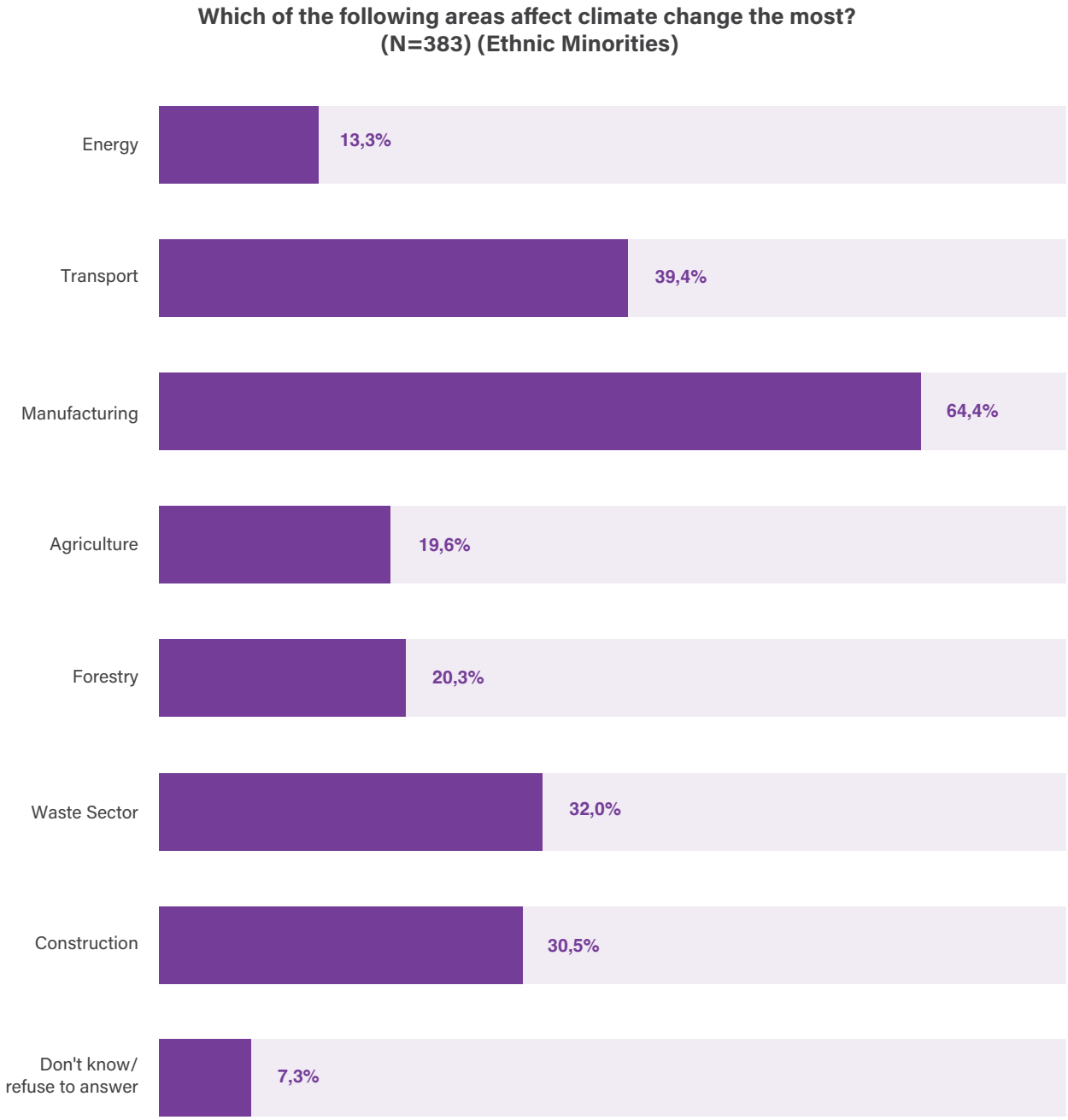
Judging by the results, similar to the trends observed in terms of other socio-economic characteristics, respondents with higher education and those with lower levels of educational attainment consider transport, industry and construction to have the biggest impact on climate change. However, it is worth noting that certain variations occur in the rankings given by the target groups. Namely, while those with higher education rank transport first (48.1%) in this regard, for those with lower levels of educational attainment, the industry sector is in the lead (64.3%) (Data are statistically reliable; $X^2=23.547$; $p<0.05$) (see Diagram #24).

Diagram #24



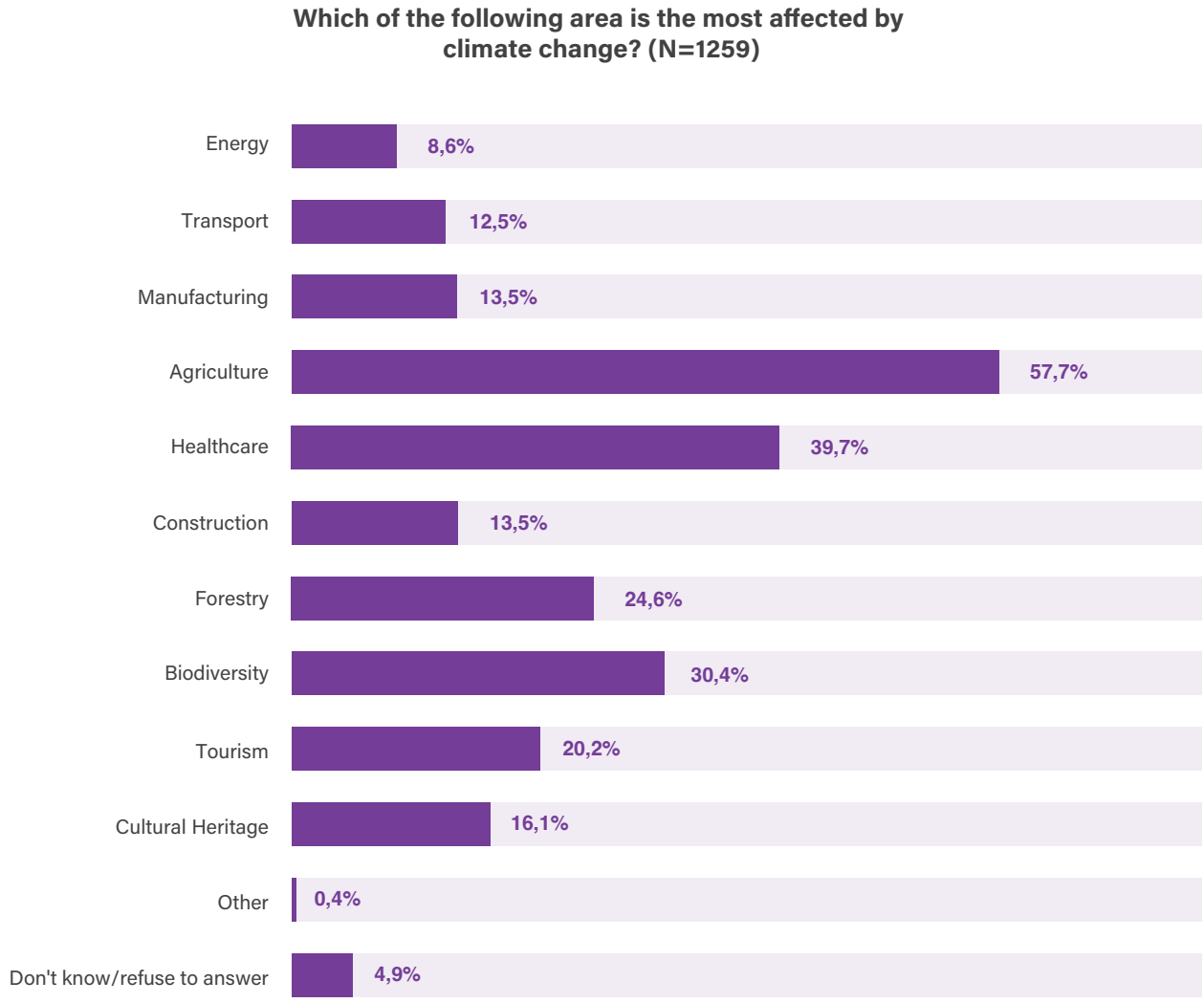
According to the rankings of biggest contributors to climate change by ethnic minorities, the industry sector takes the first place (64.4%), followed by the transportation (39.4%) and waste management sectors (32%). Construction, agriculture, and other sectors occupy the subsequent positions in the ranking (see Diagram #25).

Diagram #25



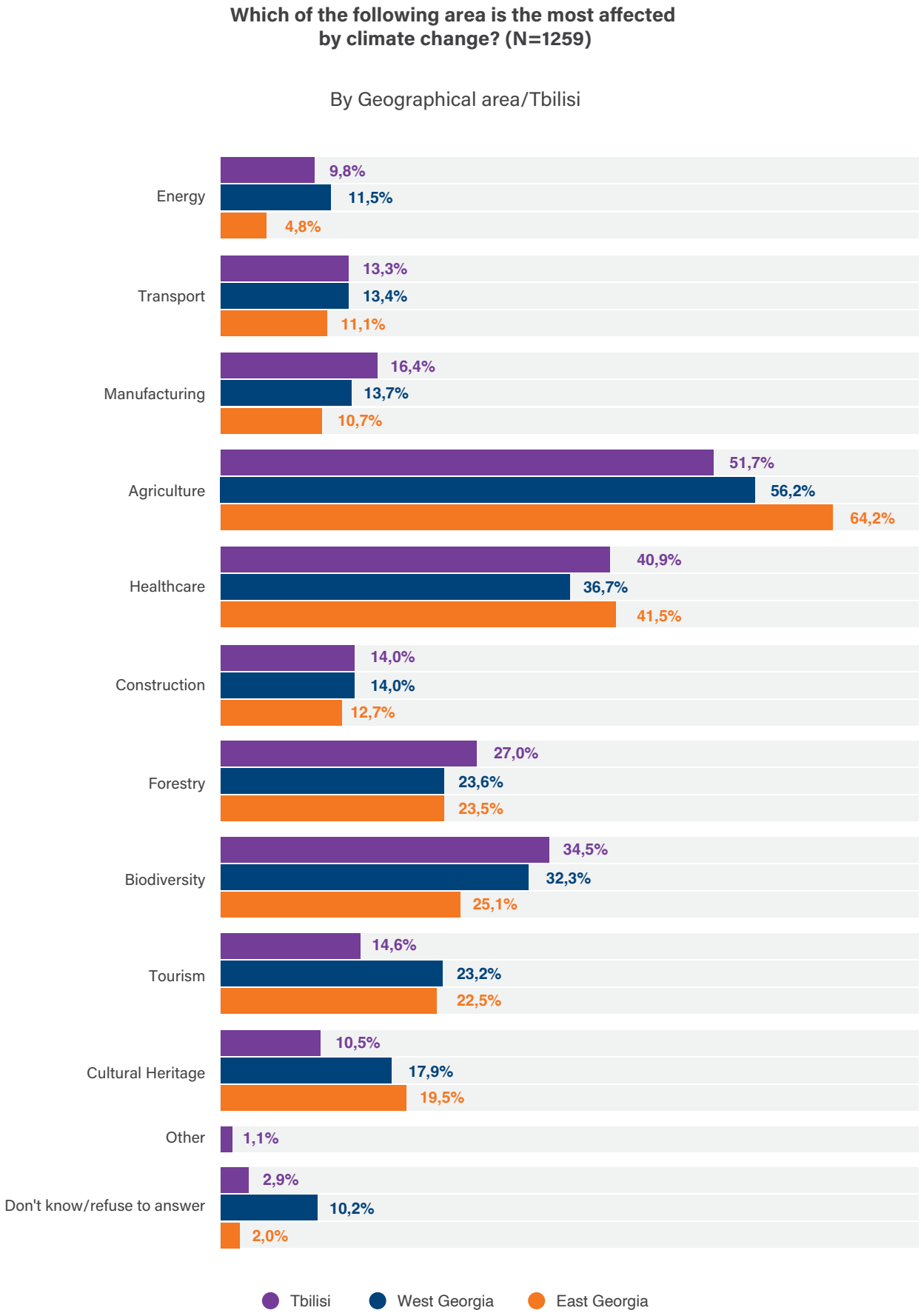
In addition to the above, respondents also assess the opposite effect and identify the economic sectors that are greatly impacted by climate change. As per the results, agriculture ranks first (57.7%), followed by health-care (39.7%) and biodiversity (30.4%) (see Diagram #26).

Diagram #26



In terms of the geographical areas, respondents from Tbilisi (51.7%), as well as West (56.2%) and East (64.2%) Georgia, believe agriculture is most affected by climate change, followed by healthcare and biodiversity. Furthermore, survey results suggest that, based on the knowledge of respondents, climate change has the least negative impact on the energy, transportation, industry, and construction sectors. (Data are statistically reliable; X^2=120.247; p<0.05) (see Diagram #27).

Diagram #27

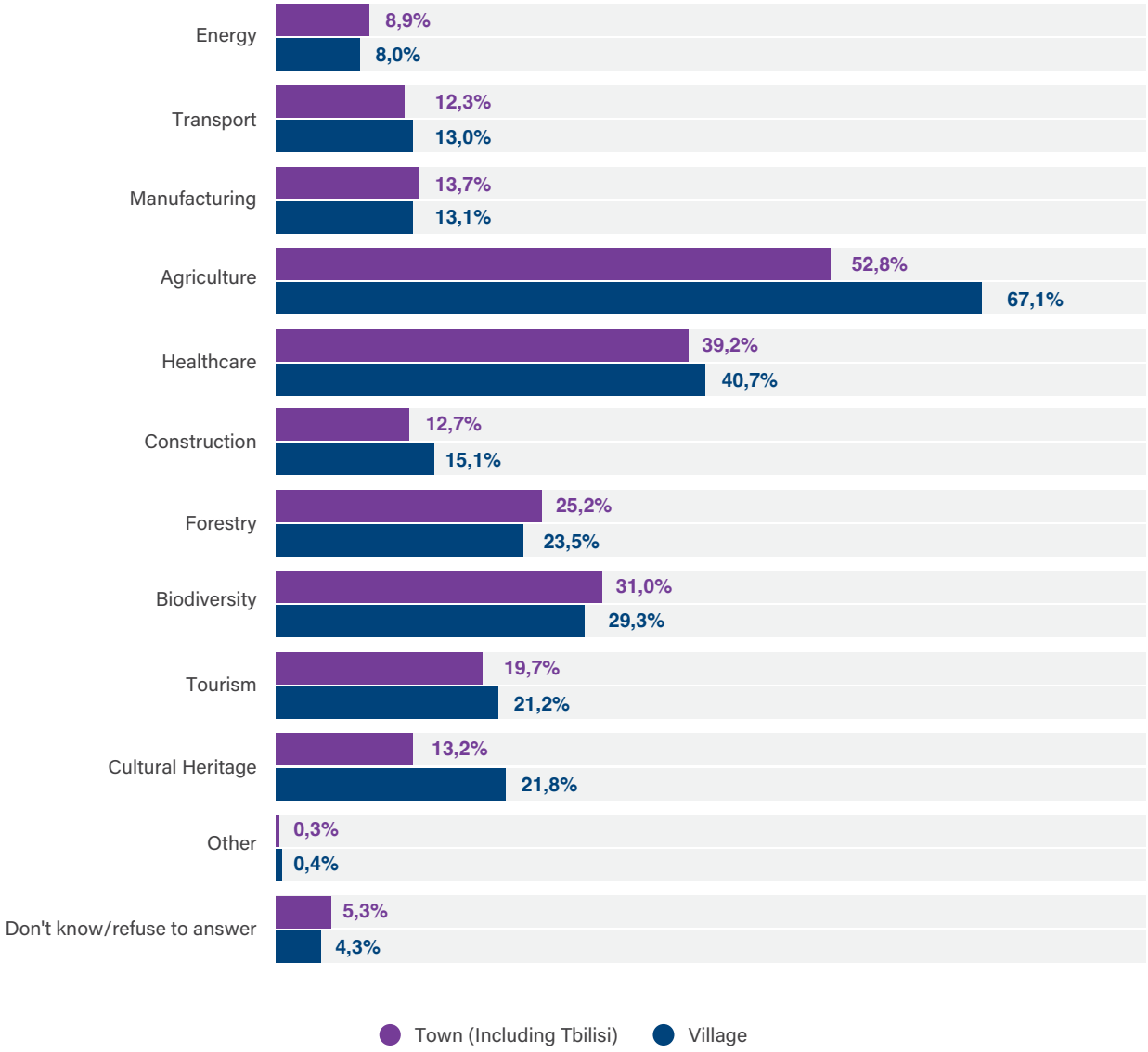

Which of the following area is the most affected by climate change? (N=1259)
By Geographical area/Tbilisi
Energy
9,8%
11,5%
4,8%
Transport
13,3%
13,4%
11,1%
Manufacturing
16,4%
13,7%
10,7%
Agriculture
51,7%
56,2%
64,2%
Healthcare
40,9%
36,7%
41,5%
Construction
14,0%
14,0%
12,7%
Forestry
27,0%
23,6%
23,5%
Biodiversity
34,5%
32,3%
25,1%
Tourism
14,6%
23,2%
22,5%
Cultural Heritage
10,5%
17,9%
19,5%
Other
1,1%
Don't know/refuse to answer
2,9%
10,2%
2,0%
Tbilisi
West Georgia
East Georgia

Urban and rural settlements also maintain that agriculture, healthcare, and biodiversity are most vulnerable to climate change. Furthermore, consistent with the trends observed at the regional level, the energy, transportation, construction, and industry sectors are believed to be susceptible to threats/risks of climate change at the town/village level, too. (Data are statistically reliable; $X^2=31.561$; $p<0.05$) (see Diagram #28).

Diagram #28

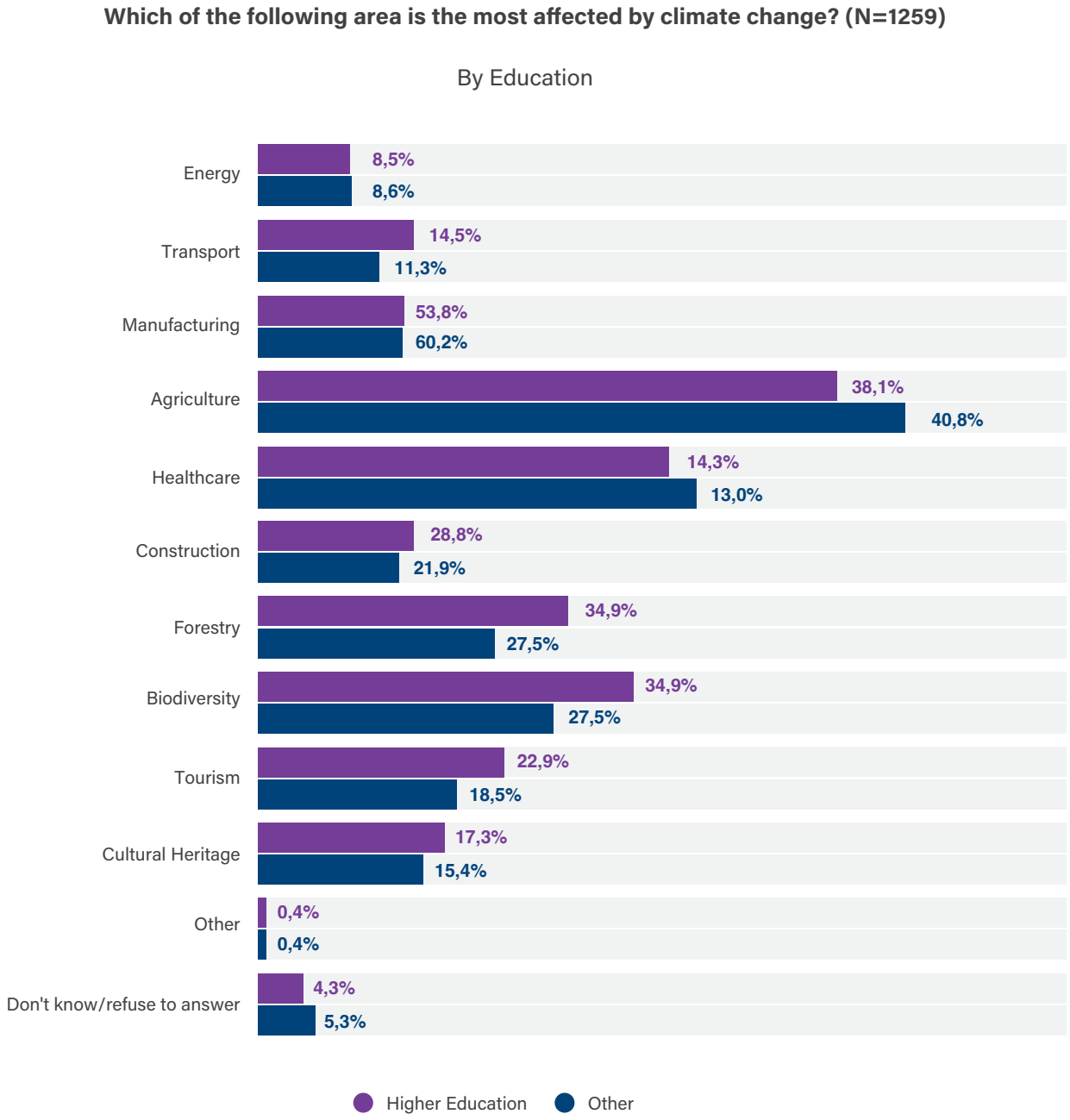
Which of the following area is the most affected by climate change? (N=1259)

By the type of settlement



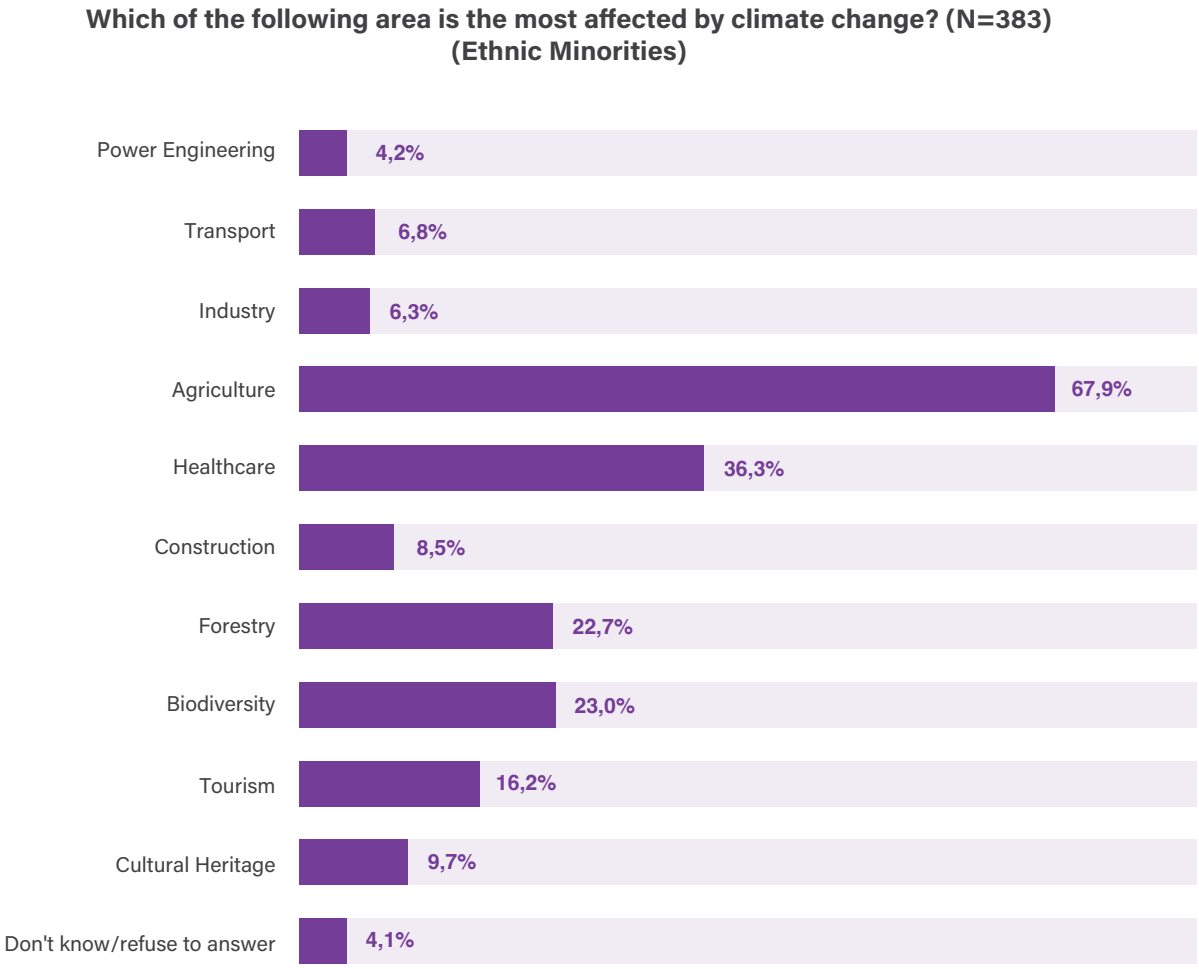
Analyzing the issue in terms of educational attainment reveals that respondents with or without higher education are well aware of the sectors most affected by climate change. Agriculture ranks first in both groups (those with higher education - 53.8%; those without higher education - 60.2%), whilst healthcare and biodiversity rank second and third, respectively. (Data are statistically reliable: $X^2=29.602$; $p<0.05$) (see Diagram #29).

Diagram #29



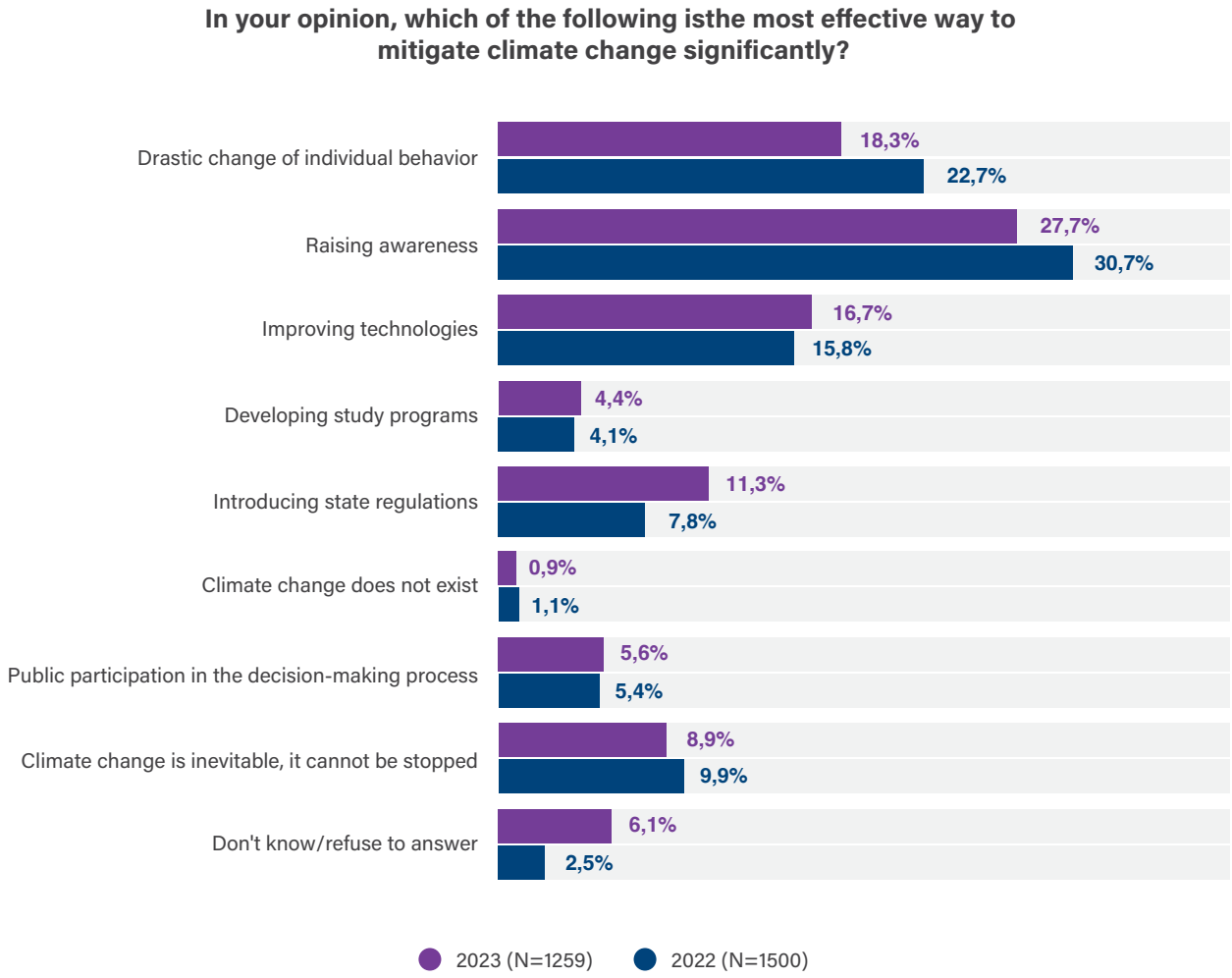
According to ethnic minorities, the negative consequences of climate change impact agriculture the most (67.9%). Healthcare ranks second, and biodiversity – third. Respondents rarely emphasize energy, transport, and construction in this regard (see Diagram #30).

Diagram #30



Raising public awareness is considered the best solution for impeding/mitigating climate change by the largest share of respondents both in 2023 (27.7%) and 2022 (30.7%). In addition, almost one-fifth of respondents (18.3%) in 2023 emphasize the importance of individual responsibility and believe it is necessary for each person to change their behavior drastically. This opinion was shared by 22.7% of those surveyed in the previous round. It should also be noted that there is no significant difference in the number of respondents who emphasize the need for technological improvement (2023 - 16.7%; 2022 – 25.8%;) and introducing state regulations (2023 - 11.3%; 2022 – 7.8%) (see Diagram #31).

Diagram #31



Analyzing the issue in terms of the type of settlement demonstrates that implementing awareness-raising activities is identified as an optimal strategy to stop climate change in both rounds. However, although still a priority, in 2023, the importance of this approach somewhat decreases (raising awareness: 2023 - town: 29.6%; village - 24%; 2022 - town: 32%; village: 29%;). Further to the above, it should be noted that in 2023, the urban (including Tbilisi) population is less likely to consider a drastic change of individual behavior an effective mechanism to tackle climate change compared to the previous round (2023 – 16.7%; 2022 – 22.4%). (Data are statistically reliable: X^2=13.995; p<0.05) (see Table #28).

Table #28

In your opinion, which of the following is the most effective way to mitigate climate change significantly? (By the type of settlement)	2023 (N=1259)		2022 (N=1500)	
	Town (including Tbilisi)	Village	Town (including Tbilisi)	Village
	%			
Drastic change of individual behavior	16.7	21.3	22.4	23
Raising awareness	29.6	24	32	29
Improving technologies	19.1	12.3	16	16
Developing study programmes	5.2	2.9	3.9	4
Introducing state regulations	9.5	14.7	7.9	8
Climate change does not exist	1.3	0.2	1	1
Public participation in the decision-making process	4.7	7.4	5.9	5
Climate change is inevitable, it cannot be stopped	8.3	10.1	9.3	11
Other	-	-	0.1	-
Don't know/Refuse to answer	5.5	7.1	1.5	4

Differentiating respondents' opinions according to their educational attainment reveals that, like in 2022, in 2023, respondents with higher education, as well as those without an academic degree, believe that raising public awareness is the most important activity for mitigating climate change. Furthermore, it is also worth noting that the same number of respondents with higher education in both rounds believe that changing individual behavior is the best mechanism to mitigate climate change; in the case of those without higher education, the trend goes downward compared to the previous round (2023 - those with higher education: 20.6%; those without higher education: 16.8%; 2022 - those with higher education: 20.6%; those without higher education: 24.1%) (Data are statistically reliable: $X^2=17.154$; $p<0.05$) (see Table #29).

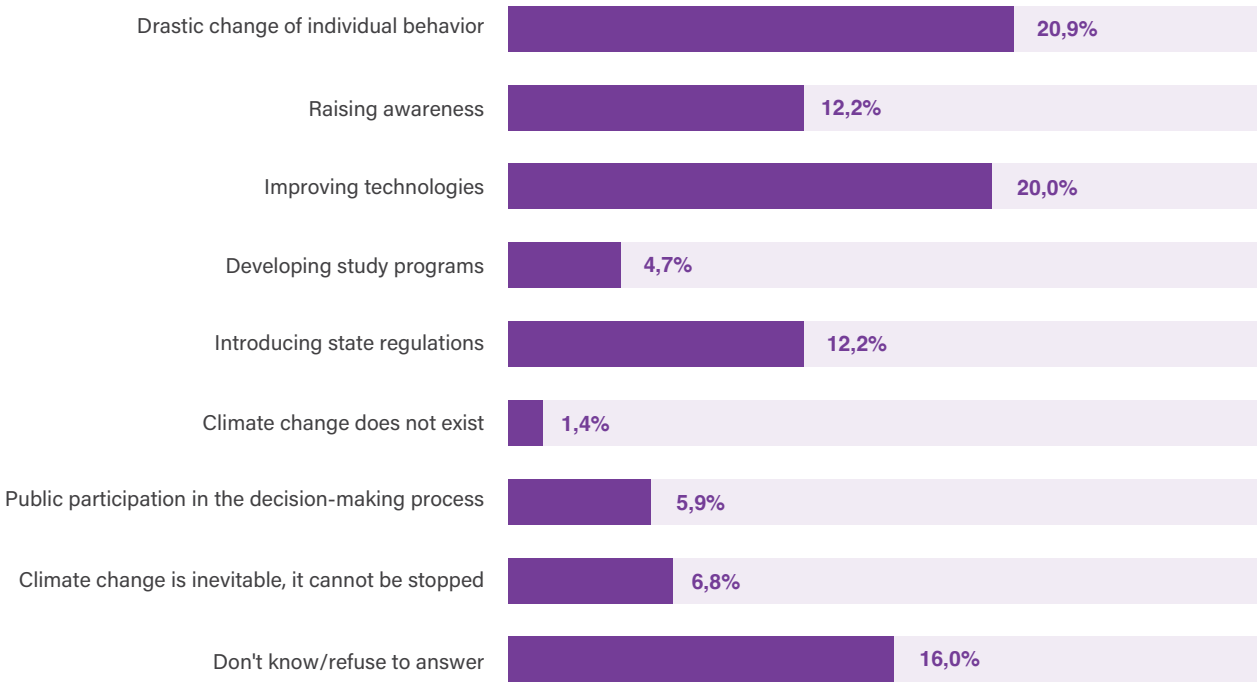
Table #29

In your opinion, which of the following is the most effective way to mitigate climate change significantly? (By education)	2023 (N=1259)		2022 (N=1500)	
	(N=1259)	2022	Higher education	Other
	(N=1500)			
Drastic change of individual behavior	20.6	16.8	20.6	24.1
Raising awareness	31.1	25.5	36.9	26.6
Improving technologies	14	18.5	13.4	17.4
Developing study programmes	5.2	3.9	2.9	4.8
Introducing state regulations	9.2	12.6	8.7	7.2
Climate change does not exist	1.2	0.8	0.2	1.7
Public participation in the decision-making process	5.6	5.6	6.1	4.9
Climate change is inevitable, it cannot be stopped	8	9.6	9.8	10
	-	-	0.2	-
Don't know/Refuse to answer	5	6.8	1.2	3.3

One-fifth of ethnic minorities believe that drastic changes in individual behavior (20.9%) and technological improvements (20%) are the most effective mechanisms for climate change mitigation. Raising awareness and introducing state regulations as important measures are identified only by 12.2% each. (see Diagram #32).

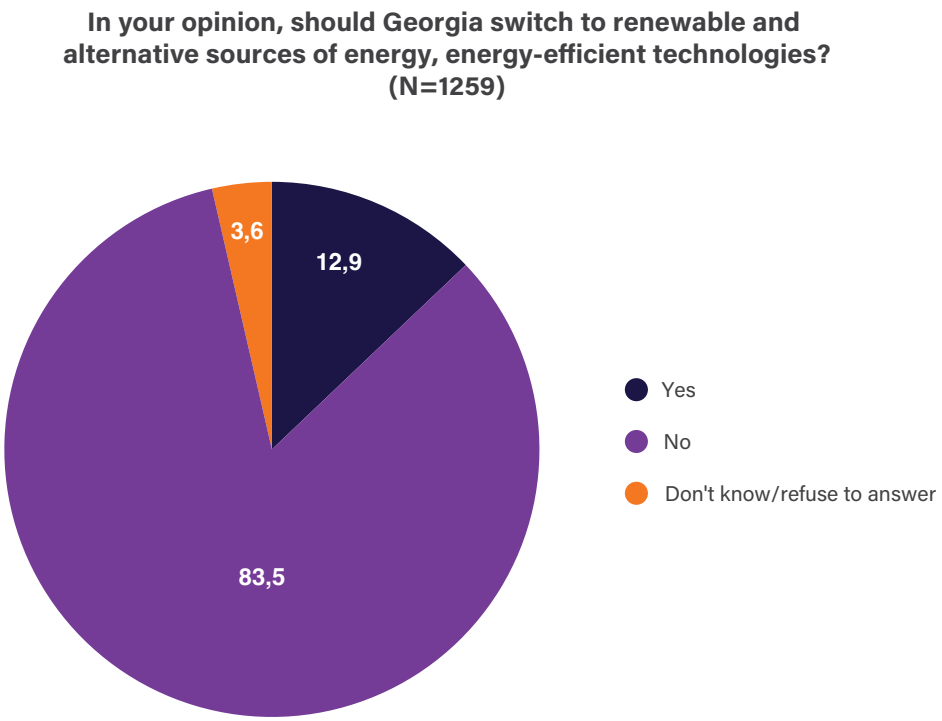
Diagram #32

In your opinion, which of the following isthe most effective way to mitigate climate change significantly? (N=383)
(Ethnic Minorities)



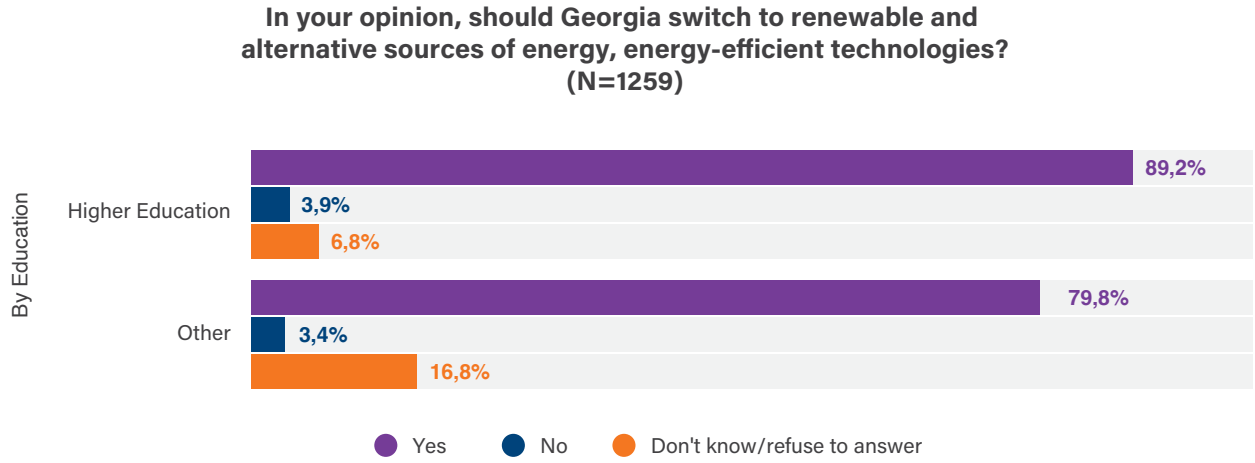
According to 83.5% of respondents, Georgia should switch to using alternative and renewable energy sources (water/wind/solar/other energy) and energy-efficient technologies. Only a very small share do not agree with the above opinion (3.6% - [N=45]) (see Diagram #33).

Diagram #33



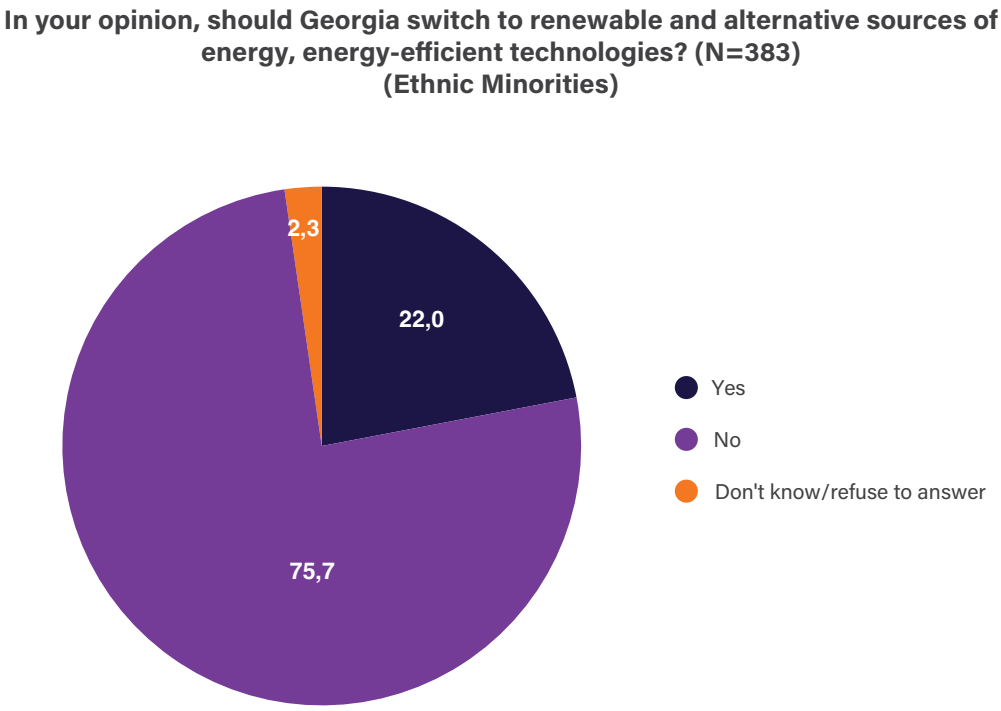
Research results suggest that the share of those who believe Georgia should switch to alternative and renewable energy sources and energy-efficient technologies is larger among respondents with higher education (89.2%) than those with a lower level of educational attainment (79.8%). (Data are statistically reliable: $X^2=25.768$; $p<0.05$) (see Diagram #34).

Diagram #34



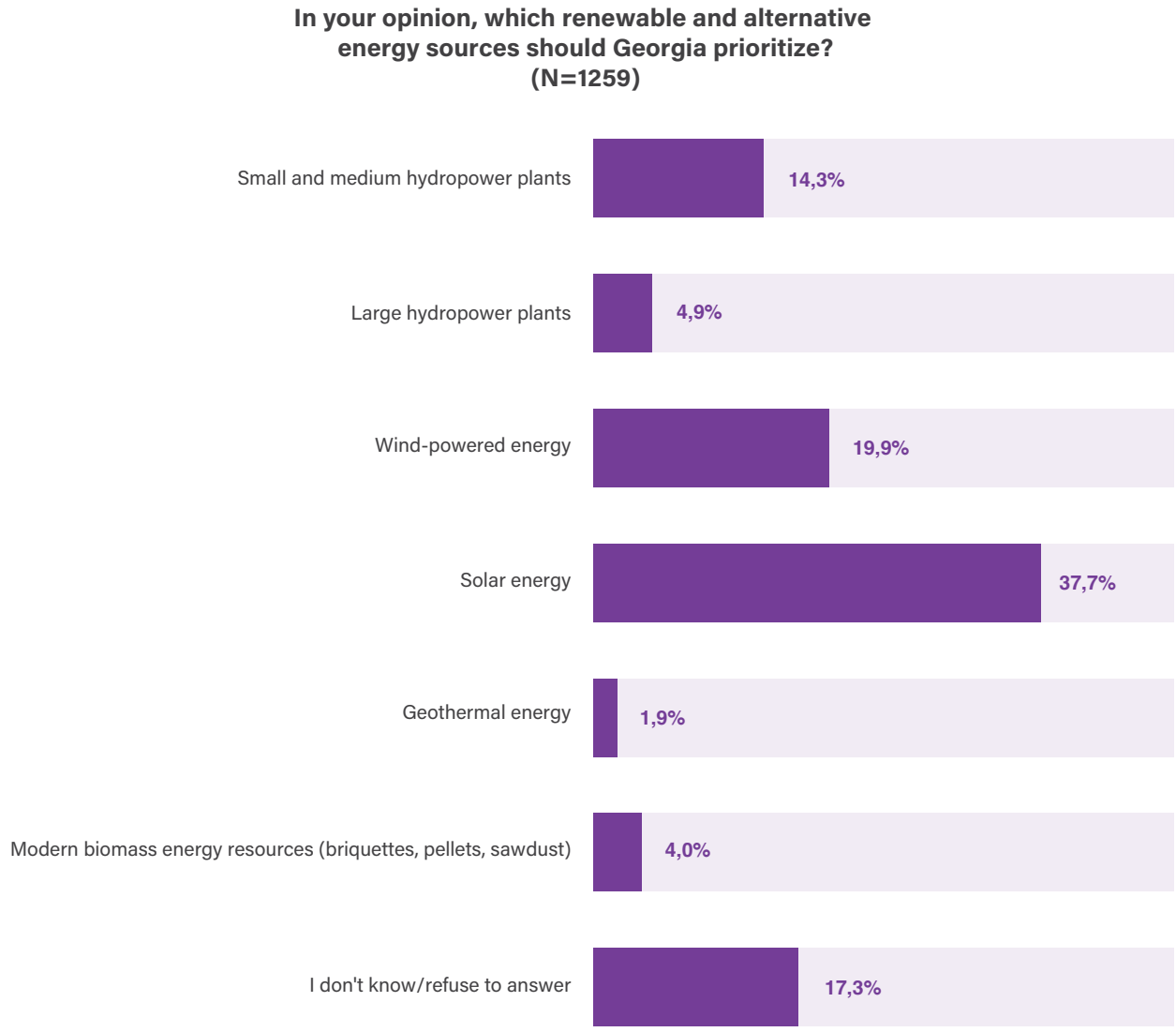
As for ethnic minorities, 75.7% of them think that Georgia should switch to alternative and renewable energy sources and energy-efficient technologies. A little over one-fifth can/does not specify their position about the issue in question ('Don't know/Refuse to answer') (see Diagram #35).

Diagram #35



Among alternative and renewable energy sources, solar technologies are identified as a priority for Georgia by 37.7% of the population. In addition, one-fifth emphasize the benefits of wind-powered energy (19.9%), and 14.3% are in favour of building small and medium hydropower plants. It should be noted that energy sources, such as large power plants, geothermal energy, and biomass, are less popular among respondents (see Diagram #36).

Diagram #36

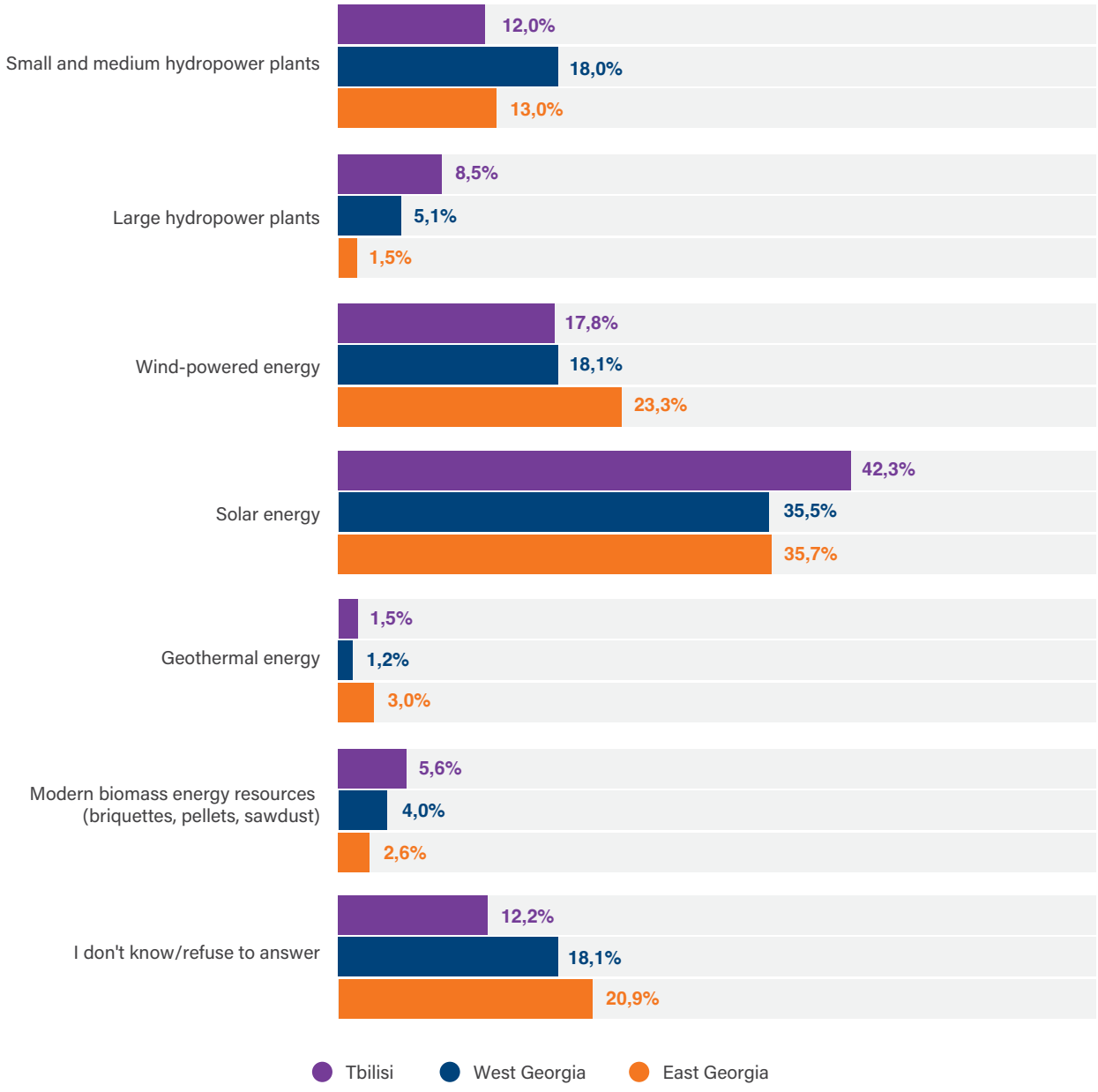


A sizeable share of respondents in Tbilisi (42.3%), West (35.5%) and East Georgia (35.7%) note that Georgia should switch to solar technologies. A relatively smaller proportion are in favour of wind-powered energy (Tbilisi - 17.8%; West Georgia - 18.1%; East Georgia - 23.3%). It is worth noting that 18% in West Georgia are in support of building small and medium hydropower plants, which exceeds the number of those in Tbilisi and East Georgia with the same opinion by 5%-6% respectively. (Data are statistically reliable: $X^2=51.543$; $p<0.05$) (see Diagram #37).

Diagram #37

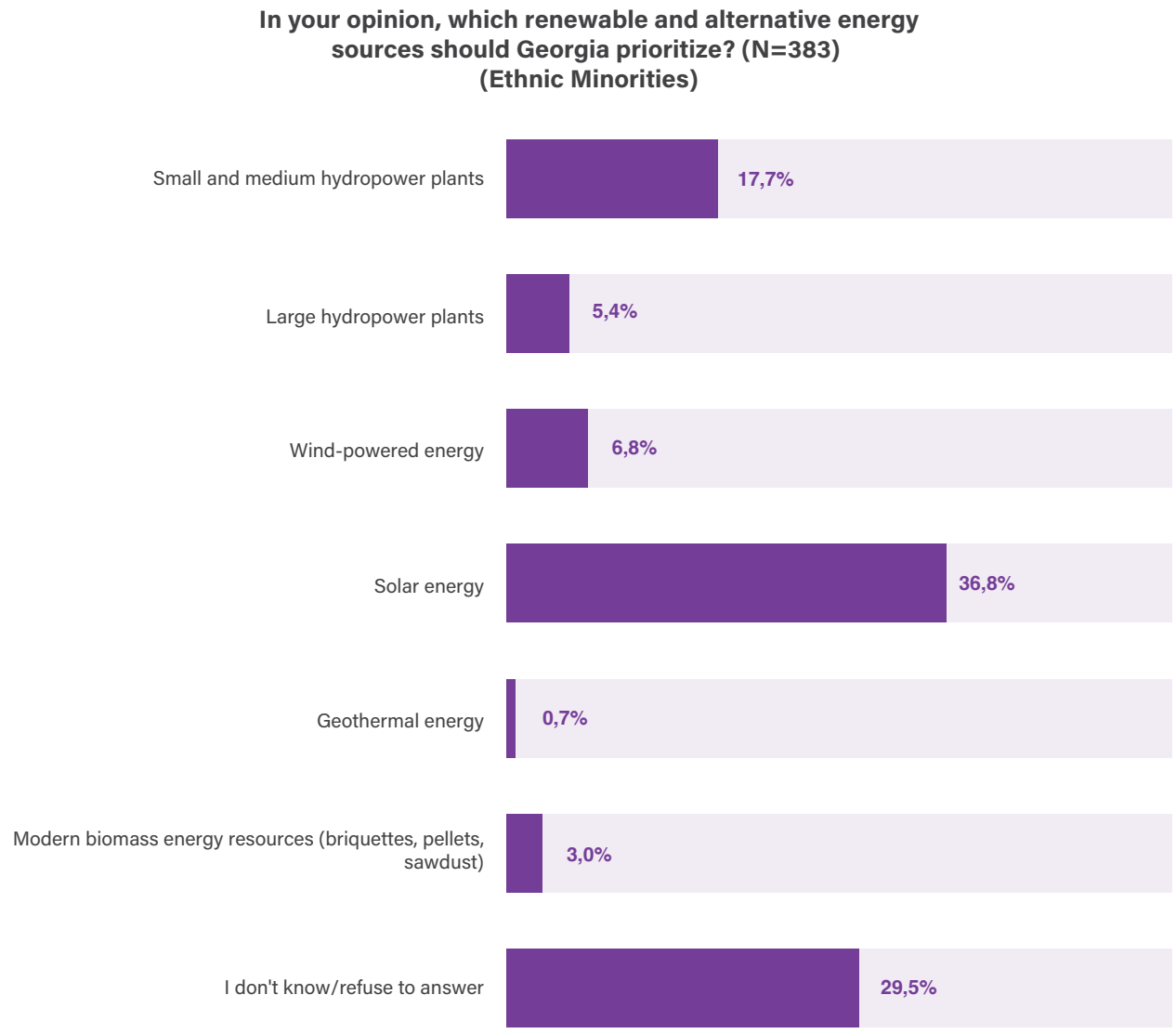
In your opinion, which renewable and alternative energy sources should Georgia prioritize? (N=1259)

By Geographical area/Tbilisi



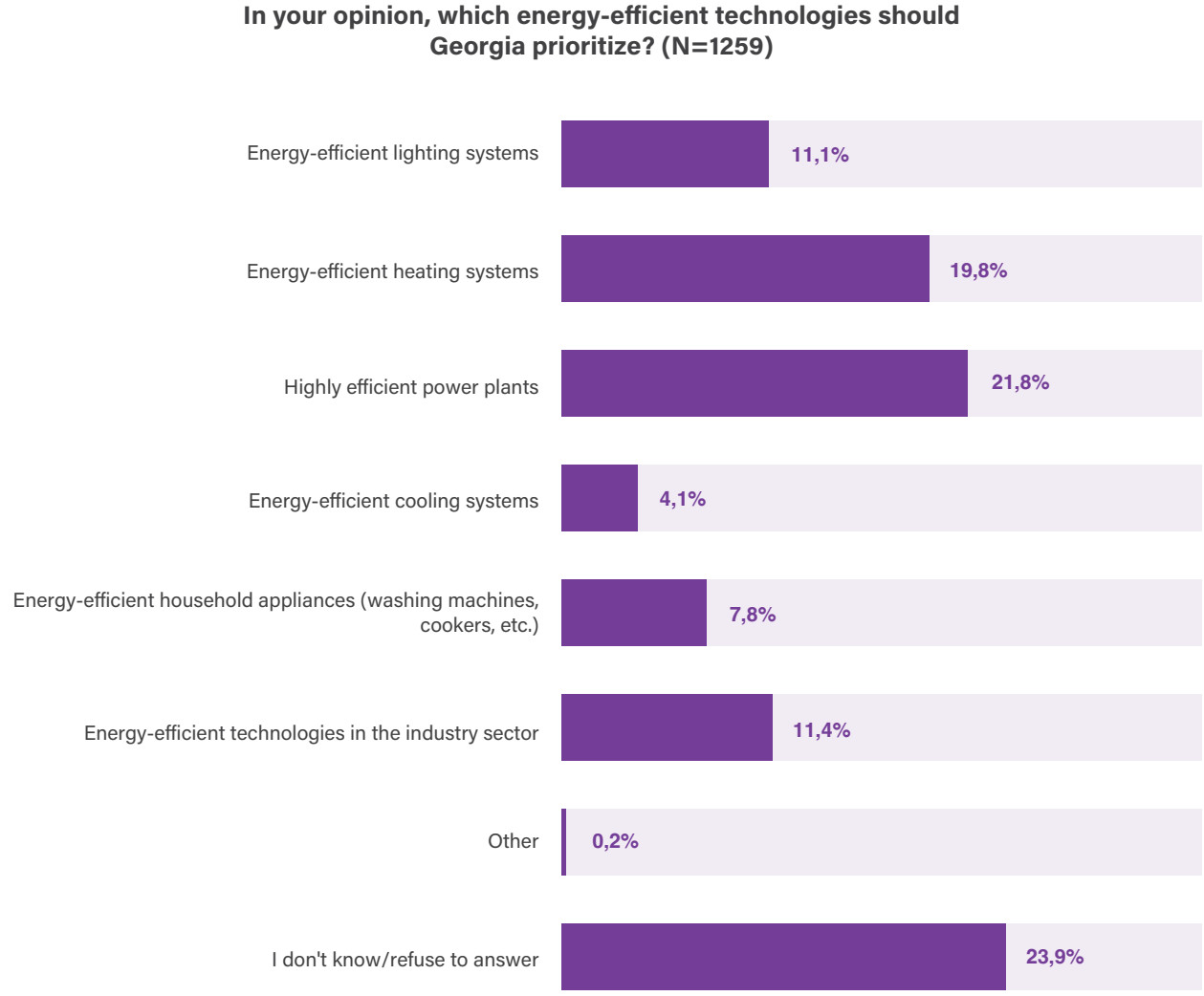
Among renewable and alternative sources, 36.8% of ethnic minorities favour solar technologies, and 17.7% - small and medium hydropower plants. 29.5% of respondents refrain from expressing their opinion regarding the issue ('Don't know/Refuse to answer) (see Diagram #38).

Diagram #38



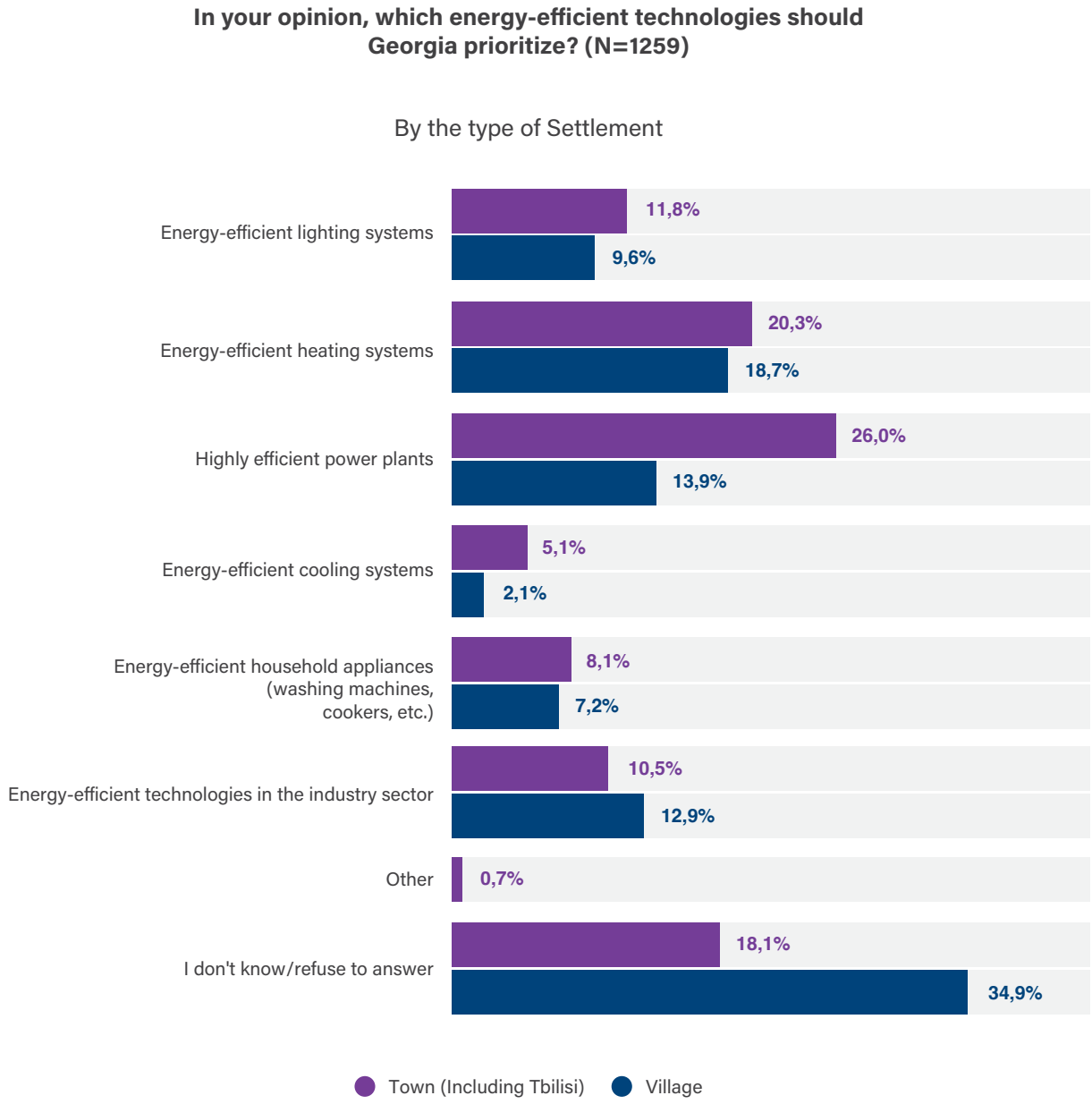
In the case of energy-efficient technologies, highly efficient power plants are in the lead (21.8%). Respondents also approve of installing energy-efficient heating systems. Almost an equal number of surveyed individuals identify the following actions as beneficial: using energy-efficient technologies in the production sector (11.4%) and installing energy-efficient lighting systems (11.1%). It should be noted that 23.9% do/can not offer their opinion about the issue (Don't know/Refuse to answer) (see Diagram #39).

Diagram #39



Analyzing the issue in terms of the type of settlement reveals that every third respondent in the villages does not know which energy-efficient technologies Georgia should prioritize; 18.1% of the urban residents share the same view. Among those who identify specific technologies, the largest share of urban population favour highly efficient power plants, and a sizeable portion of the rural population (18.7%) believe that energy-efficient heating systems should be installed. A relatively smaller share of respondents surveyed in both towns and villages approve of using energy-efficient cooling and heating systems, and energy-efficient household and industrial technologies. (Data are statistically reliable: $X^2=37.401$; $p<0.05$) (see Diagram #40).

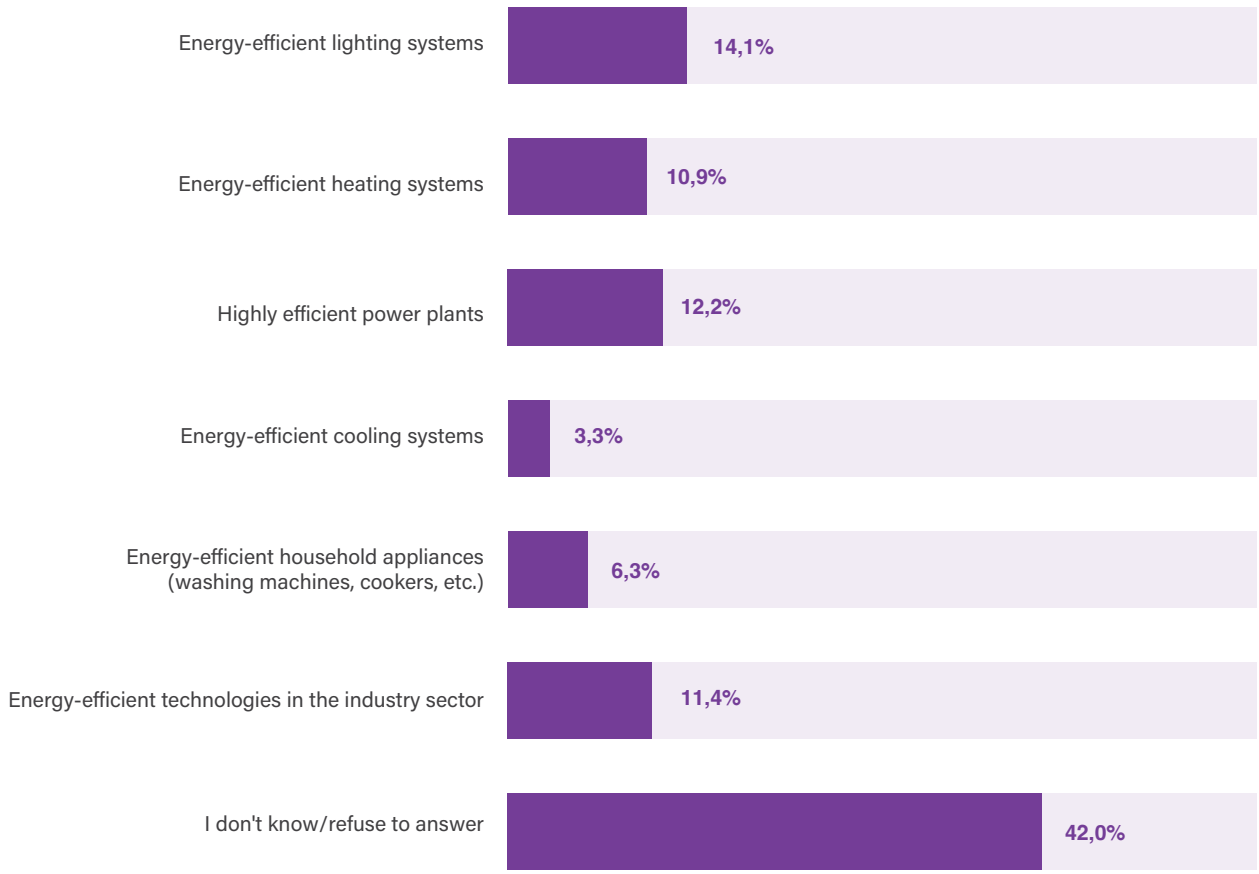
Diagram #40



42% of ethnic minorities cannot name an energy-efficient technology that Georgia should prioritize (Don't know/Refuse to answer). Largest proportions from the reminaing share are in favour of energy-efficient lighting systems (14.1%) and efficient power plants (12.2%) (see Diagram #41).

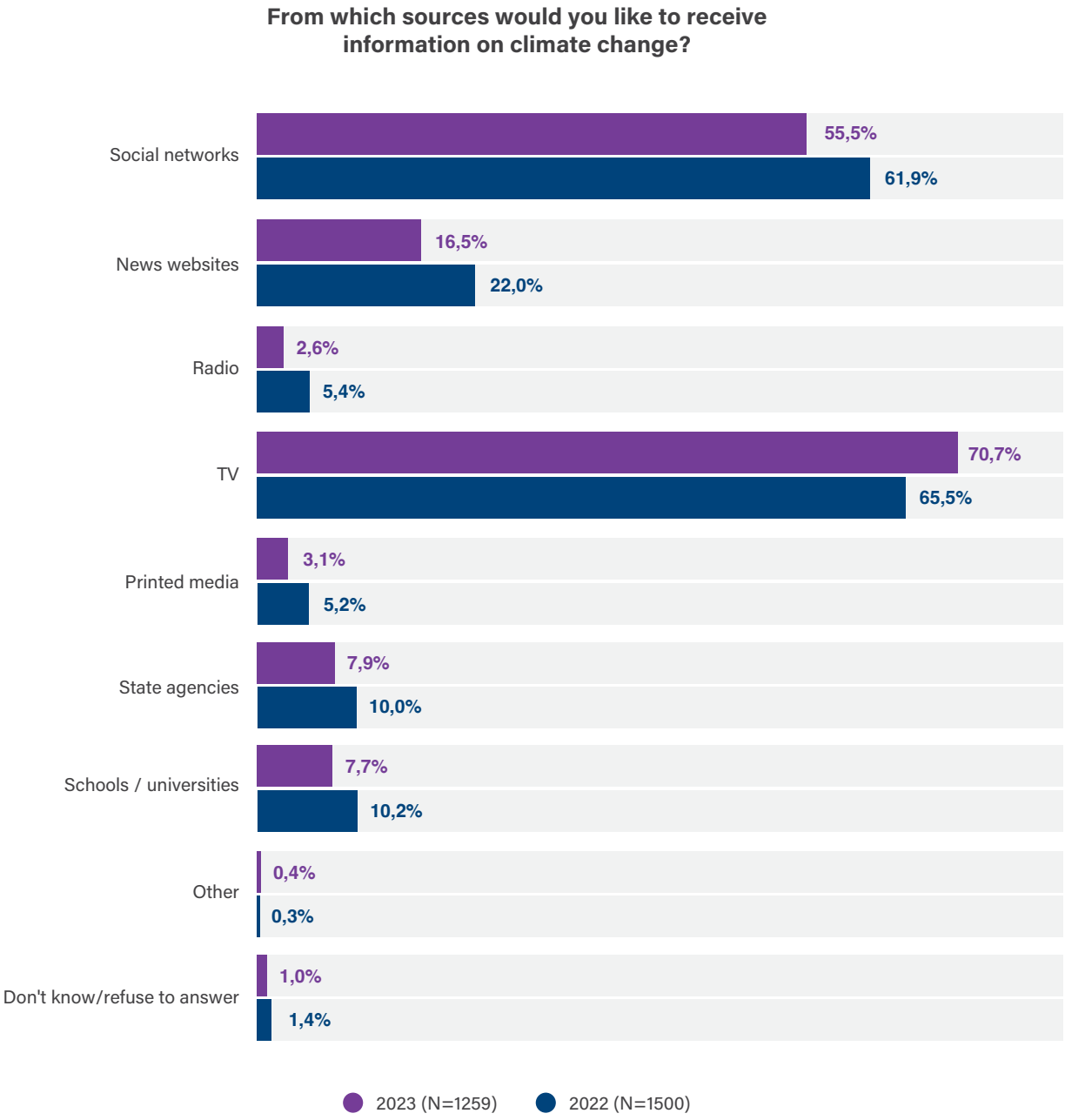
Diagram #41

In your opinion, which energy-efficient technologies should Georgia prioritize? (N=383) (Ethnic Minorities)



Respondents surveyed in 2023 identify TV (70.7%) and social media (55.5%) as preferred sources of information about climate change most frequently and news websites – least frequently (16.5%). Radio, printed media, schools/universities, and other sources rank low on the list. Like in 2023, social media and TV were the most favoured sources in the previous round too. (see Diagram #42).

Diagram #42



A preferred source of information for the age groups of 18-29, 25-34, and 35-44 is social media. The older generation favours TV. Furthermore, it should be noted that almost equal shares of middle-aged respondents opt for social media (71.2%) and TV (68.6%). (Data are statistically reliable: $X^2=571.599$; $p<0.05$) (see Table #30).

Table #30

From which sources would you like to receive information on climate change? (By age) 2023 - N=1053; 2022 - N=1500;	18-24	25-34	35-44	45-54	55-65
	%				
Social networks	82.3	74.4	71.2	59.5	34.1
News websites	26.3	25.4	23.9	8.3	11.6
Radio	1.4	2.3	1.8	4	3.1
TV	37.7	54.5	68.6	77.2	85.2
Printed media	3.4	2.7	3.7	4	1.9
State agencies	4.8	10.4	10.2	9	7.7
Schools / universities	10.7	9.3	7.5	9.7	6.6
Other (competent persons/seminar)	-	0.4	-	-	0.5
Would not like to receive	0	0	0.4	0.5	0.5
Don't know/Refuse to answer	1.3	1	1.1	0.5	0.8

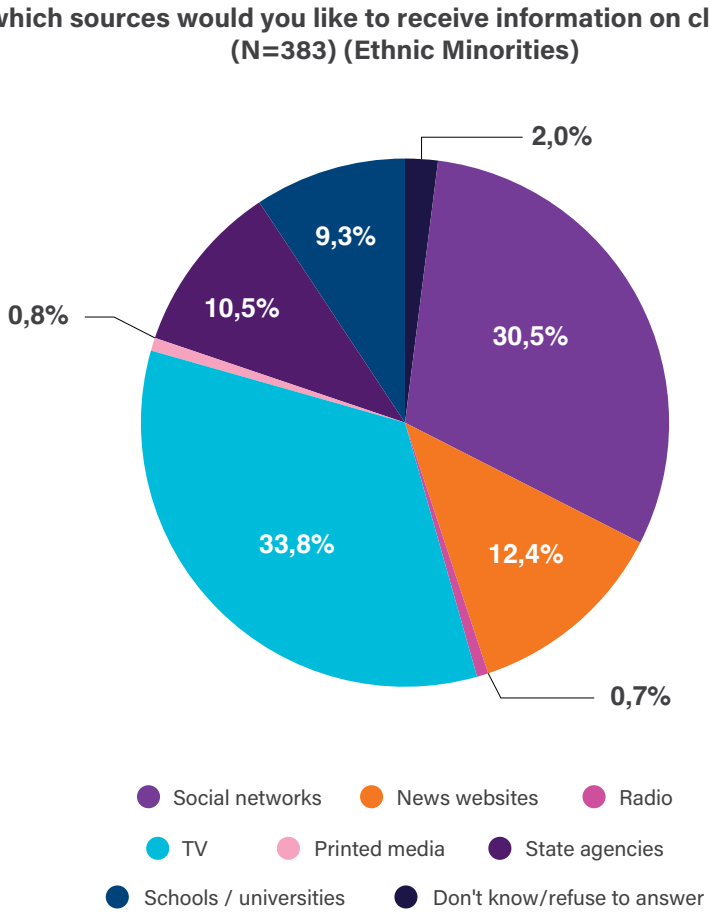
Analyzing the issue in terms of the type of settlement shows that, compared to the previous round, in 2023, there is a downward trend of social media being the preferred source of information on climate change, which is almost proportionate with the upward trend of TV being the favourite of the rural population. As for the urban population, respondents identify social media as a preferred source with almost the same frequency in both rounds of the survey; in addition, compared to the previous year, TV ranks somewhat higher on the list in 2023. (Data are statistically reliable; X^2=19.965; p<0.05) (see Table #31).

Table #31

From which sources would you like to receive information about climate change? (by the type of settlement)	2023 (N=1259)		2022 (N=1500)	
	Town (including Tbilisi)	Village	Town (including Tbilisi)	Village
	%			
Social networks	62.1	43	62.9	60.5
News websites	19.7	10.4	24.4	18.6
Radio	3.1	1.7	5.2	5.6
TV	66.1	79.5	61.8	70.7
Printed media	4.1	1.2	5.1	5.4
State agencies	7.2	9.2	9.8	10.3
Schools / universities	7	9	11.5	8.3
Other (competent persons/seminar)	0.1	0.3	0.3	0.2
Would not like to receive	0.4	-	-	-
Don't know/Refuse to answer	0.5	2	1.6	1.1

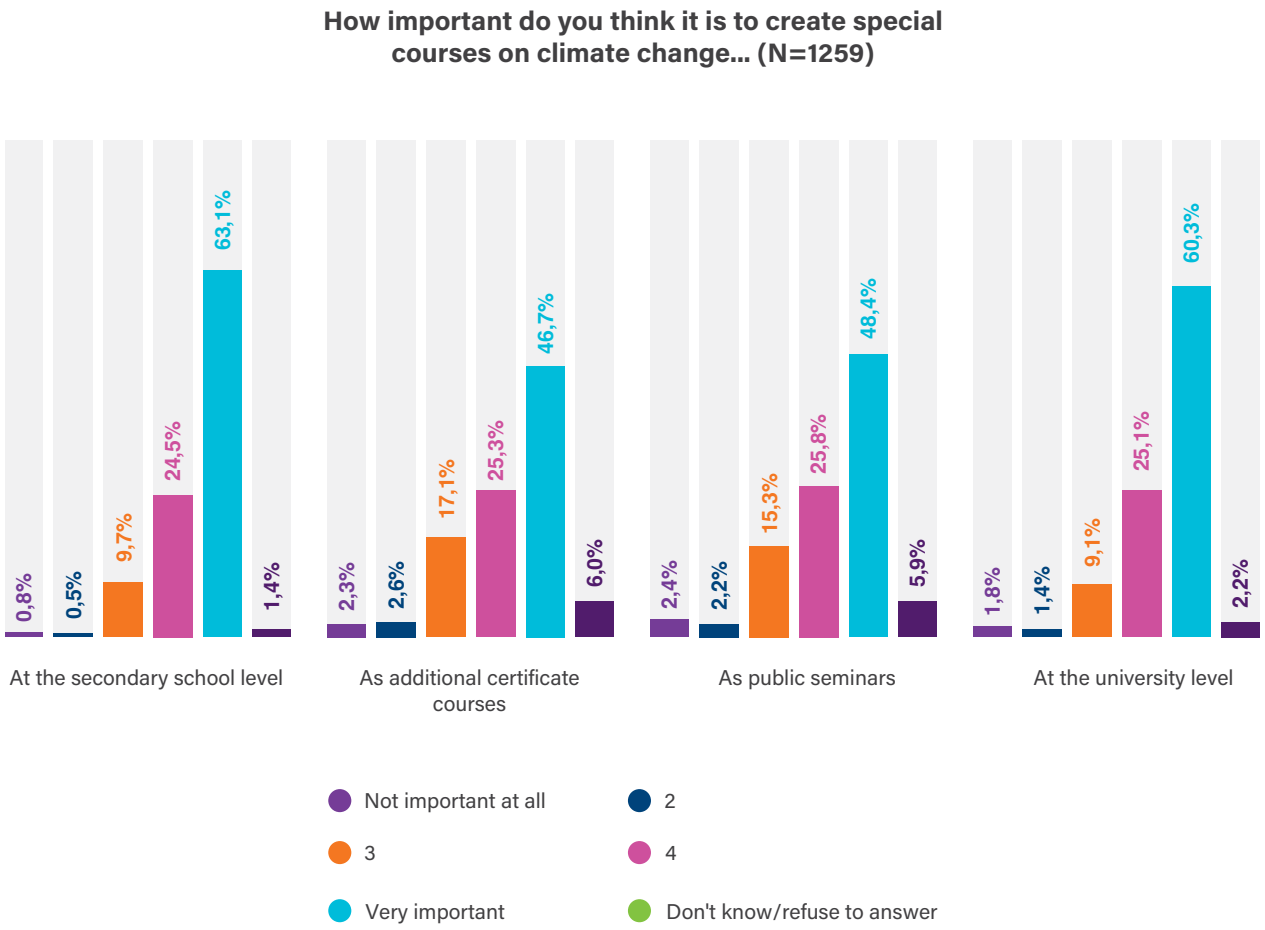
For ethnic minorities, TV (33.8%) and social media (30.5%) are the most preferred sources of information on climate change. Online news websites (12.4%), state agencies (10.5%) and other sources are relatively less favoured. (see Diagram #43).

Diagram #43



In addition to the above, respondents were asked to rate the importance of teaching a special course on climate change on different educational levels on a 5-point scale. The results suggest that the vast majority believe it is 'very important + more important than not' to offer such a course in schools (87.6%) and higher education institutions (85.4%). Almost equal shares of respondents agree that a special course on climate change should be integrated into additional certificate courses (72%) and public seminars (74.2%) (see Diagram #44).

Diagram #44



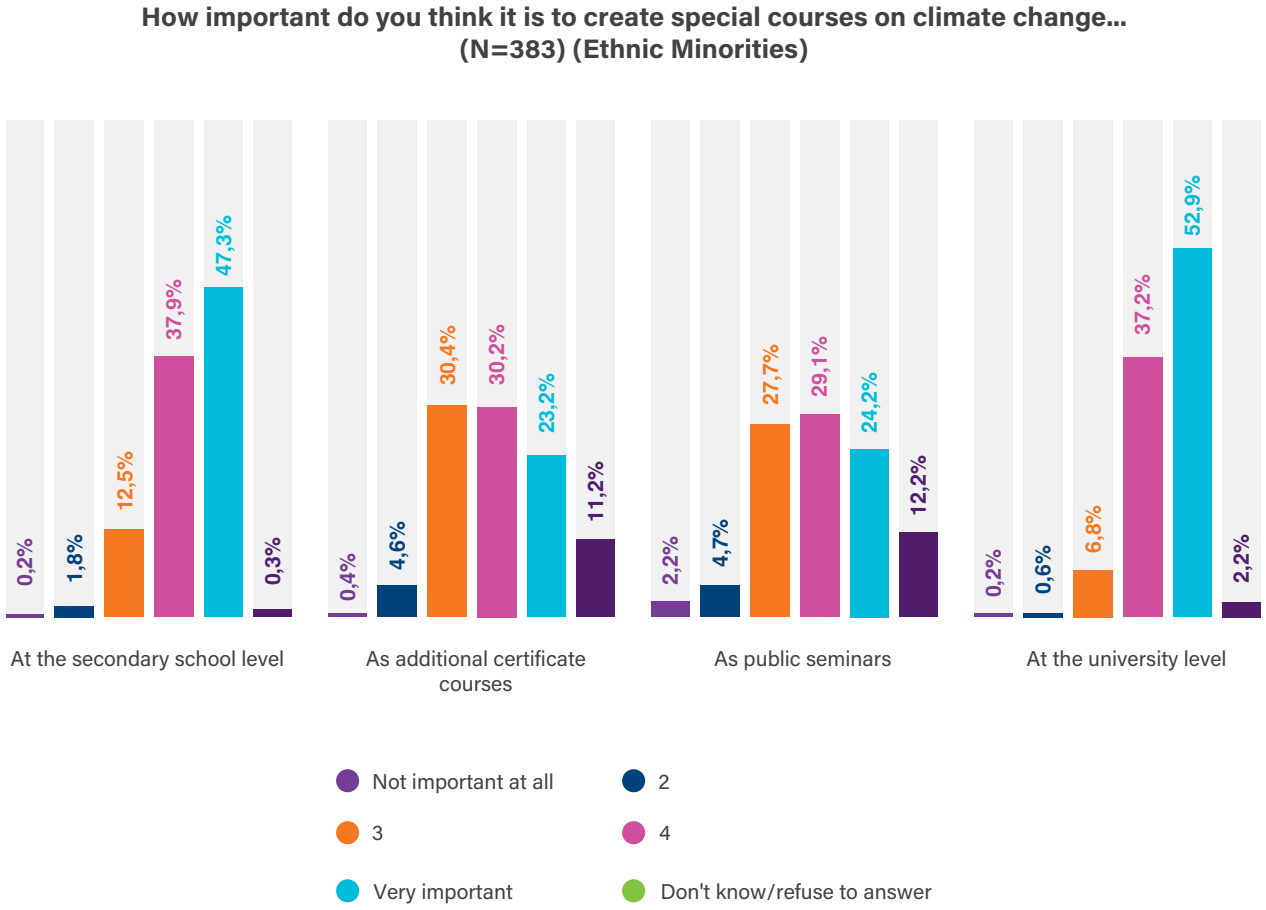
Analyzing the issue in terms of geographical areas/Tbilisi reveals that the population of West Georgia (93.5%) are the most likely to consider that offering special study courses on climate change in secondary schools is 'very important + more important than not', followed by Tbilisi at 79.8% and East Georgia at 89.1%. The share of those who believe that additional certificate courses should be developed for such educational programmes is relatively high in the capital (77%) (West - 72.8%; East - 66.9%). In addition, an almost equal number of respondents in Tbilisi and West Georgia approve of discussing climate change issues during public seminars. As for developing a university course on climate change, the idea is most favoured by respondents in East Georgia (90.1%) (Tbilisi - 82.8%; West Georgia - 82.9%). (Data are statistically reliable: $p<0.05$) (see Table #32).

Table #32

How important do you think it is to create special courses on climate change... (N=1259) (By the type of settlement)		Tbilisi	West Georgia	East Georgia
		%		
At the secondary school level (X^2=81.332)	Not important at all	1.9	-	0.7
	2	0.2	0.6	0.6
	3	17.5	4.9	7.1
	4	21.7	19.4	31.4
	Very important	58.1	74.1	57.7
	Don't know/Refuse to answer	0.5	1	2.5
As additional certificate courses (X^2=34.053)	Not important at all	2.1	3.1	1.7
	2	2.1	3.4	2.4
	3	15.2	17.1	18.7
	4	25.7	23.6	26.5
	Very important	51.3	49.2	40.4
	Don't know/Refuse to answer	3.6	3.6	10.3
As public seminars (X^2=39.173)	Not important at all	2.9	2.3	2.2
	2	2	2.4	2.1
	3	14.9	13.8	17.1
	4	26	24	27.2
	Very important	50.5	54.8	40.8
	Don't know/Refuse to answer	3.7	2.7	10.6
At the university level (X^2=39.984)	Not important at all	1.5	2.1	1.8
	2	1.9	2.1	0.3
	3	12.1	11.6	4.3
	4	24.6	20.2	30.1
	Very important	58.2	62.7	60
	Don't know/Refuse to answer	1.7	1.3	3.6

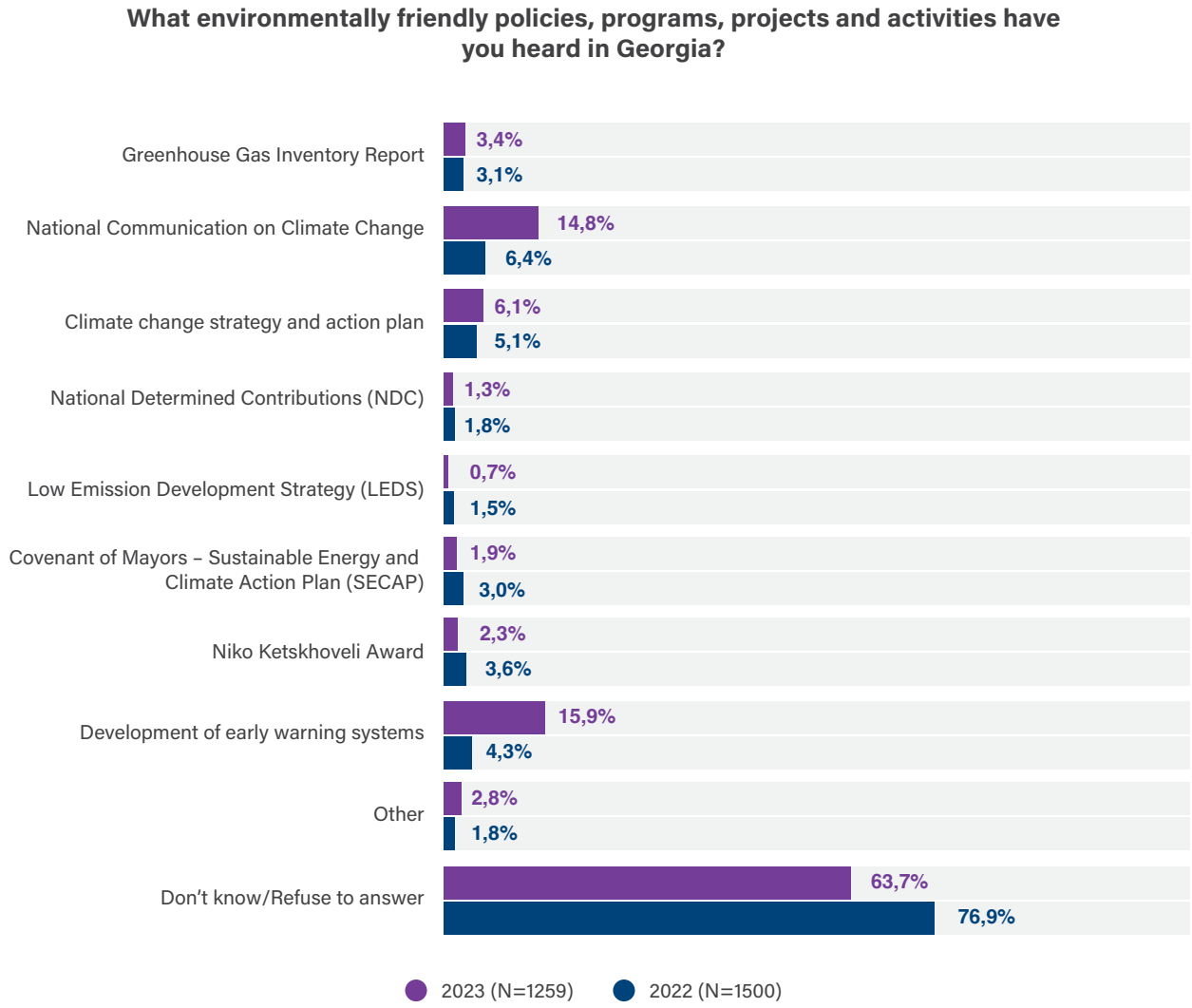
90.1% of ethnic minorities believe that it is 'very important + more important than not' to develop special courses on climate change and integrate them into university programmes. 85.1% express the same attitude towards teaching such a course in schools. Every other respondent agrees that it is important to teach climate change through certificate courses or public seminars (see Diagram #45).

Diagram #45



In addition to the above, based on the results of the 2023 research, public awareness about eco-friendly activities, programmes, projects, and policies implemented in Georgia is very low. Namely, in most of the cases, respondents say they have not heard of such activities (63.7%). (see Diagram #46).

Diagram #46



Analyzing the issue – which eco-friendly policies, programmes, projects, and activities respondents have heard of - in terms of the type of settlement shows that, compared to the previous round of the research, the level of awareness about the national communication on climate change has increased (2023: town - 15.7; village - 12.9%; 2022: town - 6.4%; village - 6.1%;); furthermore, there is a relative increase in the number of those who have heard about the early warning system (2023: town - 15.4%; village - 16.8%; 2022: town - 4.3%; village - 5.1%;). It should also be noted that in both rounds, the lack of awareness about the issue is noticeably prevalent in rural and urban settlements (Don't know/Refuse to answer - 2023: town - 60.5%; village - 70.4%; 2022: town - 77.6%; village - 76%;). (Data are statistically reliable: $X^2=34.034$; $p<0.05$) (see Table #33).

Table #33

What environmentally friendly policies, programmes, projects and activities have you heard in Georgia? (By the type of settlement)	2023 (N=1259)		2022 (N=1500)	
	Town (including Tbilisi)	Village	Town (including Tbilisi)	Village
	%			
Greenhouse Gas Inventory Report	4.8	0.6	3.1	3.1
National Communication on Climate Change	15.7	12.9	6.4	6.1
Climate change strategy and action plan	7.2	4.1	5.1	5.2
National Determined Contributions (NDC)	1.7	0.7	1.8	2
Low Emission Development Strategy (LEDS)	0.6	1	1.5	1.6
Covenant of Mayors – Sustainable Energy and Climate Action Plan (SECAP)	2.7	0.5	3	3.4
Niko Ketskhoveli Award	2.5	2	3.6	3.1
Dvelopment of early warning systems	15.4	16.8	4.3	5.1
Other	3.5	1.4	1.8	1.4
Don't know/Refuse to answer	60.2	70.4	77.6	76

In addition to the above, it is worth noting that compared to the previous round, the level of awareness about eco-friendly programmes, projects, and activities has increased significantly among those with higher education (2023 - 56.2%; 2022 - 72.7%;); as for those with different educational attainments, there is only a 7% increase. Moreover, in both target groups, the level of awareness about the national communication on climate change and the development of the early warning system has increased compared to last year. (Data are statistically reliable: $X^2=68.578$; $p<0.05$) (see Table #34).

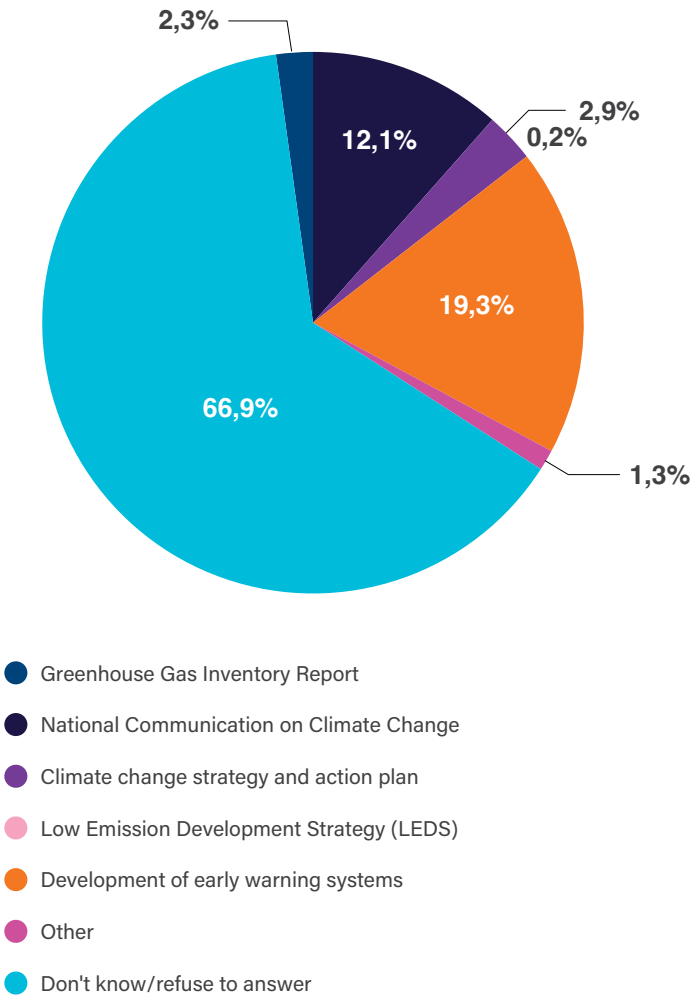
Table #34

What environmentally friendly policies, programmes, projects and activities have you heard in Georgia? (By education)	2023		2022	
	Higher education	Other	Higher education	Other
	%			
Greenhouse Gas Inventory Report	3.6	3.2	4.8	2
National Communication on Climate Change	16.5	13.7	7.7	5.6
Climate change strategy and action plan	8.2	4.7	6.8	4
National Determined Contributions (NDC)	1.4	1.3	1.1	2.2
Low Emission Development Strategy (LEDS)	0.9	0.6	2.3	1
Covenant of Mayors – Sustainable Energy and Climate Action Plan (SECAP)	3.8	0.7	3.3	2.9
Niko Ketskhoveli Award	4.8	0.8	5.1	2.7
Dvelopment of early warning systems	19	13.9	5	3.9
Other	2.7	2.8	2.2	1.6
Don't know/Refuse to answer	56.2	68.6	72.7	79.6

Among the eco-friendly policies, programmes, projects, and activities, ethnic minorities are the most likely to have information about (at least have heard of) the early warning system (19.3%). It should also be noted that the lack of awareness of the issue is rather common, which is substantiated by the high rate of the answer option, such as 'don't know/refuse to answer' - 66.9% (Diagram #47).

Diagram #47

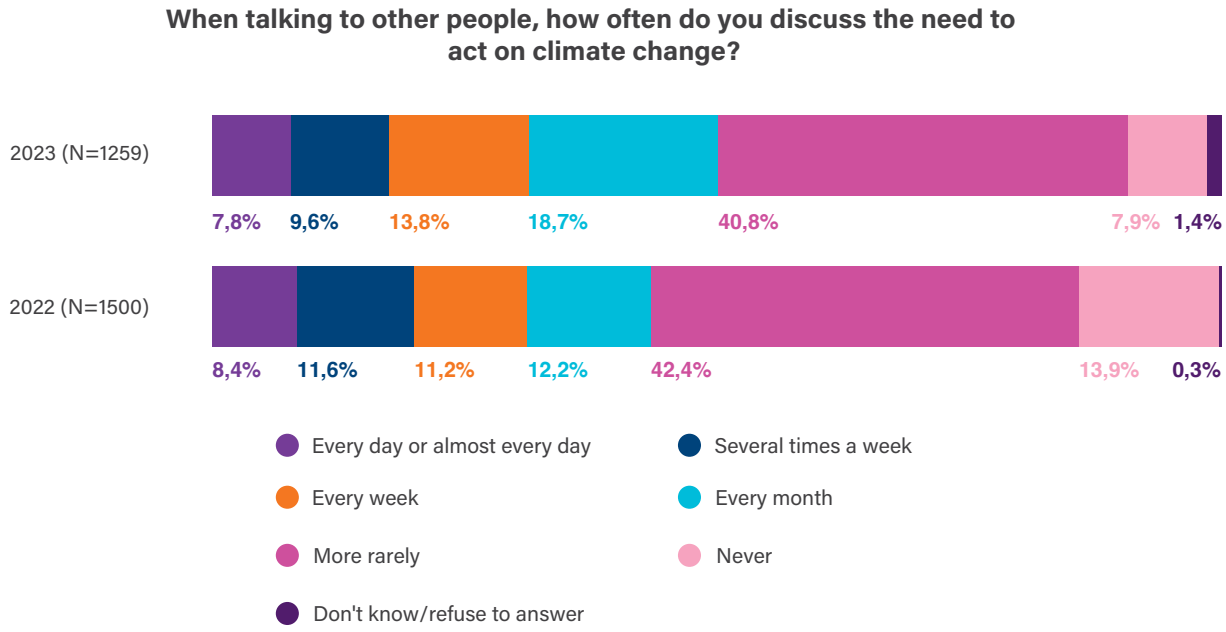
What environmentally friendly policies, programs, projects and activities have you heard in Georgia? (N=383) (Ethnic Minorities)



BEHAVIOUR

The next section of the questionnaire aims to evaluate respondents' behavior. The results suggest that 40.8% of those surveyed in 2023 discuss the need for action on climate change in their conversations with other people less than once a month (2022 - 42.4%). An average of 15% of respondents talk about the issue on a weekly or monthly basis, which, compared to the previous year, is a higher rate: 2022 - 11.5% on average. The smallest share discuss these issues with other people every day or almost every day: 2023 – 7.8%, 2022 – 8.4%. However, positive dynamics can be observed compared to last year. This is substantiated by the fact that while 13.9% of those surveyed in 2022 never mentioned the need to act on climate change, the percentage is down to 7.9% this year (see Diagram #48).

Diagram #48



Analyzing the issue in terms of age groups reveals that a considerable share of each group talk about the need to act on climate change less than every month:

- **18-24: 2023 - 47.5%, 2022 - 48.1%**
- **25-34: 2023 - 43.3%, 2022 - 48.8%**
- **35-44: 2023 - 41.9%, 2022 - 45.7%**
- **45-54: 2023 - 39%, 2022 - 32%**
- **55-65: 2023 - 33%, 2022 - 38.3%**

It should also be noted that while in 2022, 88.5% of respondents aged between 55 and 65 mentioned the said issue at least sometimes, in 2023, the age group of 35-45 prevails in this regard (93.1%). However, on the other hand, it is worth noting that 12.9% of those aged between 55 and 65 emphasize the need to act on climate change every day or almost every day (2022 - 10.2%) (Data are statistically reliable: $X^2=78268$, $p<0.05$) (see Table #35).

Table #35

When talking to other people, how often do you discuss the need to act on climate change? (By age) (%)		Every day or almost every day	Several times a week	Every week	Every month	More rarely	Never	Don't know/Refuse to answer
18-24	2023 (N=1053)	1.9	7.2	15.1	9.6	47.5	17.4	1.4
	2022 (N=1500)	6.3	10.1	8.1	12.2	48.1	15.2	-
25-34	2023 (N=1053)	5	8.2	14.8	18.3	43.3	10.3	-
	2022 (N=1500)	4.7	9.4	v8	12.4	48.8	16.4	0.3
35-44	2023 (N=1053)	6.6	9.6	15	19.9	41.9	5	1.9
	2022 (N=1500)	7	11	10.3	11.1	45.7	14.6	0.3
45-54	2023 (N=1053)	9.8	8.6	11.6	23.9	39	5.1	2
	2022 (N=1500)	13.5	15.3	15.7	11.2	32	11.6	0.6
55-65	2023 (N=1053)	12.9	11.3	17.7	17.6	33	5.2	2.2
	2022 (N=1500)	10.2	12	13.6	14.4	38.3	11.5	-

While in 2022, over one-tenth of those with (13.4%) and without (14.2%) higher education each never talked about the need to act on climate change, the share is 8% on average in 2023: higher education - 7.1%, other (non-higher education) - 8.4%. Research results from both rounds suggest that respondents with a higher education degree are more likely to discuss these issues in their conversations with others (with any frequency) compared to those without higher education:

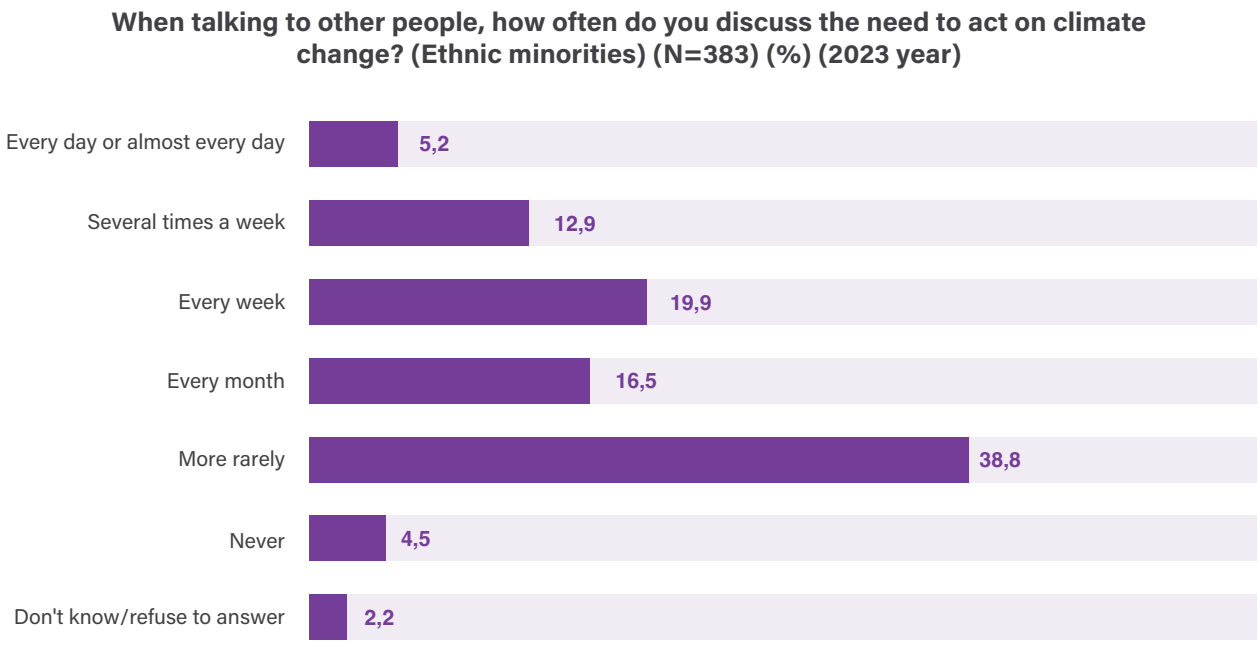
- **Higher education:** 2023 - 92.8%, 2022 - 86.4%
- **Other (non-higher education):** 2023 - 89.4%, 2022 - 85.5% (see Table #36).

Table #36

When talking to other people, how often do you discuss the need to act on climate change? (By educational attainment) (%)		Every day or almost every day	Several times a week	Every week	Every month	More rarely	Never	Don't know/Refuse to answer
Higher education	2023 (N=1259)	7.7	7.9	14.8	20	42.3	7.1	02
	2022 (N=1500)	6.3	11	11.9	13.8	43.4	13.4	0.2
Other	2023 (N=1259)	7.8	10.7	13.1	17.8	39.9	8.4	2.2
	2022 (N=1500)	9.7	12	10.8	11.2	41.7	14.2	0.3

Over a third of ethnic minorities (38.8%) discuss the need to act on climate change in their conversations with others very rarely; every fifth respondent (19.9%) talks about these issues every week, and 16.5% - every month. The share of those who discuss climate-related issues several times a week is more than one-tenth of respondents (12.9%) (see Diagram #49).

Diagram #49



More than a quarter (28.8%) of those living in urban settlements do not practice any behavior to mitigate climate change and protect the environment. The previous year's survey did not have this answer option. In 2022, the share of those who practiced tree planting (30.1%) was particularly high, whilst almost every fifth respondent protected the environment by reducing energy consumption (19.5%). In 2023, these two practices prevail, as well: reducing energy consumption - 17.4%, planting trees - 18.5%. While over a tenth of respondents of the 2022 survey commuted by public transport (14%), cycled and walked (13.8%), or separated waste and then took it for recycling (10.8%), the rate of such practices is down to 6% in 2023:

- Commuting by public transport - 6.8%
- Cycling and walking - 6%
- Separating waste (paper, glass, plastic, etc.) for recycling - 5.5%

This result can be due to the fact that the 2022 survey did not have the answer option 'I do not practice any behavior,' whilst it is the option most frequently selected by respondents in 2023 (see Table #37).

Table #37

What behaviours do you practice to mitigate climate change and protect the environment? (%)	Urban settlement	
	2023 (N=826)	2022 (N=884)
Saving energy	17.4	19.5
Planting trees	18.5	30.1
Using public transport	6.8	14
Using a bicycle or walking as a means of transport	6.0	13.8
Using energy efficient household appliances	3.5	2.8
Driving an electric car	3.2	0.9
Separating waste (paper, glass, plastic, etc.) and taking it for further recycling	5.5	10.8
Saving water	7.6	5.4
I don't practice such behaviour	28.8	-
Other	0.7	0.5
Don't know/Refuse to answer	1.9	2.1

As for the practices undertaken in rural (villages) settlements to protect the environment, based on the data from 2022 and 2023, the dominant behavior is planting trees: 2023 - 37.2%, 2022 - 64.9%. It should also be noted that in 2023, almost a quarter of those surveyed in the villages (24%) do not practice any behavior to mitigate climate change – in 2022, this answer option was absent. This year, over one-tenth (13.3%) insulate their homes and use less firewood (2022 - 5%) (see Table #38).

Table #38

What behaviours do you practice to mitigate climate change and protect the environment? (%)	Rural settlements	
	2023 (N=432)	2022 (N=616)
Saving energy	37.2	64.9
Using energy efficient stoves and dry firewood	1.9	5.1
Using solar panels for electricity	8.5	2.6
Using modern biomass briquettes, pallets	1	0.7
Optimum use of fertilizers	2.7	4.7
Insulating the house and using less firewood	13.3	5
Moderate use of water resources	7.5	7.9
I don't practice such behaviour	24	-
Other	0.5	1.7
Don't know/Refuse to answer	3.4	7.4

26.8% of respondents surveyed in urban settlements of West Georgia do not practice any behavior to mitigate climate change; the share is 18.3% among the urban population of East Georgia. On the other hand, in urban areas of both East and West Georgia, the most common practices are planting trees (East Georgia - 23.8%, West Georgia - 24.6%) and reducing energy consumption (East Georgia - 21.2%, West Georgia - 14.3%). It should also be noted that 35.5% of Tbilisi residents do not practice any behavior, which is the dominant position, followed by reducing energy consumption (17.1%) and planting trees (12.3%). (Data are statistically reliable: $X^2=94097$, $p<0.05$) (see table #39).

Table #39

What behaviours do you practice to mitigate climate change and protect the environment? (By geographical area) (%) (2023)	Urban settlement (N=826)		
	Tbilisi	West Georgia	East Georgia
Saving energy	17.1	14.3	21.2
Planting trees	12.3	24.6	23.8
Using public transport	9.3	4.6	4.4
Using a bicycle or walking as a means of transport	1.7	8.8	v11
Using energy efficient household appliances	3.5	3.6	3.4
Driving an electric car	2.8	1.2	5.7

Separating waste (paper, glass, plastic, etc.) and taking it for further recycling	5.8	7.9	2.8
Saving water	9.3	3.8	8.5
I don't practice such behaviour	35.5	26.8	18.3
Other	1.3	-	0.5
Don't know/Refuse to answer	1.4	4.3%	0.5

As for the rural settlements, in the villages of West Georgia, tree planting is a very common practice reported by almost every other respondent (46.9%). In East Georgia, on the other hand, the share of those who plant trees to protect the environment is 29.4%; insulating houses and using less firewood (22.8%, West Georgia - 1.6%) is a more common practice there. (Data are statistically reliable: $X^2=58681$, $p<0.05$) (see Table #40).

Table #40

What behaviours do you practice to mitigate climate change and protect the environment? (By geographical area) (%) (2023)	Rural settlement (N=432)	
	West Georgia	East Georgia
Planting trees	46.9	29.4
Using energy efficient stoves and dry firewood	2.9	1.1
Using solar panels for electricity	6.5	10.2
Using modern biomass briquettes, pallets	1.3	0.8
Optimum use of fertilizers	4.4	1.3
Insulating the house and using less firewood	1.6	22.8
Moderate use of water resources	4.3	10.1
I don't practice such behaviour	27.7	21
Other	0.6	0.4
Don't know/Refuse to answer	3.8	3

The largest share of ethnic minorities living in urban settlements do not practice any behaviour to mitigate climate change (25.7%, N=19). In this category, consistent with the general trend, reducing energy consumption (22%, N=16) and planting trees (15.7%, N=11) prevail. The share of those who use energy-efficient household appliances is very small (2.5%, N=2) (see Table #41).

Table #41

What behaviours do you practice to mitigate climate change and protect the environment? (Urban settlements) (Ethnic minorities)	2023 (N=71) (%)
Saving energy	22 (N=16)
Planting trees	15.7 (N=11)
Using public transport	8.6 (N=6)
Using a bicycle or walking as a means of transport	6.5 (N=5)
Using energy efficient household appliances	2.5 (N=2)
Driving an electric car	8.0 (N=6)
Separating waste (paper, glass, plastic, etc.) and taking it for further recycling	4.3 (N=3)
Saving water	6.6 (N=5)
I don't practice such behaviour	25.7 (N=19)

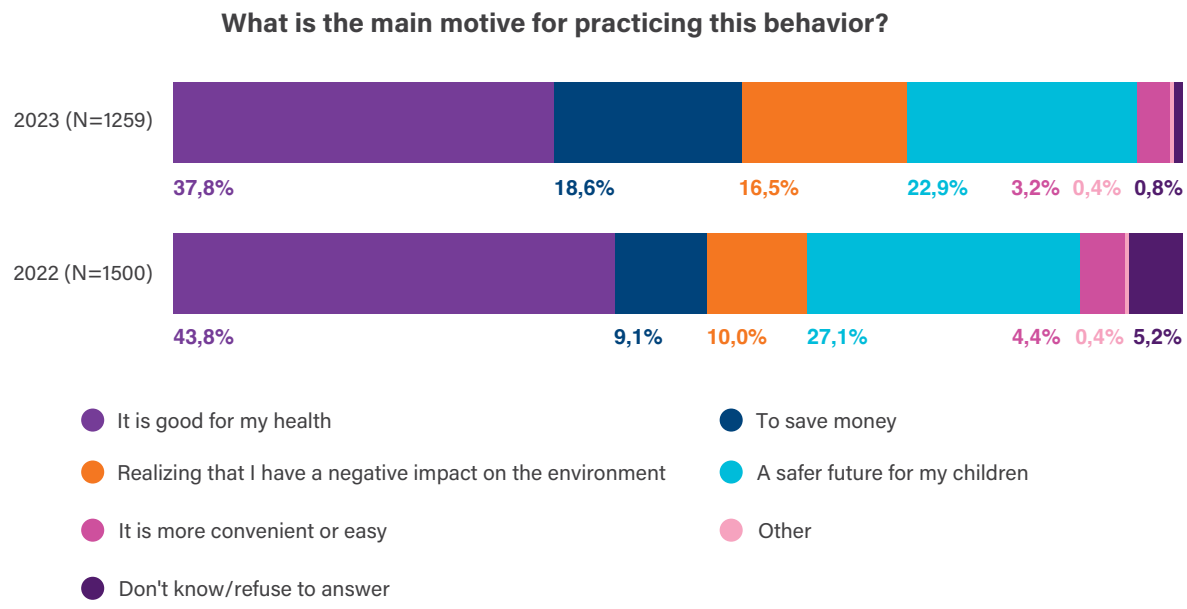
In rural settlements, one-fifth of ethnic minorities (20%) protect the environment by planting trees, and 16.2% - by insulating homes and using less firewood. The share of those who use solar panels (14.7%) or reduce water consumption (11.3%) is over one-tenth of respondents each. It should also be noted that almost one-fifth of ethnic minorities (19.8%) living in the villages do not practice any behavior to mitigate climate change (see Table #42).

Table #42

What behaviours do you practice to mitigate climate change and protect the environment? (Rural settlements) (Ethnic minorities)	2023 (N=311) (%)
Planting trees	20.0
Using energy efficient stoves and dry firewood	1.4
Using solar panels for electricity	14.7
Using modern biomass briquettes, pallets	1.5
Optimum use of fertilizers	10.3
Insulating the house and using less firewood	16.2
Moderate use of water resources	11.3
I don't practice such behaviour	19.8
Don't know/Refuse to answer	4.9

The main motive for practicing the above-mentioned behaviours aimed at mitigating climate change and protecting the environment is health concerns (2023 - 37.8%, 2022 - 43.8%), followed by the safe future for their children: 2023– 22.9%, 2022 - 27.1%. It should be noted that in 2022, one-tenth of respondents, on average, reported that the main driver was to reduce expenses (9.1%) or recognizing that they had a negative impact on the environment (10%); in 2023, the share exceeds 15% in each case: reducing expenses 18.6%, recognizing that they (respondents) had a negative impact on the environment - 16.5% (see Diagram #50).

Diagram #50



Significant statistical differences emerge between age groups in terms of motives behind their behavior (X^2=58030, p<0.05). A large share of respondents identify protecting their health as their main motive:

- **18-24:** 2023 - 56%, 2022 - 46.8%
- **25-34:** 2023 - 33.3%, 2022 - 42.5%
- **35-44:** 2023 - 33.1%, 2022 - 45.4%
- **45-54:** 2023 - 32.1%, 2022 - 43.8%
- **55-65:** 2023 - 37.6%, 2022 - 41.1%

In both rounds, the higher the age category, the more frequent it is for respondents to identify protecting their children's future as their motive. This is a totally logical outcome, considering that older respondents are more likely to have children than those aged between 18 and 24.

- **18-24:** 2023 - 5.7%, 2022 - 10.4%
- **25-34:** 2023 - 24.1%, 2022 - 26.3%
- **35-44:** 2023 - 25.3%, 2022 - 31.5%
- **45-54:** 2023 - 24.7%, 2022 - 29.5%
- **55-65:** 2023 - 23.6%, 2022 - 34.4%

In addition, in 2023, more respondents in each age category identify reducing expenses as their motive than in 2022 (see Table #43).

Table #43

What is the main motive for practicing this behavior? (By age) (%)		It is good for my health	To save money	Realizing that I have a negative impact on the environment	A safer future for my children	It is more convenient or easy	Other	Don't know/Refuse to answer
18-24	2023 (N=1053)	56	14.8	14.5	5.7	6.8	-	2.3
	2022 (N=1500)	46.8	9.1	19.4	10.4	7.4	0.6	6.2
25-34	2023 (N=1053)	33.3	18	18.3	24.1	5.1	-	1.2
	2022 (N=1500)	42.5	8.6	11.1	26.3	4.7	0.4	6.4
35-44	2023 (N=1053)	33.1	19.3	17.5	25.3	2.8	1.5	0.5
	2022 (N=1500)	45.4	9	5.6	31.5	2.3	0.6	5.7
45-54	2023 (N=1053)	32.1	17.5	22	24.7	3.6	-	-
	2022 (N=1500)	43.8	8.1	9.7	29.5	4.5	0.4	4.2
55-65	2023 (N=1053)	37.6	20.5	15.3	23.6	2.1	0.5	0.5
	2022 (N=1500)	41.1	11.1	5.9	34.4	3.8	0.3	3.5

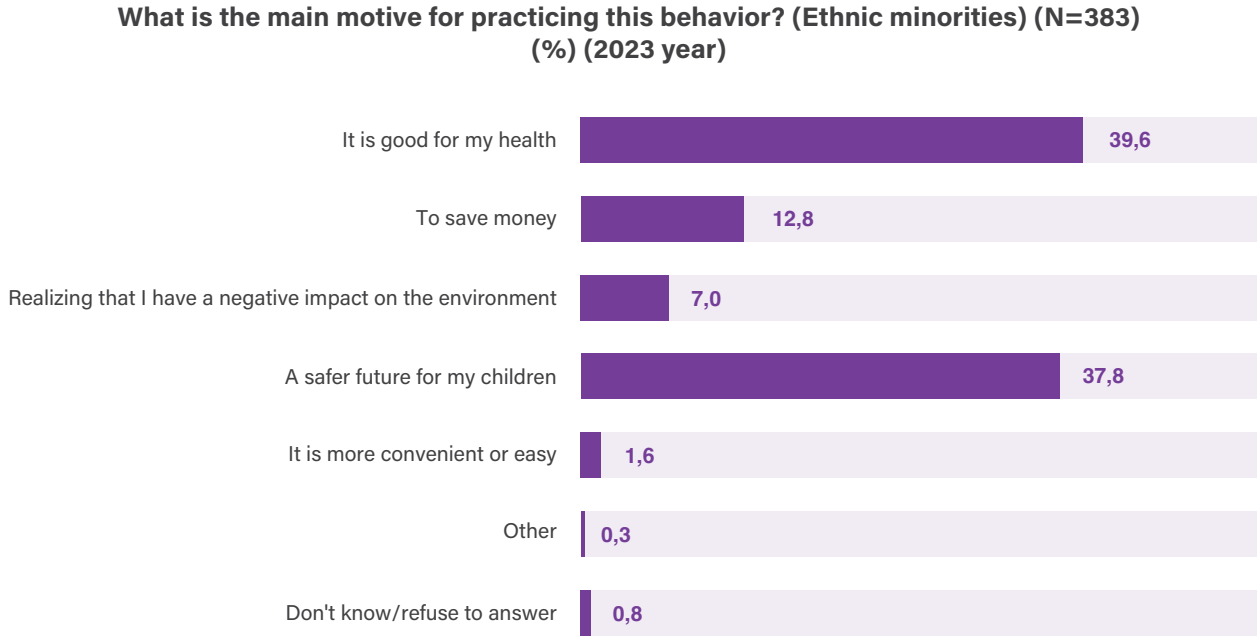
In terms of educational attainment, the general trend is maintained in regard to motives. However, it should be noted that other than health concerns, one-fifth of those without higher education (20.5%) note that the main motive behind actions undertaken to mitigate climate change is to reduce expenses; the same is reported by 15.5% of respondents with higher education. Over one-fifth (21%) of the latter group practice a certain behavior because they realize they have a negative impact on the environment (data are statistically reliable: X^2=15194, p<0.05). In the previous round, no significant differences were observed between the target groups in terms of educational attainment. In 2022, a significantly large share identified health concerns as the main motive (higher education - 44.4%, other - 43.4%); this indicator decreases in 2023, as more importance is attached to other above-mentioned categories (see Table #44).

Table #44

What is the main motive for practicing this behavior? (By educational attainment) (%)		It is good for my health	To save money	Realizing that I have a negative impact on the environment	A safer future for my children	It is more convenient or easy	Other	Don't know/Refuse to answer
Higher education	2023 (N=1259)	37.1	15.5	21	20.4	4.4	0.4	1.2
	2022 (N=1500)	44.4	8.4	11.5	25.9	4.8	0.1	4.8
Other	2023 (N=1259)	38.2	20.5	13.6	24.4	2.4	0.3	0.5
	2022 (N=1500)	43.4	9.6	8.9	27.8	4.2	0.6	5.4

Consistent with general trends, protecting one's health (39.6%) and their children's future (37.8%) are identified as the main motives behind environmentally friendly activities by ethnic minorities. The share of those who say the main driver is reducing expenses exceeds one-tenth (12.8%) (see Diagram #51).

Diagram #51



In order to examine individual behavior thoroughly, respondents were presented with different situations. They were asked to determine what they would do in each case. Based on the results, a considerable portion of respondents choose the correct option. Almost every other respondent (49.8%) believes that if the region faces extreme temperatures due to climate change, instead of purchasing air conditioners, they would fund educational programmes on safety measures to protect oneself from heat. Air-conditioning systems harm the environment; hence, the respondents would take the right action.

A further indication of respondents' positive behavior is that 47.5% of them would not agree with the participant of a seminar on climate change awareness who claims that individual actions do not have a significant impact on climate change. This suggests that the main portion of respondents are well aware that individual behavior affects the environment.

Furthermore, the majority of respondents (62.6%) correctly believe that in order to reduce energy consumption, it is better to spend rather than save on purchasing panels, insulation, and new windows.

Given the above, the main share of respondents would act correctly in different situations in order to protect the environment (see Table #45).

Table #45

Imagine: you work for a local government in an area experiencing extreme heat due to climate change. The budget is limited and you have to make a decision whether to fund air conditioning systems in public buildings or educational programmes on safety measures to protect oneself from heat for the community/ neighbourhood. What decision would you make? (%) (2023)	
I would fund air conditioning systems for public buildings	31.1
I would fund educational programmes on safety measures to protect oneself from heat	49.8
Don't know/Refuse to answer	19.1
Imagine: you are leading a seminar on climate change awareness. One of the participants is claiming that individual actions, such as reducing energy consumption, will not have a significant impact on climate change. What would your position be? (%) (2023)	
I will agree with the participant that individual actions will not have a significant impact on climate change	29.5
I will not agree with the participant that individual actions will not have a significant impact on climate change	47.5
Don't know/Refuse to answer	23
Imagine: you want to make your home more energy efficient, which is possible by installing solar panels, insulation or new windows. This requires expenses but will reduce your energy consumption and by extension, your future monthly energy costs. What decision would you make? (%) (2023)	
I would spend/save money to purchase panels, insulation or new windows	62.6
I would not use my money/savings for panels, insulation or windows, as I have other priorities	22.3
Don't know/Refuse to answer	15.1

Analyzing the issue in terms of the type of settlement produces statistically reliable differences. A considerable portion of respondents in urban (50.3%) and rural (42.1%) areas would not agree with one of the participants of the seminar who claims that individual actions will not have a significant impact on climate change. However, it should be noted that almost one-third of rural residents (30.3%) find it hard to give a specific answer. (Data are statistically reliable: $X^2=6595$, $p<0.05$).

In both types of settlements, the majority of respondents would save/spend money to purchase panels, insulation, or new windows to make the house energy efficient: town (including Tbilisi) - 61.5%, village - 64.8%. In urban areas, almost a quarter (23.9%) would not spend on purchasing insulation or new windows because they have other priorities (village - 19.2%). (Data are statistically reliable: $X^2=8217$, $p<0.05$) (see Table #46).

Table #46

Statements (By the type of settlement) (%) (2023)	Town (including Tbilisi)	Village
Imagine: you are leading a seminar on climate change awareness. One of the participants is claiming that individual actions, such as reducing energy consumption, will not have a significant impact on climate change. What would your position be?		
I will agree with the participant that individual actions will not have a significant impact on climate change	30.5	27.7
I will not agree with the participant that individual actions will not have a significant impact on climate change	50.3	42.1
Don't know/Refuse to answer	19.2	30.3
Imagine: you want to make your home more energy efficient, which is possible by installing solar panels, insulation or new windows. This requires expenses but will reduce your energy consumption and by extension, your future monthly energy costs. What decision would you make?		
I would spend/save money to purchase panels, insulation or new windows	61.5	64.8
I would not use my money/savings for panels, insulation or windows, as I have other priorities	23.9	19.2
Don't know/Refuse to answer	14.6	15.9

Analyzing the issue in terms of educational attainment reveals that although a sizeable portion of both target groups opt for correct scenarios when it comes to the environment and climate, the share is much larger among respondents with higher education and constitutes a majority – 59% of this group say that if they were a local government authority, in the case of extreme heat, they would prioritize raising the awareness of the community/neighbourhood and would fund educational programmes on measures to protect oneself from heat from the limited budget; the share is down to 43.9% among those without higher education. A quarter of the latter group finds it hard to provide a specific answer. (Data are statistically reliable: $X^2=58268$, $p<0.05$).

Further to the above, 55.9% of respondents with higher education would not agree with the participant of the seminar who claims that individual actions do not have an impact on climate change (non-higher education - 42.1%). In this case, too, over a quarter of those without higher education either do not or cannot specify their opinion. (Data are statistically reliable: $X^2=49072$, $p<0.05$).

The majority of respondents with (67.1%) and without (59.7%) higher education would spend money on purchasing panels, insulation or new windows. (Data are statistically reliable: $X^2=11819$, $p<0.05$) (see Table #47).

Table #47

Statements (N=1259) (By educational attainment) (%) (2023)	Higher education	Other
Imagine: you work for a local government in an area experiencing extreme heat due to climate change. The budget is limited and you have to make a decision whether to fund air conditioning systems in public buildings or educational programmes on safety measures to protect oneself from heat for the community/ neighbourhood. What decision would you make?		
I would fund air conditioning systems for public buildings	32.1	30.5
I would fund educational programmes on safety measures to protect oneself from heat	59	43.9
Don't know/Refuse to answer	8.9	25.7
Imagine: you are leading a seminar on climate change awareness. One of the participants is claiming that individual actions, such as reducing energy consumption, will not have a significant impact on climate change. What would your position be?		
I will agree with the participant that individual actions will not have a significant impact on climate change	31.3	28.4
I will not agree with the participant that individual actions will not have a significant impact on climate change	55.9	42.1
Don't know/Refuse to answer	12.8	29.5
Imagine: you want to make your home more energy efficient, which is possible by installing solar panels, insulation or new windows. This requires expenses but will reduce your energy consumption and by extension, your future monthly energy costs. What decision would you make?		
I would spend/save money to purchase panels, insulation or new windows	67.1	59.7
I would not use my money/savings for panels, insulation or windows, as I have other priorities	22	22.5
Don't know/Refuse to answer	10.9	17.8

The tendency of opting for decisions that benefit the environment is maintained among ethnic minorities too – a) 39.5% would fund programmes on measures to protect oneself from heat, b) 42% would not agree with the seminar participant who claimed that individual actions do not impact the environment, and c) 52.3% would save money to purchase panels, insulation and new windows. However, it should be noted that in the case of the first two scenarios, 31% refuse or find it hard to provide a specific answer (see Table #48).

Table #48

Ethnic minorities (N=383) (%) (2023)	
Imagine: you work for a local government in an area experiencing extreme heat due to climate change. The budget is limited and you have to make a decision whether to fund air conditioning systems in public buildings or educational programmes on safety measures to protect oneself from heat for the community/ neighbourhood. What decision would you make?	
I would fund air conditioning systems for public buildings	33.5
I would fund educational programmes on safety measures to protect oneself from heat	39.5
Don't know/Refuse to answer	26.9

Ethnic minorities (N=383) (%) (2023)	
Imagine: you are leading a seminar on climate change awareness. One of the participants is claiming that individual actions, such as reducing energy consumption, will not have a significant impact on climate change. What would be your position?	
I will agree with the participant that individual actions will not have a significant impact on climate change	21.8
I will not agree with the participant that individual actions will not have a significant impact on climate change	42
Don't know/Refuse to answer	36.3
Imagine: you want to make your home more energy efficient, which is possible by installing solar panels, insulation or new windows. This requires expenses but will reduce your energy consumption and by extension, your future monthly energy costs. What decision would you make?	
I would spend/save money to purchase panels, insulation or new windows	52.3
I would not use my money/savings for panels, insulation or windows, as I have other priorities	29.7
Don't know/Refuse to answer	18

A considerable portion of respondents demonstrate correct attitudes towards the next hypothetical situations. For example, if there is a factory in the vicinity of the city where a large share of the population is employed, but it generates large amounts of greenhouse gases and industrial waste, 68.8% of respondents would demand the factory to suspend its operations until it complied with environmental safety regulations (e.g., installing a filter).

Furthermore, if a private company were to procure a plot of land and decide to clear the forested land to make space for a building, 69.6% would demand to tighten the existing forest regulations to prohibit the owner from cutting down the forest.

58.3% of respondents would not support building a hydropower plant on the riverbed, which, on the one hand, would create jobs but, on the other, endanger the local ecosystem even though the power plant could have a positive economic impact on the community.

An average of one-fifth of respondents would make a decision not beneficial for climate change mitigation and environmental protection in the above-mentioned situations; however, the prevailing attitudes confirm that most of the respondents have a correct understanding of the issue (see Table #49).

Table #49

There is a factory near the city with an important place in the industry, which employs a large share of the city's residents. On the other hand, the factory produces large amounts of emissions and industrial waste that are harmful to the health of the residents. What would you do in this situation? (%) (2023)	
I would not do anything because the employment of the local population is a priority	19.2
I would demand the factory to suspend its operations until it complied with environmental safety regulations (e.g., installing a filter).	68.8
Don't know/Refuse to answer	12
A private company has purchased a plot of land and plans to clear the forested area to make space for a building. The local population is dissatisfied with the decision; however, they think it is pointless to have a dispute with the owner. What would you do/what would be your position? (%) (2023)	
An owner is entitled to act as he sees fit with his property as long as he does not violate the law/regulations	18
I would demand to tighten the existing forest regulations to prohibit the owner from cutting down the forest	69.6
Don't know/Refuse to answer	12.5
It is planned to build a hydropower plant on the riverbed. On the one hand, it will create a new source of electricity and jobs for the local population, but on the other, it will endanger the local ecosystem. What would you do/what would be your position? (%) (2023)	
I would support the construction of the hydropower plant because it will generate more electricity, create jobs for the population, etc.	25.1
I would not support the construction of the hydropower plant because the changes it will cause in the ecosystem are far more harmful to the environment and the population.	58.3
Don't know/Refuse to answer	16.6

Analyzing the issue in terms of geographical areas shows that main trends are maintained; however, differences between different locations can still be observed. If a private person were to buy a plot of land and decide to clear the forested land to make space for construction, a vast majority of those surveyed in East Georgia (82.9%) would demand to tighten the existing forest regulations. 66.3% of Tbilisi residents confirm they would do the same. This is the case with the majority of those living in West Georgia, but the share is down to 57.9%. 24.6% of those surveyed in the latter area would not react to the situation at all because, in their opinion, an owner is entitled to act as he sees fit with his property as long as he does not violate the law. (Data are statistically reliable: $X^2=67067$, $p<0.05$).

55.7% of Tbilisi residents would not support the construction of a hydropower plant on the river bed because it would harm the community by changing the ecosystem even though the plant, on the one hand, would create a new source of electricity and, on the other, employment opportunities for the local population. 64.1% of those in East Georgia would do the same. Although the majority of the population in West Georgia would also take the same decision, the share is down by 10% (54.2%). Almost every third respondent in the latter geographic area (30.3%) is in favour of building a hydropower plant on the river bed because of the opportunities it can produce – a source of energy and employment possibilities. The results suggest that, in this case, the environment is not a priority. (Data are statistically reliable: $X^2=20699$, $p<0.05$) (see Table #50).

Table #50

Hypothetical situations (by geographical area) (N=1259) (%) (2023)	Tbilisi	West Georgia	East Georgia
A private company has purchased a plot of land and plans to clear the forested area to make space for a building. The local population is dissatisfied with the decision; however, they think it is pointless to have a dispute with the owner. What would you do/what would be your position?			
An owner is entitled to act as he sees fit with his property as long as he does not violate the law/regulations	19.5	24.6	10.6
I would demand to tighten the existing forest regulations to prohibit the owner from cutting down the forest.	66.3	57.9	82.9
Don't know/Refuse to answer	14.2	17.5	6.5
It is planned to build a hydropower plant on the riverbed. On the one hand, it will create a new source of electricity and jobs for the local population, but on the other, it will endanger the local ecosystem. What would you do/what would be your position?			
I would support the construction of the hydropower plant because it will generate more electricity, create jobs for the population, etc.	28.1	30.3	17.8
I would not support the construction of the hydropower plant because the changes it will cause in the ecosystem are far more harmful to the environment and the population.	55.7	54.2	64.1
Don't know/Refuse to answer	16.2	15.5	18.1

62.1% of those with higher education and 55.8% of those with different educational attainment would not support the construction of a hydropower plant on the river bed because they are aware of the harm it can inflict on the ecosystem and, by extension, on the population. An average of 25% of both target groups believe that it is necessary to build a hydropower plant to create a new source of electricity and employment opportunities: higher education - 25.3%, other - 24.9%. It should also be noted that almost one-fifth of those without higher education (19.3%) find it hard or refuse to specify their position. (Data are statistically reliable: $X^2=10179$, $p<0.05$) (see Table #51).

Table #51

It is planned to build a hydropower plant on the riverbed. On the one hand, it will create a new source of electricity and jobs for the local population, but on the other, it will endanger the local ecosystem. What would you do/what would be your position? (By educational attainment) (N=1259) (%) (2023)	Higher	Other
I would support the construction of the hydropower plant because it will generate more electricity, create jobs for the population, etc.	25.3	24.9
I would not support the construction of the hydropower plant because the changes it will cause in the ecosystem are far more harmful to the environment and the population.	62.1	55.8
Don't know/Refuse to answer	12.6	19.3

A clear majority of ethnic minorities agree that they would a) demand the factory, which produces a large amount of greenhouse gas and industrial waste, to suspend its operations until environmental protection is ensured (65.1%), b) demand to tighten the existing forest regulations to stop the private company from clearing the forested land for construction. On the other hand, when it comes to building a hydropower plant on the river bed, even though 47.3% would not support it because the plant would harm the environment and the population by changing the ecosystem, over a quarter of this target group (27.3%) would be in favour for the sake of creating new sources of energy and employment opportunities. 25.4% cannot provide a specific answer (see Table #52).

Table #52

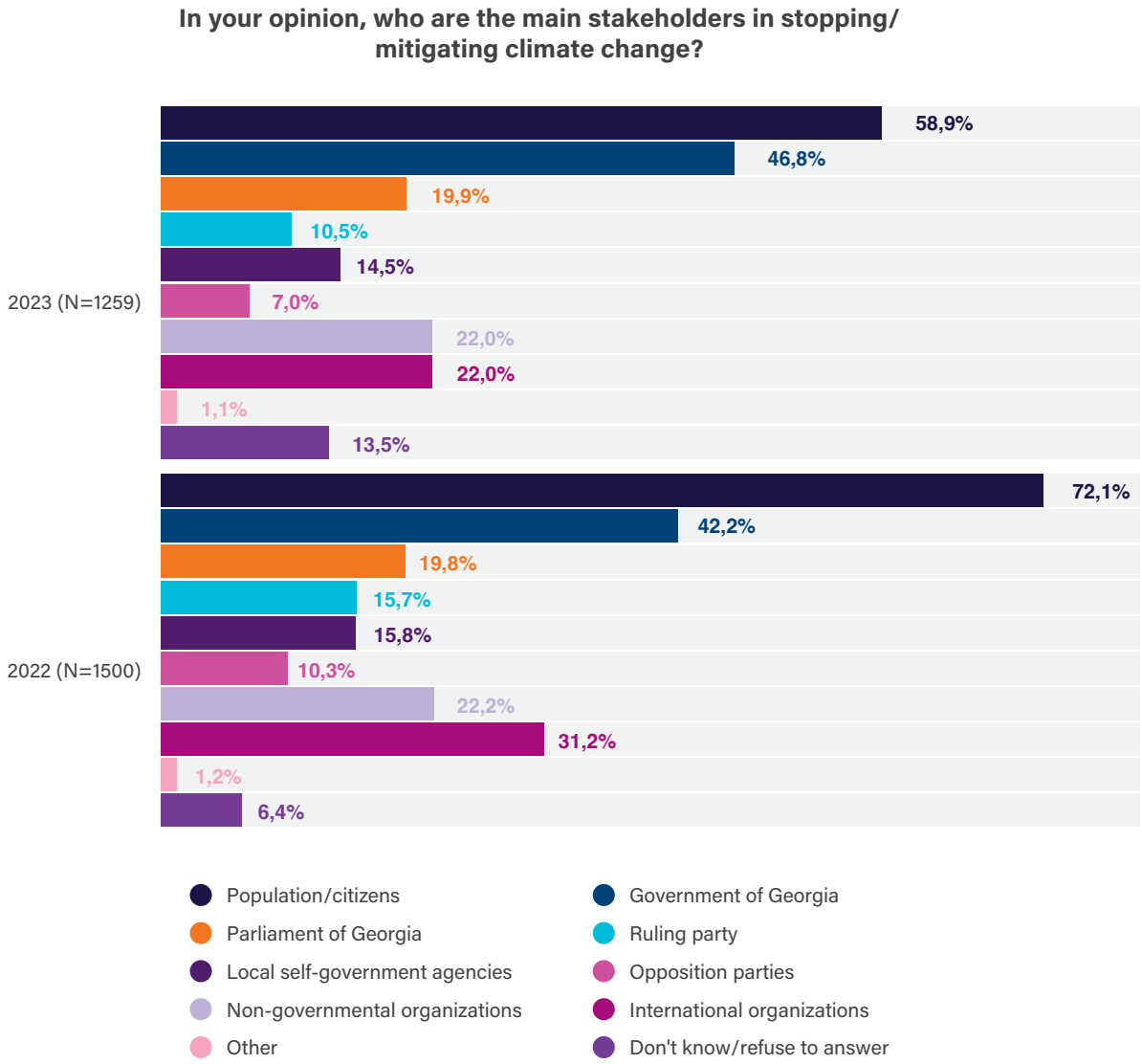
Ethnic minorities (N=383) (%) (2023)	
There is a factory near the city with an important place in the industry, which employs a large share of the city's residents. On the other hand, the factory produces large amounts of emissions and industrial waste that are harmful to the health of the residents. What would you do in this situation?	
I would not do anything because the employment of the local population is a priority	26.4
I demand the factory to suspend its operations until it complied with environmental safety regulations (e.g., installing a filter).	65.1
Don't know/Refuse to answer	8.4
A private company has purchased a plot of land and plans to clear the forested area to make space for a building. The local population is dissatisfied with the decision; however, they think it is pointless to have a dispute with the owner. What would you do/what would be your position?	
An owner is entitled to act as he sees fit with his property as long as he does not violate the law/regulations	18.0
I would demand to tighten the existing forest regulations to prohibit the owner from cutting down the forest.	71.8
Don't know/Refuse to answer	10.2

Ethnic minorities (N=383) (%) (2023)	
It is planned to build a hydropower plant on the riverbed. On the one hand, it will create a new source of electricity and jobs for the local population, but on the other, it will endanger the local ecosystem. What would you do/what would be your position?	
I would support the construction of the hydropower plant because it will generate more electricity, create jobs for the population, etc.	27.3
I would not support the construction of the hydropower plant because the changes it will cause in the ecosystem are far more harmful to the environment and the population.	47.3
Don't know/Refuse to answer	25.4

POLICY

The majority of respondents identify the population/citizens as the main stakeholders in mitigating climate change/reducing it drastically (2023 - 58.9%, 2022 - 72.1%), with the government of Georgia ranking second: 2023 - 46.8%, 2022 - 42.2%. The share of international organizations has decreased compared to the survey conducted last year: 2023 - 22%, 2022 - 31.2%; non-governmental organizations maintain their position: 2023 - 22%, 2022 - 22.2%. Therefore, results suggest that the main actors in reducing climate change are the population and the government – the government as an entity responsible for imposing regulations and the population as a group involved in practical activities. Obviously, governmental and non-governmental institutions are part of the population, however, in this case, we can assume that administrative/regulatory and practical levels are differentiated (see Diagram #52).

Diagram #52



The share of those with higher education who identify the population/citizens as the main stakeholder is 57.2%, which is less than that in the previous year (73.4%). In the case of respondents without higher education, 60% in 2023 and 71.3% in 2022 share the same position. No significant differences are observed either between the rounds or the target groups. Dominant categories in both cases are consistent with the general trend, i.e., the government of Georgia is identified as the main actor along with the citizens:

- Higher education: 2023 - 42.1%, 2022 - 43.1%
- Other (no higher education): 2023 - 49.8%, 2022 - 41.6%. (Data are statistically reliable: $X^2=20.263$, $p<0.05$) (see Table #53)

Table #53

In your opinion, who are the main stakeholders in stopping/ mitigating climate change? (By educational attainment) (%)	Higher Education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Population/citizens	57.2	73.4	60	71.3
Government of Georgia	42.1	43.1	49.8	41.6
Parliament of Georgia	18.7	19.9	20.6	19.8
Ruling party	10.4	15.2	10.5	16.1
Local self-government agencies	11.7	14.2	16.3	16.9
Opposition parties	6.8	9.4	7.2	10.8
Non-governmental organisations	21.2	22.3	22.5	22.2
International organizations	23.6	34.4	20.9	29.2
Other	1.8	1.6	0.6	0.9
Don't know/Refuse to answer	14.4	5	12.9	7.4

Respondents surveyed in urban (2023 – 59.1%, 2022 – 71.5%) and rural (2023 – 58.5%, 2022 – 72.9%) settlements identify the population as the main actor. However, it should be noted village residents are more likely than their counterparts in the cities (2023 – 41.9%, 2022 – 39.9%) to consider the government of Georgia as such (2023 – 56.2%, 2022 – 45.4%). Similar attitudes are observed towards the ruling party and local self-government entities. The trend is maintained in both rounds:

The ruling party:

- Town (including Tbilisi): 2023 - 9.8%, 2022 - 15.4%
- Village: 2023 - 11.7%, 2022 - 16.3%

Local self-government entities:

- Town (including Tbilisi): 2023 - 13.3%, 2022 - 14.2%
- Village: 2023 - 16.9%, 2022 - 18% (Data are statistically reliable: $X^2=24157$, $p<0.05$) (see Table #54)

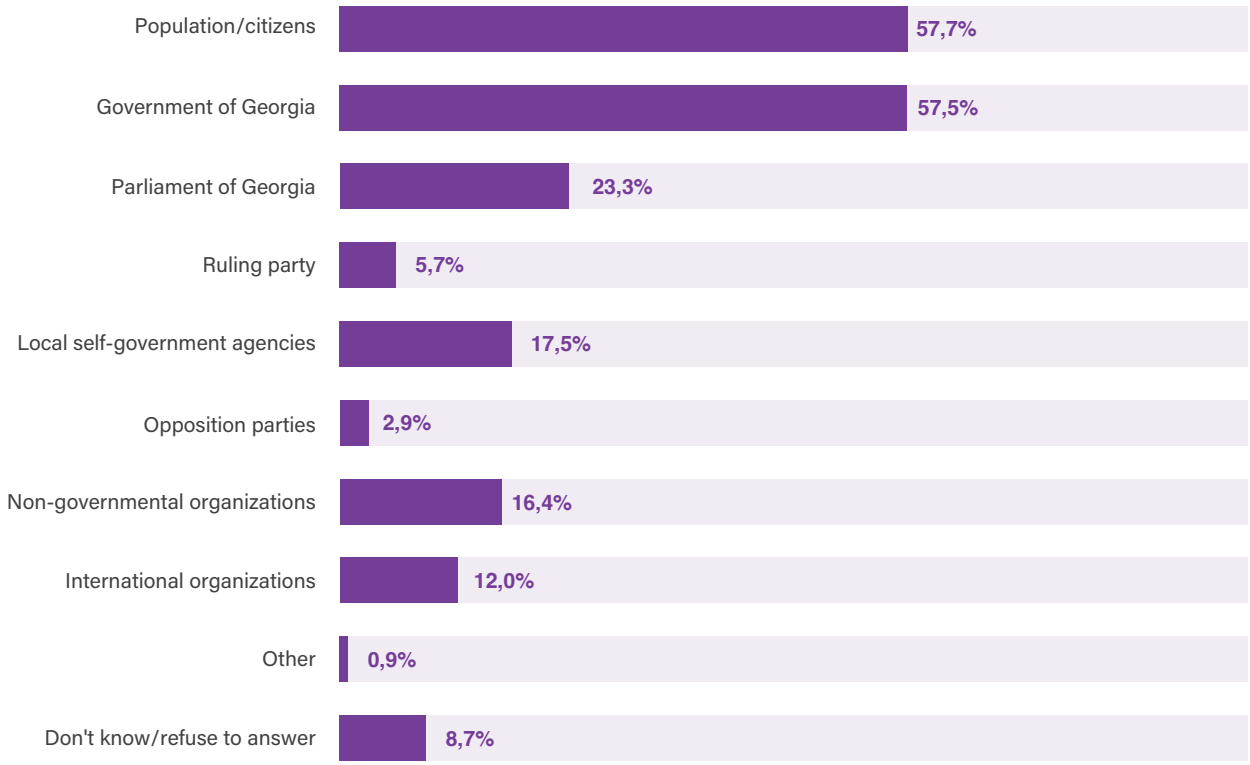
Table #54

In your opinion, who are the main stakeholders in stopping/ mitigating climate change? (By the type of settlement) (%)	Town (including Tbilisi)		Village	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Population/citizens	59.1	71.5	58.5	72.9
Government of Georgia	41.9	39.9	56.2	45.4
Parliament of Georgia	18.6	19	22.3	21
Ruling party	9.8	15.4	11.7	16.3
Local self-government agencies	13.3	14.2	16.9	18
Opposition parties	6.7	9.8	7.7	10.9
Non-governmental organisations	21.1	22.5	23.7	21.8
International organization	21.3	33.4	23.2	28.1
Other	1.3	1.1	0.5	1.3
Don't know/Refuse to answer	14	6.8	12.4	5.9

Almost equal shares of ethnic minorities – 28% identify the population/citizens (28.5%) and the government of Georgia (28.4%) as the key actors in mitigating climate change. Over one-tenth (11.5%) consider the Parliament of Georgia as such. The rate is less than 10% in the case of other individuals/entities (see Diagram #53).

Diagram #53

In your opinion, who are the main stakeholders in stopping/mitigating climate change? (Ethnic minorities) (N=383) (2023 year)



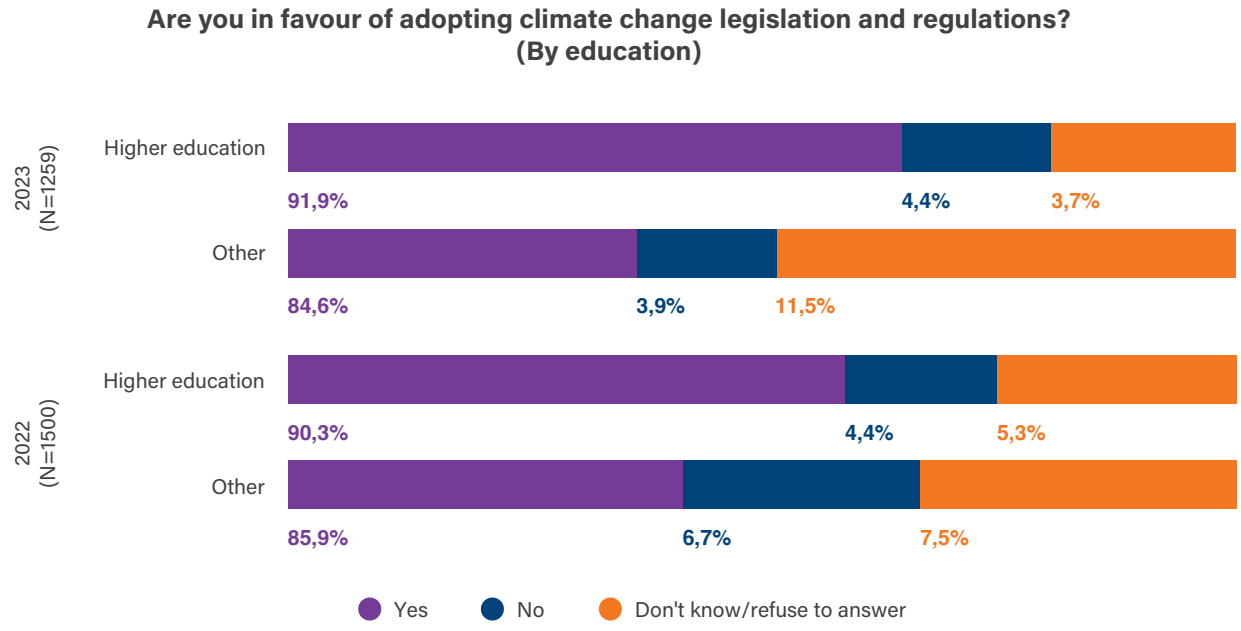
A vast majority of those surveyed in 2022 and 2023 are in favour of adopting a law on climate change and introducing relevant regulations: 2023 - 87.4%, 2022 - 87.6%.

Analyzing the issue in terms of educational attainment yields results similar to the general trend – the majority of survey participants in 2022 and 2023 support the introduction of relevant regulations:

- **Higher education:** 2023 – 91.9%, 2022 - 90.3%
- **Other (non-higher education):** 2023 – 84.6%, 2022 - 85.9%

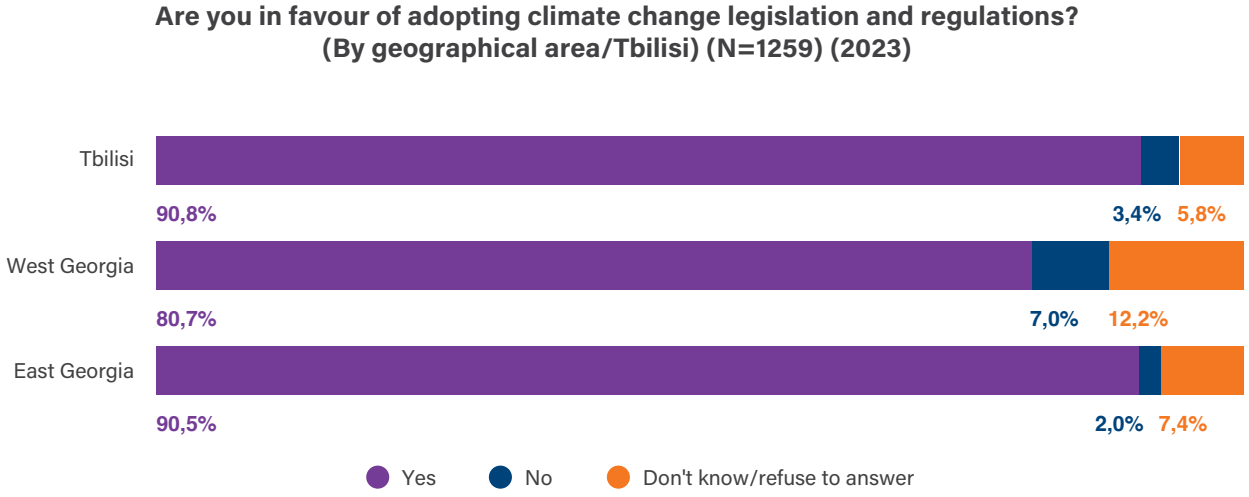
It should be noted that compared to the previous round, in 2023, a larger share of respondents without higher education find it hard to assess the issue: 2023 - 11.5%, 2022 - 7.5%. (Data are statistically reliable: $X^2=23922$, $p<0.05$) (see Diagram #54).

Diagram #54



In terms of geographical areas, respondents in Tbilisi (90.8%), West (80.7%) and East (90.5%) approve of adopting a law on climate change and introducing relevant regulations; however, it should be noted that the share of those who oppose the idea is relatively large in West Georgia (7%). The latter area also has the largest proportion of respondents who find it hard or refuse to answer (12.2%). (Data are statistically reliable: $X^2=28924$, $p<0.06$) (see Diagram #55).

Diagram #55



A vast majority of ethnic minorities (73.2%) are in favour of adopting a law on climate change and introducing relevant regulations. The proportion of opponents is less than 10% (9.3%). In this group, a relatively large share of respondents find it hard or refuse to answer (17.5%).

As it has been mentioned above, respondents identified those groups that, in their opinion, can contribute to climate change mitigation to a certain extent. At this stage, the level of responsibility of each actor has been determined.[1] Like 2022, the majority of respondents in 2023 consider each actor responsible (scores of 4 and 5). It should be noted that there is no significant difference between the percentage indicators of the two rounds. In 2022, an average of 84%, and in 2023, an average of 83% assess the degree of responsibility of the actors positively. For a percentage distribution by actors, see Table #55.

Table #55

In your opinion, what is the level of responsibility of each of the following groups in combatting climate change? (%)		No responsibility	Not so much responsibility	Medium level of responsibility	Big responsibility	Very big responsibility	Don't know/Refuse to answer
Citizens	2023 (N=1259)	0.7	2.5	12.6	24.6	58.1	1.3
	2022 (N=1500)	3.4	2.3	14.4	29.4	50.1	0.4
Government of Georgia	2023 (N=1259)	1.3	1.8	7.2	19.4	69.2	1.1
	2022 (N=1500)	1	1	5.8	18.4	72.8	1.1
Parliament of Georgia	2023 (N=1259)	1.8	1.3	7	21.6	65.3	3
	2022 (N=1500)	0.9	1.7	7.5	18.9	69.7	1.3
Ruling party	2023 (N=1259)	1.3	2.4	7.9	20.8	64	3.5
	2022 (N=1500)	1	1.5	7.3	20.2	68	2
Local self-government agencies	2023 (N=1259)	1.4	2	8.9	22.2	63	2.4
	2022 (N=1500)	1.2	1.4	11.3	23.1	61.9	1
Opposition parties	2023 (N=1259)	3	4.1	13.2	20.4	53.3	6
	2022 (N=1500)	2.7	4.5	14.2	23.5	50.5	4.5
Non-governmental organisations	2023 (N=1259)	1.6	2.6	10.1	22.2	56.5	7.1
	2022 (N=1500)	2.9	2.9	12.4	23.1	56	2.8
International organization	2023 (N=1259)	1.7	1.7	9.1	21.7	57.8	8
	2022 (N=1500)	2.3	2.2	8.2	19.2	65.3	2.8

Analyzing the issue in terms of educational attainment reveals a statistically significant difference only between the government of Georgia and non-governmental organizations. The 2023 round has equal shares of those with higher education (88.5%) and those with different educational attainment (88.6%) who consider the government of Georgia to have the responsibility in tackling climate change (scores of 5 and 4). The rate has significantly increased since the previous round. Namely, in 2022, 82.4% of respondents with higher education and 77.5% without higher education shared the same position. (Data are statistically reliable: $X^2=11777$, $p<0.05$).

1 A 5-point scale was used for evaluation where 1 was 'No responsibility' and 5 – 'Very big responsibility'

No differences are observed between the rounds in regard to non-governmental organizations. The latter is considered a responsible actor (scores of 4 and 5) by respondents with and without higher education alike:

- Higher education: 2023 - 80.6%, 2022 - 80.6%
- Other: 2023 - 77.4%, 2022 - 78% (Data are statistically reliable: $X^2=11858$, $p<0.05$)

Given the above, we can suggest that public attitudes towards these actors have not changed (see Table #56).

Table #56

In your opinion, what is the level of responsibility of each of the following groups in combatting climate change? (By educational attainment) (%)		No responsibility	Not so much responsibility	Medium level of responsibility	Big responsibility	Very big responsibility	Don't know/Refuse to answer
Government of Georgia ($X^2=11777$, $p<0.05$)							
Higher education	2023 (N=1259)	1.5	1.9	6.8	14.9	73.6	1.3
	2022 (N=1500)	1.1	1	3.8	14.2	78.8	1
Other	2023 (N=1259)	1.2	1.7	7.5	22.3	66.3	1
	2022 (N=1500)	0.8	0.9	7.1	21.1	68.9	1.1
Non-governmental organisations ($X^2=11858$, $p<0.05$)							
Higher education	2023 (N=1259)	1.6	2.9	10.5	20.4	60.2	4.4
	2022 (N=1500)	2.3	3.3	11.5	19.8	60.9	2.2
Other	2023 (N=1259)	1.5	2.4	9.9	23.3	54.1	8.9
	2022 (N=1500)	3.3	2.5	12.9	25.2	52.8	3.2

The results suggest that the presented entities have a responsibility in combating climate change in Tbilisi, as well as West and East Georgia (scores of 4 and 5); however, Tbilisi, compared to other areas, is represented by a smaller share in this regard. 81.2% of those surveyed in Tbilisi consider the government of Georgia a responsible actor, whilst the share is 89.1% in East Georgia and 95.1% in West Georgia. 78.1% of Tbilisi residents demonstrate a positive attitude towards local self-governments, whereas, in West Georgia, 91.7% and in East

Georgia, 85.8% do. Opposition parties are relatively less likely to be considered responsible actors; however, respondents still demonstrate positive attitudes (scores of 4 and 5): Tbilisi - 66.4%, West Georgia - 83.1%, East Georgia - 71.7%.

For a breakdown of attitudes towards each actor by geographical area, see Table #7.

Table #57

In your opinion, what is the level of responsibility of each of the following groups in combatting climate change? (By geographical areas) (N=1259) (%) (2023)		No responsibility	Not so much responsibility	Medium level of responsibility	Big responsibility	Very big responsibility	Don't know/Refuse to answer
Citizens (X^2=56902, p<0.05)	Tbilisi	1.9	4.9	14	22.6	54.9	1.7
	West Georgia	0.2	1.5	9.3	19	69.2	0.8
	East Georgia	0.2	1.5	14.3	31.5	51.1	1.5
Government of Georgia (X^2=107831, p<0.05)	Tbilisi	3.8	3.6	10	9.7	71.5	1.4
	West Georgia	-	0.2	3.8	17	78.2	0.8
	East Georgia	0.3	1.6	7.8	30	59	1.2
Parliament of Georgia (X^2=98597, p<0.05)	Tbilisi	5	1.4	11.7	14.8	64.8	2.3
	West Georgia	-	0.5	2.7	21.8	73.9	1.1
	East Georgia	0.6	2	6.8	27.3	58	5.4
Ruling party (X^2=98344, p<0.05)	Tbilisi	3.9	4.1	11.8	12.3	65.4	2.5
	West Georgia	-	0.5	4.3	21.1	72.3	1.7
	East Georgia	0.3	2.7	7.6	28	55.4	6
Local self-government agencies (X^2=59236, p<0.05)	Tbilisi	4.1	3.4	12	18.3	59.8	2.4
	West Georgia	-	0.8	5.7	20.9	70.8	1.8
	East Georgia	0.3	1.9	9.1	26.8	59	2.9
Opposition parties (X^2=74022, p<0.05)	Tbilisi	5.9	3.8	18.8	15.5	50.9	5.1
	West Georgia	-	3.8	10.3	20.7	62.3	2.9
	East Georgia	3.1	4.7	10.8	24.3	47.4	9.6
Non-governmental organisations (X^2=79107, p<0.05)	Tbilisi	4.2	4	13.8	18.1	54.5	5.4
	West Georgia	-	1.6	6	22.4	66.1	3.9
	East Georgia	0.6	2.2	10.6	25.5	49.6	11.5
International organization (X^2=49110, p<0.05)	Tbilisi	4.6	2.6	10.9	21.3	54.3	6.3
	West Georgia	-	1.1	7.1	19.2	65.7	6.9
	East Georgia	0.7	1.6	9.2	24.2	53.7	10.6

Similar to the general trend, ethnic minorities also identify each presented entity as a responsible actor (scores of 4 and 5). However, it should be noted that in the case of entities, such as opposition parties, non-governmental or international organisations, there is a significant increase in the number of respondents who find it difficult or refuse to answer (answer option 'don't know/refuse to answer'):

- Opposition parties - 20.6%
- Nongovernmental organisations - 21.7%
- International organisations - 22.9%

More than 70% of ethnic minorities place the responsibility of combatting climate change on such actors as the government of Georgia (80.4%), the Parliament of Georgia (70.4%), and local self-government authorities (70.9%) (see Table #58).

Table #58

In your opinion, what is the level of responsibility of each of the following groups in combatting climate change? (Ethnic minorities) (N=383) (%) (2023)	No responsibility	Not so much responsibility	Medium level of responsibility	Big responsibility	Very big responsibility	Don't know/Refuse to answer
Citizens	0.3	4.9	24.6	36.6	31.3	2.3
Government of Georgia	0.4	1.9	15.0	46.6	33.8	2.3
Parliament of Georgia	1.5	1.2	15.8	41.9	28.5	11.1
Ruling party	2.4	4.8	19.2	37.6	18.4	17.5
Local self-government agencies	1.3	2.2	15.9	43.3	27.6	9.7
Opposition parties	9.3	10.1	14.1	32.9	12.9	20.6
Non-governmental organisations	1.9	2.2	19.6	37.3	17.3	21.7
International organization	1.2	4.1	16.0	35.3	20.5	22.9

At the next stage, respondents were presented with questions about national policies in the following areas: energy, economy, transport, waste management, and agriculture. In each case, respondents had to assess what policies the country should have to deal with the climate crisis.

In terms of energy, based on the answers, almost every other respondent believes that the country should facilitate the generation of renewable energy to combat the climate crisis: solar, wind and other sources of renewable energy (2022 - 63.3%). Furthermore, over one-third of answers, on average, indicate that the national policy should aim to raise awareness: 2023 - 38.8%, 2022 - 39.8%. In 2023, a slight increase is observed in the share of answers that imply that reducing energy consumption and increasing the energy efficiency of residential/commercial buildings should be facilitated (34%; 2022 - 30.9%) (see Table #59).

Table #59

In your opinion, what kind of energy policy should the country implement to deal with the climate and environmental crisis? (%)	2023 (N=1259)	2022 (N=1500)
Encourage the generation of renewable energy: sun, wind and other sources of renewable energy	48.4	63.3
Encourage energy conservation and increase the energy-efficiency of residential/commercial buildings	34	30.9
Include climate change issues in energy into energy strategies and programmes	17	13.2
Raise awareness	38.8	39.8
Impose realistic prices on subsidized energy resources	11.3	18.4
Don't know/Refuse to answer	7.1	3.3

Facilitating the generation of renewable energy prevails among the answers given by those with higher education: 2023 - 53.3%, 2022 - 67.5%. It should also be noted that the latter is a dominant answer category among respondents without higher education in both rounds: 2023 - 45.2%, 2022 - 60.5%. However, a decrease in the rate can be observed. On the other hand, while in 2022, 45.3% of answers by respondents with higher education indicated the need to raise awareness, the share is down to 36.2% this year. In 2023, the same attitude is shared by a larger portion of respondents without higher education (40.5%) as compared to the previous round (36.2%). (Data are statistically reliable: $X^2=21445$, $p<0.05$) (see Table #60).

Table #60

In your opinion, what kind of energy policy should the country implement to deal with the climate and environmental crisis? (By educational attainment) (%)	Higher education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Encourage the generation of renewable energy: sun, wind and other sources of renewable energy	53.3	67.5	45.2	60.5
Encourage energy conservation and increase the energy-efficiency of residential/commercial buildings	35	31.4	33.3	30.6
Include climate change issues in energy into energy strategies and programmes	19.4	14.8	15.5	12.1
Raise awareness	36.2	45.3	40.5	36.2
Impose realistic prices on subsidized energy resources	12.1	18.9	10.7	18
Don't know/Refuse to answer	4.6	1.9	8.7	4.3

In terms of the energy sector, facilitating renewable energy generation prevails among the answers by ethnic minorities (38.3%), followed by the answer category 'don't know/refuse to answer' (23.8%), which must be due to the low level of awareness. Over one-fifth of the answers (22.1%) indicate that awareness should be raised, whilst 20.8% imply that energy consumption should be reduced and residential/commercial buildings should become more energy efficient (see Table #61).

Table #61

In your opinion, what kind of energy policy should the country implement to deal with the climate and environmental crisis? (Ethnic minorities)	2023 (N=383) (%)
Encourage the generation of renewable energy: sun, wind and other sources of renewable energy	38.3
Encourage energy conservation and increase the energy-efficiency of residential/commercial buildings	20.8
Include climate change issues in energy into energy strategies and programmes	12
Raise awareness	22.1
Impose realistic prices on subsidized energy resources	5.6
Don't know/Refuse to answer	23.8

In terms of the economic sector, the opinion that the government should impose high taxes on companies whose activities pollute the environment and facilitate the emission of greenhouse gases is the most prominent: 2023 - 34%, 2022 - 38.8%. In addition, while a quarter (25.9%) of those surveyed in 2022 believed that it is important to help the import or local production of relevant technologies, the share of those with the same opinion has increased to 30.7% in 2023; therefore, it can be suggested that the said factor is considered to be more important (see Table #62).

Table #62

In your opinion, what kind of economic policy should the country implement to deal with the climate and environmental crisis? (%)	2023 (N=1259)	2022 (N=1500)
Encourage preferential investments in green and resource-efficient economy and green jobs	27.6	30.8
Impose high taxes on companies whose activities pollute the environment and facilitate the emission of greenhouse gases	34	38.8
Encourage the import or local production of relevant technologies	30.7	25.9
Other	-	0.1
Don't know/Refuse to answer	7.7	4.4

In both rounds of the survey, in terms of the economic policy, a considerable share of respondents with and without higher education believe that the state should impose high taxes on those companies whose activities pollute the environment and contribute to the significant emission of greenhouse gases. For the sake of general evaluation, it should be noted that while still maintaining the dominant position, the portion of those who share this view has decreased compared to the previous year:

- **Higher education:** 2023 - 35.3%, 2022 - 36%
- **Other:** 2023 - 33.1%, 2022 - 40.6%

Compared to the previous year, the share of those who believe that the state should encourage the import or local production of relevant technologies has increased. Respondents with higher education are more likely to agree with this opinion:

- **Higher education:** 2023 - 32.4%, 2022 - 26.5%
- **Other:** 2023 - 29.6%, 2022 - 25.5%. (Data are statistically reliable: $X^2=9661$, $p<0.05$) (see Table #63)

Table #63

In your opinion, what kind of economic policy should the country implement to deal with the climate and environmental crisis? (By educational attainment) (%)	Higher education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Encourage preferential investments in green and resource-efficient economy and green jobs	27.5	34.1	27.7	28.6
Impose high taxes on companies whose activities pollute the environment and facilitate the emission of greenhouse gases	35.3	36	33.1	40.6
Encourage the import or local production of relevant technologies	32.4	26.5	29.6	25.5
Other	-	0.3	-	-
Don't know/Refuse to answer	4.9	3.1	9.5	5.3

Almost an equal share of ethnic minorities indicate that the state should a) impose high taxes on companies whose activities pollute the environment and contribute to the significant emission of greenhouse gases (32.9%) and b) encourage the import or local production of relevant technologies (31.8%) to deal with the climate crisis. Almost every fifth respondent finds it hard or refuses to give a specific answer (19.6%) (see Table #64).

Table #64

In your opinion, what kind of economic policy should the country implement to deal with the climate and environmental crisis? (Ethnic minorities)	2023 (N=383) (%)
Encourage preferential investments in green and resource-efficient economy and green jobs	15.7
Impose high taxes on companies whose activities pollute the environment and facilitate the emission of greenhouse gases	32.9
Encourage the import or local production of relevant technologies	31.8
Don't know/Refuse to answer	19.6

In order to deal with the climate crisis, 41.2% of respondents believe that highly polluting vehicles should be banned (2022 - 35.5%). Furthermore, while 30.6% of respondents surveyed in 2022 think the development of public and clean transportation systems should be a part of the policy, in 2023, the share of those with the same opinion is down to 20.8% (see Table #65).

Table #65

In your opinion, what policy should the country implement in the transportation sector to deal with the climate and environmental crisis? (%)	2023 (N=1259)	2022 (N=1500)
Increase parking fees and reduce parking spaces	2.6	2.5
Support public and clean transportation	20.8	30.6
Ban highly polluting vehicles	41.2	35.5
Develop pedestrian, electric and bicycle infrastructure	9.6	10.9
Encourage the development of sustainable urban and rural planning standards and norms	19	17.7
Other	0.1	0.4
Don't know/Refuse to answer	6.7	2.3

Based on the 2022 survey results, a relatively large share of those with higher education (36.7%) believed that highly polluting vehicles had to be banned to combat the climate crisis (incomplete higher education - 34.8%). In the 2023 round, the rate has not only increased, but the importance of this factor is more likely to be emphasized by respondents with incomplete higher education (42.5%, higher education - 39.3%). In 2023, almost equal portions of target groups think the development of public and clean transportation systems should be a part of the policy: higher education - 20.9%, other - 20.7%. There is a decrease in these data compared to last year (2022): higher education - 29%, other - 31.7%. (Data are statistically reliable: X^2=15113, $p<0.05$) (see Table #66).

Table #66

In your opinion, what policy should the country implement in the transportation sector to deal with the climate and environmental crisis? (By educational attainment) (%)	Higher education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Increase parking fees and reduce parking spaces	1.9	2.5	3.1	2.5
Support public and clean transportation	20.9	29	20.7	31.7
Ban highly polluting vehicles	39.3	36.7	42.5	34.8
Develop pedestrian, electric and bicycle infrastructure	12.2	12.4	7.9	9.9
Encourage the development of sustainable urban and rural planning standards and norms	20.7	17.3	18	18.1
Other	0.2	0.2	-	0.5
Don't know/Refuse to answer	4.8	2	7.9	2.6

Over a third of ethnic minorities (35.5%), consistent with the general trend, believe that, in the transportation sector, highly polluting cars should be banned. The share of those who agree that the country should encourage the development of sustainable urban and rural planning standards and norms exceeds one-fifth of the group (22.8%). Availability of public and clean transport systems is also deemed important by respondents (15.1%) (see Table #67).

Table #67

In your opinion, what policy should the country implement in the transportation sector to deal with the climate and environmental crisis? (Ethnic minorities)	2023 (N=383) (%)
Increase parking fees and reduce parking spaces	3.2
Support public and clean transportation	15.1
Ban highly polluting vehicles	35.5
Develop pedestrian, electric and bicycle infrastructure	12.6
Encourage the development of sustainable urban and rural planning standards and norms	22.8
Don't know/Refuse to answer	10.8

As for the policy on waste management, the need for high-standard landfills that do not pollute the environment is the most prominent among respondents in both rounds: 2023 - 43.1%, 2022 - 48%. It should also be noted that while 27% in 2022 identified waste sorting and separation as an important measure, the rate is down to 23% in 2023; on the other hand, in 2023, reusing and recycling waste is deemed more important (28.1%) than in 2022 (23.1%) (see Table #68).

Table #68

In your opinion, what policy should the country implement in the waste management sector to deal with the climate and environmental crisis? (%)	2023 (N=1259)	2022 (N=1500)
Waste sorting and separation	23	27.2
Build high-standard landfills that do not pollute the environment	43.1	48
Encourage reusing and recycling waste	28.1	23.1
Other	-	0.2
Don't know/Refuse to answer	5.8	1.5

The general trend is maintained in terms of educational attainment. Building high-standard landfills that do not pollute the air is in the lead in both rounds. In 2023, respondents with higher education (45.4%) are more likely to agree with the latter than those without (41.7%); in 2022, the difference between the two groups was smaller in favour of those with incomplete higher education (48.6%, higher education - 47%). 2023 saw an increase in the share of those who believe that waste should be reused and recycled:

- **Higher education:** 2023 - 31.2%, 2022 - 24.9%
- **Other:** 2023 - 26.1%, 2022 - 21.9% (Data are statistically reliable: $X^2=15475$, $p<0.05$) (see Table #69)

Table #69

In your opinion, what policy should the country implement in the waste management sector to deal with the climate and environmental crisis? (By educational attainment) (%)	Higher education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Waste sorting and separation	20.1	25.7	24.9	28.2
Build high-standard landfills that do not pollute the environment	45.4	48.6	41.7	47.6
Encourage reusing and recycling waste	31.2	24.9	26.1	21.9
Other	-	0.2	-	0.2
Don't know/Refuse to answer	3.3	0.6	7.3	2

In terms of waste management, 40.4% of ethnic minorities believe high-standard landfills that do not pollute the environment should be built; almost a third (31.1%) agree that the national policy should factor in waste sorting and separation (see Table #70).

Table #70

In your opinion, what policy should the country implement in the waste management sector to deal with the climate and environmental crisis? (Ethnic minorities)	2023 (N=383) (%)
Waste sorting and separation	31.1
Build high-standard landfills that do not pollute the environment	40.4
Encourage reusing and recycling waste	18.9
Don't know/Refuse to answer	9.7

With regards to the policy to be implemented in the agriculture sector, over a third of respondents, on average, believe that it is important to use fertilizers moderately and replace chemical with natural alternatives: 2023 - 35.3%, 2022 - 38.4%. Based on the 2023 survey, one-fifth of respondents (20.8%) identify the use of sustainable agricultural practices as an important measure (2022 - 16.7%). No significant differences are observed between the two rounds in terms of other answer options (see Table #71).

Table #71

In your opinion, what policy should the country implement in the agriculture sector to deal with the climate and environmental crisis? (%)	2023 (N=1259)	2022 (N=1500)
Use sustainable agricultural practices	20.8	16.7
Use fertilizers moderately and replace chemical with natural	35.3	38.4
Help develop organic crops	24.1	22.6
Encourage the production of biogas from animal waste	8.2	10.5
Promote sustainable pasture management	2.9	7.2
Other	-	0.2
Don't know/Refuse to answer	8.7	4.3

Analyzing the issue in terms of educational attainment reveals that the general trend is maintained in both rounds. The prevailing opinion is that the state should encourage moderate use of fertilizers and replace chemical fertilizers with natural alternatives. There has been a slight decrease in the number of those who share this opinion since the previous round; however, the trend is maintained – respondents with incomplete higher education are more likely to emphasize the importance of the above activity:

- **Higher education:** 2023 - 32.1%, 2022 - 36.3%
- **Other:** 2023 - 37.4%, 2022 - 38.9%

In addition, the 2023 round saw an increase in the share of those who believe the development of organic crops should be part of the policy. This opinion is more prevalent among respondents with higher education, which might be due to their higher level of awareness:

- **Higher education:** 2023 - 29.2%, 2022 - 27%
- **Other:** 2023 - 20.9%, 2022 - 19.8% (Data are statistically reliable: $X^2=26063$, $p<0.05$) (see Table #72)

Table #72

In your opinion, what policy should the country implement in the agriculture sector to deal with the climate and environmental crisis? (By educational attainment) (%)	Higher education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Use sustainable agricultural practices	22.3	17	19.9	16.5
Use fertilizers moderately and replace chemical with natural	32.1	36.3	37.4	39.8
Help develop organic crops	29.2	27	20.9	19.8
Encourage the production of biogas from animal waste	9.4	10.8	7.4	10.4
Promote sustainable pasture management	2	5.3	3.5	8.4
Other	-	0.2	-	0.2
Don't know/Refuse to answer	5.2	3.4	10.9	4.9

General trends are maintained in the group of ethnic minorities. 30.8% believe that it is necessary to use fertilizers moderately and replace chemical fertilizers with natural alternatives. Every fifth respondent agrees that developing organic crops is very important (20.4%). In terms of percentage distribution, the group offers a variety of answers – over one-tenth think the national policy should encourage the use of sustainable agricultural practices (15.8%) or the production of biogas from animal waste (12.4%) (see Table #73).

Table #73

In your opinion, what policy should the country implement in the agriculture sector to deal with the climate and environmental crisis? (Ethnic minorities)	2023 (N=383) (%)
Use sustainable agricultural practices	15.8
Use fertilizers moderately and replace chemical with natural	30.8
Help develop organic crops	20.4
Encourage the production of biogas from animal waste	12.4
Promote sustainable pasture management	6.7
Don't know/Refuse to answer	13.9

In addition to the national policy that, in respondents' opinion, needs to be implemented to deal with the climate crisis, one-third (32.3%) believe the state should develop early warning systems to protect the population from more frequent natural disasters, with this being a prevailing opinion in 2023. In the previous round, building preventive infrastructure was in the lead (24.7%), whilst in 2023, 18.6% of respondents agree with the idea. An average of 17% in both rounds believe that to protect people from natural disasters, public awareness should be raised and information – provided: 2023 - 16.2%, 2022 - 18%. It should also be noted that if awareness is not supported with practical activities, it will remain passive knowledge – if the population does not have prior information and if the appropriate infrastructure is not in place, it will be difficult to stay safe during more frequent natural disasters only with being informed (see Table #74).

Table #74

In your opinion, how can the state protect the population from more frequent natural disasters (floods, landslides, mudslides, forest fires, droughts, etc.)? (%)	2023 (N=1259)	2022 (N=1500)
Develop early warning systems	32.3	23.5
Build appropriate infrastructure	18.6	24.7
Improve the healthcare system and monitor climate-related diseases	13.1	14.4
Raise awareness, inform	16.2	18
Study and implement best practices	10.3	12.5
Cannot protect	4.6	4.3
Other	-	0.1
Don't know/Refuse to answer	4.9	2.6

Every third respondent in Tbilisi agrees that the state should develop early warning systems to protect the population from frequent natural disasters. 40.2% of those surveyed in East Georgia share the opinion. A different attitude is observed in West Georgia, where developing appropriate infrastructure is considered important by a quarter of respondents (24.8%). In Tbilisi, one-fifth (20.4%) of surveyed individuals prioritize raising awareness and providing information, which gets the approval of only a small number of respondents in other geographical areas: West Georgia - 17%, East Georgia - 12%. The share of those who believe the state should explore and implement the best practices exceeds one-tenth in East Georgia, whilst in West Georgia and Tbilisi, 9.7% and 6.9% agree with the opinion, respectively. (Data are statistically reliable: $X^2=94568$, $p<0.05$) (see Table #75).

Table #75

In your opinion, how can the state protect the population from more frequent natural disasters (floods, landslides, mudslides, forest fires, droughts, etc.)? (By geographical area) (%) (2023)	Tbilisi	West Georgia	East Georgia
Develop early warning systems	33.3	22.6	40.2
Build appropriate infrastructure	18.2	24.8	13.4
Improve the healthcare system and monitor climate-related diseases	15.8	13.5	10.4
Raise awareness, inform	20.4	17	12
Study and implement best practices	6.9	9.7	13.8
Cannot protect	2.3	8.8	2.8
Don't know/Refuse to answer	3	3.8	7.5

A relatively large proportion of those with higher education in both rounds indicate the need to develop early warning systems. In 2023, there is a significant increase in the number of respondents with the same opinion:

- Higher education: 2023 - 34.3%, 2022 - 23.7%
- Other: 2023 - 31%, 2022 - 23.4%

In 2023, both target groups saw a decrease in the share of those in favour of developing preventive infrastructure. This year, the idea is more prominent among respondents without higher education, whilst this was the case with their counterparts with higher education in 2022:

- Higher education: 2023 - 16%, 2022 - 26.4%
- Other: 2023 - 20.2%, 2022 - 23.6%

Respondents without higher education are less likely to emphasize the need to raise awareness (14.%) in 2023 than they were in 2022 (18.3%). (Data are statistically reliable: $X^2=16941$, $p<0.05$) (see Table #76).

Table #76

In your opinion, how can the state protect the population from more frequent natural disasters (floods, landslides, mudslides, forest fires, droughts, etc.)? (By educational attainment) (%)	Higher education		Other	
	2023 (N=1259)	2022 (N=1500)	2023 (N=1259)	2022 (N=1500)
Develop early warning systems	34.3	23.7	31	23.4
Build appropriate infrastructure	16	26.4	20.2	23.6
Improve the healthcare system and monitor climate-related diseases	13.4	12.3	12.9	15.8
Raise awareness, inform	19.7	17.5	14	18.3
Study and implement best practices	10	13.5	10.4	11.8
Cannot protect	3	4.2	5.6	4.3
Other	-	0.2	-	-
Don't know/Refuse to answer	3.6	2.2	5.7	2.9

The prevailing opinion among over one-third (36.1%) of ethnic minorities is that the key measure to protect people from frequent natural disasters is to develop early warning systems. Unlike the general trend, 15.4% of this group believe it is important to improve the healthcare system and monitor climate-related diseases; on the other hand, only a small share are in favour of building appropriate infrastructure (9.9%). Raising awareness (10.5%) and studying/implementing best practices (12.4%) are deemed more important (see Table #77).

Table #77

In your opinion, how can the state protect the population from more frequent natural disasters (floods, landslides, mudslides, forest fires, droughts, etc.)? (Ethnic minorities)	2023 (N=383) (%)
Develop early warning systems	36.1
Build appropriate infrastructure	9.9
Improve the healthcare system and monitor climate-related diseases	15.4
Raise awareness, inform	10.5
Study and implement best practices	12.4
Cannot protect	1.0
Don't know/Refuse to answer	14.7

Respondents were asked to assess the importance of state intervention in different issues related to combatting climate change. The proposed issues included the following: development of a clean transport system, development of appropriate infrastructure, energy generation, forestation, reducing natural gas consumption, increasing the energy efficiency of buildings, etc. The issues listed were directly related to climate change. Based on the results from both rounds, the majority of respondents deem state involvement in all areas important (scores of 4 and 5):[2] 2023 - 83% on average, 2022 - 82% on average. These indicators confirm that there are no significant differences between the rounds with regard to each issue. Both in 2022 and 2023, the protection and development of forests (2023 - 93.3%, 2022 - 93.5%) and improvement of public transport (2023 - 90.3%, 2022 - 92.3%) are prioritized (see Table #78).

2 A 5-point scale was used for evaluation where 1 was 'Not very important' and 5 – Very important'

Table #78

In the fight against climate change, how important is state intervention in the following issues? (%)		Not very important	2	3	4	Very important	Don't know/Refuse to answer
Development of clean transport systems; tightening vehicle inspection regulations	2023 (N=1259)	0.2	0.8	8.6	24.3	64.7	1.5
	2022 (N=1500)	3.5	2.3	10.6	21.8	60.4	1.5
Reduction of emissions by industrial facilities	2023 (N=1259)	0.2	0.6	6.7	23.1	68.3	1.1
	2022 (N=1500)	1	2.1	6.2	23.1	66.6	1
Reduction of emissions in energy production and consumption subsectors	2023 (N=1259)	0.1	0.6	10.3	23.9	59.6	5.4
	2022 (N=1500)	1	1.8	10.8	25	56.7	4.7
Improvement of public transport	2023 (N=1259)	0.1	0.5	8	23.9	66.5	1
	2022 (N=1500)	0.8	0.5	6	19.9	72.4	0.4
Improvement of bicycle infrastructure (e.g., cycle lanes...)	2023 (N=1259)	0.9	0.8	13.1	27.2	55.9	2
	2022 (N=1500)	1.5	3.1	9.4	24.5	59.7	1.8
Reduction of oil consumption	2023 (N=1259)	0.4	2.9	14.7	26.1	50.3	5.6
	2022 (N=1500)	2.6	4.3	12.7	23.8	53.7	3
Development of a sustainable waste management system and tightening the rules	2023 (N=1259)	-	0.6	9.1	28.1	60.1	2.1
	2022 (N=1500)	0.7	2.4	7.9	22	65.7	1.4
Protection and development of forests	2023 (N=1259)	0.2	0.1	5.5	19.4	73.8	1
	2022 (N=1500)	1	1.2	3.5	13.5	80	0.8
Planning the development of cities and municipalities with the impact of climate change in mind	2023 (N=1259)	0.1	0.5	9.4	25.2	60.6	4.1
	2022 (N=1500)	1.1	1.7	8.9	25.1	55.5	7.6
Reduction of natural gas consumption	2023 (N=1259)	1	4.1	18.1	24.4	46.6	5.8
	2022 (N=1500)	5	5.6	14.5	23.3	49.2	2.4
Increasing the energy-efficiency of buildings (e.g., by using less energy...)	2023 (N=1259)	0.1	1.1	11.8	27.1	54.2	5.7
	2022 (N=1500)	1.4	1.9	11.4	25.1	57.1	3.1
Increasing work-from-home job opportunities to reduce travel by transport	2023 (N=1259)	5.5	5.2	16.7	24.3	41	7.2
	2022 (N=1500)	8.6	7.3	17.5	20.9	42.9	2.9

Analyzing the issue in terms of geographical areas reveals that the main trends are identical across the target groups. In each case, respondents who believe the state involvement in all areas is important to combat climate change prevail (scores of 4 and 5): Tbilisi - 85% on average, West Georgia - 86% on average, East Georgia - 77% on average. There are some issues that 90% of respondents in Tbilisi and West Georgia think the state should get involved in, whilst in East Georgia, the rate is lower (scores of 4 and 5):

- **Development of clean transport systems; tightening vehicle inspection regulations:** Tbilisi - 90.5%, West Georgia - 90.8%, East Georgia - 86.1%
- **Reducing emissions by industrial facilities:** Tbilisi - 92%, West Georgia - 93%, East Georgia - 89.3%
- **Improvement of public transport:** Tbilisi - 92.8%, West Georgia - 91.8%, East Georgia - 86.9%

For a detailed breakdown of data on each issue by geographical area, see Table #79.

Table #79

In the fight against climate change, how important is state intervention in the following issues? (By geographical area) (N=1259) (%) (2023)		Not very important	2	3	4	Very important	Don't know/Refuse to answer
Development of clean transport systems; tightening vehicle inspection regulations (X^2=44237, p<0.050	Tbilisi	-	1.5	7.4	26.9	63.7	0.5
	West Georgia	-	0.5	6.1	17.1	73.6	2.6
	East Georgia	0.4	0.4	11.8	28.4	57.7	1.3
Reduction of emissions by industrial facilities (X^2=33472, p<0.05)	Tbilisi	0.5	1.5	5.1	21.5	70.5	0.5
	West Georgia	-	0.5	4.5	21	72	2
	East Georgia	0.2	-	10	26.3	63	0.5
Reduction of emissions in energy production and consumption subsectors (X^2=42862, p<0.05)	Tbilisi	0.2	1.5	9.8	26.7	56.7	5.2
	West Georgia	-	0.4	6.2	23.	67.6	2.9
	East Georgia	-	-	14.5	22.4	55.1	8
Improvement of public transport (X^2=40555, p<0.05)	Tbilisi	0.2	-	6.5	23.5	69.3	0.5
	West Georgia	-	1.6	5	20.7	71.1	1.7
	East Georgia	0.2	-	12	27	59.8	0.9
Improvement of bicycle infrastructure (e.g., cycle lanes...) (X^2=30469, p<0.05)	Tbilisi	0.3	1.4	13.5	28.7	55.6	0.5
	West Georgia	0.2	0.2	10.3	25.4	61	2.9
	East Georgia	2.2	0.8	15.3	27.6	51.6	2.4
Reduction of oil consumption (X^2=75422, p<0.05)	Tbilisi	0.3	4	13.4	27.1	50	5.2
	West Georgia	-	0.8	7.9	27.6	61	2.7
	East Georgia	0.8	3.9	22	23.9	40.9	8.4
Development of a sustainable waste management system and tightening the rules (X^2=35521, p<0.05)	Tbilisi	-	0.9	5.1	32.2	60.5	1.3
	West Georgia	-	0.5	8	22.1	66.6	2.8
	East Georgia	-	0.5	13.6	29.9	53.9	2.1

In the fight against climate change, how important is state intervention in the following issues? (By geographical area) (N=1259) (%) (2023)		Not very important	2	3	4	Very important	Don't know/Refuse to answer
Planning the development of cities and municipalities with the impact of climate change in mind (X^2=36923, p<0.05)	Tbilisi	-	0.9	8.4	27.1	62.2	1.3
	West Georgia	0.2	0.5	6	24.4	64.6	4.2
	East Georgia	0.2	-	13.4	24.3	55.7	6.6
Reduction of natural gas consumption (X^2=92314, p<0.05)	Tbilisi	0.5	5	13.2	29.7	44.9	6.7
	West Georgia	0.3	0.5	13.2	24.6	57.9	3.5
	East Georgia	2	6.6	26.9	19.4	38.1	6.9
Increasing the energy-efficiency of buildings (e.g., by using less energy...) (X^2=49096, p<0.05)	Tbilisi	-	2.1	6.6	32.2	53.2	5.8
	West Georgia	-	0.2	9.4	26.3	59.8	4.2
	East Georgia	0.2	0.9	18.4	23.5	50.1	6.9
Increasing work-from-home job opportunities to reduce travel by transport (X^2=51425, p<0.05)	Tbilisi	7.3	6.9	10.6	30.2	41.3	3.7
	West Georgia	5	6.5	19.5	24.5	37.1	7.3
	East Georgia	4.4	2.6	19.6	18.9	44.3	10.2

Representatives of ethnic minorities, consistent with the general trend, consider state involvement important in all areas (scores of 4 and 5), which comes to an average of 70% of the group. According to the largest share of this target group (more than 80%), state contribution is particularly essential in the following areas:

- Development of clean transport systems; tightening vehicle inspection regulations - 86.1%
- Improvement of public transport - 82.5%
- Protection and development of forests - 90%

On the other hand, in some cases, over one-tenth of ethnic minorities cannot assess the importance of state intervention in areas, such as (answer option 'don't know/refuse to answer'):

- Reducing oil consumption -13.3%
- Reducing natural gas consumption - 11.8%
- Increasing work-from-home job opportunities to reduce travel by transport - 16.8%

On the one hand, the above might be a result of respondents' lack of awareness, considering that they find it easier to assess those issues that are a part of their daily lives; on the other hand, however, respondents might actually not see the role the state plays in certain areas, such as the employment sector, where the mode of work usually depends on the employer's decision and the agreement between the latter and his/her employees (see Table #80).

Table #80

In the fight against climate change, how important is state intervention in the following issues? (Ethnic minorities) (N=383) (%) (2023)	Not very important	2	3	4	Very important	I don't know/Refuse to answer
Development of clean transport systems; tightening vehicle inspection regulations	0.6	3.3	9.2	40.5	45.6	0.8
Reduction of emissions by industrial facilities	-	0.5	17.2	37.9	43.0	1.3
Reduction of emissions in energy production and consumption subsectors	-	1.4	19.0	29.9	41.0	8.7
Improvement of public transport	-	-	16.7	43.4	39.1	0.8
Improvement of bicycle infrastructure (e.g., cycle lanes...)	3.5	2.7	21.6	37.2	31.9	3.1
Reduction of oil consumption	1.4	6.2	27.4	27.8	24.0	13.3
Development of a sustainable waste management system and tightening the rules	-	1.4	19.5	43.2	33.0	2.9
Protection and development of forests	-	0.2	9.3	30.4	59.6	0.5
Planning the development of cities and municipalities with the impact of climate change in mind	-	0.4	19.2	37.4	35.2	7.8
Reduction of natural gas consumption	1.2	10.9	26.0	28.6	21.6	11.8
Increasing the energy-efficiency of buildings (e.g., by using less energy...)	-	2.2	27.4	32.3	28.8	9.3
Increasing work-from-home job opportunities to reduce travel by transport	2.5	4.9	22.3	22.0	31.5	16.8

After discussing the preferred national policies to mitigate climate change, respondents were presented with regulations. They were asked to assess whether they approve or disapprove of introducing each regulation. Data from both rounds suggest that the majority (in some cases, a clear and vast majority) are in favour of such regulations (answer option 'yes'):

- **Levy a carbon tax on businesses; this may lead to a rise in consumer prices:** 2023 - 68.4%, 2022 - 66.9%
- **Introduce a more stringent fuel quality control:** 2023 - 93.3%, 2022 - 92.3%
- **Introduce more stringent energy efficiency standards for business and industry:** 2023 - 82.8%, 2022 - 84.5%
- **Introduce more stringent thermal performance standards for buildings:** 2023 - 82.1%, 2022 - 84%
- **Subsidize electric vehicles if purchased:** 2023 - 81%, 2022 - 81.3%
- **Ban new petrol-powered cars and lorries by 2050:** 2023 - 57.7%, 2022 - 50.5%
- **Introduce standards and strict monitoring of agricultural use of fertilizers:** 2023 - 82.2%, 2022 - 82.6%
- **Increase waste tax and encourage waste separation:** 2023 - 76.2%, 2022 - 61.4%
- **Sustainable management and development of forests:** 2023 - 94.6%, 2022 - 97.4%

Differences between the two rounds occur only in the case of the provision, which stipulates that realistic (high) prices should be introduced on electricity consumption - in 2023, 52.2% approve, and in 2022, 52.1% disapprove of this regulation (see Table #81).

Table #81

Do you support or oppose the development and introduction of the following regulations to reduce climate change? (%)		Yes	No	Don't know/ refuse to answer
Levy a carbon tax on businesses; this may lead to a rise in consumer prices	2023 (N=1259)	68.4	19.5	12.1
	2022 (N=1500)	66.9	23.5	9.6
Introduce a more stringent fuel quality control	2023 (N=1259)	93.3	4.1	2.6
	2022 (N=1500)	92.3	5.5	2.2
Introduce more stringent energy efficiency standards for business and industry	2023 (N=1259)	82.8	8.1	9.1
	2022 (N=1500)	84.5	8.8	6.7
Introduce more stringent thermal performance standards for buildings	2023 (N=1259)	82.1	6.9	11
	2022 (N=1500)	84	8.9	7.1

Do you support or oppose the development and introduction of the following regulations to reduce climate change? (%)		Yes	No	Don't know/ refuse to answer
Subsidize electric vehicles if purchased	2023 (N=1259)	81	5.8	13.3
	2022 (N=1500)	81.3	9.7	9
Ban new petrol-powered cars and lorries by 2050	2023 (N=1259)	57.7	20.4	21.9
	2022 (N=1500)	50.5	32.2	17.3
Impose realistic (high) prices on consumed electricity	2023 (N=1259)	52.2	37.7	10.2
	2022 (N=1500)	43.1	52.1	4.8
Introduce standards and strict monitoring of agricultural use of fertilizers	2023 (N=1259)	82.2	10.3	7.4
	2022 (N=1500)	82.6	12.7	4.6
Increase waste tax and encourage waste separation	2023 (N=1259)	76.2	16.9	6.9
	2022 (N=1500)	61.4	31.4	7.1
Sustainable management and development of forests	2023 (N=1259)	94.6	3.5	1.9
	2022 (N=1500)	97.4	1.9	0.7

Analyzing the issue in terms of the type of settlement, unlike the 2022 survey, does not yield any significant differences. Differences between the target groups equal 2%, on average. In both urban and rural areas, the majority of respondents approve of the regulations:

Introducing more stringent energy efficiency standards for business and industry:

- **Town (including Tbilisi):** 2023 - 81.4%, 2022 - 86.6%
- **Village:** 2023 - 85.6%, 2022 - 81.6%

Introduce more stringent thermal performance standards for buildings:

- **Town (including Tbilisi):** 2023 - 82.3%, 2022 - 88%
- **Village:** 2023 - 81.8%, 2022 - 78.4%

Subsidizing electric vehicles if purchased:

- **Town (including Tbilisi):** 2023 - 80.5%, 2022 - 83.2%
- **Village:** 2023 - 81.9%, 2022 - 78.6% (see Table #82)

Table #82

Do you support or oppose the development and introduction of the following regulations to reduce climate change? (By the type of settlement) (%)		Yes	No	Don't know/ Refuse to answer
Introduce more stringent energy efficiency standards for business and industry (X^2=7637, p<0.05)				
Town (including Tbilisi)	2023 (N=1259)	81.4	10.6	8.1
	2022 (N=1500)	86.6	6.8	6.6
Village	2023 (N=1259)	85.6	3.5	10.9
	2022 (N=1500)	81.6	11.6	6.8
Introduce more stringent thermal performance standards for buildings (X^2=8939, p<0.05)				
Town (including Tbilisi)	2023 (N=1259)	82.3	8.4	9.4
	2022 (N=1500)	88	5.6	6.4
Village	2023 (N=1259)	81.8	4	14.3
	2022 (N=1500)	78.4	13.6	8
Subsidize electric vehicles if purchased (X^2=18510, p<0.05)				
Town (including Tbilisi)	2023 (N=1259)	80.5	7.7	11.8
	2022 (N=1500)	83.2	8.9	7.9
Village	2023 (N=1259)	81.9	2.1	16
	2022 (N=1500)	78.6	10.9	10.4

Compared to the previous round, in urban settlements, there is a slight decrease in the share of proponents and an increase in the share of those who find it difficult or refuse to specify their opinion.

Statistically reliable differences emerge in terms of educational attainment. However, some of them do not imply differences in terms of content. Therefore, only those regulations will be discussed, which emphasize differences between the groups. Results suggest that respondents with higher education are more likely to approve of introducing each regulation. 87.4% (2022 - 86.5%) of the latter group believe that more stringent thermal performance standards for buildings should be introduced, whilst 78.7% of those without higher education (2022 - 82.4%) agree with the opinion. The situation is almost identical in the case of subsidizing electric vehicles if purchased:

- **Higher education:** 2023 - 84.5%, 2022 - 86.3%
- **Other:** 2023 - 78.8%, 2022 - 78%

Like the previous round, in 2023, a relatively large portion of respondents, both with and without higher education, cannot determine whether or not it is important to introduce the regulation that will ban new petrol-powered cars and lorries by 2050 (answer option 'don't know/refuse to answer'):

- **Higher education:** 2023 - 16.7%, 2022 - 17.1%
- **Other:** 2023 - 25.2%, 2022 - 17.3%

To paint the whole picture, it should be pointed out that respondents without higher education are far more likely to find it difficult or refuse to offer a specific assessment of the issue (2023 - 12% on average, higher education - 6% on average).

In both rounds of the survey, introducing a regulatory act on sustainable forest management and development ranks highest among respondents with higher education, as well as those with different educational at-

tainment. 93.9% of those surveyed in 2023 approve of such a regulation (2022 - 98.6%), whilst the proportion among those without higher education equals 95.1% (2022 - 96.6%). Over 90% of each target group approves of a more stringent fuel quality control:

- **Higher education:** 2023 - 94.6%, 2022 - 95.5%
- **Other:** 2023 - 92.5%, 2022 - 90.2%

A difference of opinion between the two rounds occurs only on imposing realistic (high) prices on consumed electricity. In 2023, 54.8% of respondents with higher education agree the regulation should be introduced, and in 2022, 45.5% did so, whilst opponents prevailed (50.2%). The same applies to those without higher education – in 2023, half of them (50.5%) approve of realistic (high) prices on consumed electricity, whilst in 2022, over half of the group disapproved of the regulation.

For indicators of target groups with regard to each regulation, see Table #83.

Table #83

Do you support or oppose the development and introduction of the following regulations to reduce climate change? (By the type of settlement) (By educational attainment) (%)		Yes	No	Don't know/ Refuse to answer
Levy a carbon tax on businesses; this may lead to a rise in consumer prices (X^2=4432, p<0.05)				
Higher education	2023 (N=1259)	69.9	20.4	9.7
	2022 (N=1500)	71.2	20.5	8.2
Other	2023 (N=1259)	67.4	18.9	13.7
	2022 (N=1500)	64	25.4	10.6
Introduce a more stringent fuel quality control (X^2=6253, p<0.05)				
Higher education	2023 (N=1259)	94.6	4.2	1.2
	2022 (N=1500)	95.5	3.3	1.2
Other	2023 (N=1259)	92.5	4	3.5
	2022 (N=1500)	90.2	6.9	2.9
Introduce more stringent energy efficiency standards for business and industry (X^2=27980, p<0.05)				
Higher education	2023 (N=1259)	84	11.4	4.6
	2022 (N=1500)	99.1	5.9	6
Other	2023 (N=1259)	82.1	6	11.9
	2022 (N=1500)	82.2	10.7	7.1
Introduce more stringent thermal performance standards for buildings (X^2=23865, p<0.05)				
Higher education	2023 (N=1259)	87.4	7	5.6
	2022 (N=1500)	86.5	7.3	6.2
Other	2023 (N=1259)	78.7	6.8	14.5
	2022 (N=1500)	82.4	9.9	7.7

Do you support or oppose the development and introduction of the following regulations to reduce climate change? (By the type of settlement) (By educational attainment) (%)		Yes	No	Don't know/ Refuse to answer
Subsidize electric vehicles if purchased (X^2=12259, p<0.05)				
Higher education	2023 (N=1259)	84.5	6.5	9
	2022 (N=1500)	86.3	6.5	7.1
Other	2023 (N=1259)	78.8	5.3	16
	2022 (N=1500)	78	11.8	10.1
Ban new petrol-powered cars and lorries by 2050 (X^2=13270, p<0.05)				
Higher education	2023 (N=1259)	60.6	22.8	16.7
	2022 (N=1500)	57.9	24.9	17.1
Other	2023 (N=1259)	55.9	18.9	25.2
	2022 (N=1500)	45.7	37	17.3
Impose realistic (high) prices on consumed electricity (X^2=12062, p<0.05)				
Higher education	2023 (N=1259)	54.8	38.7	6.4
	2022 (N=1500)	45.5	50.2	4.3
Other	2023 (N=1259)	50.5	37	12.6
	2022 (N=1500)	41.5	53.3	5.2
Introduce standards and strict monitoring of agricultural use of fertilizers (X^2=11013, p<0.05)				
Higher education	2023 (N=1259)	84.2	11.4	4.4
	2022 (N=1500)	88.2	7.6	4.2
Other	2023 (N=1259)	81	9.6	9.4
	2022 (N=1500)	79	16.1	5
Increase waste tax and encourage waste separation (X^2=9349, p<0.05)				
Higher education	2023 (N=1259)	79.4	16.4	4.2
	2022 (N=1500)	65.3	27.5	7.2
Other	2023 (N=1259)	74.2	17.2	8.6
	2022 (N=1500)	58.9	34	7.1
Sustainable management and development of forests (X^2=9935, p<0.05)				
Higher education	2023 (N=1259)	93.9	5.2	1
	2022 (N=1500)	98.6	0.6	0.8
Other	2023 (N=1259)	95.1	2.4	2.5
	2022 (N=1500)	96.6	2.7	0.7

Consistent with the general trend, the majority of ethnic minorities, equaling an average of 73%, believe each of the above regulations should be introduced to mitigate climate change. Data suggest that introducing a more stringent fuel quality control (95.1%) and sustainable management and development of forests (94.8%) rank the highest, whilst banning new petrol-powered cars and lorries by 2050 – lowest (48%). An average of 13% of ethnic minorities find it hard to determine the aim of introducing the regulations or refuse to answer. The following regulations receive the highest rate of the latter answer option ('Don't know/Refuse to answer'):

- Subsidizing electric vehicles if purchased - 25.7%
- Banning new petrol-powered cars and lorries by 2050 - 33.9%
- Imposing realistic (high) prices on consumed electricity - 18.6% (see Table #84)

Table #84

Do you support or oppose the development and introduction of the following regulations to reduce climate change? (Ethnic minorities) (N=383) (%) (2023)	Yes	No	Don't know/ Refuse to answer
Levy a carbon tax on businesses; this may lead to a rise in consumer prices	69.6	19.5	10.9
Introduce a more stringent fuel quality control	95.1	3.3	1.6
Introduce more stringent energy efficiency standards for business and industry	72.7	15	12.3
Introduce more stringent thermal performance standards for buildings	74.1	11.5	14.4
Subsidize electric vehicles if purchased	63.7	10.6	25.7
Ban new petrol-powered cars and lorries by 2050	48	18.2	33.9
Impose realistic (high) prices on consumed electricity	51.2	30.2	18.6
Introduce standards and strict monitoring of agricultural use of fertilizers	83	12.1	5
Increase waste tax and encourage waste separation	77.7	16	6.2
Sustainable management and development of forests	94.8	4.4	0.8

5.

DETAILED REPORT OF QUALITATIVE RESEARCH

CLIMATE CHANGE IN THE CONTEXT OF GEORGIA

The research participants talked about how they understand the term "climate change" and what associations they have about this issue. It is noteworthy that for research participants, climate change as a process is associated with global warming and its accompanying results. Specifically, the focus group participants believe that the results of climate change and global warming are natural cataclysms, natural disasters and the temperatures that are unusual for the season throughout the year.

To bring an example of climate change, the research participants often recall several natural disasters occurred throughout Georgia in the recent period, which in their opinion clearly shows the expected hazard. Particularly, the participants recall the natural disaster that occurred on August 3 on the territory of Shovi, apart from this, the cases of landslides and floods in Kobuleti and Guria and flooding processes caused by heavy precipitation in Rustavi and Tbilisi.

It is noteworthy that each of these events occurred within a 2-month period (August-September) and was covered actively by media, which proved to be memorable and noteworthy for the study participants.

Focus group participants emphasize the scale of the problem and mention that the changes are noticeable in Georgia as well as in other countries of the world. The participants indicate circumstances caused by the increase in temperature on a global scale, such as the rapid melting of the glaciers, fires and human casualties.

"Natural cataclysms occur everywhere, the tragedy in Shovi was huge, and now in Guria, there was the same situation in Turkey, there is wildfire somewhere, there are floods somewhere else, these climate changes are expressed in different forms on different territories" (62-year-old man, resident of village, Western Georgia)

"Today this is a serious problem, it became apparent in Georgia and in the world as well, from what I observe and hear, this is a problem in every country, flooding, mudflow, fires, everything stems from this." (29 year-old woman, urban resident, Western Georgia)

„I think climate change is very sharply reflected, it is connected to the global warming. . . as it was mentioned everything has changed, the summer is not like summer anymore and winter is not winter any more, there are extreme colds and extreme heats. „ (44 year-old male, resident of Tbilisi)

The study participants talked about how the environment and climate change have reflected on their village / town and region. It is noteworthy that the changes that the study participants brought, as examples of Georgia and other countries, are also relevant in the immediate living environment.

The participants living in the cities and villages of Eastern Georgia talked about the heavy precipitation in 2023 which they believe is unusual. Particularly, the participants explained that half-desert zones are characteristic to Eastern Georgia, which are distinguished by dry weather. In 2023 the heavy precipitation on the one hand became the catalyst of the landslides and flooding processes, and on the other hand it had negative impact on the crop yield of cultures specific to that region.

As the study participants talked, in Kvemo Kartli and Kakheti regions their residential territory borders with areas of mudslide hazard, which is an issue of concern for them, in the context of increased temperature of glaciers and frequent rainfall. For the same reason, the study participants think that the small rivers in the

region are risky, whose river bed has been narrowed or has disappeared altogether. It should be noted that overflow of rivers had been mentioned a number of times among the group of ethnic Azerbaijanis.

In terms of climate conditions, hail has been separated as an important problem. In particular, several participants report that the size of the hail in 2023 has increased compared to previous years, which resulted in massive destruction of grape crop.

" I had never seen such huge flood, it was this year and last year too, it was very bad flood, as a result of which our village bridge was destroyed, the entire nature has changed, the river bed has also changed"– (29 year-old female, ethnic Azerbaijani)

"The vineyard was hailed three times, instead of 5-6 tons we harvested 700 kilograms. In addition, we had severe mudflow, the river overflowed, but we survived. It is called ravine and it overflowed. In Gurjaani two very large rivers flowed through the city. When usually the water is like a line the ravine is dry. In 46 year such a thing has never happened" (46 year-old female, rural resident, Eastern Georgia),

The mentioned problems are also pressing for villages and towns in the regions of Western Georgia. The residents say that during the year their region suffered significant damage, both in terms of infrastructure and personal property and human casualties. The residents of Eastern Georgia describe the situation more intensely. For example, in the region of Guria they talk about flood and mudflow which damaged several villages, including private houses, a connecting bridge and caused casualties. According to the Guria residents on that territory large cracks were formed on the ground, which may become a new mudflow point in the future. Currently the geologists are inspecting the territory and it is planned to move about 300 hundred families from there who will be granted the status of eco migrants.

One of the residents of Western Georgia region draws attention to the rapid change in temperature and explains what apparent problem this brings. In the winter period, the temperature difference between two calendar days may be so big, that the large snow mass fallen previously, may completely melt and cause the accumulation of water in rock layers, or cause their movement.

Interestingly, unlike regions the residents of Tbilisi see the change of environment mostly in the worsening of conditions such as pollution of air, water and earth's resources. The participants relate these problems to excessive urbanization, large number of motor vehicles, uncontrolled constructions and human negligence.

THE IMPACT OF CLIMATE CHANGE AND VULNERABLE GROUPS

The study participants talked about the impact of environmental and climate change according to various social characteristics. They believe that economic loss is suffered firstly by people employed in agricultural sphere and farming, since their activity is directly dependent on the climate. Any unusual manifestation of climate in farming activity may become decisive in the fruitfulness of the crops, including excessive heat, heavy precipitation, rapid change in temperature, absence of intermediate temperature between winter and summer, hail etc. In case of people working in agriculture, the natural disasters may also be detrimental, such as mudflow, flood and others, which will physically damage / wash away the farming land. Extreme vulnerability of people in agricultural activities in the face of climate change is determined by the fact that the economic sustainability of these people is directly linked to the annual crop yield.

From economic viewpoint, in case of agriculture, the participants also stress on the need to purchase more chemical substances (pesticides) compared to the previous years. One of the participants explains that after a bad weather such as heavy precipitation the farmers buy and use pesticides in order for the crop not to develop any disease and to bear fruit. Since in the first half of 2023 there was heavy precipitation for several months throughout entire Georgia, the farmers often had to spray their crop and suffered economic damage.

One of the village residents also talked about their own bee farming and mentioned that due to cold and damp climate conditions they were unable to have honey, since in such weather the bees do not leave the beehive and cannot find food.

The study participants also link the bad crop yield to the increase in product prices throughout the country, saying that this brings economic damage to every resident.

> *" From economic perspective, those who are involved in agricultural activities, this has affected them more, this climate changes create a lot of problems for these people, they cultivate crops and for them this is economic income " (53 year-old male, urban resident, Eastern Georgia).*

> *"How it reflected on my family personally, last year we picked 5 tons of grapes, this year we picked 700 kilograms. [the vineyard] was hailed three times. This is of course related to the global situation. It is the thickest hail, not the usual hail that used to fall before. We have not seen the hail this size" (46 year-old female, rural resident, Eastern Georgia)*

According to one of the participants, against the backdrop of climate change, people are forced to purchase such equipment that will help them regulate the temperature in their living conditions (air conditioner, refrigerator, etc.). A person becomes forced to incur such an expense, that this reflects on their economic situation.

The participants of the focus groups emphasize the aggravation of the psycho-emotional condition of the population against the backdrop of climate changes, according to the participants, the rate of stress and worry has increased at the individual level, which is primarily related to the natural disasters that have occurred throughout Georgia in the recent past. Representatives of various regions have started observing the nearby small rivers and ridges in their living environment and fear that heavy rainfall may cause physical or economic damage.

On the other hand, according to the participants, intensely hot days are the cause of stress, which negatively affects all age groups and reduces their emotional stability and ability to perform daily activities.

It should be noted that in many cases the participants equate health issues against the backdrop of climate changes, with vulnerable groups. It can be assumed that for the most part, people with health problems are considered vulnerable groups. It is noteworthy that the participants identify two main age groups, namely, young children and elderly people.

On the one hand, the representatives of an older age group, who have faced certain health problems with aging, react more intensely to climate change. High temperature has a negative effect on people with problems of the heart, blood vessels, and respiratory system. On the other hand, the research participants believe that the body of young children relatively easily take in the harmful substances in the air and food, which contributes to the development of chronic diseases in children, or to the weakening of their genetic indicators. It is noteworthy that several participants also talk about prenatal and postnatal periods and believe that under the conditions of environmental and climate change, the birth of children with disabilities is more frequent or the relevant indicators are revealed in the following years.

It is interesting to note the opinion of one of the participants, who indicates that nowadays diseases are rejuvenated and the problems that affected older people previously, are now manifesting in young people as well.

"Elderly people, those who have heart disease, they cannot stand high heat and rapid change of the weather, which is frequent nowadays; one day there may be 35 C and the next day it may sharply drop" (38 year-old female, ethnic Armenian)

" I think it affects the younger generation and the youth. . . a lot of kids have diabetes, cancer. These diseases that were unimaginable are can now be seen in children " (50 year-old male, resident of Tbilisi)

In addition to health conditions, children's vulnerability is related to their inability to protect themselves during natural disasters caused by climate change. According to the participants, for example, in the conditions of floods and mudflows, children do not have enough strength to resist or escape the natural occurrence. In addition, children do not have the appropriate knowledge and ability to react correctly to the imminent danger, if they are not with an adult at a given moment, who will tell them how to act.

Representatives of the community of persons with disabilities stress on the problem of uninterrupted action and movement and say that if a quick response is needed, it may be difficult for them to carry out appropriate and recommended activities.

" I may end up in a situation where I may have difficulty of movement. All this happens very suddenly and due to my eyesight, I may get stuck in one place and may not be able to move at all." (representative of PWD community, 57 year-old male

The issue of vulnerability in the queer community is noteworthy. As the research participants explain, against the backdrop of social and economic exclusion, which is a problem for the queer community, homelessness, poor access to food and hygiene products, and the resulting weak immunity are revealed. Participants believe that the representatives of the queer community are vulnerable due to existing conditions and find it difficult to adapt to new challenges. As an example of this, research participants refer to the period of the COVID-19 pandemic.

„Climate change and certain adaptation processes require certain resources, the access to which is often unavailable to these vulnerable groups." (23 year-old queer community representative)

"As a rule, crises concern vulnerable groups more, the Covid crisis was like that too and other crises as well. Therefore I assume that this existing situation will affect these vulnerable groups even more" (34 year old queer community representative)

One of the participants considers the group of women to be vulnerable to crises and explains that within the family, women have the burden of "doing the care work". This means doing household work and maintaining the appropriate living conditions of family members. The participant believes that in the context of climate change, women will have to work harder to respond to the new challenges, for example, draw water resources in case of lack of water and maintain standards of "care work" with scarce resources.

CAUSES OF CLIMATE CHANGE

Additionally, the study participants talked about ecological changes throughout Georgia, drawing special attention to cutting down of forests, construction of hydroelectric stations, operation of polluted factories and air pollution. It is noteworthy that when talking about ecological changes, the study participants mostly talk about the ecological conditions caused directly by intervention of humans or on the contrary their lack of intervention, which ultimately becomes the reason for climate change.

Almost all participants responded to the facts of unregulated cutting down of forests and linked these processes to air pollution and extinction of bio diversity. The residents of Tbilisi express their concern over the lack of green spaces and say that throughout the city open spaces are being bought and constructions are being carried out, which not only limits the release of fresh air due to green spaces, it also creates a construction area, that pollutes the environment with particulate matter.

In terms of the air pollution problem, in different regions the operation of factories and plants are actively named, which emit large numbers of particulate matter in the air. The study participants believe that these facilities bring significant damage to the environment and the health of the residents in the region. At the same time, the participants criticize the actively operating factories, because they see that these facilities do not follow the regulations and do not perform relevant interventions for harm reduction purposes, such as installing the filters, etc.

On the other hand, from the viewpoint of pollution, the study participants also criticize traffic congestion. Several participants say most of the automobiles brought to Georgia are used and are out of order. These cars have already been used for years abroad and currently no longer satisfy the desired standards.

„I live in Gardabani district, and from where I live, I can see the factories best of all, I can see the exhaust of these metallurgical factories, what they do to our country, you have no idea, there is such fume. They probably do not have the filters installed" (44 year-old female, rural resident, eastern Georgia)

„Compared to us Europe is so much more advanced, because there all transport is switching to electro mobility. We, on the contrary bring in their rusty cars and we have to emit the fume in the air " (64 year-old male, rural resident, Eastern Georgia)

The participants are skeptic about the construction and operation of hydroelectric stations. On the one hand they agree that in terms of generating electric energy and growing economy, construction of such stations is beneficial. On the other hand, the participants criticize the practical aspect of constructing the hydroelectric stations, because they believe that no appropriate geological and seismological studies are done in Georgia, which need to be carried out before the construction for safety reasons. According to the participants, in case of negligence a station may be constructed on the river that in reality does not have sufficient strength and water resource to overcome the obstacles created by the station. As a result, such river may disappear altogether. Additionally, one of the participants brings an example of stations in Svaneti, noting that the construction of hydro power plants has led to increased humidity in the nearby villages and caused lung and respiratory tract diseases.

" People from Svaneti are saying that the dams caused the dampness, they cannot ventilate, there is less possibility to breathe, the oxygen is not the same anymore and this is dangerous for the population health, they have developed lung problems" (53 year-old male, resident of Tbilisi)

The research participants talked about the pollution of soil and water resources as a problem. During the focus group discussion, the harmful practices of citizens dumping household waste on the ground or throwing it into water were repeatedly mentioned. In addition, the topic of criticism is the creation and management of landfills across the country, which cause irreparable damage to the soil. The participants keep coming back to the issue of biodiversity conservation, saying that any kind of pollution is a prerequisite to the extinction of various species of flora and fauna.

> *"Thousands of waste goes into the river already, it goes into the sea and we all know that even when a small link in the chain breaks, it already affects everything. So one species of fish goes extinct, so now that it is gone, it causes something else, etc. " (45 year-old male, representative of PWD community).*

A specific problem is stressed by a representative of the Guria region, who says that sand-gravel extraction is actively taking place on the Supsa River, which causes the river bed to change, or disappear altogether. It should be noted that in the past months, the landslides occurred precisely in the vicinity of the Supsa river. Similar activities are also taking place in the Kakheti region, where, according to the participant, several stone crushing buildings are located in the riverbed and the stones and gravel collected on site are being processed.

In terms of the human impact at the global level, the study participants consider the current military actions as a crime against the environment and believe that the technical and armament resources used in this process are causing irreversible damage.

It can be said that the participants deem individual behaviors important and believe that human actions have a great impact on the ecological environment and climate change. On the other hand, one of the participants has an opposite view, stating that the practices at the individual level are nothing compared to the harm caused by the industrial sectors. According to the participant, individual initiatives are overshadowed by large companies.

THE USE OF VARIOUS RESOURCES IN EVERYDAY ACTIVITIES

The research participants discussed the practices of using resources such as water, electricity, gas etc. in their community. It is interesting that in this case the opinions and evaluations of the research participants were divided into several parts. On the one hand, some participants indicate that excessive consumption of various resources is a regular practice, which is related to the ignorance and bad habits of community members. From this point of view, the participants talk about the need to introduce the teaching of such practices in educational systems.

On the other hand, within specific regions and territories, the respondents note that the resources of water, electric energy and gas are provided to the community for free, which is why the community members do not take care of these resources and may leave the tap open with water running during the day, or leave the TV on without watching and not worry about it.

In the third case, the research participants talk about such regions and communities where household resources operate according to schedule, or taking into account the socio-economic situation of the region, it is difficult for the community members to pay such expenses. In this case, participants say that, as a rule, resources are not wasted.

"It is especially noticeable in Georgia, because no one has learnt in school how to use water resource, that while brushing your teeth you should close the tap for example, this is so simple, isn't it, and we all think that all these resources are unlimited" (26 year-old female, resident of Tbilisi)

„In our villages they have the water running like that, they do not spare it, in the city we have the water meter more or less and we have to save it" (33 year-old female, ethnic Armenian)

"There are such high fees for electricity and for everything, that now everyone tries to (use) economically. If earlier they did not pay attention, now it is related to money you know? So now they are already limiting in every way and trying to not to waste it away". (54 year-old female, rural resident, Eastern Georgia)

One of the participants brings an example of improper use of water, saying that there are often cases of drinking water being used for irrigation. The participant believes that it is possible and necessary to use alternative sources in order to save drinking water resources.

RENEWABLE AND ALTERNATIVE SOURCES OF ENERGY

The research participants discussed both individual consumption devices as well as large-sized devices, which are used for energy generation using renewable resources. Research participants are more aware of large-sized stations that use wind and water resources, such as hydropower plants and wind power plants (turbines).

From individual consumption devices, study participants have heard of solar panels that directly generate electricity. Also, they mentioned the hot water generating devices, which are heated during the day by the temperature of the sun.

Although the research participants were able to name several examples, overall, they have little knowledge and experience with each such device. Only a few of the participants stated that they own a solar panel, or have seen such a facility in their neighborhood.

Participants say that the devices for using renewable energy are financially associated with large amounts of money and are therefore less attractive to them. In addition, according to the participants, the use of alternative sources gives the so-called "return" or "profit" only after a few years. Several participants expressed their desire to own such devices, but added that they would not be able to purchase them without some financial aid.

" For example I have small solar panels in my yard which give you light at night. It is lit during the entire night. If there were some support you know, because it has the profit after 6-7 years. To install the solar panels for the entire household use, it is very expensive for a single payment " (45 year-old female, urban resident, Eastern Georgia)

GEORGIA'S APPROACH AND STRATEGY RELATED TO CLIMATE CHANGE

During the focus group, research participants were presented with explanation of the two main approaches to responding to climate change: "There are currently two main approaches to responding to climate change in the world, one is adaptation to the consequences and effects caused by climate change (e.g. building infrastructure resilient to disasters caused by climate change), and the other is an attempt to slow down/mitigate the process of climate change in the future (e.g. reducing emissions of gas into the atmosphere)."

After the explanation, the participants were asked to state which approach Georgia favors in their opinion., It can be stated unequivocally that it was difficult for the research participants to determine the political orientation in the context of Georgia.

The participants have the information that Georgia is committed to international conventions and at the same time, is involved in environmental protection events conducted at the international level. Nevertheless, it is difficult for the participants to name which duties or assumed responsibilities Georgia fulfills at the political level within the framework of the signed convention.

Among the interventions initiated at the state level, the research participants recall activities aimed at helping specific farming areas or preserving natural resources. For example, the provision of anti-hail nets in Kakheti, attempts to restore the damaged forest massif in Borjomi, repelling harmful insects in agriculture, and others are considered as such activities.

In addition, research participants recalled several interventions that were directly aimed at preventing air pollution processes at the legal level. On the one hand, it was related to the regulation of private car emissions. On the other hand, the initiative was aimed at factories at the country level. In the context of the industrial field, the research participants say that despite the legislative change and the imposition of fines, to this day, there are still factories that operate in violation of the regulations, pay fines and continue their manufacture. In this regard, the research participants consider the need to strengthen the work of the supervisory bodies.

SOURCES OF INFORMATION ABOUT CLIMATE CHANGE, CONTENT AND RELIABILITY

Focus group participants mainly receive information about climate changes through mass media. The participants especially mentioned TV and online publications.

" I mostly receive information from television, sometimes I watch some shows, they talk about how we can fight global warming" (63 year-old female, Tbilisi)

" [I get information] mostly from social media, I have subscription to pages and I read there" (female; Tbilisi)

Some of the respondents receive information in foreign languages - English or Russian, because, according to the respondents, information about climate change in Georgian language is scarce, and what is available

is repetitious and sometimes unreliable - "there are poorly translated texts in Georgian, or they have resonant titles, and when you open them, there is nonsense written inside." (50-year-old man; Tbilisi). One of the respondents named the TV company "Agro-TV"[3] as a source of information, where TV programs deal with agriculture and often discuss the impact of climate change on various cultivated crops.

Residents of villages and towns densely populated by ethnic minorities receive information about climate change in their native language, along with Georgian. In the regions, for ethnic minorities, mass media (online media and TV) in the language of ethnic minorities are functioning, which are the main source of information for the population who do not know the Georgian language - "I can recall the natural disaster in Kakheti. I also received this information from the Georgian website and it was exactly the same translated into Azerbaijani" (ethnic minority woman).

Part of the focus group participants receives information about climate change through seminars organized by various organizations, including the municipality.

„I am from Kakheti, Gurjaani and by the way, there are trainings in our district, about global issues. The municipality did several trainings and we were involved and discussed ecological problems" (46 year-old male; rural resident, Eastern Georgia)

The website of the organization "Green Alternative" was named as a reliable source of information among queer community representatives. Also, representatives of the queer community named various academic documents as a source of information.[4]

The participants of the focus group recalled the specific information they had recently received regarding environmental issues, including climate change. In particular, the information was related to the changes in the Pacific Ocean, rock layers relocated as a result of earthquakes, melting of icebergs, ways to escape from natural disasters illustrated by an example in Japan, fires caused by high heat in different countries, which damage cities and hectares of green cover, etc. At the local level, in the context of Georgia, the natural events that happened in Guria and the Shove resort were named.

The results of the focus groups show that the part of the rural population that pursues agriculture proactively searches for information about climate change - "I sat the entire winter and looked for what crops can grow in these changed climatic conditions, how to protect what I grow from the heat, I even changed some of the thigs in my farming but you can't change much, because it is related to expenses" (46-year-old man, living in a village, West Georgia). One of the representatives of the PWD community receives information about the environment through the application - "I have downloaded a special application, which provides information about air pollution, expected natural disasters, etc." (representative of the PWD community).

When speaking about the reliability of the information received, it was revealed that the respondents trust the information received through social media the least. The reason for this is that social media often spreads unverified and contradictory information, including about climate change. Mass media, especially television, are more reliable. Most of all, they trust the opinions of experts in the field, whom they listen to in various TV programs.

According to the respondents, it would be very useful to have a website in Georgian and for ethnic minorities in their native languages, where reliable news and useful information related to environmental protection and climate change would be provided. The website would be periodically updated with information related to climate changes both globally and in the context of Georgia. It should be noted that the participants of the

3 Social media page of Agro TV - https://www.facebook.com/people/AgroTV-%E1%83%90%E1%83%92%E1%83%A0%E1%83%9D%E1%83%A2%E1%83%95/100063483249534/?locale=pt_BR&paipv=0&eav=AfaB6uCBfXftKcNz81soG14nTgD3He3bKEkY-U37_Fy_3L04uqQm_jdjxJJ3MccvcHw&_rdr

4 Web page of „Green alternative" - https://greenalt.org/

focus group had not heard about the website of the LEPL Environmental Information and Education Center,[5] which partly fills the gap of deficit of systematic and up-to-date information about climate change.

Among the rural population, there is a special interest in receiving updated information about the impact of climate change on both annual and perennial crops - "Now, poisonous chemicals have been brought into the country and they are perishable, I would like to have more information about this issue" (female, resident of Tbilisi). The focus group participants were highly interested in the implementation of the system of advance notification of natural disasters, in particular, what the state is doing in this direction. The topicality of this issue in the focus groups was due to the tragedy that happened in the summer in Shovi resort which was caused by a natural disaster.

Members of the queer community would like to gain more structured knowledge about what climate change is, what causes it, how it harms the habitat, who is responsible for climate change, and what different parties need to do to reduce environmental damage. It was also noted that, in order to increase the awareness of the population, it would be useful to create discussion spaces of different formats, where participants could discuss current climate - related issues. Respondents particularly separated the topic of individual responsibility.

„We often talk about individual responsibility, which is multi layered and multi-level. Yes, I may start sorting the waste, but in reality the finale is completely different. The goal of my behavior does not give me the result that I want. If the waste is not processed, the goal has not been achieved" (queer community representative)

THE PRACTICE OF USING RESOURCES

The focus group participants try to save resources mainly by economical use of electricity and natural gas. It was revealed that the reduction in the use of resources is motivated by saving the utility bill and to a lesser extent - to care for the environment. According to respondents, thanks to technological innovations more opportunities to save both electricity and natural gas have appeared in recent years.

"I installed economy light bulbs in my house. I bought the fridge and the washing machine that use less electricity " (46 year-old woman, village in Eastern Georgia)

Focus group participants pay less attention to reducing overuse of drinking and irrigation water resources. This is explained by the fact that, on the one hand, there is little or no tax on water consumption (especially in rural areas), or the availability of water resources (drinking and irrigation) is a problem, therefore, excessive consumption is not even an issue in this case. "Water is so difficult for the village, there is no water to wash your hands, not to mention its excessive use" (64-year-old man, Eastern Georgia, village). Excessive use of water resources occurs in those villages where the supply is continuous and the meters are not installed - "It is like that in villages, they have water running like that, and they do not save it, in the city, the meters are more or less installed and we have to save" (30-year-old man; ethnic Azerbaijani living in the city).

According to the experience of the villagers, the existing regulations limit the excessive consumption of timber - "The peasants are not allowed in the forest, what kind of excessive use are we even talking about?" The peasant has been restricted in every way in the village, he should not cut firewood" (61-year-old woman, Eastern Georgia, village). In addition, villagers note that natural gas has been gradually replacing firewood

5 Web page of LEPL Environmental Information and Education Center

in villages in recent years as natural gas becomes available in many villages. Villagers know that household waste should not be thrown away in open spaces (roads, forests, ravines, etc.), although several respondents indicated that they do not always follow this rule, because there are no dumpsters in the villages, or they are few and far away and because of this, they are not always able to place the waste in the dumpster.

In addition to reducing the use of water and natural resources, the residents of cities also try to move around the city on foot or by vehicles (bicycles, scooters) that do not require fuel. The part of the respondents who have a car tries to control that it is technically in order.

> *„I try to control that my car's emission in within the norm. By my insistence, people around me, my relatives and friends, installed catalysts. I know that this is a small contribution, but necessary". (35-year-old man, urban resident, Eastern Georgia)*

Unreasonable use of automobiles by population has been named as the main problem among city residents – "My neighbor lives 100-150 meters away from school and still drives the kid to school. If it's a little hot outside, he has his car engine running, and just sits there in the car, so that he has air conditioning on" (46-year-old male, person with disability)

It is interesting that some of the respondents found it hard to name what they had done recently to protect and improve the ecological environment. This difficulty was especially dominant among the city population.

> *„I have not done anything, besides that I have a village and I try to plant plantation, cultivate something in the yard, to have more green space" (61-year-old woman, urban resident, Eastern Georgia).*

Some of the respondents also associate the decrease in resource consumption with raising awareness on environmental issues - "My daughter is involved in trainings related to environmental issues. We learned a lot from her in the family" (46-year-old woman, Eastern Georgia, village). According to the respondents, young people are more aware of the harm caused by excessive consumption of resources than adults. For adolescents and young people, information related to the ecological environment is available from various sources. For example, at school, through informal education seminars, through social media, etc.

THE IMPACT OF CLIMATE CHANGE ON AGRICULTURE

The village population associate the climate changes with the need to use fertilizers and pesticides, without which they cannot grow crops - "We can't harvest without medicine, let's take corn, for example, worms eat it, which was not the case before" (29-year-old young man; ethnic Azerbaijani living in the village). Another part of the rural population says that they do not use fertilizers and pesticides, because they know that their use damages the environment, and the crops grown this way are unhealthy. The so-called organic products are grown by the population group that consumes the grown products for their own families. Families with large farms actively use poison-chemicals, otherwise they will not be able to grow crops intended for sale - "If a farmer cultivates a hectare of land, it is impossible for him not to use poison-chemicals, otherwise it will definitely get damaged" (61-year-old man, village resident, Eastern Georgia). In some cases, the villagers are forced to use poison-chemicals - "harmful insects come from the neighbor's garden and cannot be battled by natural means - lime and copper sulfate." I am forced to use poison-chemicals too" (62-year-old man, living in a village, Eastern Georgia).

Participants of a focus group conducted with ethnic Armenians noted that it is common in villages to burn the land after harvesting potatoes, which damages the environment. It should be noted that the income received from the sale of potatoes is the main source of income for Armenian villages.

ACTORS RESPONSIBLE FOR SOLVING PROBLEMS CAUSED BY CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION

Mainly two viewpoints were expressed during focus groups about who is responsible for climate change and the solving of the problems caused by environmental degradation. One part divides the responsibility between an individual and the state, and the second part of the respondents distinctly imposes the responsibility on the state and the private sector, which damages the environment with its activities.

According to the respondents, individual responsibility is expressed: a) in taking care of the environment by individuals, within the frames of their possibility, (not to litter, not overuse the available resources, etc.) and b) in spreading information and knowledge about environmental issues, both in the family (especially children) and in their own community - "When you take a child into the nature, they must know what is harmful and what is beneficial to the nature" (61-year-old woman, living in the city, Eastern Georgia). When talking about individual actions, one of the important dangers was throwing garbage in open space and lighting a campfire in the forest, which sometimes causes fires. According to the respondents, it is important that today's consumerist attitude towards nature changes and it becomes more focused on caring for the environment. Therefore, it is necessary to equip the population with adequate information and knowledge, which is the responsibility of the state.

The respondents expressed the opinion that it is impossible to solve the problems caused by environmental degradation without the intervention of the state - "If the government does not help us, we, the people will not be able to save nature" (61-year-old woman, living in the city, East Georgia). The focus group participants see the role of the state in the environmental protection in the following ways: 1) the integration of environmental issues in the education system, which will increase the knowledge and awareness in the population, especially among young people; 2) in the implementation of active monitoring of environmental supervision, which concerns both the detection of individual cases of environmental damage and the monitoring of the activities of private organizations (factories, plants, etc.) causing damage to the environment. Focus group participants identified specific agencies responsible for reducing the damage caused by climate change. These agencies are: Government of Georgia, Ministry of Environmental Protection and Agriculture of Georgia and local municipal authorities (city hall and assembly). The government and the agencies under the Ministry are responsible at the system level, and the responsibility of the local government is to create appropriate infrastructure, such as, for example, the placement of dumpsters, cleaning activities, etc.

Representatives of the queer community participating in the focus groups noted that climate change cannot be slowed down by the actions of individual governments, much less by the government of a small country like Georgia. Climate change is an explicitly global problem caused by the harmful effects of economic corporations.

"I do not believe that in the climate crisis my or any individual's responsibility Is high. Big corporations have that responsibility. Even statistically, as I know they account for the 99% of the air pollution. So I cannot blame that 1 % for anything, the same is true for water consumption" (23 year-old young man, urban resident, queer community).

ACTIONS AIMED AT REDUCING DAMAGE TO THE ECOLOGICAL ENVIRONMENT

In the focus groups, different opinions about the effective ways of reducing damage to the ecological environment were highlighted. One part believes that fining (introducing penalties) for environmental damage is the most effective approach, while the other part thinks that raising awareness about environmental issues is the best way to reduce environmental damage.

The part of the respondents who side with raising awareness note that it is impossible to fully monitor the environment, as well as to fully restore the damage done to the environment through fines - "[Someone] caused irreparable damage to the nature, he paid 500 GEL and that's the end of the story. What will restore the damage caused to nature? Therefore, fining is not a solution" (62-year-old woman; urban resident; East Georgia). In addition, when it comes to the imposition of fines, it is necessary to take into account the difficult social and economic situation of the population, for whom the payment of the fine is associated with great difficulties. The respondents draw attention to the disorderly condition of cars, adding that the purchase and/or renewal car parts is related to costs - "I want to say about cars, that not many people have the possibility to replace and buy new parts" (19-year-old young man; city resident; Western Georgia). Thus, respondents with this opinion believe that it is better to focus on raising awareness about environmental issues.

The participants of the focus groups, who believe that the effective mechanism is monitoring and imposition of administrative penalties (fines), note that with monitoring and fines there will be a positive result quickly, in a short period of time - "For example, I would impose a fine for littering, and now that Vazisubani is full of garbage, it won't be like that anymore" (57-year-old woman; resident of Tbilisi). In the focus groups, the opinion was expressed that the amount of the fine should be increasing. Specifically, in case of repetition, the violator should be fined twice for the damage caused to the environment. A small part of the respondents is in favor of strict punishment from the beginning - "A person or a company should not even dare think about breaking the law for the second time. The punishment should be severe from the beginning" (30-year-old man, living in a village, Eastern Georgia).

EVALUATION OF GOVERNMENT ACTIVITIES AND DIRECTIONS ON WHICH THE STATE AGENCIES SHOULD WORK

The participants in the focus groups differently evaluate how much the government is able to reduce climate change at different levels and solve problems caused by environmental degradation. According to one part, the state's role is weakest in relation to business sector, as government bodies tend to protect business interests - even when it comes to environmental damage by factories. Also, it was mentioned that the main challenge of the government is improper monitoring of environmental damage and its further enforcement. At the municipal level, the problem is disorderly infrastructure (absence of landfills and waste dumpsters).

The participants of the focus groups talked about the directions on which the state institutions should actively work in order to cause less damage to the ecological environment. First of all, they focus on the need to monitor the activities of plants and factories that harm the ecological environment and tighten regulations for them - "the fact is that imposing fines does not solve this, because they pay them. They should close it, or they should tighten the regulations" (44-year-old woman, village resident, Eastern Georgia). It is the responsibility of local authorities to continue to develop services that will protect the environment from pollution in the future.

"I work as a guide in Racha. In the summer I visited several places together with Estonian tourists, I felt ashamed, they were full of garbage. There were no bins and the garbage was thrown on the ground next to the tree" (62-year-old woman, rural resident; Western Georgia).

"Waste management is a rather difficult problem in our village. There is one dumpster at the entrance of the village. So if I take garbage to the entrance of the village, it is basically the same if I took it to Tskaltubo. So the waste management is very disorganized in villages". (46-year-old man; rural resident; Western Georgia).

One part of the respondents focuses on the need to raise awareness of employees of municipal bodies about environmental issues. Also, it was noted that it is necessary for the local government to study the challenges in terms of environmental pollution on site and in order to solve them, to help the central government. An opinion was expressed that in municipal bodies it is necessary to create a structure responsible for environmental protection, where qualified personnel will be employed.

It is noteworthy that the focus group participants found it hard to name specific legislative initiatives that need to be initiated. The respondents' opinions are general and based on their own observations and experiences. According to the information of a small part of the respondents, Georgia is a signatory country to all important international conventions and the current legislation is in harmony with them. Thus, it is important to enforce the existing agreements and legislation.

THE EXPERIENCE OF ADDRESSING THE LOCAL GOVERNMENT AND OTHER ACTORS

The focus group participants mention that during natural disasters they will contact Public Safety Command Center for help, through the hotline (tel: 112).

"I would definitely call 112. I have great trust in them. Our rescuers have really proved that even without any resources they were able to achieve their maximum" (46-year-old female, rural resident; Eastern Georgia)

Part of the respondents would turn to the local government for help, in order to receive reimbursement for the material damage caused by various natural disasters (landslide, flooding, storm and fire). In order to establish the extent of the damage, description and financial calculation are needed.

"I would call the municipality, or a village representative. It depends on the problem. If there is an issue of reimbursement for the damage, then I would contact the local government to do the calculation" (34-year-old male; rural resident; Eastern Georgia)

It is noteworthy that the experience of addressing the local government was revealed more in villages than among the city residents. As a rule, this experience is negative. The respondents with the experience of addressing the local government recalled concrete cases.

„There was an overflow of water in my family's yard, it washed away half of the sown area, we addressed the local municipality but they told us that it was only if the residential place got damaged, they could not compensate for the land" (46-year-old male, rural resident; Western Georgia)

"We had a terrible rain, it split the yard in half, they came, looked at it and told us that if they remained in the government they would take care of it, but no one came and that land is still like that" (30-year-old male; rural resident; Western Georgia)

"So water would get into our basement and the basement would get flooded. We addressed the municipality, they dried it out, fortified it, they rehabilitated the pipes more or less they help us sometimes" (33-year-old female, ethnic Armenian; rural resident).

In order to solve the problems caused by climate change or degradation of the natural environment, a small part of the focus group participants have the experience of approaching the civil society and mass media, which mainly related to receiving legal advice and coverage of the problem. Also, few have the experience of participating in various informational and educational events, which were related to the problems caused by climate change and/or degradation of the natural environment.

Several respondents participated in information meetings organized by civil society organizations. One of the topics of such meetings was getting help during disasters, problems caused by climate change and/or degradation of the natural environment.

THE SPECIFICITY OF ETHNIC MINORITIES

Representatives of ethnic minorities - Armenians and Azerbaijanis - noted during the focus groups that bilingual brochures are distributed to them, which include information on action during disasters and finding first aid. In addition, there are local media outlets (TV, online media) in Armenian and Azerbaijani languages, where useful information about the environment is provided. According to the assessment of the ethnic minorities participating in the focus groups, the Georgian language barrier is not a problem for the young generation. Accordingly, information is available in Georgian for young people. According to the respondents, it is desirable that more bilingual information on climate change issues be distributed among the population. Given that the majority of ethnic minorities are engaged in agricultural activities, it is very important for them to have information on environmental issues.

AWARENESS OF THE POSITIVE EXPERIENCE ABROAD

It was interesting for the research to find out what information the respondents have about the experiences that have been tested abroad, especially in Western countries, in terms of caring for the ecological environment. The participants of the focus groups mentioned the following countries as examples: Czech Republic, Germany, Turkey, Finland, France and Switzerland.

For respondents with information about foreign experiences, a system of advance notification for natural disasters is highly attractive. This issue is particularly relevant in the light of the natural disaster that occurred in the Shovi resort on August 3, 2023.

> *"I have heard that abroad there are warning messages through radio and TV that a storm or a flood is expected. It would be very good, if this notification mechanism existed in our country as well" (53 year-old female, rural resident; Eastern Georgia)*

One of the participants of the focus group talked about the experience of the Czech Republic, where every year the state buys the main Christmas tree from a region through a tender, and with the money received, hundreds of new Christmas trees are planted in the region - "200,000 is transferred and new Christmas trees are planted with this money. What do they do here? They spend 2 million and even more, and what? It would be good if the money was again used for nature" (44-year-old man, living in a village, Eastern Georgia). Also, the example of Finland was named, where private companies that cut down timber have the obligation to plant tens of saplings in another area.

Another example refers to sorting of household waste and its recycling. According to the respondents, separation and recycling of waste along with environmental protection is also economically beneficial - "for example, cardboard is taken to Turkey, where they process and prepare notebooks. When I bought a notebook for my son, it was made from cardboard collected here" (30-year-old man, living in a village, Eastern Georgia). A respondent living in one of the villages of Western Georgia brought the example of Germany, where plastic and battery collection points are functioning - "because they contain poison and destroy living things in the soil, within a certain radius, it is necessary to recycle them" (46-year-old man, resident of the village, Western Georgia).

For respondents who have visited Western European countries, the active use of bicycles by the population as the main means of transportation is striking. The state helps to make a bicycle a comfortable means of transportation, for which it arranges the appropriate road infrastructure. Respondents named two countries as examples - France and Switzerland.

ASSESSMENT OF HYPOTHETICAL SITUATIONS

During the focus groups, the respondents were offered hypothetical situations regarding climate and environmental change for evaluation. The participants of the discussions talked about their attitude towards specific situations, named the specific actions that they would take during certain situations. At the same time, the responsible actors were identified. It is significant that when evaluating the hypothetical cases, no significantly different opinions and attitudes were revealed according to the target groups.

SITUATION #1

„A community/neighborhood member claims that it does not matter if they change their individual behaviors for climate change, because individual efforts are not enough unless other people do the same".

The majority of respondents do not agree with the opinion that individual behavior does not matter in the context of climate change. Respondents think that both good and bad individual behavior become a role model for others. Ultimately, individual behavior will become collective and will affect climate change either positively or negatively.

„My neighbor lives abroad and when he came back, on the road whatever was thrown on the ground by others, he collected everything himself, put them in bags and threw them in the litter bin. When we watched him, then the rest of us also started doing the same" (66 year-old male; rural resident; Eastern Georgia)

The importance of individual behavior is shared by all target groups, however, queer community participants emphasized that individual actions alone will not reduce the damage to the environment - "of course, it is necessary to protect and take care of the environment. But the greatest damage to the environment is not done by the population, but by economic capital" (29-year-old representative of the queer community).

SITUATION #2

"Please Imagine: you are leading a seminar on awareness about climate change. One participant argues that individual actions such as reducing energy consumption will not have a significant impact. How would you respond to them?

Similar to the assessment of the situation #1, the opinion was expressed that individual actions help to take care of the environment, which subsequently has a positive impact on the climate - "If we recall the Georgian proverb, it says – you can drink the sea with a spoon." This proverb means that the whole world consists of individuals" (53-year-old man, city resident, Western Georgia). However, some of the respondents focus on the biggest consumers of resources and place the responsibility on large factories, which expand every year, increase production and consume the most resources (fuel, water, etc.), which ultimately has a negative impact on the ecology.

SITUATION #3

"Please imagine: you work in the local government in a region where there is extreme heat due to climate change. Budgets are limited and you must decide to fund air conditioning systems in public buildings or community education programs on heat safety/defense measures. What decision would you make and why?'

Unlike the previous two (#1 and #2) situation examples, respondents' opinions regarding this particular situation are less clear. However, the majority is still in favor of financing educational programs, because they are focused on long-term results and take into account the care for the environment. On the other hand, high heat causes serious health problems, especially among vulnerable groups (elderly, disabled people, people with chronic diseases, etc.), for whom it is important to provide an appropriate environment, which includes the need for air cooling. If given a choice, some of the respondents would divide the available amount approximately equally and use it both for education and the purchase of air conditioners - "If I had the right, I would divide the amount in two, because you cannot leave people who have health problems without air conditioning. For example, I would place the services in one space, where there would be an air conditioner, and I would spend the rest of the money on an information campaign" (29-year-old representative of the queer community).

SITUATION #4

"Construction of a hydroelectric station is planned on the riverbed. On the one hand, it will create a new source of energy and the opportunity to employ part of the local population. On the other hand, there are threats of local ecosystem change."

When evaluating this particular situation, ambivalent opinions were revealed among the respondents. On the one hand, they share the opinion that the generation of additional energy will contribute to the growth of the economy, but on the other hand, they also agree that the change in the ecosystem will cause damage to the environment, which will have a negative impact on

people's health. One part of the respondents sides with the construction of small-scale hydroelectric power plants, which, according to their information, have an insignificant impact on the environment - "small hydroelectric power plants can be built, as they say, 'not to burn either a barbeque or a skewer.' It will not damage the riverbed either, and it will help the population a little" (40-year-old woman, living in a village, Eastern Georgia). Also, the opinion was expressed that the evaluations of specialists and the interests of the local population should be taken into account when making a decision on the construction of hydroelectric power stations.

„With correct engineer planning the ecosystem will not change. We have to rely on the correct and impartial decision of the geologists and engineers" (45 year-old male, urban resident; Eastern Georgia).

"I think, if the local population and the climate created there and the agriculture are under threat, than I would refrain from building a power plant there and would seek another alternative" (57 year-old male; PWD community member)

According to a small part, there is no longer the need for the construction of hydroelectric power stations in Georgia, because their number is sufficient for the development of the local economy.

SITUATION #5

"Imagine: You want to make your home more energy efficient, which can be done by installing solar panels, insulation, or new windows. This is related to expenses but it will reduce your energy consumption and consequently your monthly energy costs in the future. What will you decide?'

When discussing situation 5, the focus group participants draw attention to the social and economic situation of the families and note that, despite their attitudes, they would not be able to purchase the appropriate equipment for efficient energy consumption. However, given a sufficient budget, respondents would prefer to purchase solar panels, insulation and/or new windows to reduce energy consumption.

"By insulating the house I will save on gas bills (24 year-old female; ethnic Azerbaijani)

" If there is an opportunity to invest and save, of course I would do that from the beginning" (30 year-old female; urban resident; Western Georgia)

According to the respondents, solar panels are especially expensive. Therefore, it is important that the state develops co-financing programs and provides subsidies.

" I will tell you my own example – If I installed solar panels, I would be free from bills, but when I did the calculation, I would need 20 years to compensate the expenses. If it were a little cheaper and I had some assistance, I would definitely buy it. I want it very much but it is a very expensive pleasure. It would be nice if the government had a subsidy" (48 year-old male, urban resident; Western Georgia)

SITUATION #6

"There is a factory operating near the city, which occupies an important place in the industrial market and employs a large part of the city's residents. On the other hand, the factory produces a large amount of emissions and industrial waste, which is harmful to the health of the city residents."

According to the focus group participants, the operation of factories in the industrial market is important for the employment of the local population, especially in regions where employment opportunities are scarce. However, at the same time, an opinion was expressed that it is necessary for factories to ensure ecological and safety standards in order not to harm the environment and the health of the population - "There is fog in the city due to the lack of filters in the ferroalloy plant in Zestaponi. It is necessary to have mandatory regulations. The whole city should not be covered in smoke" (47-year-old man, village resident, Western Georgia). In case if it is planned to build new factories, it is necessary that they be built away from populated areas so that their activities do not harm the environment and people's health. It is significant that the respondents focus on the harmful effects caused by the operation of factories, which have a negative impact on human health. Respondents talk little or not at all about the damage that the operation of factories causes to the ecosystem.

According to the participants of the focus groups, it is necessary to maintain a balance - on the one hand, the growth of the economy and the creation of jobs must be promoted, and on the other hand, the ecological environment and people's health must be protected - "Of course, it will be nice if the population works in a factory where the air will not be polluted. The head of the factory should take responsibility for that" (30-year-old woman; ethnic Armenian). The population should not be faced with such a choice, when choosing between employment and health. Also, the respondents drew attention to the role of the state, which is obliged to systematically monitor, identify violations and have an adequate response to the detected violations.

SITUATION #7

"A private company has purchased a plot of land and plans to cut down a forest massif to place a building on this site. The local population is dissatisfied with such a decision, but they do not see the point in disputing against a private owner"

When evaluating this hypothetical situation, the respondents repeat the opinions expressed during the evaluation of situations #4 and #6, noting that on the one hand, to improve the social and economic conditions of the population, it is necessary to promote business, however, at the same time, the company's activities should not have a negative impact on the environment. If the company is operating legally and cutting the timber it owns in accordance with existing regulations, then there is nothing the population can do. In such a situation, the legislation needs to be tightened so that in other cases the private sector cannot cut down the forest. However, among the respondents there were those who believe that it is permissible for the private sector to act as it sees fit, because property rights are supreme.

"If a tree is privately owned, they can cut it down and if it employs people, it will create a successful business and will invest the money in the budget, and in that case it is more acceptable" (40 year-old male; rural resident; Western Georgia)

In order to form their attitude, it is important for the respondents to know the size of the plot that is planned to be cut down and what types of plants are in the forest.

> *" If they have to cut down hectares of trees than it is unacceptable, if it is a small territory and is being cut down in exchange for something, than it is acceptable, also what plants are in the plot, this also matters" (46 year-old male, rural resident; Western Georgia)*

The second part of the respondents believe that when making a decision, the public interest is primary, what damage the cutting down will cause to the environment and what benefits the factory opened by the company in the cut down area will bring to the population. If the company is unable to carry out its activities without cutting trees, then it should be obliged to plant at least the same number of trees elsewhere. If the interests of the population are not taken into account, then it is necessary to appeal to the court, where the population will protect their own interests.

SITUATION #8

"Imagine: your community/neighborhood is responsible for planning a housing development located near a riverbed. Scientists predict more frequent rains and rising of water levels in rivers, but building sustainable infrastructure is related to additional costs. What would your community/neighborhood prioritize during planning?'

When assessing this situation, the opinions of the respondents are clear. Specifically, according to them, it is impermissible to build a residential building in the riverbed, especially when, according to the assessment of qualified scientists, the construction is dangerous. For one part of the respondents, the construction of sustainable infrastructure is not enough, because it is difficult to predict the changes caused by climate change. The clear opinions of the respondents are strengthened by the tragic incident that happened in Shovi in the summer of 2023, which the respondents repeatedly recalled during the discussions.

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