GGGI

CLIMATE CHANGE AWARENESS AND MEDIA CONSUMPTION SURVEY IN MONGOLIA

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MINISTRY OF ENVIRONMENT AND TOURISM

GOVERNMENT OF MONGOLIA

IRIM

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CONTENTS

Abbreviations and Acronyms

CAPI	Computer Assisted in-Person Interview
CCRCC	Climate Change Research and Cooperation Centre
CoP	Conference of Parties
FGD	Focus Group Discussion
GCF	Green Climate Fund
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GoM	Government of Mongolia
IPCC	Intergovernmental Panel on Climate Changes
IRIM	Independent Research Institute of Mongolia
KAP	Knowledge, Attitude and Practice
KII	Key Informant Interview
LV	Less Vulnerable
MDDC	Ministry of Digital Development and Communications
MET	Ministry of Environment and Tourism
MNB	Mongolian National Broadcaster
NAMEM	Information and Research Institute of Meteorology, Hydrology and Environmental Monitoring
NAPCC	National Action Plan on Climate Change
NDC	Nationally Determined Contribution
NEMA	National Emergency Management Agency
NGO	Non-Governmental Organization
NSO	National Statistics Office
OLS	Ordinary Least Square
PSU	Primary Sampling Unit
UNFCCC	United Nations Framework Convention on Climate Change

Acknowledgements

Research Team

Executive Summary

Background

Climate change is expected to intensify over the next several decades, resulting in a myriad of impacts on natural and human systems.[1] The impacts of climate change will be severe in Mongolia as the country already faces rapid desertification, water scarcity, changing precipitation patterns and seasonal intensification of extreme weather events. Over the last 80 years, Mongolia's average annual temperature has increased by 2.25℃.[2] Population groups, particularly vulnerable groups, are likely to be disproportionately affected. This is due to their exposure to shocks and stresses as well as their limited capacity to withstand, and respond to, climate-induced disasters and risks.

Mongolia's climate change mitigation and adaptation policy goals are able to succeed and be sustainable if the general public, key stakeholders and policymakers support effective action. Protecting vulnerable groups affected by climate change, and empowering the general public to respond to climate-induced risks, were mentioned in Mongolia's 2019 *Nationally Determined Contribution to the United Nations Framework Convention on Climate Change (UNFCCC).*[3] However, only a few studies have been conducted in Mongolia to identify what opportunities exist to increase knowledge and promote positive attitudes and practices among the population and vulnerable groups.

The 'Climate Change Awareness and Media Consumption Survey in Mongolia' (*the Survey*) was commissioned by the Global Green Growth Institute (GGGI) and the Climate Change Research and Cooperation Centre (CCRCC) of the Ministry of Environment and Tourism (MET). It was implemented by the Independent Research Institute of Mongolia (IRIM).

The purpose of *the Survey* was to assess awareness, knowledge, attitudes, practice and media consumption related to climate change among the population - including the most vulnerable in society. The results of the study are expected to inform the development of a national awareness-raising campaign strategy. This strategy will be aimed at improving public awareness and capacity-building activities in order to mainstream the inclusion of climate change in national and sub-national policies.

First, *the Survey* examined the general awareness, knowledge and attitudes of citizens. It looked at their observations about the weather, environmental and climate changes, their understanding of the causes and effects of climate change, and their concerns about climate change. Second, *the Survey* assessed the capacity needs of governmental and non-governmental stakeholders. It looked at the priorities and actions required for mitigation and adaptation strategies at the individual, community and national levels. Third, *the Survey* focused on citizens' access to information about climate change and strategies for an effective awareness campaign.

Methodology

The Survey was a mixed-method, non-experimental and cross-sectional survey. The sampling design of *the Survey* was aimed at capturing results at the national level and across all regions. Between September-November 2022, data was collected face-to-face across 13 aimags[4] and in Ulaanbaatar city. It involved 2,804 respondents - of which 51.9% were female and 48.1% were male. In selecting survey sites and respondents, a stratified, multi-stage cluster sampling method was applied.

In total, 49 key informants from national and local government, non-governmental organizations (NGOs), academia, media and the private sector were purposefully selected. During the interviews, questions on climate change mainstreaming capacity factors, including demand, leadership, resources, technical capacity and institutional arrangements, were asked. A total of nine focus group discussions (FGDs) were conducted which included community representatives - men and women, youth, older people, herders, farmers,

1 Ategeka, J. et al. (2022) Behavioural science interventions within the development and environmental fields in developing countries: A systematic review. Available at: https://research-portal.uea.ac.uk/en/publications/behavioural-science-interventions-within-the-development-and-envi-2

2 Ministry of Environment and Tourism. (2020) the contribution target defined at the national level for the implementation of Paris Agreement,

3 Ministry of Environment and Tourism. (2019) Mongolia's Nationally Determined Contribution to the UNFCCC. Available at: https://unfccc.int/sites/default/files/NDC/2022-06/First%20Submission%20of%20Mongolia%27s%20NDC.pdf

4 An aimag is a unit that makes independent decisions on economic and social issues, coordinates inter-soum activities, ensures implementation of legislation, and exercises oversight/monitoring within functions specifically provided by law. Available at: https://legalinfo.mn/mn/detail?lawId=16106891904801

ethnic minorities, communities in *ger* areas[5], mining-affected areas, and remote border areas.

*The Survey exam*ined how socio-economic status can influence climate change awareness, information needs, and the processing of climate-related information. In doing so, the team constructed and used a simple vulnerability index that measured different characteristics of a person that places them at higher risk of economic deprivation, health issues and social isolation in relation to climate change. A total of 13 characteristics were used to construct the index including older age, disability, chronic illness, lower income, lower levels of education, internal migration status, and those who engaged in livelihoods vulnerable to climate change impacts. Using the index, the respondents were divided into two groups - 'less vulnerable' and 'vulnerable' - to allow for disaggregated analyses by vulnerability status.

In the knowledge, attitudes and practice (KAP) component o*f the Survey, a* KAP index was created by calculating the proportion of correct or positive responses to the total questions related to climate change (knowledge: 10 questions, attitude: 15 questions; and practice: 9 questions). This index was primarily focused on identifying the main factors influencing respondents' KAP, rather than simply categorizing individuals' knowledge as 'good' or 'poor' and attitudes as 'positive' or 'negative'..

Key findings

Using the overall vulnerability index, a total of 1,313 respondents (46.8%) in *the Survey* were identified as 'vulnerable.' *The Survey* revealed that there were multiple compounding vulnerabilities among those considered 'vulnerable.' For example, among the respondents who had lower income, the majority were female (62.1% versus 37.9% male); the majority did not have savings (61.9%); the majority had completed secondary (41.8%) or lower education (24.1%) and more of them lived in urban *ger* districts (27.6%). Therefore, when designing an awareness-raising campaign, the needs and priorities of vulnerable groups will need to be considered.

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5 Informal settlements named after Ger - the traditional home of Mongolian nomads. Available at: https://unhabitat.org/sites/default/files/documents/2019-05/gusip_output_2.3_central_ger_area_guidelines_november2010.pdf

Awareness, knowledge, attitudes and practices

Using the overall vulnerability index, a total of 1,313 respondents (46.8%) in *the Survey* were identified as 'vulnerable.' *The Survey* revealed that there were multiple compounding vulnerabilities among those considered 'vulnerable.' For example, among the respondents who had lower income, the majority were female (62.1% versus 37.9% male); the majority did not have savings (61.9%); the majority had completed secondary (41.8%) or lower education (24.1%) and more of them lived in urban *ger* districts (27.6%). Therefore, when designing an awareness-raising campaign, the needs and priorities of vulnerable groups will need to be considered.

Those that participated in *the Survey* were aware of the seriousness of these issues. **The vast majority of respondents (92.7%) were concerned about climate change and were interested in receiving more information about climate change from the media (85.1%).** The respondents mentioned that if these drivers continue, climate change will negatively impact their livelihoods in the future. In particular, respondents believed that negative effects are expected in the areas of the environment (51.6%), public health (38.6%), livelihood through livestock and farming (31.0%), and that increased energy costs will cause broader economic issues in the country (20.3%). The broader economic issues included an increase in the cost of living, threatening food security (19.1%) and exacerbating social issues (13.5%) – such as climate-induced migration, a lack of education for youth, and family ruptures. However, an overall understanding about the relationship between climate change and other socio-economic and environmental issues was relatively low among the population surveyed - 13.5% of respondents linked climate change with social issues, 20.3% with economic issues, and 51.6% with environmental issues.

There was a strong tendency among Mongolians to believe that climate change is happening away from their households, communities, and aimags and that it occurs in the long term.

They perceived that the effects of climate change would occur negatively (78.6%) but not in the near future (67.1%). This was mainly due to a lack of information on the current, and projected effects of, climate change. There were other more immediate priorities in people's lives. These included health (50.7% of all respondents named health as one of the top 3 priorities), jobs and income (mentioned by 46.6% and 44.3%), and air pollution (46.0%). As a result, the majority of the population are not actively seeking and taking preventive measures to protect themselves from natural disasters and other long-term effects induced by climate change.

Although most respondents had awareness about climate change and relatively positive attitudes, less than a quarter of them had taken measures to prepare for disasters (76.9% had not taken any action in the last few years). The respondents who had taken prevention and preparedness measures were mainly those who had previously experienced disasters themselves. **Furthermore, only a small group of people (9.9%) said they were aware of strategies to address the consequences of climate change.** This suggests crucial knowledge the population needs – in terms of protecting themselves, households and communities – is low in Mongolia.

Most respondents believed that climate change occurs as a result of their daily practices - including coal burning and electricity and water consumption. However, respondents from vulnerable groups expressed changing their daily practices would be difficult due to various trade-offs – such as saving on the cost of heating by burning coal or paying higher electricity bills to keep the house warm and using electric heating for those with babies. It is a dilemma for households from urban *ger* areas and rural areas where people with lower levels of KAP, and higher levels of vulnerability, mostly live.

There were significant differences in the levels of awareness and KAP by people's age, residency in rural or urban areas, level of education (especially with regards to knowledge), and vulnerability. There were some differences (which were not statistically significant) based upon gender:

- Women. The difference between the perceptions and practices of women and men in regard to climate change was small. However, more women were worried about climate change than men. They believed climate change would

affect their lives in the short term and expressed their need of greater knowledge and skills. Their willingness to obtain knowledge and skills regarding climate change was high, but their subjective assessment of their own knowledge of climate change was low. Regarding their daily practices, men and women were having significantly different experiences. Women had a positive role in promoting daily practices to protect the environment - by using reusable products, turning off the water tap, leaving electronic devices unplugged, and using less single-use plastic products. Moreover, women were less aware of how to take appropriate actions to prevent or minimize the damage of climate change and had less experience of taking preventive action to protect themselves from natural disasters.

- Youth. Respondents aged between 18-24 had heard about the term climate change and believed that climate change is occurring more than other age group. However, they were the group least concerned about climate change, least interested in obtaining greater knowledge and skills regarding climate change adaptation, and the age group with the lowest proportion of people who believed climate change is an urgent issue for the country. This shows there is a significant need to target the youth and change their attitudes – particularly as they will be the next generation of voters to influence policies in the country.

- Education and income level. Knowledge of the more scientific and recent terminologies – including 'climate change' and 'GHG emissions' – was relatively low among respondents with lower levels of education. Moreover, the lower the education level, the higher the chance that they had 'never heard of climate change' - even though they are one of the most vulnerable groups. Therefore, respondents with lower levels of education and lower incomes are likely to fail to associate environmental changes with climate change and understand the effects of climate change on their livelihoods. However, they did perceive themselves to be less capable of coping, or dealing, with climate change and taking appropriate action to prevent and minimize the damage that climate change causes.

- Rural population. Rural respondents' knowledge about the causes and effects of climate change was low; therefore, they are unlikely to believe that climate change is occurring globally and affects Mongolia. While they noticed more environmental changes and experienced natural disasters, they thought it frequently occurs in ten-year cycles and is natural. They were, however, more concerned with the negative effects of environmental changes, including seasonal changes, because it has the potential to affect their livelihoods. A high number of rural respondents were also willing to receive more information about climate change from the media.

Perceptions about climate action

Respondents viewed *businesses* and *citizens* as the two main stakeholders driving climate change (38.3% and 35.9% respectively). Although the majority of the respondents identified industries and businesses as the largest *contributor* to climate change, there were very few responses (9.8%) saying industries and businesses were *responsible* for addressing it.

When it came to tackling climate change-related issues, the majority of the respondents (62.9%) believed it was up to the Government of Mongolia, including local governments, to introduce and enforce changes for mitigating climate change impacts in the country. People shared that their biggest worries were about health, air pollution and economic situations. They believed that the impact of changes in the weather, environment and natural resources would increase in the long term and negatively affect the environment, health, agriculture and economy.

Respondents considered citizens to be the second most important stakeholder for addressing climate change (29.8%). Of the respondents in urban areas, 33.1% reported citizens should address climate change compared to 23.9% of those in rural areas. There were also differences based on the educational level of respondents - where those with higher levels of education were more inclined to say '*it's up to citizens to take action*' than those with lower levels of education.

Only 12% of all respondents believed industrialized countries are *causing climate change*, and 6.8% thought they should be *responsible for addressing* it. The lack of understanding about industrialized countries' impacts on climate change, and their capacity to address it, is notable. This was revealed through FGDs in which participants associated climate change at only the national level. It suggests the need to raise citizens' awareness about the role industrialized nations and transnational corporations should take to intensify their efforts and reduce the causes of climate change.

Acccording the respondents' views, the most common climate actions that the Government should undertake are related to energy efficiency and renewable energy, livestock and agriculture management, and waste management and environmental conservation. The preferences in these measures differed significantly by rural and urban respondents. Energy, waste and transportation were mentioned more times by urban residents, while livestock and agriculture and environmental conservation measures were common among rural residents.

Media consumption and communication

Television, or TV, (73.6%) and the internet (63.7%) were the primary sources respondents used to obtain information on important topics - such as politics, the economy, health, education and the environment. Face-to-face interactions, including with work colleagues and local authorities, were the third most common way of obtaining general information in Mongolia. This was significantly lower (8%) than getting information from TV and the internet.

According to *the Survey*, the number of daily internet users was greater than daily TV users (n=1212). The internet was the source that was most often used on a daily basis compared to other types of sources (49.3% of all respondents used the internet everyday). TV was less frequently used than the internet to obtain general information (43.2% reportedly used TV everyday). Internet usage was the most popular source among the young and urban populations, while TV was the most accessible source of information for vulnerable groups - including older people, those in rural areas, those who had completed secondary education, and those living in *ger* areas.

The mobile phone was the most accessible device to reach people from all segments. More than 99.1% of the respondents who used mobile phones said they use their mobile phone, or someone else's, 'everyday' or 'occasionally.' In terms of trustworthiness in sources of information, TV was the fourth most trusted source of information (67.5%) after trainings and meetings (87.3%), local authorities (83.6%), and family and friends (73.9%). Trust in internet was the lowest (29.8%).

In terms of climate change and media consumption, 44.1% of respondents had received information about the term 'climate change' or 'global warming' from the media, while 45.3% had not. Without specifically mentioning the terms in the question, we asked respondents whether they encountered any information related to climate change, such as changes in weather patterns and the occurence of natural hazards. In this question, more rural respondents than urban respondents answered that they received this kind of information. This may be due to the fact that rural people pay particular attention to weather-related information and notice changes more than those in urban areas. Although statistically not significant, more men than women had received information (47.0% versus 41.3%). Comparing the result by overall KAP scores, those who received information had higher levels of knowledge and attitudes scores. This suggests that receiving information from the media could be an effective way to improve the population's knowledge and promote positive attitudes tackling climate change.

To determine whether respondents received any information from existing environment and climate change-related sources, they were asked to choose the sources which they had received information from in the past. Two TV programs reached more respondents than any other media source. These were *Khureelen* – an environmental documentary - and the TV program *Nogoon Shoshgo*. The next two most common sources of information were the official Facebook pages of the Department of Ecological Police and the MET.

Stakeholders' views about climate action and mainstreaming in Mongolia

Based upon key informant interviews (KIIs), government officials and independent experts tended to have a good understanding and knowledge of climate change impacts and responses. Most interviewees tended to treat climate change as an emerging priority due to its effect on different sectors, such as the environment, agriculture, forestry, and health. They were able to understand the connection between climate change causes, impacts and consequences at both the national and global level. Furthermore, the interviewees were able to identify key climate change terminology. This included terms such as 'GHG emissions', 'mitigation', 'carbon sequestration and sink', and 'adaptation.' They were also familiar with international frameworks such as the Kyoto Protocol and the Paris Agreement on Climate Change.

All participants highlighted the importance of addressing climate change issues at the top level, particularly emphasizing the leadership of the government. The MET was identified due to its mandate for implementing integrated policy and coordinating climate change efforts among internal and external stakeholders. Furthermore, they pointed out that a participatory approach that involves diverse stakeholders at all levels (to consider climate change and find solutions to manage and mitigate its impacts) needs to be improved.

Sectoral experts, particularly those in the energy field, understood, and in some cases were able to explain, climate change terminology in their responses. This included referring to terms such as 'green energy', 'clean energy and technology', 'renewable energy certificate', and 'carbon offset credits.' Some sectoral interviewees often used terms such as 'global warming' and 'weather change' when discussing climate change. A small number of interviewees tended to confuse 'climate change' with 'air pollution.'

Academic and non-governmental interviewees had technical knowledge of climate change and the ability to access a variety of information in their respective fields. Furthermore, the interviewees were aware of key policy frameworks, strategic actions and plans, as well as international-level conventions and treaties. However, they stated that the instability of the government, lack of coordination, stakeholder participation, and limited financial support were key challenges in terms of addressing climate change. Despite the country receiving support from international organizations and donor countries in climate change mitigation and adaptation, the government's effort to address climate change as

a whole was considered insufficient due to the lack of a multi-stakeholder engagement approach in the policy framework - including in terms of public awareness and capacity-building.

The majority of the participants stated that public access to adequate climate change information was limited. They believed that projects implemented by international organizations and donor countries were responsible for disseminating the majority of information about climate change.

To successfully mainstream the importance of addressing climate change at all levels, seven factors were used in assessing readiness. These were; awareness and knowledge, leadership, demand for climate change measures, resources, technical capacity, institutional arrangements, and values and standards. **When asked to rate the level of readiness to mainstream the importance of addressing climate change in Mongolia, stakeholders rated it on average 2.6 point on a scale of 1 to 4**. However, almost all the interviewees highlighted that necessary factors were low and needed to be improved urgently. Stakeholders rated institutional arrangement and technical capacity the lowest (2.1 and 2.2, respectively), suggesting they are just emerging. The majority of stakeholders interviewed emphasized that the roles and responsibilities of organizations within each sector were not clearly defined and yet to be institutionalized.

Energy sector stakeholders believed their sector is the readiest to mainstream the importance of addressing climate change. They said this was due to the increasing demand and requirements of climate mitigation measures from international financial and technical support sources. Furthermore, climate knowledge and information was considered to be adequately utilized in the sectoral planning process. The Energy Regulatory Commission and the Ministry of Energy were often mentioned in the key informant interviews. The stakeholders considered that the institutions demonstrate adequate leadership in addressing climate change issues in their sector. However, further strengthening the implementation of a comprehensive climate strategy at the national level, limited financing on measures aimed at improving energy efficiency, and increasing the use of renewable energy, was often mentioned during the key informant interviews.

Agriculture sector stakeholders claimed that their sector is the most vulnerable to climate change impacts. They pointed out the need for sufficient regulation to balance the livestock population and better controls over meat, cashmere and dairy production. Moreover, the technical capacity of the sector, particularly at the academic and university levels, was considered sufficient by the availability of a large amount of research linking climate change to agriculture and livestock. However, on the overall issue of climate change, there was reported to be a lack of qualified and competent personnel or experts at the sectoral and organizational levels. The interviewees stated that there needed to be more specialists with a better understanding and knowledge of climate change issues, particularly in rural and local areas.

Health sector stakeholders claimed that the sector's response to climate change is sufficient due to the strategy of addressing public health concerns related to the impacts of climate change - such as rising temperatures, increased duration of heatwaves, increased frequency of natural disasters, and the impacts on livelihoods. The interviewees often linked the increase of non-communicable diseases, vector-borne and zoonotic diseases to the impacts of climate change. However, further capacity-building actions need to be taken at various levels, including at the organizational and individual levels, despite the inclusiveness of training and seminars from the government.

At the sub-national level, almost all the key informants (i.e. members of local authorities and representatives from local NGOs) had limited technical and in-depth knowledge of climate change. Despite having heard about climate change and claiming they recognized the importance of addressing climate change, the local authorities were not prioritizing climate change issues over other pressing issues. They also often interpreted climate change only in the context of the environment and green development, as is formulated in major policy documents. The key challenges identified by interviewees were the limited human resources and lack of leadership roles at the local level. They also highlighted that implementing climate change measures depends strongly upon whether it is part of the agenda of the local governor.

Strategies for the awareness-raising and capacity-building campaign

The fact that many respondents reported that they have a low understanding of climate change, and awareness of the ways to cope with the effects of climate change, should be seen as an opportunity for raising awareness on the issue. **The Survey shows that there is high demand for reliable and consistent information related to climate change.** The majority of the respondents (85.4%) said that they would like to receive more information related to the topic from the media. Key stakeholders (including local government officials, civil servants, journalists and those working in the media sector) will play a crucial role in improving the understanding of climate change amongst the public and increasing the availability of climate change information. However, for those in positions to inform and engage the public, there is often a low understanding of climate change and a lack of resources. The outcomes, strategies and actions for consideration in the awareness-raising and capacity-building campaign align with the targets specified in the Nationally Determined Contribution (NDC) Action Plan.

The Research team recommends that the desired impact of the awareness-raising and capacity-building campaign be to 'provide reliable knowledge about climate change to all segments of society to support the adaptation capacity and practices of the population.'

The objectives or outcomes of the campaign should be to:

- Improve the understanding of climate change and how its impacts are connected to people's primary concerns. The first aim of the strategy should be to establish a common understanding of climate change among the general public by providing educational and informative communication to them about the processes of climate change - including its causes and direct and indirect impacts. *The Survey* found that most people lack general knowledge of the processes and drivers of climate change, even if they are aware of the fact that the climate is changing. Furthermore, the understanding of general terms of climate change are different and sometimes limited among stakeholders - in some cases the terms 'climate change' and 'air pollution' are considered to be the same issue.

Therefore, creating a common understanding of climate change for the public and stakeholders is crucial.

- Inform and warn the public about climate-induced disasters. The second aim should be to inform and warn the public about current and future events caused by climate change with up-to-date information for disaster preparedness.

- Improve the public's knowledge about the practice and skills of climate change adaptation. The findings of the research suggest that Mongolians are not currently equipped with adequate knowledge or information about climate change adaptation practices. Improving the public's knowledge on climate change adaptation practices will be essential for Mongolia's response to climate change.

- Mobilize the public to advocate for climate change policies. The final aim of the strategy should be to mobilize the public to advocate for local and national governments to adopt climate change policies and better represent Mongolians' concerns and needs at the international level.

Four key strategies for the public awareness-raising and capacity-building campaign are recommended to focus on:

- The framing of climate change in the media. By emphasizing the implications of climate change on people's everyday lives and how it effects their primary concerns (including health, economy, national security and environmental issues), the Mongolian public's perception on climate change will shift.

- Human-interest stories. Human-interest stories will be an essential tool to attract the attention of the public to the issue and create emotional responses. It is expected to trigger a sense of urgency to address climate change. Stories of people, or communities, who have been affected by climate change will also be effective means for sharing climate adaptation practices to a broader audience.

- Fear appeal & inspiring action. 'Fear appeal', a common strategy employed by climate change communicators to elicit an emotional response, may be an effective strategy for

the awareness-raising campaign as FGD participants have suggested. The strategy of 'fear appeal' must be countered with 'efficacy' messaging to prevent people from disengaging with 'fear appeals.' This strategy was recommended during multiple FGDs conducted as part of the research.

- <u>Social norm interventions.</u> Social norm interventions is a social marketing approach based on the underlying principle that our perceptions of our peers' attitudes and behaviors have a great influence on our own attitudes and behaviors. It is a crucial strategy to improve knowledge and change attitudes - potentially influencing behavior on raising awareness of climate change adaptation practices.

Target Groups:

- There are two key factors that should be taken into consideration for targeting specific groups within the public. These are location/ residency (rural and urban) and age (youth, young people and older people). These should be based on their needs (support to take action on changes in the weather, the environment and climate change), media consumption patterns, and level of KAP.

- The rural population includes herders and farmers and other groups whose lives are vulnerable to climate change impacts (89.8% of herders live in rural areas). Those that had lower levels of completed secondary education were more likely to live in rural areas. Within the rural population, a distinction should also be made by age as well as it has been found that KAP levels differ with age.

- It is important to develop the knowledge and skills of decision-makers and government organizations on the following issues: how the current situation of climate change in Mongolia, its future trends and impacts will affect economic development and social development in the long term; how to consider climate change issues in policy planning and decision-making; and how to coordinate inter-sectoral coordination. It is also necessary to support decision-makers and government officials in making reasonable, evidence and science-based decisions using research and statistics in the field.

Capacity Development:

The key capacity needs at the national level include improving the technical capacity (specifically scientific methods, data systems and new technologies) of government stakeholders, strengthening current climate governance, and expanding green loans provided by banks to support all sectors in their mitigation and adaptation efforts. In terms of governance, given climate change mainstreaming is complex and multi-dimensional (requiring a highly cross-sectoral function), strengthening the existing National Climate Change Committee into a functional body is important. This was highlighted by key stakeholders - especially government experts, non-governmental experts and academic groups. Furthermore, the role and mandate of government-level authorities needs to be strengthened and more clearly defined. Specific guidelines on how to consider climate issues in planning budgets and annual plans would be a useful tool.

Part I.
INTRODUCTION, METHODOLOGY AND CONTEXT

INTRODUCTION

1.1 Background

Mongolia, as a land-locked developing state, faces some of the most pronounced climate risks of any country in the world. This includes rapid desertification, water scarcity, changing precipitation patterns and seasonal intensification of extreme weather events. The country's population, particularly vulnerable groups, is likely to be disproportionately affected due to their exposure to shocks and stresses and their limited capacity to withstand and respond to climate induced disasters and risks.

Recognizing the urgency to take action to reduce the negative impacts of climate change, the Government of Mongolia ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1993, the Kyoto Protocol in 1999, and the Paris Agreement on Climate Change in 2016. Mongolia submitted its first Intended NDC to the UNFCCC in September 2015 by committing to reduce its GHG emissions by 14% by 2030. It also updated the NDC with an increased ambition to reduce GHG emissions by 22.7% in 2030 compared to the projected emissions under a business-as-usual scenario. *Vision-2050, New Recovery Policy, Five Year Development Guideline of Mongolia (2021-2025)* and the upcoming six *Sectoral Targeted Development Programs* are the government's key high-level policy documents to tackle climate change issues among contributing or affected sectors. Approved by Parliament in 2011, the National Action Plan on Climate Change (NAPCC) is the key policy document emphasizing the importance of exploring the link between public awareness and climate change.

Mongolia's existing climate change policy goals can be collectively achieved if stakeholder participation can be improved through capacity-building, awareness-raising, and dissemination of scientific information among the general public, key stakeholders and policymakers. Reducing vulnerability to climate change for the most vulnerable groups and communities, and empowering the general public to respond to climate-induced risks, were mentioned as priorities in the 2019 NDC to UNFCCC.[1] To date, academic and policy research on climate change awareness in Mongolia has focused on topics such as agriculture, health, education, impact on livelihoods, and vulnerabilities. However, the research was limited to local and small-sample surveys, and only a few studies attempted to identify what constitutes and influences people's understanding of climate change. Little attention has been given to the role of information and media coverage in helping improve knowledge of climate change adaptation and resilience - especially among vulnerable socio-economic groups.

To fill these gaps, *the Survey* was commissioned by the Global Green Growth Institute (GGGI) and the Climate Change Research and Cooperation Centre (CCRCC) of the Ministry of Environment and Tourism (MET). It was implemented by the Independent Research Institute of Mongolia (IRIM). The study is part of a three-year Green Climate Fund (GCF) Readiness project entitled 'Strengthening Institutional and Technical Capacity to Support Nationally Determined Contribution Implementation and Mainstreaming Climate Change into Sub-national Development Planning in Mongolia.'

The purpose of *the Survey* was to assess climate change awareness, knowledge, attitudes, practices and media consumption among the population - including vulnerable groups. The results of the study are expected to inform the development of a national awareness-raising campaign strategy. This strategy will be aimed at improving public awareness and capacity-building activities in order to mainstream the inclusion of climate change in national and sub-national policies. Furthermore, the study was designed to serve as a baseline against which the progress of climate change policies,

interventions and changes in awareness and media consumption can be assessed. In a broader sense, the results from *the Survey* are intended to influence policymakers' understanding and support for action to address climate change.

The Survey is the first nationwide mixed-method survey of the population, and vulnerable groups, that focused upon climate change knowledge, attitudes, and practices (KAP). A multi-stage stratified sampling based on the five regions – Ulaanbaatar, Eastern, Western, Khangai, and Central. Different aimags were randomly selected to represent the population at the national level and involved 13 aimags and all districts of Ulaanbaatar. Data was collected between September–November 2022 and involved 2,804 respondents. Of these respondents, 65 were focus group discussion participants and 49 were key informant interview participants who represented different sectors.

The priority for *the Survey* was to gain a nuanced and robust understanding of how the general public, and particularly vulnerable groups, perceive and experience climate change – instead of testing participants' level of knowledge of climate change. As the success of climate change policies and programs largely depends upon people's understanding of how climate change works and affects their daily activities, the research team employed a broader approach when designing *the Survey* questions. Specifically, to understand people's perceptions of climate change, the respondents' views and observations - related to the weather, environment, disasters, well-being, coping mechanisms and actions they had taken around these issues - were included. In addition, *the Survey* provided recommendations for government, private and civil society sectors, including the media sector, as presented in Chapters 9 and 10 of the report.

1.2 Objectives

The objectives of *the Survey* were to:

1. Establish the baseline of public and vulnerable groups' knowledge of climate change, its causes, observed and expected effects, and ways to address it.

2. Understand people's attitudes and practices in relation to climate change.

3. Examine the potential inequities in gender and existing socio-economic vulnerabilities in climate change awareness, access to information, and the ability to take action.

4. Understand citizens' expectations about what necessary actions and key actors are needed to address climate change.

5. Assess key stakeholders' perception of climate change mainstreaming readiness in the country and the capacity-building needs of stakeholders.

6. Identify key considerations for designing climate change awareness campaigns for specific population groups.

7. Recommend which groups need priority help to respond to climate-related challenges they face.

1.3 Key terms used

Climate change. Climate change refers to long-term shifts in temperatures and weather patterns.[2] This study focuses mostly upon respondents' perceptions and understanding of greenhouse gas (GHG) emissions resulting from human activities.

Weather change. *The Survey* respondent's observations and perceptions of increases or decreases in rainfall, temperatures, storms and extreme weather over the previous decade.

Environmental change. *The Survey* respondent's observations and perceptions of increases or decreases in biodiversity, pollution and natural resources over the previous decade.

Awareness. The knowledge that something exists, or the understanding of a situation or subject at the present time which is based upon information or experience.[3]

Knowledge. Knowledge is a set of understandings, knowledge and of 'science.' It is also one's capacity for imagining, one's way of perceiving.[4] Knowledge about climate change has been approached from varying perspectives, mainly including general

knowledge of climate change, knowledge of causes and/or effects of climate change, and knowledge of the impacts of climate change.[5]

Attitudes. Attitudes refers to inclinations to react in a certain way to certain situations; to see and interpret events according to certain predispositions; or to organize opinions into coherent and interrelated structures.[6]

Adaptive capacity. The ability of a system to adjust to climate change (including climate variability and extremes to moderate potential damages), to take advantage of opportunities, or to cope with the consequences – a concept that relates in many respects to resilience (the ability to withstand climate shocks).[7]

Mitigation. In the context of climate change, human intervention to reduce the sources, or enhance the sinks, of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other 'sinks' to remove greater amounts of carbon dioxide from the atmosphere.[8]

Practice. Practices or behaviors are the observable actions of an individual in response to a stimulus.[9]

Coping strategies. A coping strategy refers to *"behavioral and cognitive tactics used to manage crises, conditions, and demands that are appraised as distressing."*[10]

Vulnerable groups. The number of certain vulnerabilities of individuals in a household that render them more vulnerable to climate change - in terms of existing demographic, socio-economic, and geographic disadvantages.

1 Ministry of Environment and Tourism. (2019) Mongolia's Nationally Determined Contribution to the UNFCCC. Available at: https://unfccc.int/sites/default/files/NDC/2022-06/First%20Submission%20of%20Mongolia%27s%20NDC.pdf

2 United Nations. (2022) What Is Climate Change? Available at https://www.un-.org/en/climatechange/what-is-climate-change#:~:text=Climate%20change%20refers%20to%20long,like%20coal%2C%20oil%20and%20gas

3 Trevethan, R. (2017) Deconstructing and assessing knowledge and awareness in Public Health Research. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5545880/

4 Médecins du Monde. (2011) The Kap Survey model (Knowledge attitude and practices). Available at: https://www.spring-nutrition.org/publications/tool-summaries/kap-survey-model-knowledge-attitudes-and-practices

5 Gazzaz & Aldeseet, (2021) Assessment of the Level of Knowledge of Climate Change of Undergraduate Science and Agriculture Student. Available at: https://files.eric.ed.gov/fulltext/EJ1322610.pdf

6 Badran, I.G. (1995) Knowledge, attitude and practice the three pillars of excellence and wisdom: A place in the medical profession. Available at: https://apps.who.int/iris/bitstream/handle/10665/116905/emhj_1995_1_1_8_16.pdf?sequence=1&isAllowed=y

7 UNFCCC, Glossary of climate change acronyms and terms. Available at: https://unfccc.int/process-and-meetings/the-convention/glossary-of-climate-change-acronyms-and-terms

8 ibid

9 Cheung, M, et al. (2011) The KAP survey model - knowledge attitude and practices. Available at: https://www.im-portal.org/help-library/the-kap-survey-model-knowledge-attitude-and-practices

10 D. Carr. (2007) Mid-Life and later-life crises. Available at: https://www.sciencedirect.com/science/article/pii/B0123708702001268

Climate change mainstreaming. Appropriate climate change mitigation and adaptation measures integrated as normal practice across policy cycles and in the development, implementation, budgeting and evaluation of sector policies.

Media consumption. Media users' (audiences) behaviour of consuming information shared on mass media platforms such as TV, newspaper, radio and the internet.

Report structure

The report consists of five parts:

Part 1 begins with this chapter. It introduces the rationale, objectives and key terms used in the report. Chapter 2 describes the study's conceptual framework, key indicators and methodology for both quantitative and qualitative purposes. Chapter 3 presents Mongolia's climate change context, the definition of 'vulnerability' with regard to climate change, and the profile of vulnerable groups within the Survey.

Part 2 looks at the main KAP findings and consists of three chapters. Chapter 4 shows the Survey findings on awareness and knowledge related to climate change. Chapter 5 explores attitudes towards climate change. Chapter 6 examines practices related to climate change and other broader issues of environmental change. Chapter 7 analyses the effects of demographic, socio-economic, and geographic factors on KAP by interpreting the results of two empirical analyses – principal component analysis (PCA) and ordinary least squares (OLS).

Part 3 focuses on the results of stakeholders' views and expectations related to necessary policies and measures. Chapter 8 summarizes people's views and expectations with regards to who is responsible for taking climate actions, what actions should be taken, and why. Chapter 9 discusses the climate change mainstreaming readiness assessment conducted among key informants and the capacity needs identified.

Part 4 concentrates on media consumption and capacity-building strategies. Chapter 10 presents the results of the general and environment and climate change-related media consumption of the population. Chapter 11 identifies a set of considerations and strategies for the future awareness-raising campaign and capacity-building activities.

APPROACH AND METHODOLOGY

2.1 Survey framework and key research questions

The Survey aimed to understand climate change awareness among the population, vulnerable groups and stakeholders rather than scoring or evaluating their knowledge. Therefore, the study was designed, in part, to establish baseline awareness levels. The Survey focused on identifying the differing needs and priorities among different groups with regard to climate change. The assumptions underpinning the Survey conceptual framework are described below and illustrated in Figure 1.

In regard to citizens:

1. Citizens' KAP is an important factor influencing decision-makers and economic sectors in mainstreaming climate change in their policies and activities. The more citizens are aware, understand the causes and effects of climate change, have pro-environmental practices, and are willing to take mitigation and adaptation measures; the more efficient decision-makers' responses will be and the more traction they will gain. In turn, there could be more demand for appropriate policies and accountability from decision-makers.

2. Depending on the demographic and socio-economic background of the respondents, awareness and KAP related to climate change would be varied. There could be differences in KAP based on various characteristics of the respondents including, but not limited to, their gender, age, educational level, occupation, income sufficiency, social network, living environment and previous experience related to disasters and natural events.

3. Knowledge, attitudes and practice:

- Awareness about environmental and weather changes can lead to positive attitudes and can, to an extent, influence more knowledge about climate change.

- There might be a strong relationship between those with higher levels of knowledge and a tendency to be worried about the environment and climate change.

- There is no straightforward relationship between attitudes and practices/behavior as many other factors (such as incentives, costs and policies) influence practice.

4. Access to information and media consumption patterns about environmental issues also

influence respondent groups' awareness and KAP.

In regard to governance and stakeholders:

1. Stakeholders from various sectors (such as the environment, energy, agriculture, finance and media sectors) and levels (national and sub-national) have different views regarding the readiness of different factors for mainstreaming climate change.

2. It is assumed that to successfully mainstream climate change at all levels, the following factors are critical – awareness and knowledge of key stakeholders, leadership, demand for climate change measures, resources (financial and technological), technical capacity, institutional arrangements, and values and standards. These factors are relevant in both state and non-state

domains, covering both state and non-state actors, institutions, and processes.

3. Institutional and individual capacity needs will be examined separately as the interventions needed to increase capacity will be at different levels.

Awareness-raising and capacity-building campaigns will affect/improve citizens' access to information about climate change and address the capacity needs of key stakeholders. In turn, and in the long-term, improvements in awareness and capacities should positively influence citizens' KAP and support climate change mainstreaming success factors.

Within the framework, the following sub-topics were identified:

Figure 1: Survey conceptual framework.

Table 1: Survey framework and indicators.

Category	Sub-topics
Awareness and knowledge about climate change	1. Heard about climate change and related terms 2. Perception about the causes of climate change 3. Perception about the effects of climate change 4. Weather and climate changes observed 5. Environmental changes observed 6. Knowledge about climate change actions/measures
Attitudes towards climate change	1. Positive and negative attitudes towards climate change 2. Perception about the urgency and priority of climate change 3. Belief that there are viable/effective options to respond to climate change
Practice related to climate change and the environment	1. Actions to protect self and/or prevent climate change-related risks and extreme events 2. Actions taken by rural and urban residents – e.g. the proportion of people who changed their practices or adapted to reduce the impact of climate change 3. Perception about actions to be taken in the future
Media consumption	1. General media consumption (by type of sources- TV, radio, social media) 2. Environmental and climate change-related media consumption 3. Attitudes towards climate change-related media consumption 4. Views on the disinformation of environmental/climate change issues through the media 5. Future needs and entry points 6. Credible sources and community champions for effective awareness-raising

Category	Sub-topics
Geographic information/ previous disaster experience	1. Recent history of disasters (types, frequency and perception of effect) 2. Response to disaster 3. Experience of disaster by ecological zones and regions
Social wellbeing	1. Trust in others and the community 2. Trust in institutions 3. Helping others and receiving help 4. Cooperation/membership of organizations and institutions
Climate change mitigation and adaptation measures	1. Support for climate change action and measures 2. Access to, and satisfaction with, climate change programs 3. Initiatives taken by stakeholders 4. Suggestions for future government measures 5. Coordination and enforcement at the local level
Governance – climate change mainstreaming factors.[11]	
Demand	The demand for considering climate change when formulating sectorial and development policies and programs. It may come from political, managerial, or civil society/non-state sources.
Leadership	The support that key political, managerial, and other leaders show for climate change and the existence of institutional, or individual, 'champions.' Strong leadership supports capacity across other factors.
Resources	The level, sources, and sustainability of financial resources to support climate change-related functions. This may include developing systems, hiring and training personnel, and facilitating other aspects of evaluation - such as data systems.
Technical capacity	Individual knowledge and skills, infrastructure (such as data systems), and institutional resources (such as appropriate personnel and systems) to support appropriate and effective policy processes.
Institutional arrangements	The existence, and characteristics of, policies, guidelines, organizational units, procedures, and relationships. Across various levels and sectors of the state and in the non-state arena.
Values and standards	The existence, awareness of, and adherence to, formal and informal codes of conduct, ethical standards, and value orientations - by all stakeholders involved in climate change policy processes.
Institutional Capacity	The organizational systems, structure, and resources required to support planning, coordination, implementation and use of climate change policies.
Individual Capacity	The knowledge, skills and competencies (including values) that individuals require to demand, commission, conduct and use climate change concepts in line with accepted standards and principles.

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11 These definitions are derived and adapted from 'capacity factors for evaluation' presented in Review of National Evaluation Systems and Capacities for Evaluating Progress towards the SDGs – Country Case Studies Methodology for the Country Case Studies, Evan Green and Dorothy Lucks, UNDP/UNICEF, 2017.

Research questions

Using a variety of methods and tools, the overarching questions *the Survey* aims to answer are:

1. What is the current understanding and awareness of climate change among the population, including vulnerable groups?

   • What changes have people observed about the environment and weather?

   • What are the environmental changes and impacts identified by respondents on their livelihoods and well-being?

   • What do people think causes climate change?

   • What do people understand the expected effects of climate change to be?

   • To what extent are the different population groups aware of the effects of climate change on their livelihoods, communities and the country as a whole?

2. What are the population's attitudes towards climate change, reducing vulnerability and building resilience against climate change-related impacts?

3. What are the current prevalent environmental and other behavioral practices related to climate change among men and women?

   • What actions have people taken in the past to adapt to environmental changes?

4. What are the general, and climate change specific media consumption patterns, of the population and sub-groups?

5. What are the most effective ways to communicate and raise awareness on climate change among the various population groups, including vulernable groups?

   • Should a public awareness campaign be branded or mainstreamed?

   • How should climate change be positioned so that key audiences perceive it as relevant and important in relation to other issues?

   • Are there existing institutions or organizations that would be credible and persuasive messengers?

6. What do the public and stakeholders think should be done to address climate change issues?

   • Is there support for key climate actions among the public and stakeholders?

   • What do the public and stakeholders consider to be priorities?

7. How do stakeholders assess the current readiness of climate change mainstreaming in Mongolia?

   • What are the capacity needs of stakeholders?

2.2 Survey design and data collection methods

The cross-sectional survey uses a mixed method approach comprising of quantitative and qualitative methods to best respond to the research questions. First, the team conducted an extensive desk review to develop survey methodology and identify

Figure 2: Survey design – mixed methods.
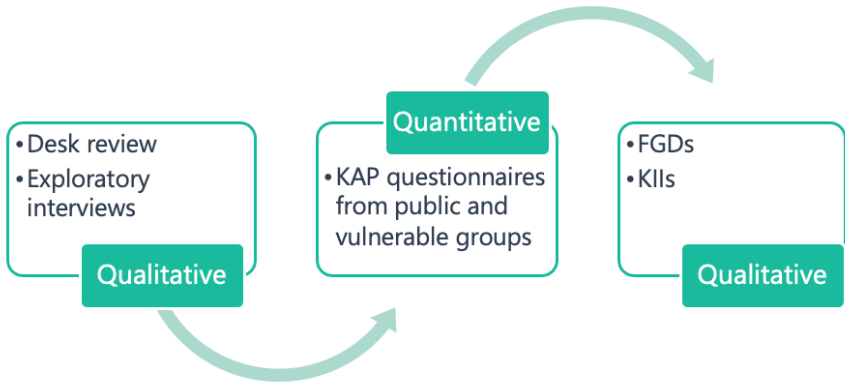
research questions. Exploratory interviews were conducted prior to the development of a survey questionnaire with five individuals from Ulaanbaatar and rural areas. The quantitative survey was then designed and conducted among the public, including with vulnerable groups. Simultanously, and after the quantitative survey, in-depth and qualitative methods, including focus group discussions (FGDs) and key informant interviews (KIIs), were conducted.

The Survey was designed to be gender-sensitive. It included the equal representation of men and women. Two of the nine FGDs comprised of women-only groups to allow women to express themselves fully. The questionnaire and survey tools were formulated to capture men and women's different needs and priorities.

Desk review. The team conducted a desk review in four areas. First, there was a review of key international academic, and non-academic, climate change KAP surveys undertaken over the past 20 years to help define key concepts, terms and a methodological approach for *the Survey*. Second, a review of studies conducted in Mongolia, by both national and international organizations focusing on different subjects related to climate change (including its impacts on ecosystems, agriculture, health, education, livelihoods, and vulnerabilities) was performed. This helped to identify any gaps in knowledge, approaches and choose contextually relevant topics and questions. Third, the team reviewed key Government policies, programs and regulations on climate change. Fourth, surveys were examined that focused on climate change information and communication at the international level and with media users in Mongolia.

Questionnaire. The questionnaire was administered face-to-face by trained interviewers using a Computer Assisted Personal Interview (CAPI) method. The questionnaire collected primary data about respondents' demographics, housing characteristics and locations. It looked at their knowledge, attitudes, practices, media usage and communications related to climate change. Men and women over the age of 18 from 13 aimags and Ulaanbaatar districts were interviewed.

The general rule for all questions was that the interviewer would ask a question and wait for the answer of the respondent. This meant that interviewers would not read out the answer options that were provided on the tablet screen. In sensitive

questions, and to avoid social desirability bias, a special instruction appeared on the tablet screen - which was 'do not read out loud.' In contrast, there were a few questions in which the interviewer was instructed to read out the answer options. In these cases, an explicit instruction on the screen to read out the answer options appeared.

Figure 3: Herders from Bayan-Ulgii and Uvurkhangai aimags completing questionnaires with interviewers.
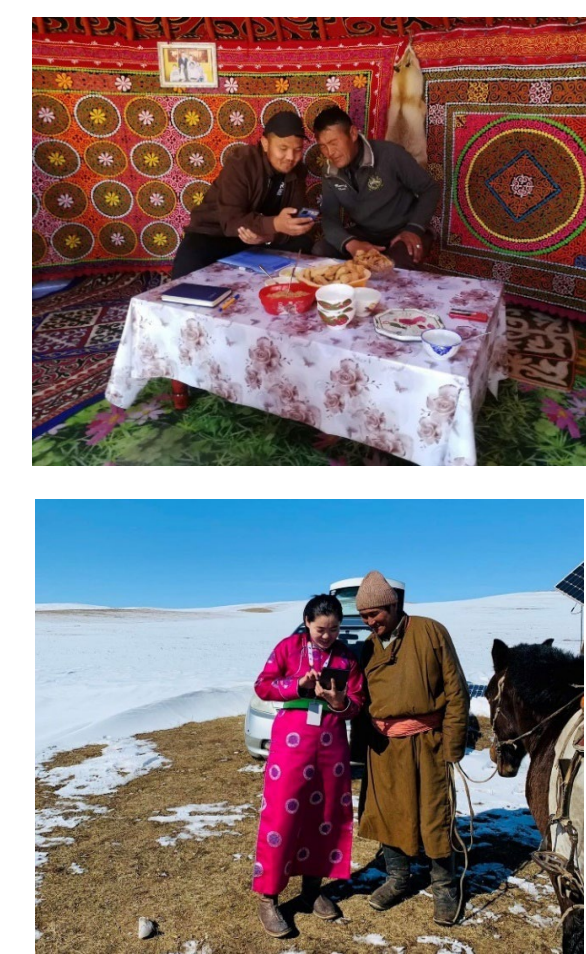
Focus group discussions (FGDs). In total, nine FGDs were conducted with community members on the topic of climate change. If focused on their beliefs and experiences, agreements and disagreements, climate change's causes and effects, environmental changes, and adaptation measures taken. The FGDs sought to get a better understanding of how the participants used information and media and what their information needs were. The FGD participants were purposefully selected to represent different socio-economic groups, including men and women, youth, older people, herders, farmers, Tsaatan and Kazakh people, communities in mining-affected areas, and those in remote border areas.

Key informant interviews (KIIs). The KIIs helped to inform the study of the current levels, barriers and opportunities in climate change mainstreaming, the capacity needs of stakeholders, and the awareness of climate change. A total of 49 key informants participated in the study (26 were male and 23 female) from various sectors including agriculture (including livestock, food and farming), forestry, environmental conservation, disaster prevention, energy, construction, finance, mining, tourism, health, education and media.

Table 2: Number of key informant interviews by type of stakeholders.

#	Types of stakeholders	Estimated number of interviews
1	Decision-makers	2
2	National government, line ministries and implementing and regulating agencies	13
3	Aimag and soum government representatives	14
4	Private sector – small, medium and large enterprises	4
5	Academia/researchers/consultants	2
6	Media/communication representatives	6
7	Development partners, local and international NGOs	8
	Total	49

2.3 Sampling methodology and weighting[12]

The sampling design of *the Survey* aimed to obtain results that were representative of the national population. *The Survey* used the 2020 Population and Housing Census as a sample frame and then a stratified, multi-stage cluster sample was applied.

In the first sampling stage, aimags and soums[13] were randomly selected within each of the five regions (Western, Eastern, Central, Khangai and Ulaanbaatar). In the second sampling stage, the primary sampling units (PSU) which consisted of baghs[14] and khesegs[15] were selected. In the third

sampling stage, 20 households were randomly selected using systematic sampling. By using 20 households per cluster, it enabled there to be cost/time efficiency and quality/effectiveness of the sampling design.

Individuals living in the household for at least the last 12 months, aged 18 years old and over, and able to provide information about the household were

consideration the population settlement and the number of households. Available at: https://legalinfo.mn/mn/detail?lawId=16106891904801

selected using the Kish Grid method. The method reduces selection bias by randomly choosing which household members would be interviewed. The interviewer assigned numbers to each member of the household based on their age and then selected the member using a pre-assigned table of random numbers to locate the person to be interviewed.

To determine the sample size, tests were performed on two indicators which took into account different factors. The analysis showed that a total sample size of around 2,800 households would be sufficient to produce statistically representative results at the national level, with a 95% confidence level. In total, 140 PSUs were selected - of which 96 were urban PSUs and 44 were rural PSUs. As a result, *the Survey* was carried out in 26 soums of the 13 selected provinces and in all districts of Ulaanbaatar city.

12 A detailed sampling plan is provided in Annex 2 of the report.

13 Soum is the main unit for making independent decisions on economic and social issues, ensuring the implementation of legislation, organizing, and providing services to citizens within functions specifically provided by law. Available at: https://legalinfo.mn/mn/detail?lawId=16106891904801

14 A bagh is a primary unit for ensuring citizen's participation in local self-government and providing services to citizens specified in the law. Available at: https://legalinfo.mn/mn/detail?lawId=16106891904801

15 A khoroo shall be organized in khesegs (sub-khoroos). Kheseg schedule shall be determined by the district Citizens Representatives Khural, taking into

Figure 4: Distribution of baghs selected as PSUs in the survey, by ecological zones.
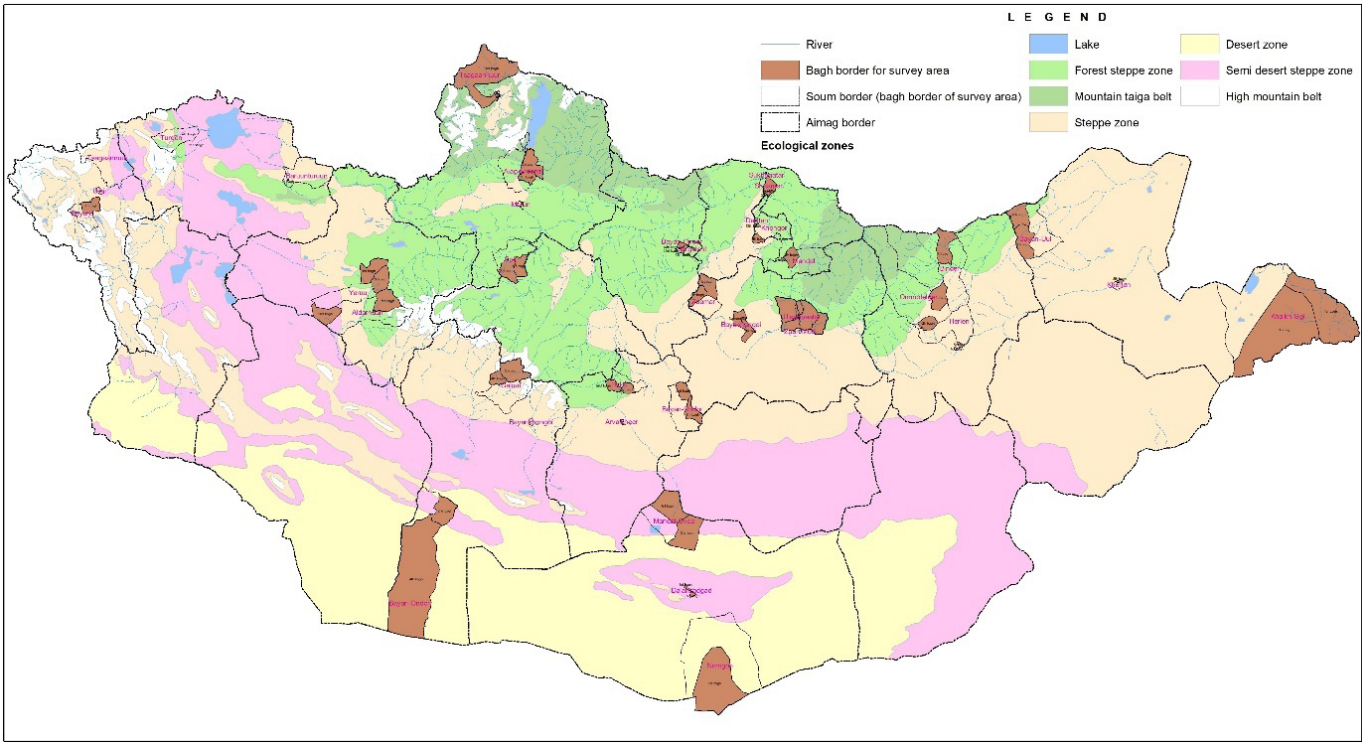
Note: The map does not show the following baghs: Darkhan-Uul, Darkhan XVII; Orkhon – Jargalant IV; Bayan-Ulgii – Nogoonnuur – VIII; Khentii – Binder VI. The map was produced using the sources from www.eic.mn. The areas highlighted in brown are baghs selected as PSUs for the Survey. The full list of the baghs in rural areas are listed in Annex 2 of this report.

For *the Survey* analysis, sample weights were calculated to address unequal household selection probabilities, non-responses and under-coverage. Annex 3 of this report provides an overview of the key demographic groups in the weighted sample of *the Survey*.

2.4 Quantitative and qualitative data analysis

In advance of the data analysis, the dataset was prepared and edited. Answers to open-ended questions, or answers provided in 'Other' options where respondents could state their answers freely, were re-coded.

Descriptive statistics. Cross-tabulations and simple correlation coefficients examined the relationship between multiple questions. These analyses are for the identification of patterns, trends, and probabilities in the dataset. Also, the research team reported whether the differences in responses provided by various groups were statistically significant or not.[16]

Ordinary Least Square (OLS) or Linear Probability Model (LPM).[17] When exploring the correlation between the total scores for KAP components, simultaneously controlling other variables affecting the total scores was statistically challenging. KAP scores through OLS were used to identify key factors influencing knowledge, attitudes and practices. This was done instead of scoring individuals' knowledge as 'good' or 'poor' and their attitudes as 'negative' or 'positive.' The OLS was used to identify how general trends in KAP components depends upon respondents' differing demographics, socio-economic and geographic characteristics, and media consumption patterns.

Principle component analysis (PCA). It is used to emphasize variations and bring out strong patterns in a dataset using multiple variables. The main idea is that it reduces the number of multiple variables in a data setdataset into smaller/fewer dimensions.[18] In mathematical terms, PCA creates uncorrelated indices or components, where each component is a linear weighted combination of the initial variables. We conductconducted this analysis on each KAP component using available demographic, social, and economic variables. It providesprovided findings on which demographic, social, and economic group hasgroups had certain KAP characteristics.

Qualitative data analysis. A directed qualitative content analysis approach[19] was an appropriate approach as the study was framed within research questions and a pre-developed conceptual framework. Codebooks were developed separately for FGDs and KIIs - including specific categories which helped identify concrete patterns. Patterns in the data were summarized to validate, explain, or illustrate quantitative findings.

Technical consultation. Following the analysis of the quantitative and qualitative data, the research team presented preliminary findings to key stakeholders – government representatives, media agencies, NGOs, development partners, private sector representatives and academics. The findings were presented at a virtual consultation workshop held on 30 November 2022. The workshop was designed to validate initial findings and seek feedback on key recommendations that could be included in the report.

2.5 Scope and limitations

The scope of the Survey:

1. The study focused on people's perceptions and experiences related to climate change. It does not aim to conduct a scientific assessment of climate change or compare participants' experiences with meteorological records. The report on KAP and media consumption is expected to help inform a national and targeted awareness-raising and capacity-building campaign. The campaign aims to reduce people and communities' vulnerability to climate change and build resilience.

2. The socio-economic impacts of climate change on households and communities were not directly measured. For example, *the Survey* did not seek to assess loss and damage due to climate induced disasters.

3. In selecting key informants and survey questions, sectoral questions were considered – for example, questions focused on energy, health, agriculture, and mining. However, *the Survey* did not focus on specific sectors and cannot be representative at the sectoral level.

4. The study did not aim to map or track changes in knowledge, attitudes or practices regarding climate change at an institutional level.

Recall bias. The survey questionnaire included questions related to respondents' experience such as their experience of encountering natural disasters in the last 10 years and their use of media in the last twelve months to receive information about climate change. These types of retrospective questions can cause recall bias which relates to inaccurate or incomplete recollection of events by the respondents` recent exposure to climate events. To reduce recall bias, *the Survey* attempted to design the questions in ways that are easier to remember for respondents and limit the number of retrospective questions.

Sampling. Although the sampling aimed to be representative at the national level, data cannot be disaggregated at regional and aimag levels. Furthermore, *the Survey* did not include persons in institutions, such as in prisons, shelters, and mental health centres. It also did not include persons that were under the age of 18. Members of the LGBTQI community, or others marginalized by laws and social norms, may be underrepresented in the household survey. To overcome this, *the Survey* team tried to include those that are thought to be under-represented in the FGDs.

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16 Regarding cross-tabulations, we use chi-square test (in most cases Kruskal-Wallis tests as many of the data are ordinal) to define whether differences between groups are statistically significant. With regards to correlation coefficients, we prefer the Pearson correlation coefficients that measure both the strength and direction of the linear relationship between two continuous variables.

17 This technique is comparable to Logit and Probit models.

18 Bryan F. J. Manly. (1994) Multivariate statistical methods: A primer, second edition.

19 As explained in Assarroudi et.al. (2018), 'Directed QCA is used to validate, refine and/or extend a theory or theoretical framework in a new context'. Journal of Research in Nursing. 2018;23(1):42-55. Available at: https://journals.sagepub.com/doi/10.1177/1744987117741667

3. CONTEXT

3.1 Climate change context in Mongolia

Climate change vulnerability of Mongolia. The Mongolian climate is harsh and continental due to its unique geographical location in the center of the Eurasian continent. It is at a high altitude above sea level, is surrounded by tall mountains, and is in a remote location far from the sea. Over the last 80 years, Mongolia's average annual temperature has increased by 2.25°.[20] Mongolia faces some of the most pronounced climate change risks of any country in the world. This includes rapid desertification, water scarcity, changing precipitation patterns, and seasonal intensification of extreme weather events. The country has extreme weather conditions, fragile ecosystems, and prominent pastoral livestock and rain-fed agriculture sectors, making Mongolia vulnerable to climate change risks that affect the economy, livelihoods and traditional cultures.[21] Mongolia is recognized as vulnerable to climate change impacts and is ranked 64th out of 181 countries in the 2021 ND-GAIN Index. It scored 53.5 out of 100 with a vulnerability score of 0.391 on a scale of 0-1 (with a lower vulnerability score being better) and a readiness score of 0.460 on a scale of 0-1 (with a higher readiness score being better).[22] Mongolia is therefore in the category of countries that are considered to be well positioned to adapt despite some adaptation challenges being present.

Natural disasters and extreme events. A vulnerability assessment conducted in the *Third National Communication of Mongolia* to the UNFCCC[23] stated that the risk of environmental and socio-economical sectors could increase from "vulnarable" to "much

risky" over the period 2046–2065 as a result of climate change in almost all aimags (shown in Figure 5). High temperatures are likely to increase the frequency and severity of heatwaves and droughts, while *dzud* (extreme cold, harsh winter natural phenomenon unique to Mongolia) will become more frequent and fiercer. Extreme events such as landslides, flash floods and land erosion are highly likely to occur due to the increased intensity of extreme rainfall. More frequent and intense drought conditions will accelerate the rate of desertification of previously productive pasture and grazing land. This will be compounded by human factors. The number of extreme weather events, including drought, *dzud* and flooding has doubled in the last 20 years and the devastating socio-economic impact caused across the country is well documented.[24] In addition to these extreme events, the impacts of climate change affects public health and livelihoods – both directly and indirectly. The increase in respiratory illnesses and cardiovascular disease is highly common among the population and is expected to rise due to climate impacts.[25] The growing risk of zoonotic or tick-bone disease may also indirectly affect public health. A study conducted by the International Federation of Red Cross and Red Crescent Societies (IFRC) on climate change and public health highlighted that vulnerable groups, such as children, women and herders, are at high risk of the climate crisis.

Mongolia's GHG inventory (2014) reported[26] that the two main sources of total national emissions were the energy sector (50.08%) and the agriculture sector (48.5%). However, the percentage share of emission sources varied year by year depending on economic and climatic factors - such as an increase in demand in the energy sector (mainly related to mining) and natural disaster occurrence in the agriculture sector. In the energy sector, while GHG emissions remained low compared to global GHG emissions, Mongolia had above-average per-capita energy intensity with abundant reserves of domestic, low-quality coal.

20 **Ministry of Environment and Tourism. (2020)** The contribution target defined at the national level for the implementation of Paris Agreement.

21 **World Bank Group and ADB. (2021) Climate Risk Country Profile.** Available at: https://www.adb.org/sites/default/files/publication/709901/climate-risk-country-profile-mongolia.pdf

22 **University of Notre Dame. (2021) ND-GAIN Country Index.** Available at: https://gain.nd.edu/our-work/country-index/

23 **Ministry of Environment and Tourism. (2018) Third national communication of Mongolia.** Available at: https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/06593841_Mongolia-NC3-2-Mongolia%20TNC%202018%20print%20version.pdf

24 USAID. (2017) Climate Risk Profile Mongolia. Available at: https://www.climatelinks.org/sites/default/files/asset/document/2017_USAID%20ATLAS_Climate%20Risk%20Profile%20-%20Mongolia.pdf

25 IFRC. (2021) Climate Change impacts on Health and Livelihood: Mongolia Assessment. Available at: https://www.climatecentre.org/wp-content/uploads/RCRC_IFRC-Country-assessments-MONGOLIA-V8.pdf

26 The Ministry of Environment and Tourism (2015) Mongolia GHG inventory. Available at: https://www.env.go.jp/en/earth/ap-net/documents/seminar/24th/25_MONGOLIA_Dolgorsuren.pdf

Figure 5: Mapping of future changes in natural areas of Mongolia.
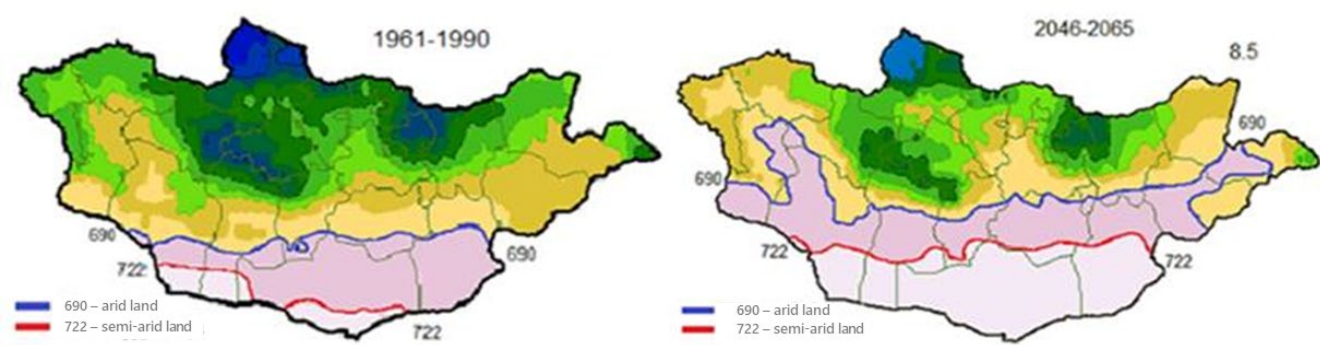
Source: Information and Research Institute of Meteorology, Hydrology and Environment.[27]

Coal supplied over 90% of primary energy demand. Heat, conversion, and transmission energy losses contributed to inefficient energy usage. The burning of low-quality raw coal for domestic use and other purposes is becoming a major societal problem in Mongolia - causing an increase in environmental pollution, air pollution and declining human health.[28]

Forestry. The majority of land use is classified as agricultural. It occupies around 73.5% of the country's total land mass while only around 9% is covered by forestland. The boreal forest of Mongolia is under threat due to the intensified impacts of climate change as well as human impact. The loss of forest area is found in various studies and is the result of factors such as forest fires, insects and pests, overgrazing, and illegal logging. The high risk of drought from low precipitation rates in the country causes an increase in deadfalls and debris which further increases the risk of fire.

Arable farming. Arable farming has played an important role in the Mongolian agriculture sector since the 1960s. Currently, the sector's crop production is typically low and meets only around 49% of the domestic vegetable needs. This does, however, vary year on year.[29] Unfortunately, under continental dry climate conditions, in which there are frequent droughts, harvest variation is high and unstable. The *Third National Communication of*

Mongolia to the UNFCCC predicts very significant wheat yield declines, potentially in the range of 20-50%, by 2080.

Animal husbandry. Animal husbandry still occupies an important role in the country's economy, employment and export earnings. However, due to the expanding livestock density and climate change pasture degradation, it has become a critical issue in Mongolia. The livestock products (such as meat, dairy, wool and cashmere) are important components of the country's economy and constitute over 80% of the food sector.

Mining. The recent start of mining in Mongolia resulted in an economic boom between 2010–2014. The industry sector accounts for one-third of Mongolia's GDP and drove rapid economic development from 2007– 2014 (especially mining). More recently, the growth has slowed down rapidly since 2012 due to the price decrease of export products of coal, iron ore, copper, and other mining products in the global market. The drop of in commodity prices have caused a decline in revenues and employement. Moreover, this economic development and its benefits have not reached people and communities equally, particularly vulnerable groups and rural areas[3]. The national poverty rate remains high at 27.8%[30].

A high dependency on urbanization and mineral extraction has presented significant challenges in Mongolia. The total energy demand is expected to double over the next decade with demand for electricity and petroleum products growing especially fast because of these factors. These

natural, environmental and socio-economic circumstances pose considerable challenges to climate change adaptation and mitigation. It is further exacerbated by gaps in human and institutional capacities, limited financial and technical resources, and weak public awareness and support.

3.2 Climate change policies and institutional arrangements

Key policy and regulatory frameworks related to climate change.

Mongolia ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1993, the Kyoto Protocol in 1999, and the Paris Agreement on Climate Change in 2016. In addition to the climate change convention, Mongolia ratified

key international treaties such as the *United Nations Convention on Biological Diversity* in 1993 and the *United Nations Convention to Combat Desertification* in 1996.

Mongolia submitted its first Intended NDC to the UNFCCC in September 2015 by committing to reduce its GHG emissions by 14% by 2030. It also updated the NDC with an increased ambition to reduce GHG emissions by 22.7% in 2030 compared to the projected emissions under a business-as-usual scenario. The majority of measures under the NDC are mainly focused on reducing emissions through energy efficiency and using renewable energy while adaptation measures - such as balancing livestock population. Due to Mongolia's vulnerability to climate-induced impacts, the priorities and needs of climate adaptation and capacity-building approaches are vaguely incorporated into the NDC.

Table 3: Key policy documents related to climate change.

International Convention and Treaties
• The United Nations Framework Convention on Climate Change [UNFCCC] (1993)
• The Kyoto Protocol (1999)
• The Paris Agreement (2016)

Legal Framework
• Law on Air Quality (1995, amended in 2012)
• Law on Environmental Protection (1995, amended in 2007, 2012)
• Law on Environmental Impact Assessment (2012)
• Law on Soil Protection and Prevention of Desertification (2012)
• Law on Land Use (2002)
• Law on Forestry (2012)
• Law on Energy (2001, amended in 2015)
• Law on Energy Conservation (2015)
• Law on Renewable Energy (2007, updated in 2015, 2017)
• Law on Water (1995, amended in 2004, 2010 and 2012)
• Law on Waste (2012, updated in 2017)
• Law on Disaster Protection (2003, amended in 2017)

Policy Framework
• Vision - 2050 (2020)
• Nationally Determined Contributions (2015, updated in 2019)
• Five year Development Guideline of Mongolia 2021-2025 (2020)
• Government Action Plan 2020-2024 (2020)
• New Recovery Policy (2021)
• Sectoral 'Targeted Development Programs' (2022)

27   IRIMHE, Key results of regional steam scenarios, Available at: http://irimhe.namem.gov.mn/?cat=4&type=ctrend
28   IFRC. (2021) Climate Change impacts on Health and Livelihood: Mongolia Assessment,
29   World Bank Group and ADB. (2021) Climate Risk Country Profile. Available at: https://www.adb.org/sites/default/files/publication/709901/climate-risk-country-profile-mongolia.pdf

30   National Statistics Office. (2022) Available at: https://1212.mn/mn/statistic/statcate/573066/table-view/DT_NSO_1900_035V1

Mongolia has no specific laws on climate change that govern the various cross-sectoral activities to address climate change. There are, however, some amendments to existing laws that reflect climate change concerns and promote climate change-related activities. The objectives, principles and priority actions for climate change adaptation, mitigation and resilience-building are governed by a variety of different policy documents and programs.

Vision-2050[31] is a long-term development policy document with nine fundamental goals that include reducing poverty, creating a green and low-carbon economy, improving the education system and gender equality, and ensuring social development and resilience-building. The document aims to meet Mongolia's commitment to the UN Sustainable Development Goals. The policy is to be carried out in three phases over the next three decades.

The Five-Year Development Guideline of Mongolia (2021-2025) is a mid-term integrated policy document. It aims to develop national capacity to mitigate and adapt to climate change through a green development strategy, sustainable financing, increasing stakeholder engagement, and building institutional capacity at all levels. The policy document sets out quantifiable targets such as reducing GHG emissions by 12.3% and increasing waste recycling to 27%.

The New Recovery Policy is the implementation plan that aligns with Vision 2050 aims to ensure economic stability, increase livelihood, and accelerate public-private partnerships and investments. The key features of the plan are to emphasize green development, afforestation, reforestation, combat desertification, and enhance sustainable energy sources. However, improving public awareness and participation in climate change-related activities are not clearly outlined in the policy.

The Targeted Development Programs is a policy document that focuses on human development; social development; economic and infrastructure development; environmental; governance; and

national competitiveness. It is the key policy document aimed at the implementation of the goals and objectives of *Vision-2050*. It outlines the participation of all sectors and provides clear roles and responsibilities of different stakeholders. The policy, particularly the 'targeted program of the environment', provides a strategic framework to address climate change issues, set up legal and policy frameworks, create a low-carbon and resilient economy and society, and enhance disaster risk management. The following objectives found in the policy document are closely related to increasing public awareness: 5.1.8. *to establish an early warning system and adaptive capacity, and 5.2.2 to increase awareness and participation among children and teenagers on environmental protection and climate change through initiatives and campaigns.*

In an effort to strengthen the country's climate change response, the President of Mongolia recently initiated the campaign *A Billion Trees* which will be rolled out over the next 10 years. It aims to address climate change and desertificationn issues while nurturing the culture of planting trees for public, society and young generations. If implemented successfully, the initiative could bring opportunities to improve (or maintain) livelihoods, enhance public ownership and commitment to climate solutions, and build capacity through public awareness and media content.

Widespread, cross-sectoral collaboration between the government, the private sector, NGOs, civil society and communities will be key. This is as no one group will be able to tackle the increased risks posed by climate change or alleviate the exacerbated risks of vulnerable populations. Together, with the evidence at hand, it could be possible to avert the most serious consequences of the climate crisis and existing environmental challenges in Mongolia.

Figure 6: Key stakeholders and current government actions/initiatives.
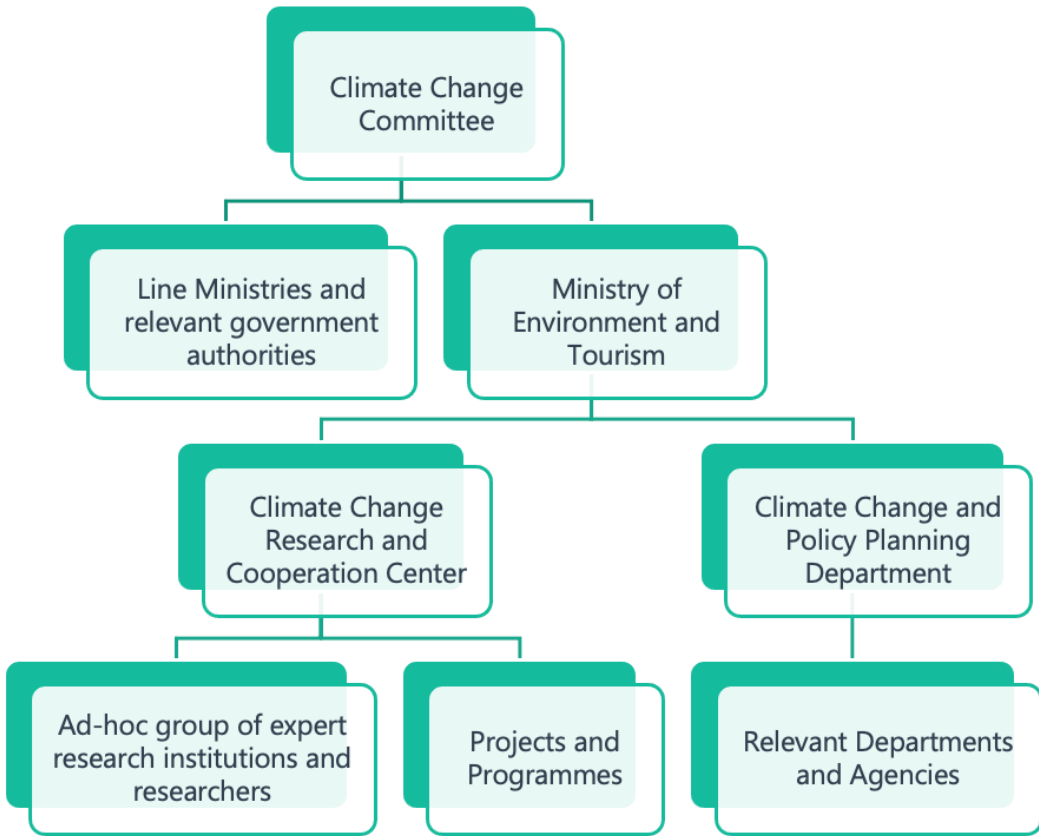
The mandates and responsibilities for making decisions and implementing activities related to climate change are currently dispersed across several ministries, as shown in Figure 6. However, despite the structure that requires intense cooperation and mutual assistance among all stakeholders for climate change, it is unclear to what extent the activities relevant to each institution are shared and updated with other stakeholders.

The MET is the main government body for implementing the obligations of the Mongolian government's climate change agenda and its alignment with UNFCCC. It is in charge of four major objectives as follows:

1. Improving and updating laws, policies and programs on climate change, organizing and coordinating its implementation;

2. Determining the national strategy for mitigation and adaptation to climate change, managing the execution of Mongolia's obligations to the international communities, and ensuring its implementation;

3. Providing support for the management and coordination of activities of environment, climate change and development while strengthening international cooperation;

4. Providing management to increase the benefits and effectiveness of projects and programs that are being implemented in the field of the environment.

Furthermore, the MET's role expands to managing obligations and the implementation of climate change policy at the international level - including the compilation and submission of National Communications, Biennial Update Reports and national GHG inventories to the UNFCCC Secretariat. These functions are carried out by two main departments of the MET and the CCRCC - the Department of Climate Change and the Department of Green Development Policy and Planning. They oversee policy and strategy while the CCRCC manages external cooperation activities, implements projects, and is in charge of monitoring,

evaluating, and reporting. The CCRCC is not part of the MET's internal structure, but is instead a self-funded state-owned enterprise.

In 2019 the National Climate Committee was established. It was repositioned under the National Committee on Climate Change and Combat Desertification in 2021 to enable cross-sectoral governance and decision-making on climate policy implementation. The committee's role further expanded to manage Mongolia's obligations to the UNFCCC and the United Nations Convention to Combat Desertification by implementing the *A Billion Trees* initiative. In 2022, the government changed the structure by assigning the deputy Prime Minister as the chairman of the committee. The position was previously held by the Prime Minister.

Challenges in policy and programs. Mongolia has diligently fulfilled its obligations to the international community and commitments to the UNFCCC. It has done so by ratifying the Kyoto Protocol and the Paris Agreement on Climate Change and confirming its NDCs. Key policy documents have been significantly strengthened to address climate change adaptation and mitigation measures. However, the government is facing significant challenges resulting from financial, technical, human and institutional constraints (which is examined in Chapter 9). These challenges include:

- Insufficient mainstreaming of climate policy objectives across national, sub-national and sectoral development plans and programs;

- Unavailable guidelines for the allocation of funding for climate change-related interventions at the sectoral level;

- Weak regulation and legal framework to set out clear roles and mandates among government agencies. These often relied on the MET.

- Weak capacity on disaster risk management to improve disaster preparedness mechanisms and climate change adaptation.

- A lack of public participation in the policy processes.

3.3 Vulnerability in the study

In *the Survey*, vulnerability is defined in terms of demographic, socio-economic and geographic factors. Vulnerable groups are disproportionally affected by the adverse effects of climate change due to existing inequalities. The effects of climate change can differ depending on an individual's demographics (age, gender, sex, race, cultural, ethnicity), socio-economic attributes (migration status, education, occupation, income), and geographical background (rural, urban, ecological location, region).[32] Because inequity and poverty hinder adaptation and resilience by excluding people from socio-economic progress, disadvantaged and vulnerable groups are highly vulnerable to climate change and climate hazards. In addition, groups whose livelihoods depend on climate-sensitive natural resources makes them vulnerable regardless of their socio-economic status.[33]

The conceptual framework of climate change risks and the linkages between hazards, exposure and vulnerability was defined using the *UNISDR Terminology on Disaster Risk Reduction* by the United Nations International Strategy for Disaster Reduction Secretariat (UNISDR).[34] Gamble and Balbus (2016), highlighted the three drivers of disaster risks as - sensitivity to climate change-related risks, exposure to those risks, and the adaptive capacity for responding to, or coping with, climate variability and change.[35] Furthermore, as outlined by the Office of the United Nations High Commissioner for Human Rights (OHCHR), vulnerable groups who are likely to be adversely affected by climate change can include not only vulnerable and/or disadvantaged groups (such as people with disabilities, children, women, people in poverty, and minorities), but also people living in conditions where there is water scarcity, desertification, land degradation, drought and other

vulnerable situations brought on by climate change.[36] Therefore, it is important to pay special attention to vulnerable groups and their level of awareness about climate change in order to prioritize them in adaptation planning and implementation. According to the UNFCCC, "once vulnerable groups and communities have been identified, it will be easier to include their specific considerations and needs in the national adaptation mandates, frameworks and institutional arrangements".[37]

Mongolian laws and regulations define a 'vulnerable group' in terms of socio-economic disadvantages. As defined in Article 3 of the Law on Social Welfare, vulnerable groups are 'citizens with special needs who are in a poor state of health, lacking family care, incapable of conducting normal life independently, or without other's help, and individual-members of households requiring social welfare assistance or care in order to meet his/her minimum needs.'[38] Although there has been progress in creating a legislative framework to tackle climate change and relevant disasters in Mongolia, there is still a lack of regulations to identify vulnerable groups, tailor intervention activities for each vulnerable group, and minimize the negative impacts on them. The National Program for Community Participatory Disaster Risk Reduction (2015)[39] was one of the few programs to date that targeted specific groups and laid out specific measures in disaster-reduction. As stated in Article 3.2, groups including people with disabilities; older adults; children; youth, and citizens living below the poverty level were highlighted as requiring special attention in public awareness campaigns and disaster prevention interventions.

Therefore, the Research team constructed an overall vulnerability index using 13 types of individual, household and residency characteristics. These characteristics identified any individuals that were particularly disadvantaged and vulnerable to climate change and climate hazards compared

to other groups (see Annex 4 for more detail). The vulnerability score for the individuals was calculated as the sum of all the vulnerabilities observed among the respondents and their households. The vulnerability index is divided into two categories: vulnerable (individuals that scored equal or above the median) and less vulnerable (individuals that scored below the median for all non-zero scores). The groups that had zero scores for vulnerability, or those who scored below the median, were deliberately labelled as 'less vulnerable' rather than 'non-vulnerable.' This was as other factors that were not fully captured in *the Survey* may have made a household or individuals vulnerable to the effects of climate change.

3.4 Vulnerable groups in the Survey

A total of 1,313 (46.8%) respondents were considered as 'vulnerable' using the overall vulnerability index constructed by the research team.[40]

Older persons. In *the Survey*, men aged more than 60 years old, and women above 55 years old, were considered to be an 'older persons.' Across all respondents, 264 older persons were recorded. 9.4% of the total respondents were identified as older persons. Regarding the gender of older survey respondents, all were female. Among all households in *the Survey*, 11.9% had at least one person older than 65 years old, 8.5% had one older person, and 3.3% with two older persons.

Disability status and chronic illness. *The Survey* used the *Washington Group Short Set of Questions on Functioning* to identify disabilities - an approach widely used in national surveys and censuses.[41] In total, 74 respondents had a disability which represented 2.6% of all respondents. Out of all respondents with disabilities, 8.2% were aged 18-24 years old, 6.8% were 25-34 years old, 56.8% were 35-59 years old and 35.1% were aged 60 years old

32 IPCC. (2022) Climate Change: Impacts, Adaptation and Vulnerability. Available at: https://reliefweb.int/report/world/climate-change-2022-impacts-adaptation-and-vulnerability?gclid=Cj0KCQjw27mhBhC9ARIsAlFsETErMtcAQ3oyZwt2P-W4s1bbD3UQAc4BWFks1Un3Rqj1XNaCxvPNgJmwaAm7cEALw_wcB

33 UN. (2016) The World Economic and Social Survey. Available at: https://www.un.org/en/development/desa/policy/wess/wess_archive/wess2016/ExecSummary_WESS2016.pdf

34 ISDR. (2009) UNISDR Terminology on Disaster Risk Reduction. Available at: https://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

35 U.S. Global Change Research Program. (2016) The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Available at: https://health2016.globalchange.gov/

36 UN. (2022) Human Rights Council Panel on the adverse effects of climate change on the human rights of people in vulnerable situations. Available at: https://www.ohchr.org/en/statements/2022/06/human-rights-council-panel-adverse-effects-climate-change-human-rights-people

37 UNFCCC. (2018) Considerations regarding vulnerable groups, communities and ecosystems in the context of the national adaptation plans. Available at: https://unfccc.int/sites/default/files/resource/Considerations%20regarding%20vulnerable.pdf

38 Law of Mongolia on Social Welfare. (2012) Available at: https://legalinfo.mn/mn/detail/393

39 Government decree. (2015) Disaster risk with community participation national reduction program. Available at: https://legalinfo.mn/mn/detail?lawId=206872&showType=1

40 Annex 4 of this report provides more details on the construction of the index.

41 The Washington Group Short Set on Functioning. (2022) Available at: https://www.washingtongroup-disability.com/question-sets/wg-short-set-on-functioning-wg-ss/

or above. The prevalence of disability increases with age, with a sharp increase in persons aged 60 years or above. Of all respondents with disabilities, 59.5% were male and 40.5% were female. Moreover, 2.7% identified had received no education compared to 0.7% of respondents without disabilities. Only 9.6% of respondents with disabilities had completed higher education compared with 28.4% of respondents without disabilities who had completed higher education.

In addition, of all respondents, 20.4% reported that they were 'currently chronically ill or urgently requiring medication' - even if they were not identified as disabled. Of the respondents with disabilities, 55.4% were chronically ill or urgently requiring medication compared to 19.5% of those without disabilities. This result can be explained by the fact that the disability is often related to illness and chronic health conditions.

Lower levels of education. The risk of exposure to climate change varies significantly by education and income bracket. In the sample, 63% had not completed secondary education (n=1767) or lower education. In particular, 40.8% of those who had completed lower education lived in rural areas (versus 26.5% of respondents who had completed higher education) and 17.9% lived in ger areas (versus 10.1% of those who had completed higher education). In addition, of all respondents who completed lower education, 19.7% raised livestock and worked in the agriculture sector compared to 5.0% of those who had completed higher education.

Lower levels of household income. Almost one third of all respondents (32.7%) agreed with the statement 'it is difficult to make ends meet and we just manage to afford basic needs' while only 18.3% perceived themselves as 'able to afford valuable things and make savings.' There was no significant difference in the subjective perception of income between urban and rural groups - 33.1% of urban and 32.0% of rural respondents reported it was difficult to make ends meet and they just managed to afford basic needs. Of these respondents, the majority (61.9%) reported that their household members did not have savings.

Out of all respondents who reported that they barely manage to afford basic needs, 62.1% were female and 37.9% were male. The self-perceived

income sufficiency was lowest among those with lower levels of education (among those who couldn't afford basic needs, 23.5% had completed lower education, 47.5% secondary education, and 17.5% higher education). On average, all respondents and their households generated income from two sources. Income gained from social security benefits (71.4%) and wages and salaries (60.4%) were the two major income sources for the households.

Herders and farmers. The livelihood of herders and farmers highly depends on climate change. There were a total of 402 herders (14.3% of all respondents) and 20 farmers (0.7% of all respondents) that participated in the Survey. The majority of herders (89.8%) were living in rural areas - particularly in the steppe zone (42.5%). Regarding the gender of herders, over half of herders (55.2%) were male, compared with non-herders (46.9%). Over half of herders (52.0%) were 35-59 years old. In addition, the level of education was much lower among herders. In particular, 84.6% of herders had completed secondary education. Out of all herders, only one third (34.1%) of herders had purchased private livestock insurance.

Ethnic minority. A total of 541 ethnic minorities (non-Khalkh) - which represented 19.3% of all respondents - were included in the Survey. Of all survey respondents, 80.7% identified as Khalkh, 4.1% of identified as Kazakh, 2.7% identified as Buriyat, 1.9% identified as Bayad, 1.7% as Uriankhai, and 6.2% as from another ethnic group. The gender proportion was the same for the ethnic minority group and the ethnic majority group. There was no significant difference among ethnic groups in terms of self-perceived income sufficiency and education level.

Single-headed households. A total of 520 respondents reported that they were the 'single head of the household' which represents 41.8% of the Survey sample. Of those, 63.3% were female and only 36.7% were male. Most heads of households were in their 40s (the average age was 41.8 years old). The proportion of respondents who reported that they barely managed to afford basic needs was higher among single heads of households (40.6%), compared with those who were not single heads of households (30.8%).

Internal migration. Regarding the age structure of migrants and non-migrants in the sample, the number of migrants increased sharply within the 25-34 year old age bracket and remained above the level of non-migrants in the 35-59 year old age range. Moreover, the percentage of migrants who lived in urban areas (80.1%) was 19.9% higher than non-migrants (60.2%) - suggesting movement from rural areas to urban areas. The percentage of migrants (41.9%) with a higher level of education was 17.8% higher than non-migrants (24.1%). This is because the movement to urban areas was due to attending higher education institutions.

Over half of the respondents who moved in the last 10 years (47.9%) went to the capital city, while one fifth went to aimag centers (20.9%) and soum centers (19.6%). Moreover, survey respondents who migrated in the last 10 years reported that there were a variety of factors that influenced their migration including education (17.4%), job opportunities (28.9%), infrastructure (11.8%), and health services (10.0%).

Residents in urban ger areas. Out of all survey respondents, 15.1% lived in gers in urban areas. Over one fourth of respondents (27.3%) of urban ger areas migrated in the last 10 years and 20.3% of respondents who did not live in urban ger areas migrated in the last 10 years. In addition, the proportion of urban respondents who migrated in the last 10 years (26.5%) was almost two times higher than the proportion of rural respondents who migrated in the last 10 years (11.9%). Regarding the gender of respondents who lived in urban ger areas, 52.6% were female. There were significant differences in terms of self-reported income level and education level between both groups. The percentage of respondents who had completed higher education was lower among respondents who lived in urban ger areas (12.8%) compared with respondents who did not live in urban ger areas (30.6%). Similarly, the respondents who perceived themselves as 'able to afford valuable things and make savings' was more than three times lower among respondents who lived in urban ger areas (20.3%), compared with those who did not live in urban ger areas (6.4%).

Disaster/hazard history. The results show that 196 respondents experienced extreme/unusual events or disasters in their local area – this represents 7.0% of the sample. Of those who experienced

extreme events and disasters, over one third experienced storm/wind (35.0%) and flood (32.0%) while one tenth faced dzud. The percentage of urban respondents who experienced extreme events and disasters (58.5%) was 17% higher than rural respondents (41.5%). The proportion of respondents who experienced extreme events and disasters was higher among those who lived in forest steppes (49.5%), steppe zones (25.5%), and the desert steppe (15.8%).

Part II.
AWARENESS, KNOWLEDGE, ATTITUDES AND PRACTICE OF CLIMATE CHANGE

Part 2 of the report presents the Survey results on awareness, knowledge, attitudes and practice. It seeks to answer the following key questions:

- What is the current understanding and awareness of climate change among the population, including vulnerable groups?

- What are the population's attitudes towards climate change, reducing vulnerability and building resilience against climate change-related impacts?

- What are the current prevalent environmental and other behavioral practices related to climate change among men and women?

The results in Part 2 are disaggregated by gender, various socio-economic groups (education, occupation, income, social network, vulnerability) and residency. In each chapter, qualitative data was incorporated to allow for more contextual interpretation.

4. AWARENESS AND KNOWLEDGE OF CLIMATE CHANGE

Knowledge about climate change was assessed from varying perspectives. It involved looking at respondents' general knowledge of climate change, knowledge of the causes and/or effects of climate change, and knowledge of the impacts of climate change.[42] This chapter examines respondents' awareness and knowledge about climate change by analysing responses to various questions. The questions aimed to identify whether citizens knew that climate change exists and/or how they understood climate change at the time (based on information and their experiences). Moreover, specific questions about GHG and global warming were asked to determine if citizens were familiar with fundamental concepts and potential risks and threats from global warming. This cognitive aspect included respondents' understanding of the nature of the problem of climate change and how it will affect them. Knowledge questions were mainly aimed at assessing levels of knowledge based on the correct responses to questions about climate change and identifying misconceptions.

The main questions this Chapter focuses on are:

- Have respondents have heard of climate change-related terms including 'climate change', global warming', 'ozone hole problem', and 'greenhouse gas emissions?'

- What do respondents in Mongolia think of when they refer to 'climate change'?

- What do respondents think causes climate change?

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42 Gazzaz & Aldeseet, (2021) Assessment of the Level of Knowledge of Climate Change of Undergraduate Science and Agriculture Student. Available at: https://files.eric.ed.gov/fulltext/EJ1322610.pdf

- What changes have respondents observed in the environment, weather and climate?

- What are the impacts of environmental changes on respondents' livelihoods and well-being?

- What do respondents understand the expected effects of climate change to be?

- To what extent are the different population groups aware of the effects of climate change on their livelihoods, communities and the country as a whole?

The following table is the summary of results of the key questions related to knowledge about climate change. It is disaggregated by gender, age group, residency and vulnerability status.

Table 4: Summary of key questions for climate change awareness and knowledge, disaggregated by gender, age, residency and vulnerability status, proportion of respondents (%), n=2804.

#	Indicators	Gender		Broad age groups				Residency		Vulnerability	
		F	M	18-24	25-34	35-59	>60	U	R	LV	V
1	Have heard of the term 'climate change'	66.8	67.8	76.7	68.3	63.3	64.5	72.9	57.0	73.8	59.9
2	Have heard of the term 'global warming'	82.2	84.6	83.8	85.3	82.1	83.0	87.4	75.8	88.1	78.0
3	Have heard of the term 'ozone hole problem'	69.1	71.2	66.9	73.6	70.4	67.5	76.9	57.9	76.9	62.4
4	Have heard of the term 'greenhouse effect and greenhouse gas emissions'	55.1	58.0	57.8	55.1	56.3	57.5	62.4	45.6	62.7	49.4
5	Climate change is happening	63.5	66.5	71.3	67.8	62.5	57.2	65.5	64.0	70.5	58.6
6	Human activities are the main causes of problems caused by climate change	83.1	85.0	82.5	83.7	84.9	83.6	87.1	78.3	86.0	81.7
7	Perceived themselves as having adequate knowledge of climate change	21.0	26.3	26.0	26.8	20.8	22.9	26.2	18.8	27.9	18.6
9	Expressed that they needed further knowledge and skills concerning climate change	58.6	50.5	45.7	56.8	58.5	51.1	53.7	56.6	55.4	54.0

Note: U – Urban, R- Rural, V – vulnerable, LV – Less vulnerable, Statistically significant results are highlighted in green (p < 0.01).

4.1 Changes observed in weather and environment

Over two thirds (67.9%) of Mongolians had observed changes in the environment and weather patterns in the country. The percentage of respondents who noticed changes, and the type of changes they observed, varied depending on location. In particular, the percentage was higher among those from urban areas and those who lived in arid ecological zones.

Figure 7: The percentage of respondents who noticed changes in weather patterns in Mongolia by location.

67.9%

Observed Changes in environment and weather patterns
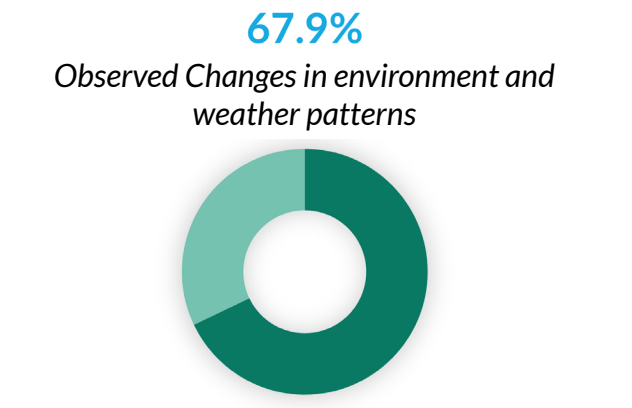
Respondents in the Gobi Desert zone and the Desert Steppe zone were more sensitive to changes in weather patterns. The reason being that the frequency, and severity of the drought, flood, or sandstorm in the Gobi Desert zone, has increased over the past few decades.

According to the qualitative findings from FGDs held in rural areas, herders were likely to perceive changes in weather patterns and the environment as natural phenomena that occured periodically (good and bad times frequently occur in ten-year cycles).

"Elders say that the water level increases every 10 years. When the climate radically worsened 3-4 years ago, drought was widely discussed. However, the water level has been rising since last year and this year in 2022 it has been even better. Therefore, we believe that it occurred because of this periodic change in water level." (Herder, Dornod aimag, male)

The most commonly observed changes were desertification, rainfall, and extreme temperatures. However, there were slight differences depending on location. In particular, rural respondents observed that there were more instances of storms and wind, colder days, and extreme temperatures. Respondents from urban areas noticed instances of floods, rainfalls and uncontrolled fires.

Figure 8: The percentage of respondents who noticed changes in weather patterns in Mongolia by ecological zone.

Changes in environment and weather patterns by region

Region	%
Gobi	81.5%
Desert-Steppe	69.4%
Steppe Zone	68.9%
Mountain Forest Steppe…	68.8%
Taiga Forest Zone	41.5%
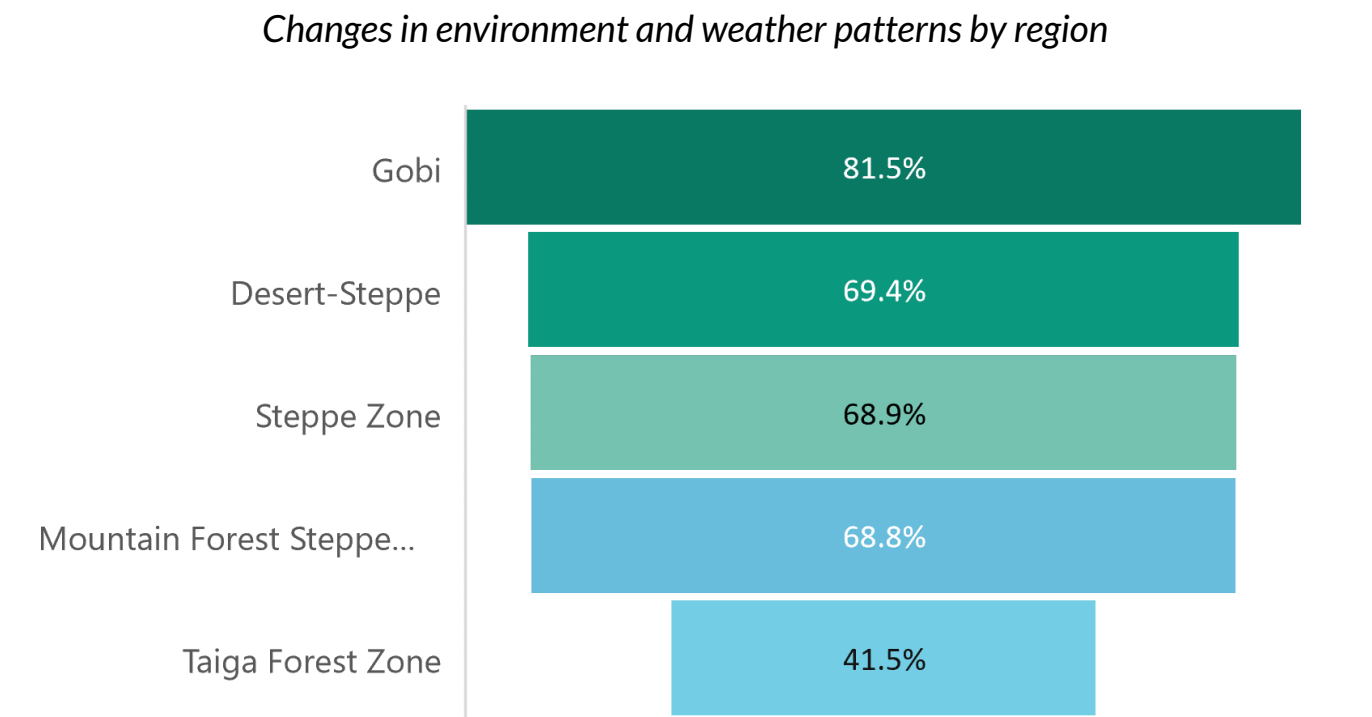
Figure 9: The percentage of respondents who noticed changes in natural phenomena in the last 10 years, by residency (Response: Increased/Increased dramatically), n=1906.
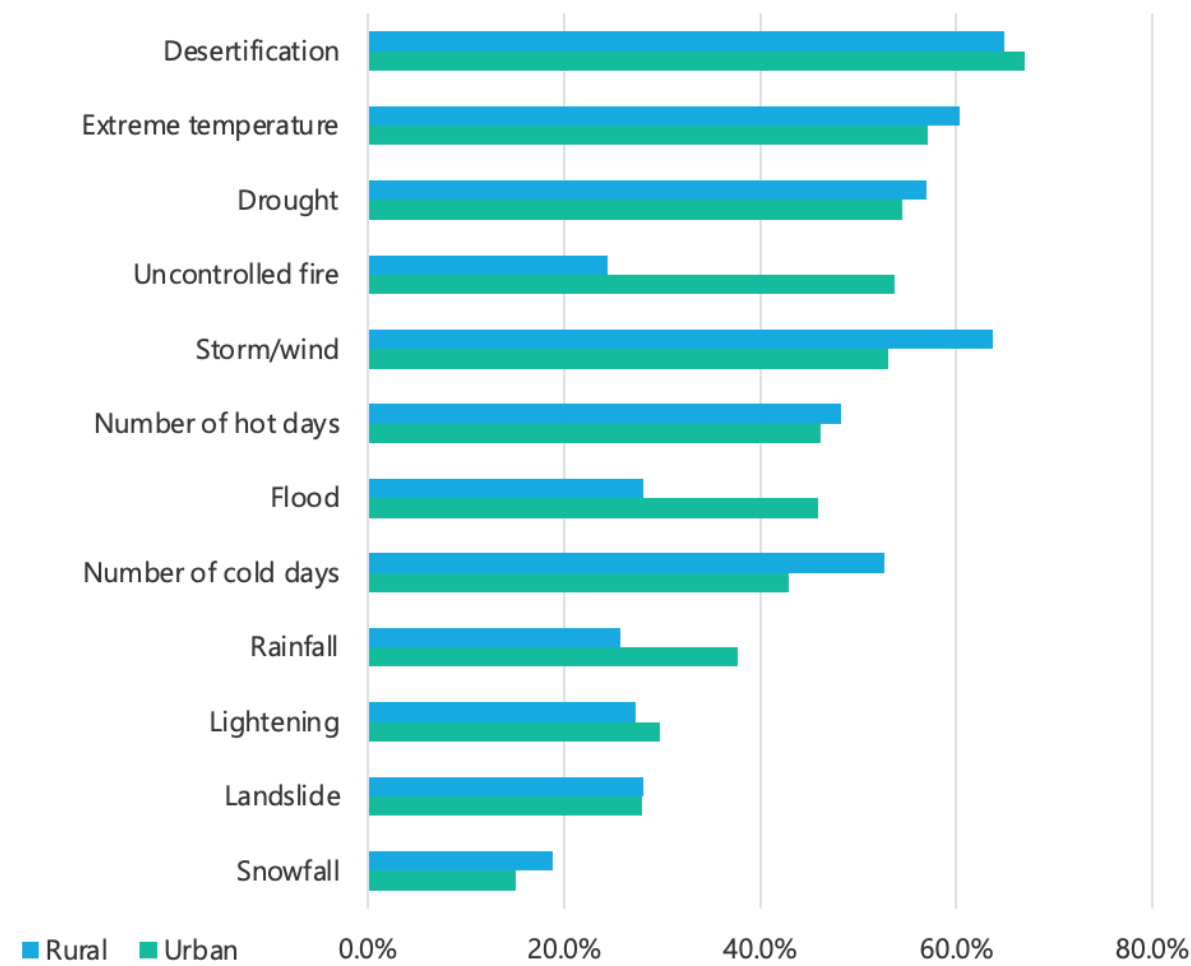
Observing changes in the weather patterns is one way for understanding that climate change is occurring. As a female herder in Dornod aimag explained during the FGD:

> "Summer has become scarce. Winter is also less cold, and we don't feel cold anymore, at least in the last 2 years. People are saying now Mongolia will have three seasons instead of four because of climate change." (Herder, Dornod aimag, female)

At the community level, noticeable changes differed depending on location. As *Figure 10* shows, at least 47.4% of all respondents noticed environmental changes in their community (n=1330). The percentage of respondents who observed environmental changes in their community was higher among those from rural areas (52.4%) compared to those from urban areas (45.7%). Of those who observed environmental changes, most respondents perceived the negative changes to

be pasture and land degradation (96.7%), water availability for animals (94.7%), quality of soil (94.1%), quality of air (93.3%), and rivers and lakes (92.8%) (*see Figure 11*).

Figure 10: The percentage of respondents who noticed environmental changes in their community (n=2804).

Figure 11: Types of negative environmental changes observed, by residence (n=1330).
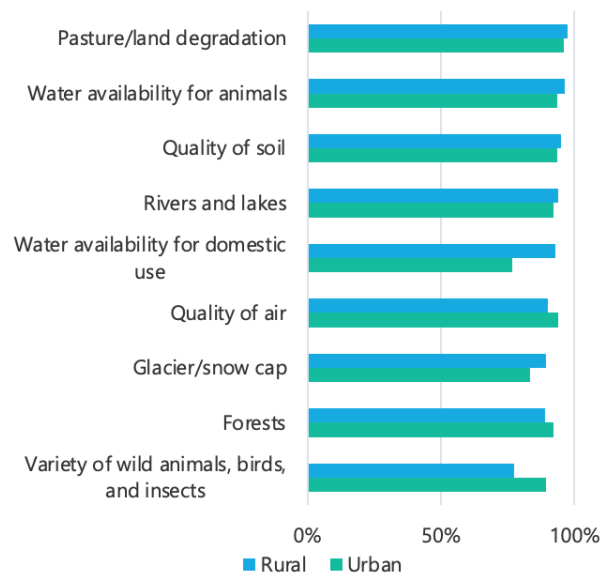
Rural respondents experienced changes in water availability for domestic use (92.9%) and changes in glaciers and snow caps. However, urban respondents noticed more changes in the variety of wild animals, birds, and insects (89.3%).

According to the qualitative findings from FGDs held in rural areas, environmental changes in the community were the most commonly mentioned changes. One participant shared that:

> "Since our province is mountainous, the mountain peaks used to have permanent ice.

Unfortunately, since the change of seasons in recent years, or because of people's wrongdoings, the ice on those mountain peaks has melted and nothing is left at all. As people said, people are waiting longer to see any rain at all. But if it rains, it's coming in more intense bursts. Plus, winter is not coming at all. All these facts have a serious effect on our province." (Head of household, Bayan-Ulgii aimag, female)

4.2 Understanding of climate change among people

Despite a relatively high proportion of respondents indicating they were *aware* of the term 'climate change' (67.3%), those who *knew* the term's actual meaning was low. *The Survey questionnaire was designed to first ask respondents' familiarity with the concept of 'climate change' and then followed with a question that probed for comprehension and misconceptions of the term.*

Although the vast majority of respondents were aware of the main terminologies and/or concepts related to climate change, their familiarity with more scientific and recent terminologies (including 'climate change' and 'GHG emissions') was relatively low. This was particularly the case with respondents from rural areas and those with lower levels of education.

Figure 12: Proportion of respondents who had heard of climate change-related terminologies and/or concepts, by location (n=2804).
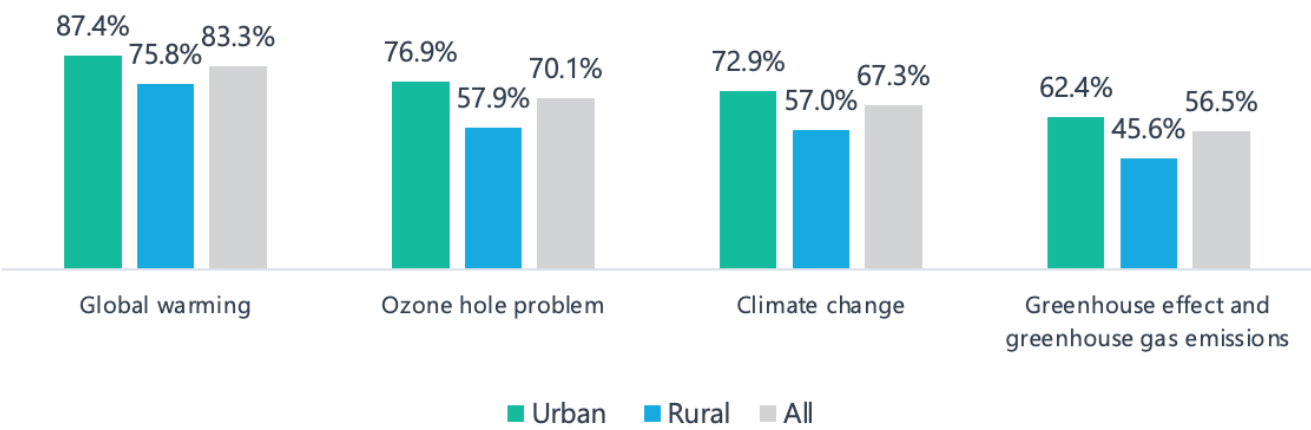
Figure 13: Proportion of respondents who had heard of climate change-related terms and/or concepts, by educational level (n=2804).

Figure 15: Self-reported awareness on climate change, percent of cases.

According to the qualitative findings from nine FGDs, participants perceived climate change as changes in environment, weather conditions and, to some extent, air and soil pollution. To the first spontaneous question: 'What is your first thought when you hear the term climate change?', what came to participants' mind first was global warming. The second most common association was the change of weather conditions - including rising temperatures, large temperature differences and shifting seasons. For some participants it was air and environmental pollution and for a few it meant natural disasters. These answers indicate the respondents perceived climate change to be primarily negative phenomenons.

Figure 14: Focus group discussion results on climate change perceptions.

Figure 16: Percentage of self-reported level of awareness of climate change, by socio-economic groups.
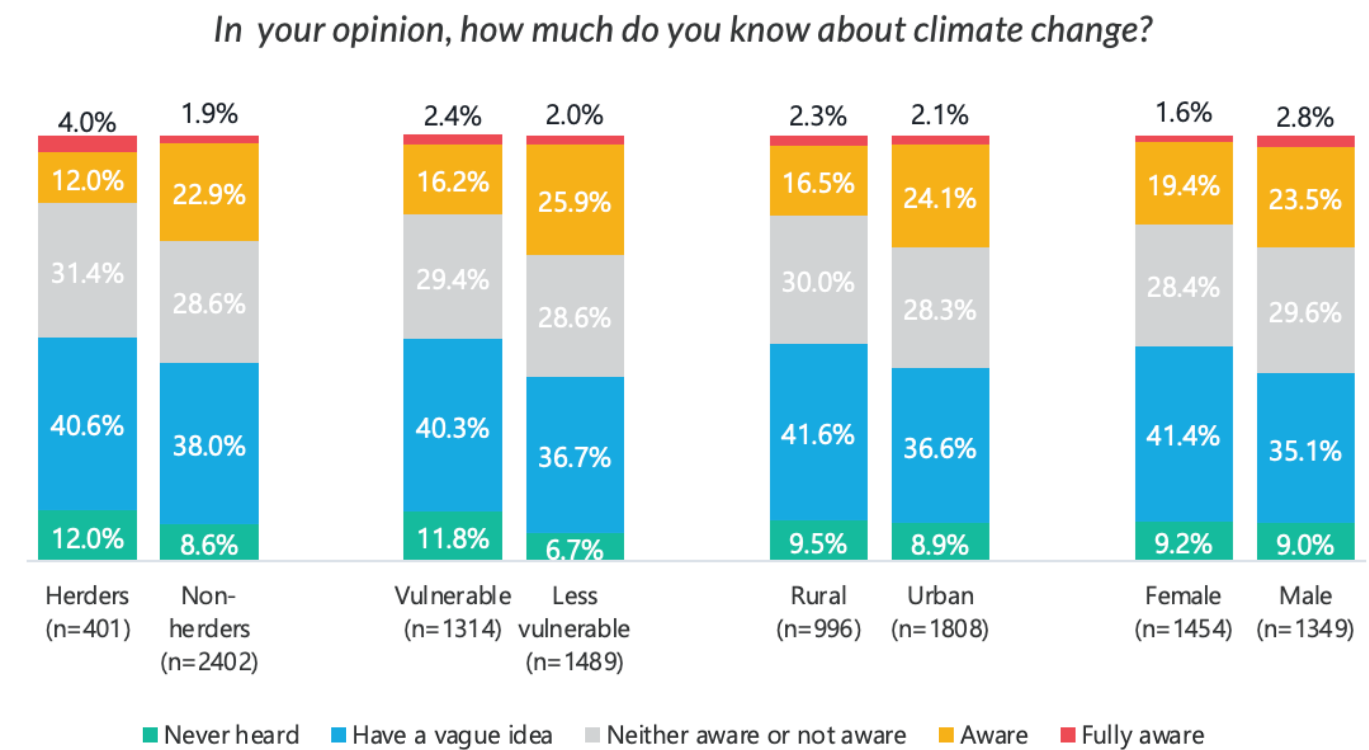
The proportion of respondents that indicated they had sufficient knowledge about climate change was only 23.6%. As Figure 15 illustrates, almost half of all respondents (47.5%) stated that they had 'never heard' of climate change and had 'a vague idea' about it. Only a quarter of respondents perceived themselves as 'aware' (21.3%) and 'fully aware' (2.2%) of climate change.

Moreover, the lower the education level, the higher the chance that the respondent had 'never heard of climate change' as is shown above.

Population groups that could be considered prone to risks caused by climate change had less knowledge about climate change. The proportion of respondents who had 'never heard' and had 'a vague idea' about climate change was high among female respondents, herders, farmers and vulnerable groups. These are considered to be at-risk groups as shown below.

The respondents who reported lacking knowledge about climate change also indicated they had not heard about climate change-related terminologies such as GHG emissions (82.0%) and Ozone holes (68.0%). Moreover, the poorer the respondents, the higher the chance that they had 'never heard of climate change.'

4.3 Perceptions of drivers of climate change

The majority (84.0%) of the respondents agreed that human activities are the main drivers of climate change - mostly through harmful industry practices and cutting down forests and trees. To avoid response bias, the questionnaire indirectly asked about the drivers of climate change by associating them with experiences and observations of the respondents. When asked what the main drivers for increased natural disasters and changes in environment and weather were, around one third or respondents reported that 'poor industrial practices and pollutions' (35.1%) was the main driver. The second most common answer was 'cutting down forests and trees' (28.3%). It should be noted that one fifth of the respondents also believed human activities trigger supernatural forces to enact revenge.
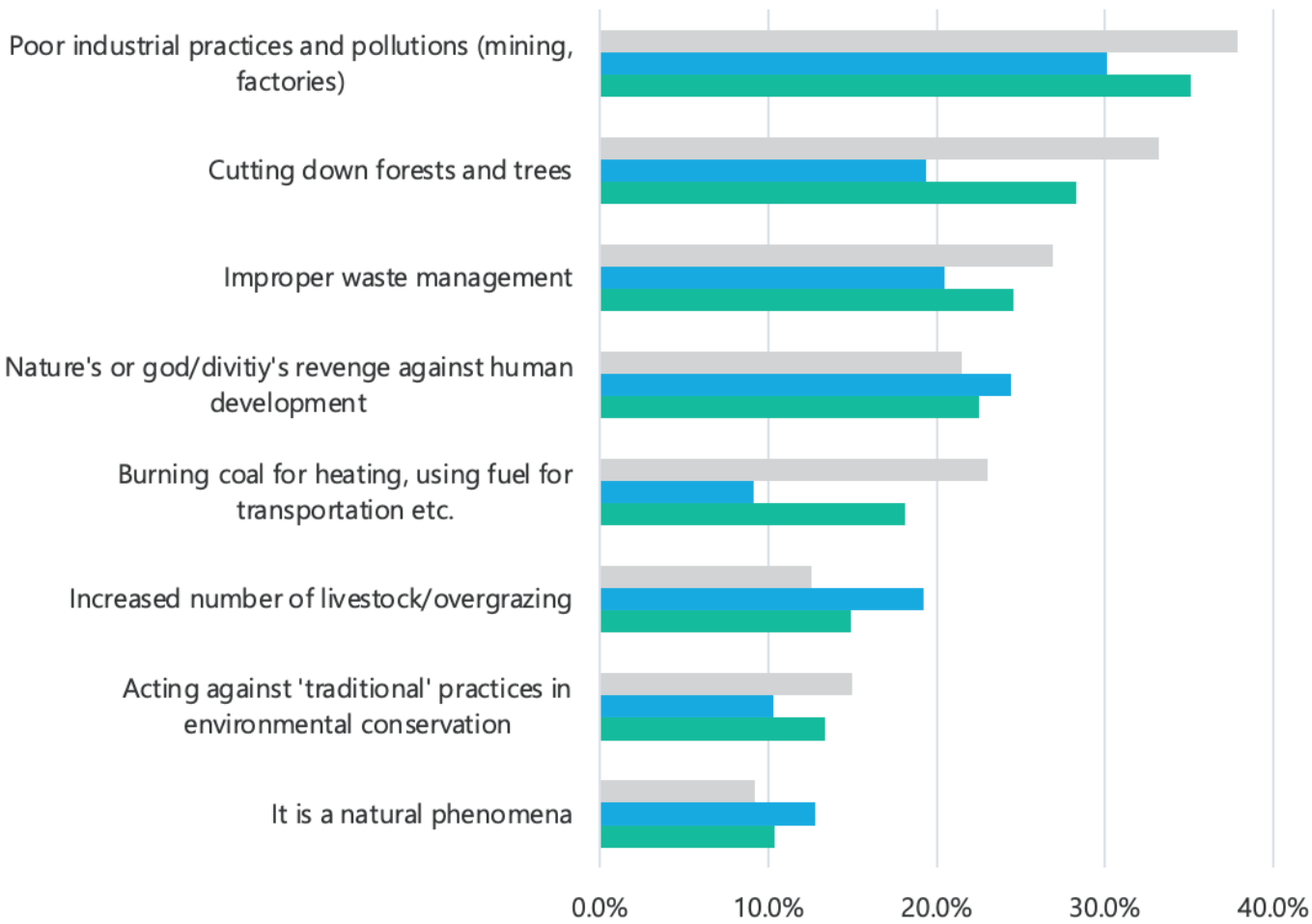
Respondents in rural and urban areas had significantly different views of the causes of climate change - except for the causes of 'poor industrial practice and pollutions' and 'improper waste management.' Figure 17 shows that the proportion of respondents who considered 'cutting down forests and trees' and 'burning coal' as the main drivers of climate change was higher among urban respondents. In contrast, the proportion of respondents who believed the drivers for increased natural disaster and environmental degradation were due to 'nature's revenge against human development' and 'increased number of livestock/overgrazing' was higher among respondents from rural areas. There were no significant differences in this understanding between male and female respondents.

A male herder from Dornod aimag expressed his belief that respecting nature by worshipping *ovoo*

and mountain spirits is beneficial for the environment and the environment responds positively:

"What matters is if a person offers tea or other offerings to the mountain, ovoo or earth when he goes somewhere and pays respect just as he would. A good offering is better than a mediocre monk. It is appropriate to take care of the environment, and in recent times, nature is recovering well and trees and stones have dramatically changed in our soum. The sacred mountain in our soum is worshiped annually." (Herder, Dornod aimag, male)

Respondents had considerable misconceptions that may contribute to negative attitudes toward climate change and poor practices. Around a quarter of respondents perceived that 'climate change is not happening.' Similarly, about one third of respondents misunderstood that 'a few degrees warmer cannot affects us' (35.9%), 'changes in overall

Figure 17: Respondents views on causes of climate change, by percent of cases (n=2804).

Figure 18: Statements about climate change, percent of cases (for each statement n=2804).
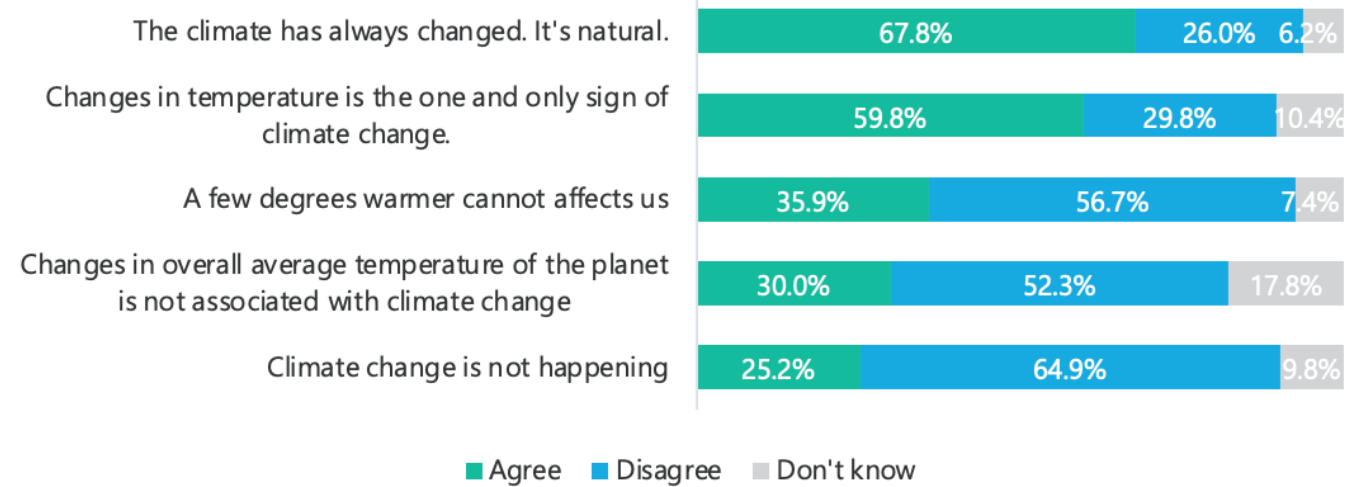
Figure 19: Perceptions about climate change and its causes.
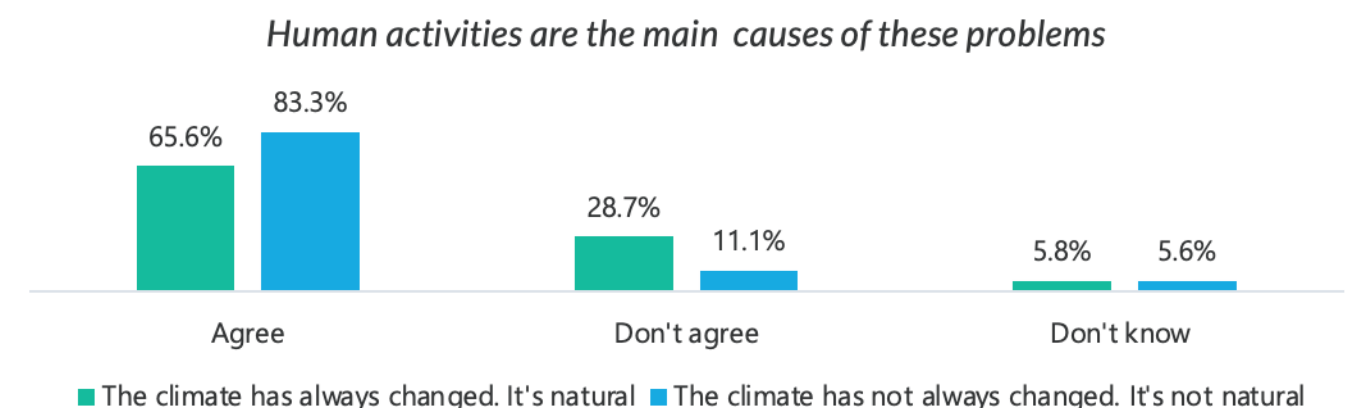
average temperature of the planet is not associated with climate change', and 'changes in temperature is the one and only sign of climate change' (29.8%). Whilst around 10% indicated that they 'don't know.' In Chapter 8 of the report, it is outlined that only 6.8% of respondents mentioned that they thought industrialized countries were causing climate change versus 35.9% who mentioned that they thought Mongolian citizens were causing climate change.

Moreover, the majority of respondents (67.8%) perceived that climate change is natural and it has always changed. Respondents with less knowledge about climate change were more likely to reject the idea that climate change is happening and perceived that the climate has always changed and it is natural. It means that those respondents are more likely to reject information that explains the causes and effects of climate change.

The figure above shows that respondents who believed that the climate has always changed, and it is natural, were less likely to perceive that human activities are the cause of climate change (65.6%), compared with respondents who do not (83.3%).

Almost half of respondents (46.6%) believed that environmental changes that had happened in the last 10 years affected natural resources and livelihoods in their local areas. In particular, respondents mentioned environmental pollution (83.5%), quality of life (77.0%), threat to health (75.8%), migration (75.3%), and poverty (74.2%) as being the main issues affected by environmental changes.

However, significant differences were observed between rural and urban respondents. Rural respondents were more concerned with negative effects - including changes in seasonal specification (88.8%) and poverty (81.6%). Meanwhile, urban respondents expressed that environmental pollution (88.7%), threats to health (82.6%), quality of life (81.9%), and migration (76.6%) were the main negative effects of environmental changes.

Figure 20: Perceived effects of observed changes, by residency (n=1330).
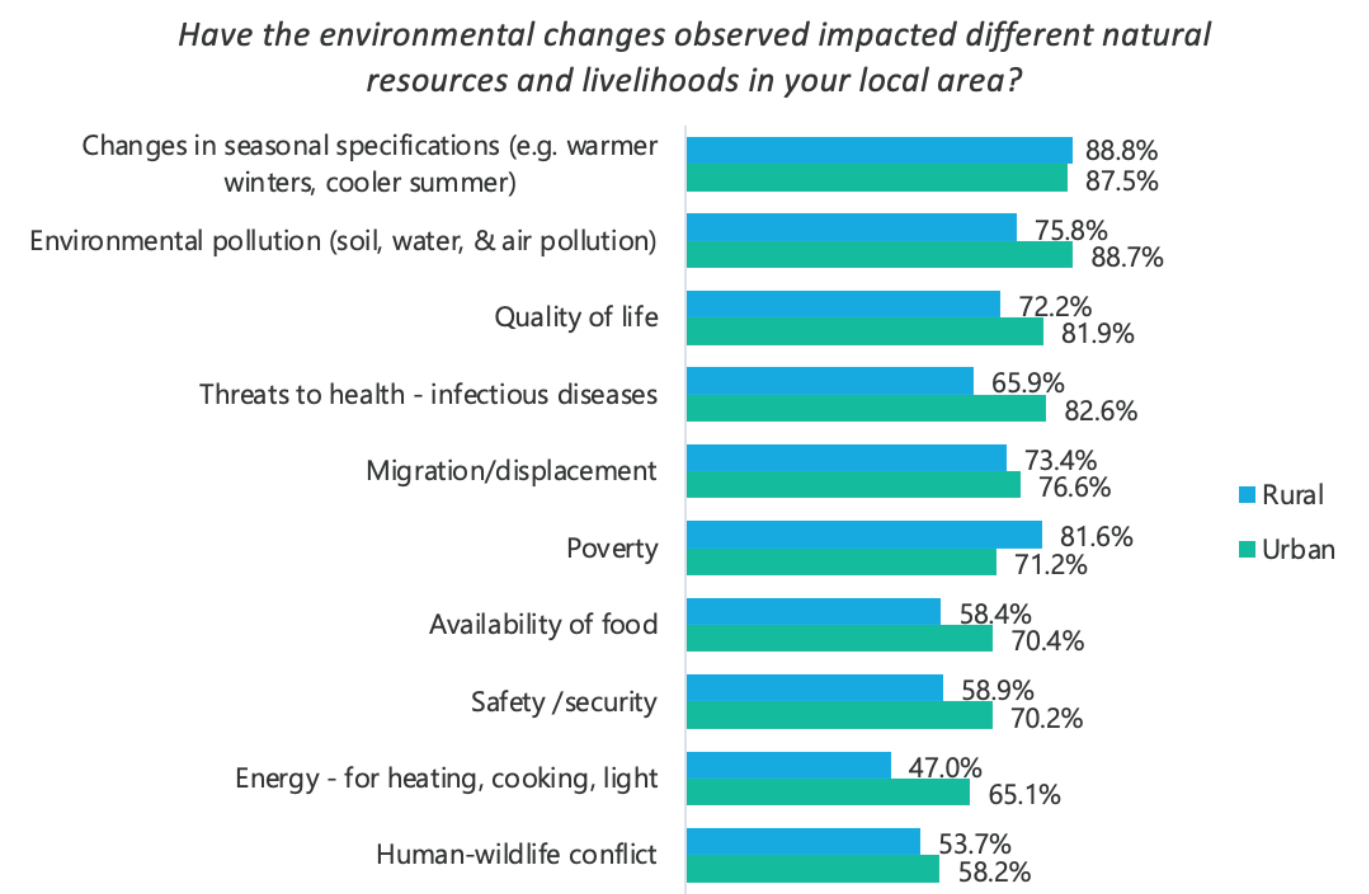
According to the qualitative findings from FGDs held in Ulaanbaatar, urban respondents were mainly concerned with the quality of air and soil which had been affecting their health, safety and quality of life. One participant shared similar views that environmental changes had affected their health and livelihood, as illustrated below:

> "It's a health issue, and the main thing is that people should be healthy. Unfortunately, the air does not get clean enough because of the toxic smog and the lack of snow and wind in winter. This results in young children and older people going to the hospital for severe illnesses. For me, a single mother who used to buy flour for 45,000, but today it costs 82,000. My three kids go to school, and my old mother needs medicine. My salary is 370,000 MNT, so I have many economic problems, whether I should buy clothes for the children, buy food for home, or buy medicine for my mother and put her in the hospital." (Head of household, Bayan-Ulgii aimag, female)

In total, 7% (n=195) of respondents had experienced at least one type of disaster in the last 12 months and the majority experienced losses and damages in their living areas. Among those who experienced disasters within the last 12 months, 43.1% had experienced storm/wind, 37.2% flood, 12.5% *dzud* and 13.2% droughts. Moreover, of respondents who had experienced natural disasters, 69.4% experienced some type of loss at the household level, while 68.1% (n=133) noticed loss and damage at the community level. The damages experienced by respondents differed widely depending on their location. In particular, over half of rural respondents (52.1%) experienced a 'decrease in household income caused by the loss in livestock and agriculture production' while urban respondents suffered 'damages to their property and loss in their assets.'

As Figure 21 and 22 show, one third of respondents shared that damages, such as a decline in income caused by the loss in livestock and agriculture production (33.0%), and damage to property and equipment (32.9%), were the main damages experienced by their households. At the community level, one fourth of respondents who noticed damage in their community said that 'roads were damaged' (33.3%) and 'pastureland was destroyed and affected by natural hazards in their areas and communities.'

Figure 21: Damages caused by natural hazards at the household level, (of those who experienced disasters in the last 12 months), (n=195).
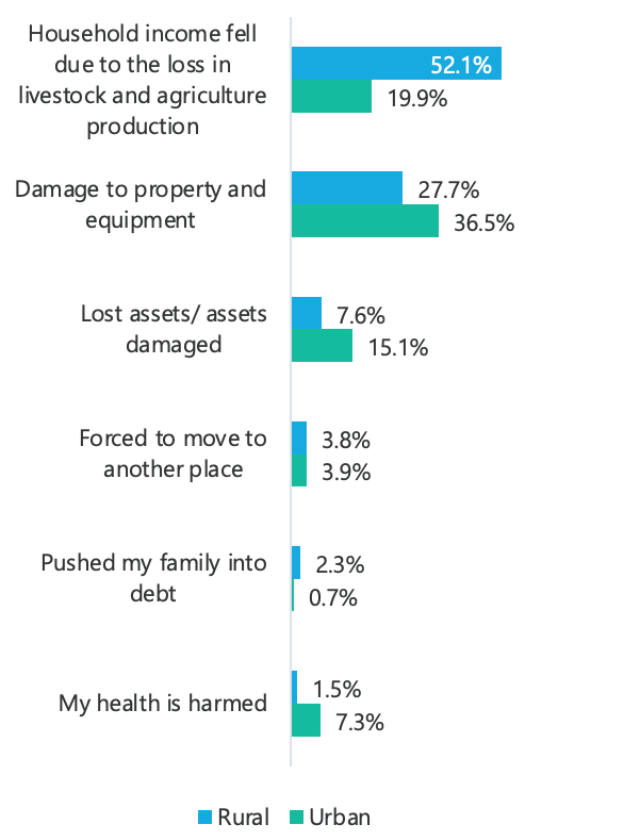
Figure 22: Damages caused by natural hazards at the community level, (of those who experienced disasters in the last 12 months), (n=195).
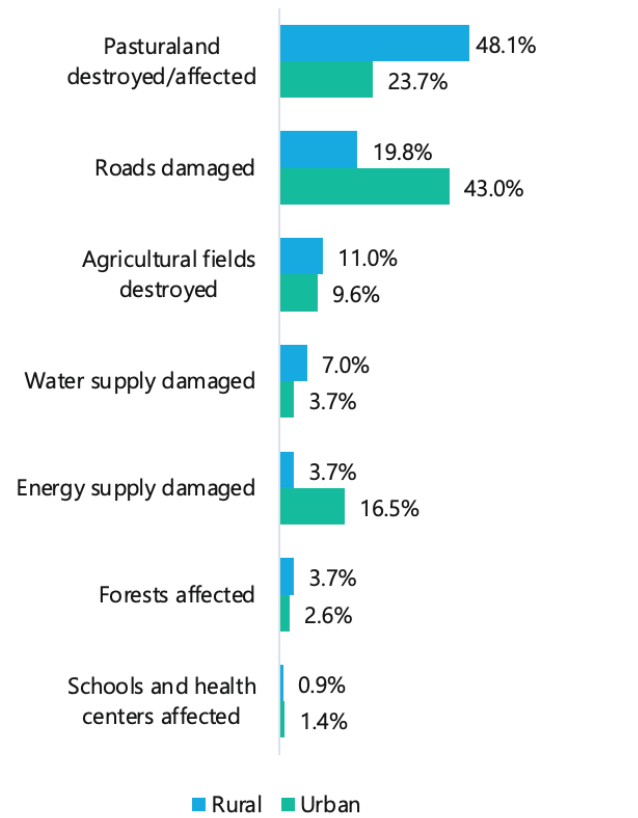
According to the FGDs held in rural areas, rural households were diversely affected by natural hazards. Some participants from Bayan-Ulgii aimag shared their experiences as follows:

"Everything, including houses and homes, was affected by the flood. Unfortunately, it was in 2018 when we used to live along the banks of the Khovd River. It was hard, and since we didn't have a home we spent a few months in the dormitory of the Vocational Training Center with our children. It was tough for a while when the toilet and the well were flooded with water." (Unemployed, Bayan-Ulgii aimag, female)

"Because of the lack of rain, even the vegetables and trees planted in the backyard are not growing. Previously, we used to dig a well for water, however, since the water level decreased, the well does not have water anymore. In the western provinces, households have no income other than animal husbandry. When natural disasters, and as climate change occurs, people have left their homes and moved away. The question of whether our farthest soum, Bulgan soum, should be dismantled or not is on the table. There are herders who were unable to herd their livestock due to overgrazing and unable to purchase fodder. Moreover, since they did not have financial capacity, they started moving to Kazakhstan." (Herder, Bayan-Ulgii aimag, male)

Previous disaster experience was associated with lower satisfaction of the quality of the local environment. When asked to rate their satisfaction with the quality of the local environment, respondents' satisfaction was average with a mean score of 5.68 (0 meaning 'fully dissatisfied' and 10 'fully satisfied'). In general, dissatisfaction was more prevalent among younger people, those who migrated, had lower levels of education, were from urban areas, and those from forest and taiga ecological zones.

There was a significant difference in satisfaction levels based on respondents' experience and observation of weather and environmental changes. Respondents who had noticed changes in the weather patterns in Mongolia (Figure 23), and environmental changes (Figure 24) in their community, were less satisfied with the quality of their local environment.

Figure 24: Satisfaction with the quality of the local environment, by respondents who observed environmental changes in their community (n=2804).

- ■ Noticed environmental changes in their community (n=1307)
- ■ Didn't notice environmental changes in their community (n=1264)

Figure 23: Satisfaction with the quality of the local environment (n=2804), by respondents who observed changes in weather patterns in Mongolia (n=2804).

- ■ Noticed changes in the weather patterns in Mongolia (n=1864)
- ■ Didn't notice changes in the weather patterns in Mongolia (n=764)
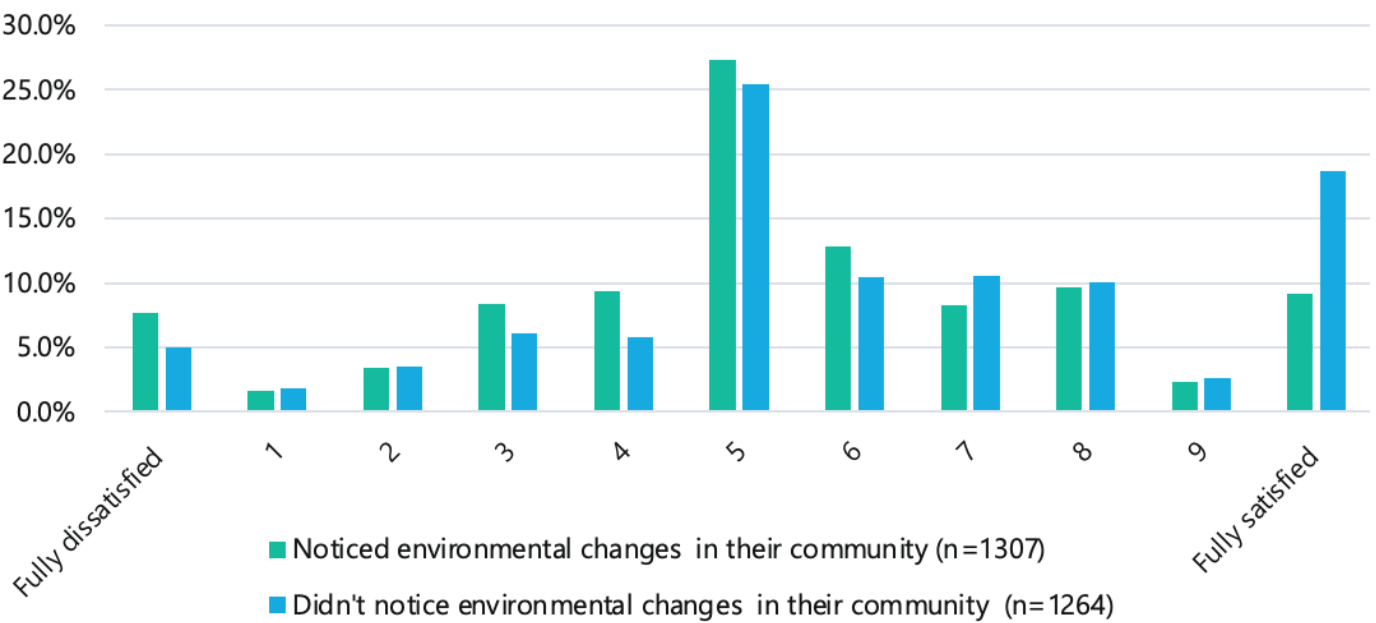
5. ATTITUDES TOWARDS CLIMATE CHANGE

Attitudes are cognitive representations that summarize people's evaluation of an action, event, idea, or thing. It is what social scientists refer to as an 'attitude object.'[43] In *the Survey*, the attitude object was climate change. To take an in-depth look at the public attitude towards climate change, questions mainly aimed at exploring whether the public were supportive of a range of policies that would bring fundamental transformations in their lives. Attitude questions identify the public's willingness to change their lifestyles - including the food they eat, the way they heat and cool their homes, and how they consume goods and services. Unveiling the overall attitudes of persons towards reducing vulnerability and building resilience against climate change-related impacts at the community level is also important. This is as their attitudes will ultimately affect the long-term viability of any adaptation or mitigation strategies.[44]

43 Armstrong, et al. (2018) Communicating Climate Change: A Guide for Educators. Available at: https://www.jstor.org/stable/10.7591/j.ctv941wjn

44 OECS Secretariat. (2013) Climate Change Knowledge, Attitudes and Behavioural Practices in the OECS

5.1 Concerns about climate change and its consequences

The majority of respondents (69.0%) expressed concern about climate change - 18.9% were 'very concerned' and 50.1% were 'mainly concerned.' About 2.1% were 'not concerned about climate change at all' and about 5.3% were 'mostly not concerned.' Quantitative data indicates that there was a high degree of concern about climate change irrespective of the respondent's place of residence.

Results also showed that the level of concern regarding climate change was higher among women, herders, vulnerable groups, and respondents who had not migrated in the last 10 years.

Concerns regarding climate change were mainly associated with negative emotions - including fear, worry and regret. Respondents were asked how they felt about climate change.

In total, 32.6% of respondents felt 'worried' about climate change, 19.2% were 'fearful/afraid', and 11.4% felt 'regretful.' However, 8.8% did not have any particular feelings towards the subject. There were also very few respondents who were 'feeling pressure to act' (4.2%) and were 'hopeful' that something could be done about climate change

Figure 25: The level of concerns about climate change, by groups (n=2804).
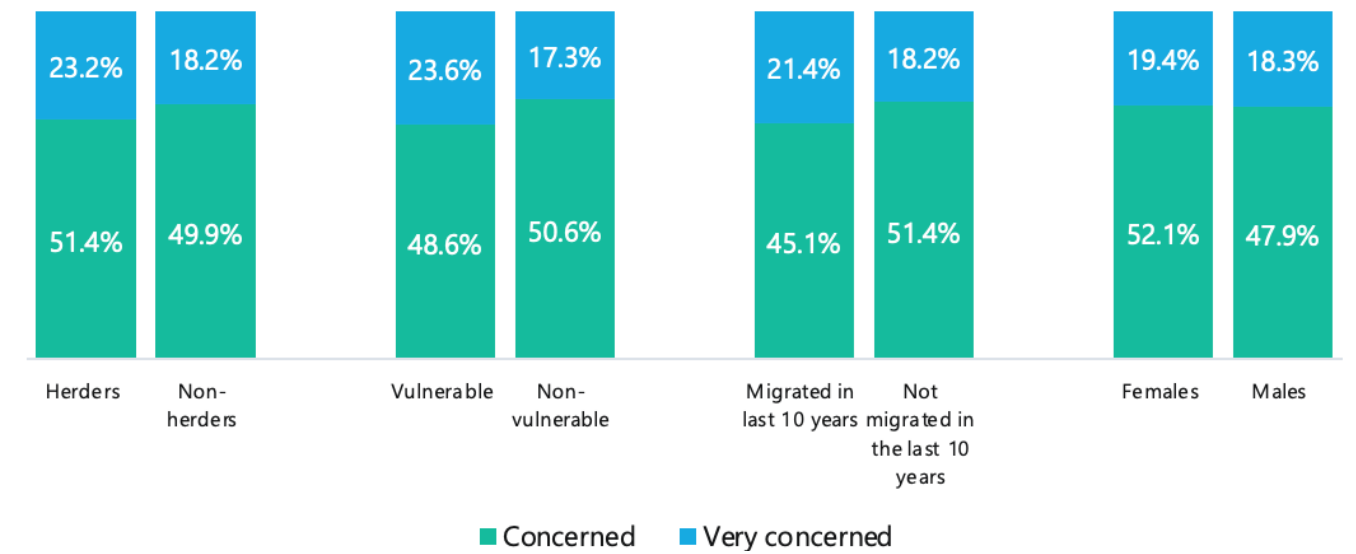
Figure 26: Feelings towards climate change (n=2804).

Table 5: Summary of key questions for attitudes towards climate change, proportion of respondents (%), (n=2804).

#	Indicators	Gender		Broad age groups				Residency		Vulnerability	
		F	M	18-24	25-34	35-59	> 60	U	R	LV	V
1	Believe extreme events' frequency will increase	55.8	63.1	64.2	62.4	56.9	53.8	61.6	55.2	63.0	55.1
2	Believe climate change is occurring globally	90.7	89.2	89.3	90.3	90.3	89.0	91.5	87.2	91.6	84.8
3	Climate change is occurring in Mongolia	89.4	90.0	88.5	90.3	90.3	88.1	90.5	88.1	90.7	86.4
4	Concerned about climate change	71.5	66.2	48.7	65.1	77.5	79.2	69.0	68.9	67.9	72.2
5	Believe climate change will affect their life in the short run	37.2	28.3	31.2	36.0	26.2	32.7	34.1	38.7	29.0	37.4
6	Believe climate change will affect negatively	78.4	78.8	73.4	79.6	80.4	78.3	79.3	77.3	79.9	77.1
7	Believe climate change is affecting their communities	56.3	56.3	49.3	57.1	59.3	54.7	56.3	56.4	56.7	55.2
8	Would like to receive more information about climate change from media	86.1	83.9	80.9	84.9	86.9	85.5	82.6	89.6	85.3	84.8
9	Climate change is the issue that our country needs to take an urgent action	86.5	84.7	75.0	84.1	89.5	92.1	85.5	85.9	85.2	86.2

Note: U – Urban, R- Rural, V – vulnerable, LV – Less vulnerable. Statistically significant results are highlighted in green (p< 0.01).

Figure 27: Main concerns related to climate change impact at the country level (n=2804).

Concern	%
Environmental issues including deforestation, floods, and droughts, limited access to water, fires	51.6%
Health issues including infectious diseases	38.6%
Agriculture - livestock, farming	31.0%
Economic issues including losses to property caused by extreme events, unemployment caused by…	20.3%
Food insecurity	19.1%
Social issues including movements of migrants, threat to indegenious people	13.5%

(1.3%). The proportion of negative feelings was high among female respondents, vulnerable groups and those who worked in the agriculture sector. Only 8.1% of respondents said they had 'no concern' related to climate change impacts.

Main concerns related to climate change among the population were primarily environment, health and agriculture. Respondents were asked to identify main impacts of climate change at the national level. The results show that respondents are by far most concerned about environmental issues (51.6%) while one third of respondents state about health issues (38.6%), and agricultural related issues (31.0%) as impacts of climate change.

The comparative analysis between groups showed that respondents from rural areas and those who worked in the agriculture sector were particularly concerned about environmental and agriculture-related issues compared to other groups. Women expressed significantly more concern about health issues than men - who expressed greater concern about illegal landfills.

Respondents' prior disaster experience, and changes they had noticed in their communities, played a vital role in making them believe that climate change is occurring and affects everyone. Respondents were asked how likely they thought a range of changes were to occur over the next few decades at different levels. More than 44% of all the respondents believed that changes in the climate are likely to affect various groups to some extent.

Figure 28: Perceived likelihood of being effected by extreme events at different levels differentiated by past experience of extreme events (n=2804).

How likely it is such extreme events will affect various groups at different levels? (Likely & Very likely)

Group	Not affected	Affected
Myself	42.3%	59.3%
My household	43.0%	57.6%
My community (soum/khoroo)	55.1%	72.6%
My aimag/district	51.8%	71.9%
My region (gobi, khangai,east, central etc)	58.3%	77.8%
Our country (Mongolia)	59.2%	75.3%

Not affected   Affected   Linear (Affected)
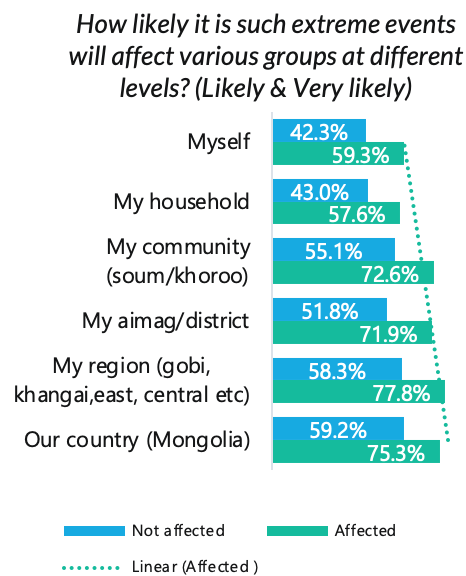
There were significant differences in how respondents perceived the likelihood of effects depending on their previous disaster experiences and observation of changes in their local areas (Figure 28). In particular, those who noticed environmental changes in their communities were more likely to believe the extreme events will affect various groups (Figure 29). Although it was generally agreed among the respondents that extreme events will affect other groups, the respondents perceived themselves as distant from potential effects as shown in Figure 28 and Figure 29.

Figure 29: Perceived likelihood of being effected by extreme events at different levels differentiated by experience of environmental changes (n=2804).

How likely it is such extreme events will affect various groups at different levels? (Likely & Very likely)

Group	Not affected	Affected
Myself	42.3%	59.3%
My household	43.0%	57.6%
My community (soum/khoroo)	55.1%	72.6%
My aimag/district	51.8%	71.9%
My region (gobi, khangai,east, central etc)	58.3%	77.8%
Our country (Mongolia)	59.2%	75.3%

Not affected   Affected   Linear (Affected)
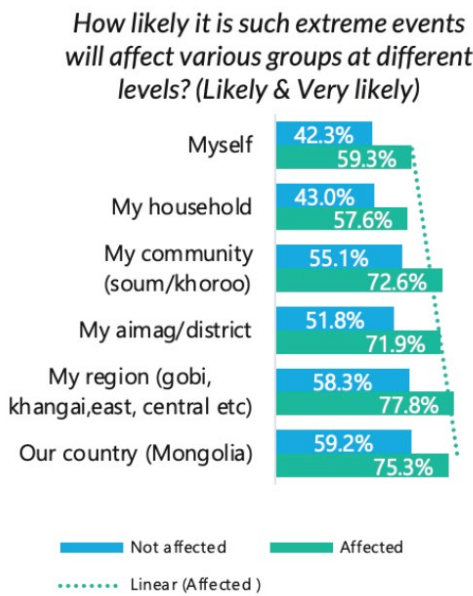
Climate change is expected to negatively affect people's lives in the long run. The vast majority of respondents (78.6%) reported that climate change would affect their lives negatively. Respondents who believed that climate change is occurring in Mongolia were more concerned with the negative effects of climate change (82.9%) compared to those who did not believe it is occurring in Mongolia (73.2%).

Figure 30: Perceptions of climate change and beliefs (n=2804).

	All	Believe that climate change is occuring in Mongolia	Don't believe that climate change is occuring in Mongolia
It may negatively affect my life	78.6%	82.9%	73.2%
It may positively affect my life	5.6%	4.1%	9.0%
It will not affect my life	11.2%	9.0%	15.0%
I don't know	4.6%	4.1%	2.8%

All   Believe that climate change is occuring in Mongolia   Don't believe that climate change is occuring in Mongolia

Figure 31: Perceptions of climate change and observations (n=2804).

	All	Didn't notice changes	Noticed changes
It may negatively affect my life	78.6%	71.5%	85.9%
It will not affect my life	11.2%	16.0%	6.5%
It may positively affect my life	5.6%	6.5%	4.7%
I don't know	4.6%	6.1%	2.9%

All   Didn't notice changes   Noticed changes
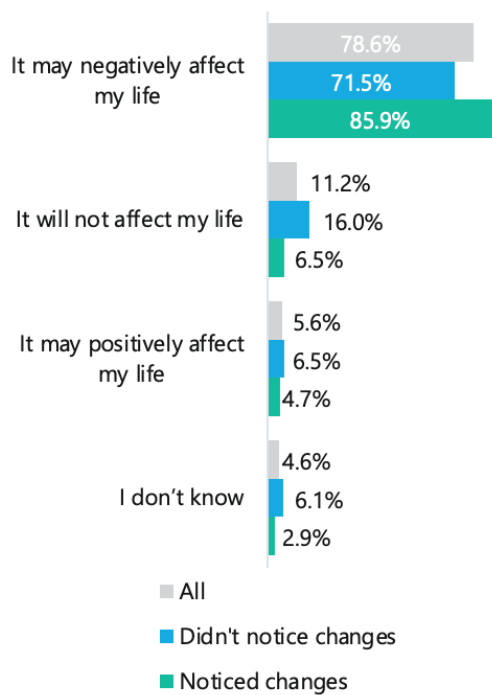
Respondents' prior disaster experience was associated with how they perceived the effects of climate change. The percentage of respondents who perceived that climate change would affect their lives negatively was higher among respondents who had been affected by a disaster in the last 10 years (88.3%) compared to those who had not (77.8%). It shows that respondents' prior disaster experience and observations have made them concerned about climate change. Moreover, the respondents who perceived that they would be affected in some way (67.1%) stated that it would be experienced in the long run - regardless of their prior experiences and knowledge about climate change.

5.2 Primary concerns

It is important to understand the primary concerns that people are grappling with. This helps us to understand their attitudes towards climate change causes and effects and what may be potential trade-offs, or opportunities, in terms of climate action.

The main concerns of respondents were health problems, air pollution, unemployment and income and economic problems. *The Survey* asked respondents 'at the moment, what are your three main concerns?' and answer options were not read out. The respondents were able to name

up to three of their main concerns and rank them. Figure 32 shows the concerns expressed as Rank 1, 2 and 3 and the total values for each concern mentioned by respondents. Unsurprisingly, the most concerning issue for the respondents was health problems (17.0%) followed by air pollution (16.4%). These were both mentioned by nearly half of all respondents. Then came economic concerns including unemployment (15.1%) and income and economic issues (14.9%) - such as high prices and the cost of living. These were mentioned by more than 40% of all respondents. Environmental and pasture issues were mentioned as the main concern by 9% of respondents. This is similar to other recent nationwide polls on the public's main concerns related to climate change with the exception of air pollution (only 3% of respondents in general polls mentioned air pollution as a key problem).**45**

More women were more concerned about health, air pollution and the COVID-19 pandemic than men. Men were more concerned about corruption, infrastructure issues and environmental and pasture issues. There were some differences between what women and men identified as their main concerns. More women reported that their main concerns were health (52.6% of women versus 41.4% of men), air pollution (43.4% of women versus 40.4% of men), and income and economic issues (43.9% of women versus 39.9% of men). While more men than women were concerned about corruption (31.4% of men versus 22.1% of women), infrastructure issues (20.6% of men versus 17.2% of women), and environmental and pasture issues (10.4% of men versus 6.8% of women).

Figure 32: Top three main concerns by the respondents (rank 1, rank 2, rank 3 and total) (n=2804).
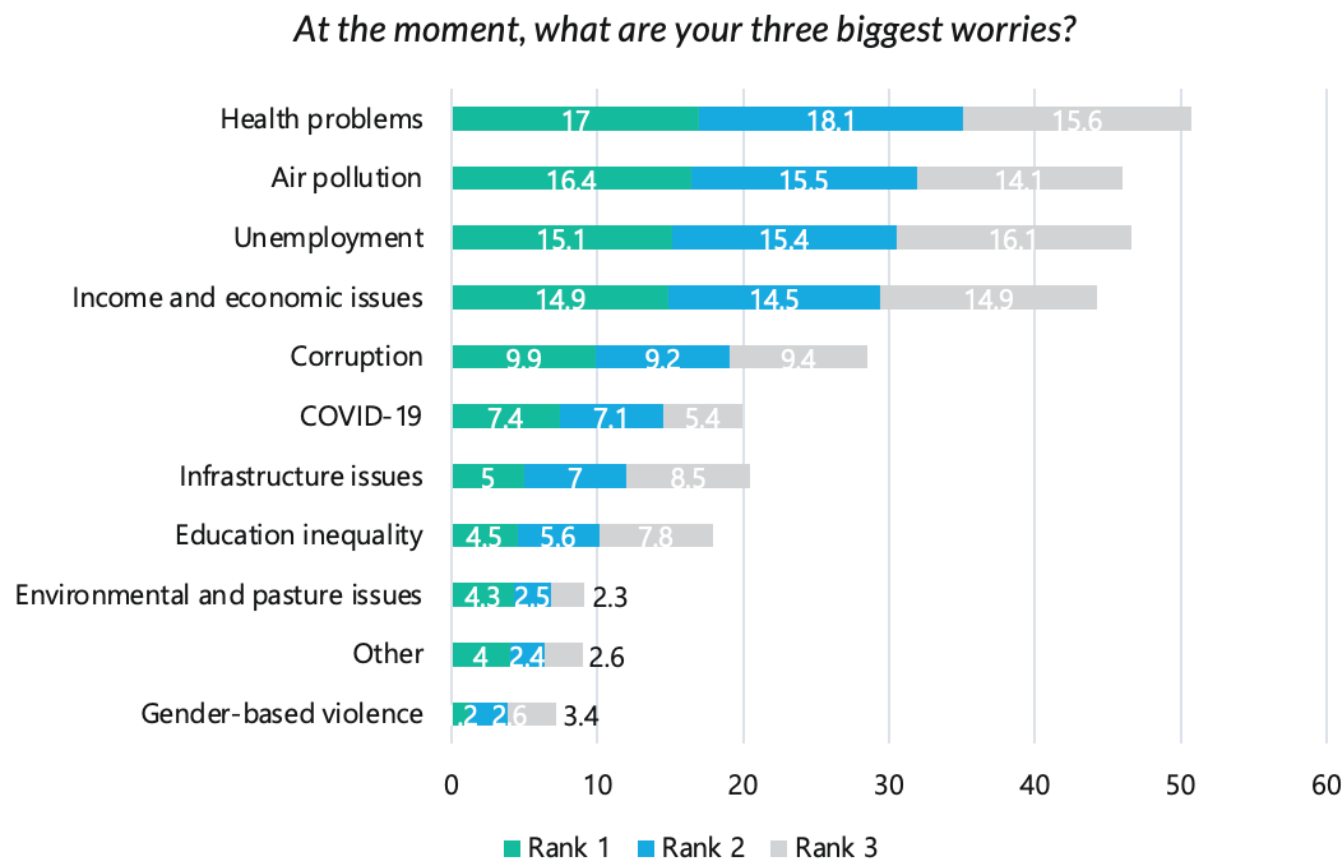
At the moment, what are your three biggest worries?

Moreover, depending on their level of income, there were significant differences between women respondents' main concerns. The main concerns among women from low-income households were income and economic issues (20.0%) and health problems (19.3%). In contrast, women from middle and high-income households reported that air pollution (16.4%) and unemployment (15.6%) were their main concerns.

The main concerns of respondents varied by age group. The younger the respondents were, the more they were concerned about education inequality (27.7% of youth aged 15-24 cited education inequality as one of their three main concerns compared to 8% of respondents aged 60 and above), air pollution (45.1% of youth versus 37.5% of those in older age groups), and gender-based violence (10.2% of youth versus 4.7% of those in older age groups). More respondents were older and their main concerns were about corruption (28.8% of those in older age groups versus 20.7% of youth), income and economic issues (45.9% of those in older age groups versus 36.8% of youth) and environmental and pasture issues (10.9% of those in older age groups versus 6.4% of youth). When it came to issues related to health, the COVID-19 pandemic and infrastructure issues, there were no differences based on age.

The urban population were more concerned about health (49.9% versus 42.3), air pollution (47.9% versus 31.1%) and infrastructure (22.3% versus 12.6%) issues than those in rural areas. The population in rural areas expressed greater concern about unemployment (47.1% of those in rural areas versus 41.8% of urban respondents) and environment and livestock management (16.0% of those in rural areas versus 4.5% of urban respondents). There were no statistically significant differences with regards to income and economic problems, education, corruption and COVID-19.

As shown in Chapter 5.1 of this report, the majority of respondents believed climate change has a negative impact on health. This was mentioned as the primary concern for both rural and urban respondents across all age groups. During group discussions, participants referred to health issues such as high blood pressure, heat stroke, exhaustion and cardiovascular disease. Moreover, communities

in rural areas expressed their concerns about livestock and livelihoods in relation to climate change as follows:

"Animal diseases are increasing and in our aimag, wildfires are common these days. Especially in places where people prepare for meat reserve for the winter, there are unknown animal diseases. Mongolians depend on livestock meat and people don't know where to prepare their meat reserves. These issues are all related to climate change." (Unemployed, Dornod aimag, male)

"Because of climate change, there are various infectious diseases emerging, when it's hot outside older people cannot go out and their blood pressure increases, and all sorts of new types of cancers that we are not familiar with are appearing." (Self-employed, Selenge aimag, female)

"Mongolian people are adapted to their environment and nature. But because these are changing, it starts to affect our health. Our children are catching flu regularly, their immune system is weaker and due to various natural disasters people's health is affected to some extent even die." **(**Self-employed, Ulaanbaatar, female)

"I think because of climate change there is no more wind in winter, wind has become very scarce. Because it is not windy anymore, air pollution produced by people is not going anywhere, it is strongly felt and affecting people's health." (Head of household, Bayan-Ulgii aimag, female).

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45 In 2021 nationwide poll 'Perspectives on Issues Facing Mongolia' by IRI and IRIM, ~8% of respondents selected environment and agriculture as the most important problem. However, what is inconsistent is air pollution was mentioned as the most important problem by only 3%.

7	Use reusable products including grocery bags, water bottles	79.4	74.5	76.6	76.2	77.1	78.9	77.8	75.6	77.3	76.6
8	Perceived themselves as capable of coping/dealing with climate change	34.9	33.9	28.9	28.3	30.2	28.1	29.6	28.6	32.3	25.8
9	Aware of how to take appropriate actions to prevent or minimize the damage that climate change causes - good and very good.	8.9	11.6	10.6	9.1	9.7	13.5	9.6	11.4	10.8	9.5

Note: U – Urban, R- Rural, V – vulnerable, LV – Less vulnerable. Statistically significant results are highlighted in green (p< 0.01).

6. PRACTICES RELATED TO THE ENVIRONMENT AND CLIMATE CHANGE

In order to reduce vulnerability to climate change and build resilience in communities, an adaptation strategy - which improves knowledge and supports the implementation of better practices - is imperative.[46] Therefore, 'practice' questions in *the Survey* focused on identifying behavioral practices that can help with climate change mitigation and the types of behavioral changes the public are willing to make. This chapter examines responses to questions about the population's personal actions, household practices to protect their households from climate-induced disasters and effects, and pro-environmental behavior that minimizes environmental impacts.[47]

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46 OECS Secretariat. (2013) Climate Change Knowledge, Attitudes and Behavioural Practices in the OECS. Available at: https://climatefinance.gov.gd/wp-content/uploads/2019/10/Climate-Change-Knowledge-Attitudes-and-Behavioural-Practices-in-the-OECS.pdf

47 Armstrong, et al. (2018) Communicating Climate Change: A Guide for Educators. Available at: https://www.jstor.org/stable/10.7591/j.ctv941wjn

6.1 Coping strategies to respond to changes in the environment, weather, and the availability of resources

Coping strategies are actions people use to manage crises, conditions, and demands that are appraised as distressing. In this regard, we asked the respondents if they had undertaken any coping strategies in response to disasters and any environmental changes they had experienced.

At the household level, the main prevention and coping measures taken by respondents who had noticed environmental changes were to migrate and to change their job or sources of livelihood. Around one sixth of respondents (16.4%) who had noticed environmental changes in the community made changes to their current job or sources of livelihood to cope with environmental issues. In particular, the percentage was higher among those who migrated in the last year (28.4%).

As Figure 33 shows, changing jobs or sources of livelihoods were the most frequently mentioned changes respondents made to cope with environmental changes. Significant differences,

Figure 33: The percentage of respondents who made changes to deal with these environmental issues (n=253).

If you have observed envronmental changes, what changes did you make to deal with these environmental issues?

Changed job or sources of livelihood	42.8%
Migrated (permanently)	24.0%
Travelled further to find work	16.8%
Went away from home/migrate to earn money (temp) or to avoid pollution	15.0%
Strengthened/renovated housing	12.8%
Supplemented income in other ways	7.6%
Changed the number of livestock	5.3%
Changed drinking water sources	2.7%
Changed our areas for agriculture (crops, livestock)	1.6%
Diversified livestock	1.4%

Table 6: Summary of key questions for practice related to climate change, proportion of respondents (%), (n=2804).

	Indicators	Gender		Broad age groups				Residency		Vulnerability	
		F	M	18-24	25-34	35-59	>60	U	R	LV	V
1	Taken preventive action to protect yourself from natural disasters.	20.2	23.6	17.2	22.0	24.0	20.8	20.4	24.5	22.2	21.4
2	Leave my electronic devices/appliances plugged when not in use	29.9	32.6	39.8	35.2	28.7	17.6	33.4	27.1	35.2	26.7
3	Use single-use plastic products such as straws, forks, and spoons	44.6	52.3	48.6	53.3	48.5	36.6	49.5	46.2	55.2	40.5
4	Use a private vehicle and encourage the use of the car for others	61.8	66.5	50.3	70.0	68.1	58.8	59.8	71.8	67.3	60.3
5	Use solar energy (solar panel)	26.6	30.5	35.1	26.4	27.2	26.4	14.7	53.6	20.2	37.9
6	Turn off tap while cleaning your teeth and washing your face	90.4	87.9	87.1	88.4	90.4	89.6	91.4	85.1	90.0	88.2

which were based upon location, occurred in two coping strategies. These involved migration and house renovation. More urban respondents responded that they migrated (28.3%), travelled further to find work (17.4%), and strengthened/ renovated housing (17.1%) compared to respondents from rural areas (15.9%, 10.4% and 4.8%, respectively).

Urban respondents took more diverse and proactive actions, compared to rural respondents. When respondents were asked whether they had taken any preventive action to protect themselves from natural disasters, including flood, desertification, drought, storm, sandstorm and fire, 21.8% (n=355/514) reported that they had taken some preventive actions.

As shown in Figure 34, the most frequently mentioned measures by those who took preventive actions included making permanent adjustments to

the home (22.4%), watching or listening to weather forecasts (20.3%), defending against a flood (17.3%), and increasing green areas by planting trees and transforming land into a lawn (15.6%). There were significant differences in the types of preventive action between rural and urban respondents. In particular, urban respondents took a broad range of preventive actions compared to rural respondents. As shown in Figure 34, urban respondents were more proactive and learned new skills (15.1%), created emergency kits (12.3%), improved water management (9.9%), and insured their house and property (6.7%). In contrast, rural respondents took more reactive actions including 'using traditional approaches to predict weather events (8.1%) such as observing the behavior of animals, changes in plants and stars and other natural indicators - and 'moving to another place' (8.2%). Moreover, the percentage of respondents who reported that they had migrated to another place (30.8%) was two times lower among those who had been affected
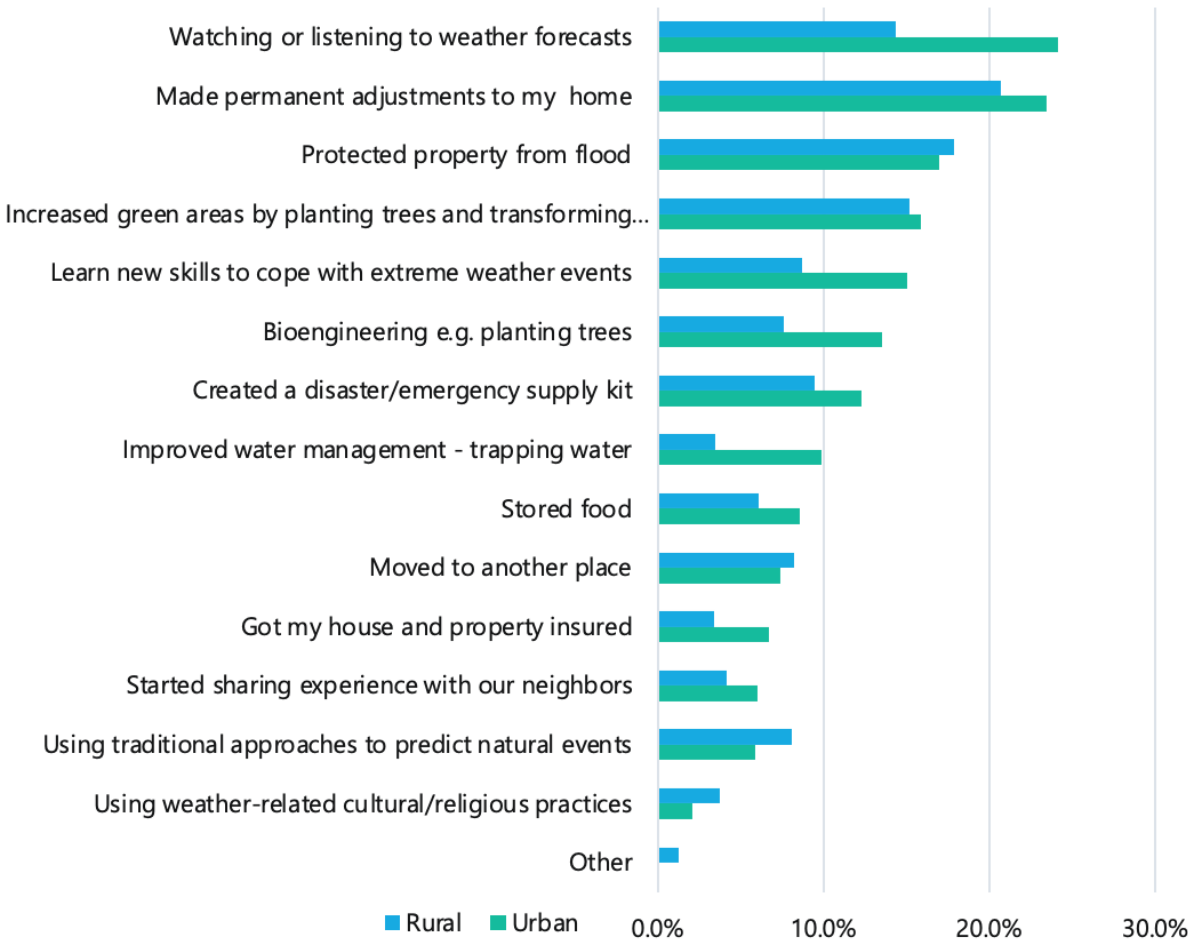
by a disaster in the last 10 years compared to those who hadn't (69.2%).

Communities tended to share their experiences and the factors that encouraged them to take actions in response to changing climatic conditions as outlined below:

"In my case, I suffered a considerable amount of livestock damage during the zhud that occurred between 2010 and 2015. In my opinion, it seems like a natural disaster happens once every 10 years. The dzud of 2010 seriously took a toll on us, and it was extremely detrimental to us herders to lose our daily livestock. Then when the dzud hit in 2015, as we had accumulated some experience, we took measures such as receiving the weather forecast in advance, avoiding letting the herd roam far from the winter camp, or preparing the animal fodder beforehand. We will apply our past acquired experience because we think a similar situation may arise this year." (Self-employed, Bayan-Ulgii aimag, female)

"At the time nobody knew that there would be floods and heavy rains. In spite of this, the sky was always overcast and the wind was blowing, it looked as though it would pass. However, it rained for only 10 minutes that day and all the houses and fences were destroyed. I would

not say that I was not attentive to the weather forecast, but even if I had listened to or watched the news, I would not have understood the language. Kazakh people like me, who are born in rural areas and did not go to school, or were uncultured, lack the knowledge and the language. As the saying goes, while there is life, there is hope, we bought the land and built another house to start again. Although there was assistance, it was not inclusive. People like us who have a low standard of living could not access it because of a lack of network. Our province is prone to help those who have a network or are involved with the political party. Now I consider myself to be ready but no one can stand against a natural disaster despite preparation." (Rural respondent, Bayan-Ulgii aimag, male)

Improving winter livestock shelters (96.2%), preparing supplementary feed (92.2%), and sharing experience with other herders (88.2%) were the main strategies herders had taken to cope with climate change. However, in response to the impact that changes in natural resources and ecosystems had on livelihoods, there was a significant difference in the types of action taken by different age groups.

The diversification of livestock species and of livelihoods was more common among young

Figure 34: Preventive actions taken by respondents, by location (n=2804).

Figure 35: Actions taken by respondents to cope with climate change - including the impact of changes in natural resources and ecosystems on livelihoods, by age group (n=612).
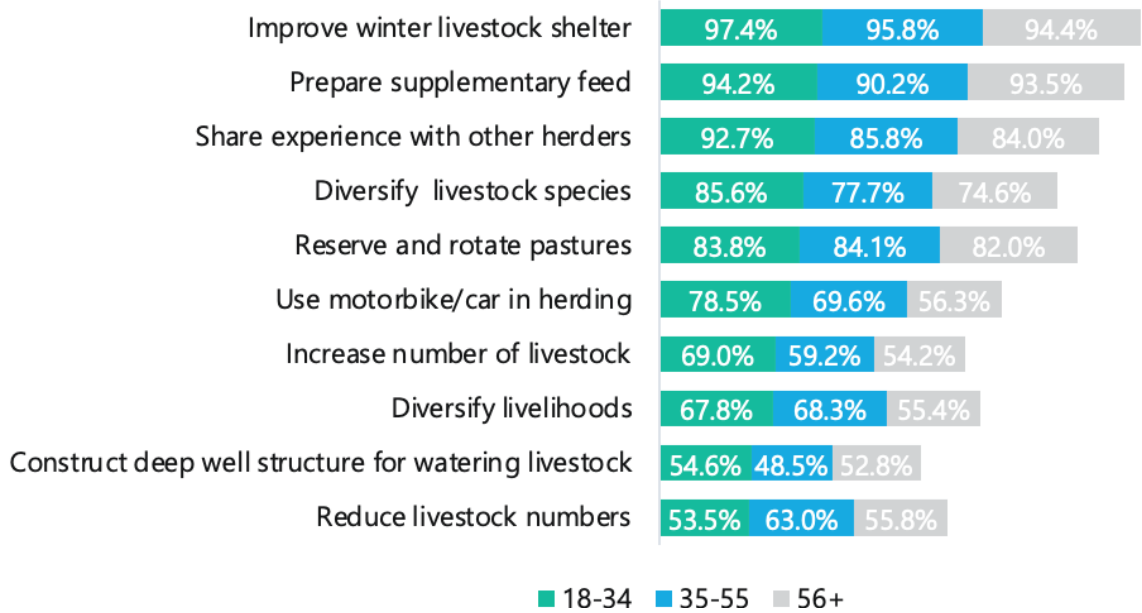
herders. Although the types of livestock-related practices were more diverse among herders aged between 18-55 compared to herders aged over 56. Some practices would have adverse effects, such as increasing the number of livestock and using motorbikes/cars when herding.

A herder from Dordnod aimag shared his experiences and explained why taking concrete coping strategies, such as rotating animals, can prove challenging in his community:

> "Moving around is not efficient in Dornod aimag. It is problematic to move around in our province. Recently, wood and stone have become costly, and the winter camp and homestead are either dismantled, taken away, or destroyed by animals. When we come back, the winter camp would be gone. The fences and enclosures would be damaged, there would be no trees or stones, and the herders are also not moving around. This makes a sedentary lifestyle appealing. The pasture which some family has just left off would be re-used and overgrazed, and this issue was raised at the soum meetings as well." (Herder, Dornod aimag, female)

6.2 Practices to reduce climate change impacts

The majority of respondents assessed themselves as having practices that are pro-environmental. However, over half mentioned daily use of private transportation and single-use plastic products. Turning off taps (89.2%), using reusable products (77.0%), and leaving electronic devices unplugged (68.8%) were the most frequently mentioned daily practices reported by respondents. In contrast, over half of respondents mentioned daily practices which have harmful effects on the environment - such as using single-use plastic products (48.3%) and using private vehicles (64.0%).

There are significant differences in a few practices between urban and rural respondents. In particular, the percentage of respondents who used solar energy (53.6%) and left electronic devices unplugged (72.9%) was higher among respondents from rural areas. In contrast, it was more common among urban respondents to turn off taps (91.4%) and use reusable products (77.8%). However, it should be kept in mind that all the respondents' statements during individual interviews were self-assessments which do not necessarily reflect reality.

Figure 36: Daily practices of respondents, by location (n=2804).
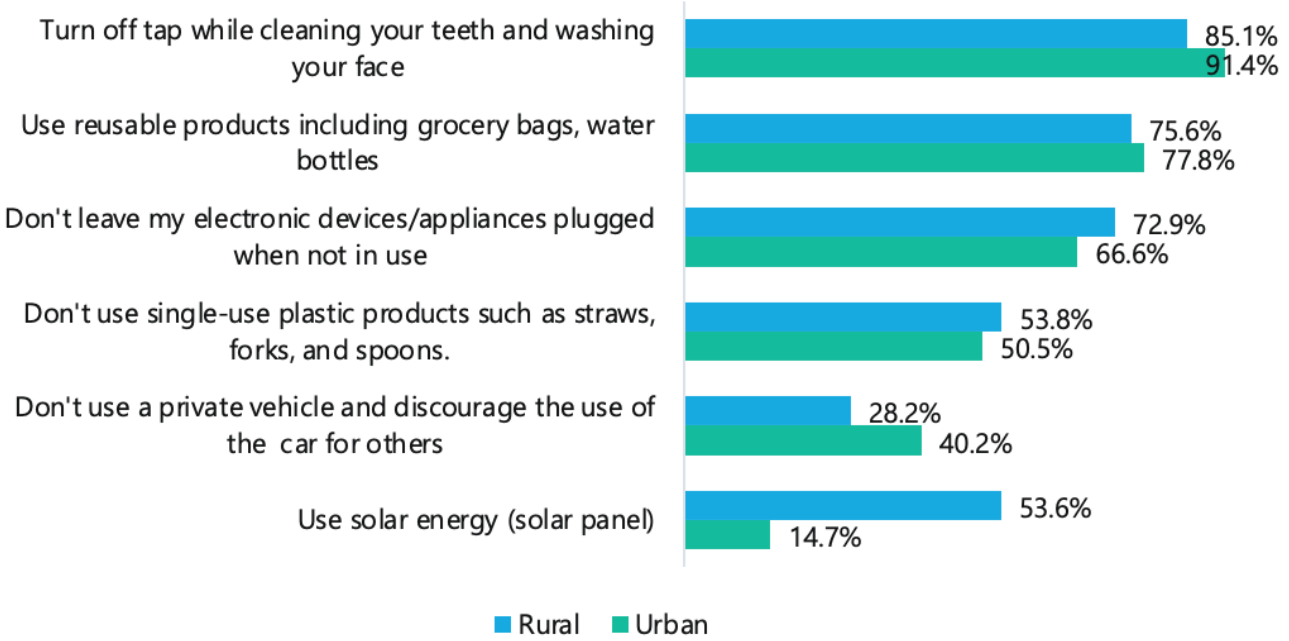
Urban and rural respondents shared their practices and relevant challenges, as can be found below:

> "Using coal for fire pollutes the air. To prevent this, we purchased an electric radiator. It is more economical than coal. It also requires less attention: the electric radiator can self-adjust the heating for the surroundings, without overheating or freezing. Last year the bill was 180.000 MNT per month. The installation of day and night meters is uncomplicated as it is affordable and does not produce carbon dust and soot in the area." (Head of household, Dornod aimag, female)

> "Our street is full of wastewater. There are many people who lack the will and can't dig a sewage hole in their backyards. Although every morning we clean up the entrance area, it is littered every morning. It is useless, despite it being cleaned up daily." (Urban respondent, Ulaanbaatar, female)

> "Because we are a household with a baby, there tends to be high consumption of energy for heating and electricity. In fact, even if we try to save it, we are unable to do so. For example, in terms of electricity, cooking and everything else uses it, and we turn on the electric radiator to prevent the baby getting cold. Because the consumption is high, the bill is high, and in general we pay for what we consume. Since we live in a brick house and it is cold, we use a considerable amount of coal to keep the child from getting cold." (Young mother, Ulaanbaatar, female)

Herders were more aware of environmental changes taking place in their surroundings (53.5%) and more concerned with climate change (74.6%). Among the 402 herders included in *the Survey*, the most frequently mentioned traditional daily practices were cleaning the river and protecting water sources (91.0%) and giving offerings to the mountain/local owners (*lus savdag*)/spirits and mountain and 'Ovoo' worship (90.6%).

There were significant variations in the herders' practices depending on their age (see Figure 37). In particular, older herders tended to use more diverse traditional practices than younger herders. Moreover, the most common practices among younger herders (aged between 18-55 years old) were cleaning rivers and protecting water sources. Giving offerings to the mountain was the most common practice among older herders (aged 56 and above).

A herder from Dornod aimag explained what the main source that guides herders' practice was:

Figure 37: Daily practices of herders, proportion of respondents, by age group (n=402).
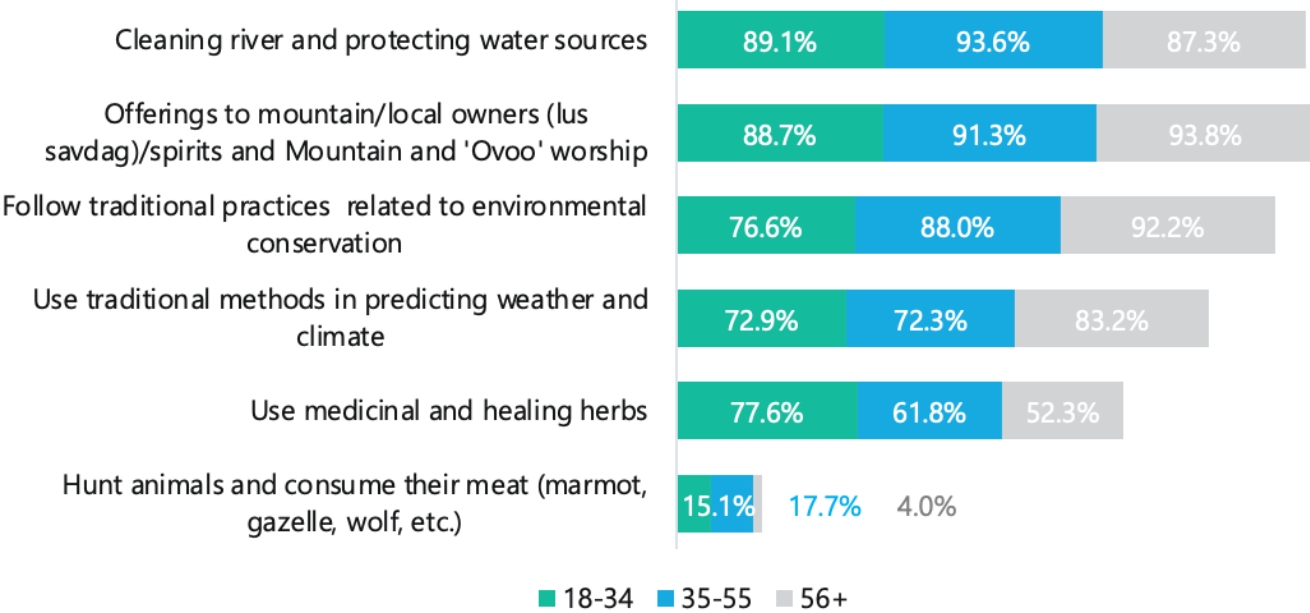
"Mr. Shagdarsuren (the weatherman) talks about the signs of the time or the new era. People like me enjoy listening to this all the time. Because in the old days, the elderly used to observe changes in all animals, plants, and herbs: the state of the moon; the configuration of the stars, whether they are ascending or descending; and the observation the birds or what kind of winter the birds represent. There was a book published in the 1990s which provided a similar type of information to herders. It contained over 200 types of characteristics of the moon. We need such a kind of guide. This book specified all the conditions. We are not quite enlightened about the seasons. What kind of conditions occur in which months, which birds chirp, what kinds of storms arise and so forth, everything was clear on it." (Herder, Dornod aimag, male)

Since the nomadic life is directly influenced by nature, conserving and protecting the environment is another tradition. Some of the respondents shared proverbs, traditional practices and unwritten taboos they knew. For example: *"Do not throw away ash from the stove. Because it might cause fire, endanger the lives of people and animals, and damage the environment"* and *"never throw rubbish into natural water (rivers, lakes) because rivers and lakes are the source of life."*

6.3 Willingness to take climate action

What motivates people to prioritize climate action? *The Survey* focused not only on current practices but also people's willingness to change their daily practices. The key motivations Mongolians shared in *the Survey* (as indicated in Chapter 5.1 and 5.2) were related to health, economic conditions, the willingness to reduce the negative effects of climate change, and to be better prepared for natural disasters.

Knowledge about the causes of climate change played a significant role in respondents' willingness to change their lifestyles to help with the climate crisis. The vast majority of respondents (99.6%) mentioned at least one type of practice they were willing to change to help with the climate crisis. The most frequently mentioned practices that respondents were willing to change were related to their use of energy consumption and plastic consumption - such as reducing the use of single-use plastic (94.5%), making their homes more energy efficient (93.0%), walking or cycling (86.2%), and buying energy efficient devices and home appliances (85.5%).

Although a significant number of the respondents (99.6%) indicated that they were willing to change their lifestyle to help fight the climate crisis, the percentage varies depending on respondents' knowledge about the causes of climate change. The proportion of respondents who thought that human activities are *not* the main causes of climate change were less likely to change their lifestyles (as shown in Figure 38). It shows that having basic knowledge about climate change is vitally important.

It should be noted that individual actions alone will not have a significant impact on reducing GHG emissions in countries like Mongolia. This is discussed further in Chapter 8. Attention should equally focus upon policy and programmatic changes as well as helping citizens, vulnerable groups and communities gain the knowledge and skills required to increase their adaptive capacities.

Figure 38: Willingness to change lifestyle to help reducing negative climate impacts, proportion of respondents, by location (n=2804).

	human activities are the main causes	human activities are not the main causes
Reduce the use of single-use plastic	95.5%	89.5%
Make your home more energy efficient	93.5%	89.4%
Walk or cycle to work/other places	87.9%	78.4%
Buy energy efficient devices and home appliances	87.0%	75.9%
Increase recycling (including food, glass, cardboard/paper etc.)	73.0%	58.2%
Get rid of personal motor vehicles if you can	62.0%	51.1%

7. SEGMENTATION ANALYSIS

This chapter focuses on the effects of demographic, socio-economic, and geographic factors on KAP. It examines the results of two empirical analyses – principal component analysis (PCA) and ordinary least squares (OLS).

7.1 Principal component analysis (PCA)

A PCA[48] was conducted to help identify patterns and groups of people within *the Survey* population that had distinct characteristics. This helped to simplify and reduce the number of distinct groups and identify which attributes made them distinct. After applying the PCA, there were five principal components identified from *the Survey* as described in Table 7. Then a simple correlation analysis was conducted to analyze potential relationships between the principal components and respondents' levels of knowledge, attitudes and practice related to climate change as shown in Table 8.

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48   To analyse the effects on KAP we constructed a principal component analysis (PCA) in which we considered 15 variables - sex; age; education; employment; savings; income quintiles; migration; hazard experience; noticing environmental changes; herders; disability; vulnerability; region; ecological zones and urban. Then essential components were created using Eigenvalues (see annex 5 for a more detailed table that presents the principal components chosen using the 15 variables and their relationship).

Table 7: Main components and characteristics of people.

Components	Characteristics
Component 1	• Lower Education • Rural residents • From Western/Khangai Region
Component 2	• Not in higher income quintiles but have savings. • Urban residents
Component 3	• Hazard experienced • Residents in one place for 10 years • Vulnerable
Component 4	• Older • Vulnerable • High income quintiles
Component 5	• Male • Non-employed

Table 8: Principal components and KAP indices.

	Knowledge	Attitude	Practice
Component 1	-0.1576*	-0.1227*	-0.0844*
Component 2	0.0381	-0.0442	0.1477*
Component 3	0.0451	0.0971	0.1067*
Component 4	0.1061*	0.1918*	0.0690*
Component 5	-0.0342	-0.1122*	-0.0459

*Note: * is significant at a statistical level of 1%. Practically, a 5% is commonly used, but we want much stronger correlation. Source: The research team's calculation*

Based on correlation coefficients between principle components and KAP, we were able to observe which demographic groups had higher or lower levels of KAP. As shown in the table above, the knowledge level was higher among those that were older, vulnerable, and in higher income quintiles (Component 4). On the other hand, less knowledgeable respondents tended to have lower education levels and lived in rural areas in Western and Khangai regions (Component 1). For the other components, there was no significant correlation.

Regarding the attitude level, it was higher for respondents who were older, vulnerable, and in higher income quuntiles (Component 4). In contrast, it was lower for those who had lower education levels and lived in rural areas in Western and Khangai regions (Component 1). Furthermore, male and non-employed individuals tended to have a lower attitude level (Component 5). Another interesting finding is that a lower knowledge level implied a lower attitude level, and vice versa.

In terms of the practice level, it was higher for people who lived in urban area and had savings - even though they were more likely to be in the middle class in terms of their income quintile (Component 2). Furthermore, survey participants who had experienced a hazard, had not migrated in the last 10 years, and were more vulnerable tended to have a higher practice

level (Component 3). The most important finding is that levels of knowledge and attitude positively impacted upon each other, but they did not have any significant effect on the practice level. The PCA provides a few interesting points. The following subsection presents a more advanced empirical analysis at the individual level. Also, KAP can be roughly determined by demographic, socio-economic, and geographic factors.

7.2 Ordinary least square

The empirical model is as follows:

$$Y_i = B_0 + BX$$

Y represents KAP and **X** represents the 15 variables used in the PCA.

Unlike the PCA, this analysis was undertaken at the individual level (please see the estimated coefficients from Table 41 in Annex 5). The main findings were as follows:

- The knowledge level increased with age, education, income quintiles, and among those who had noticed environmental changes. For example, when age increased by one unit, the knowledge level rose by 0.32%. The knowledge level was higher for those who had completed secondary and university education (by 3.5% and 5.8% respectively) compared to those who had not completed secondary education. Furthermore, the regions respondents were from strongly affected their knowledge level. For example, it was higher for survey participants that lived in Khangai, Eastern, and Ulaanbaatar than Western regions. The most influential variable was whether a survey participant observed environmental changes. Specifically, the knowledge level was 5.2% higher for those who observed environmental changes.

- The attitude level was lower for respondents that were unemployed and/or male. At the same time, it was higher for those who

noticed environmental changes. It was also higher for those that lived in the Central region and Ulaanbaatar, compared to the Western region. The attitude level was 1.7% higher for those who had experienced a natural hazard. As shown in the Table in Annex 5, the attitude level was 5% higher for participants who observed environmental changes. Furthermore, the knowledge level was important in determining the attitude level of respondents. The results indicate that 'observing environmental changes' was the most important and stable explanatory indicator for higher levels of knowledge and attitude.

- The respondents' location and employment status had a correlation with their practice level, those residing in rural areas and being self-employed scoring slightly low compared to other groups. For example, the practice score was 1.8% lower for respondents that lived in rural areas compared to those in urban areas. In addition, it was 3.7% lower for self-employed workers. Similarly, the observation of environmental changes had an influence on practice levels. Respondents who had observed changes in their environment were more likely to adopt pro-environmental practices. Interestingly, the Survey revealed that the practice level was not associated with knowledge and attitude levels (Table 43 in Appendix compares the mean score over those groups that have a higher score). This was also found in the principal component analysis.

The most consistent finding was that the respondents tended to have higher levels of KAP if they had observed environmental changes. This suggests that, although demographic characteristics of individuals are important in explaining varying levels of KAP, external factors (such as experience) play a more important role in influencing KAP levels.

Part III. STAKEHOLDERS' EXPECTATIONS ON ACTIONS AND CAPACITIES NEEDED

Part 3 of the report examines the general public and key stakeholders' (government, international organizations, NGOs, and private sector) priorities, expectations and needs in relation to climate change. Chapter 8 focuses on people's views and expectations with regards to who is responsible for taking climate actions, what actions should be taken, and why. Chapter 9 focuses on the views of the stakeholders and their assessment of the current readiness in mainstreaming climate change in Mongolia.

8. People's expectations of responsible stakeholders and actions needed

The key questions addressed in Chapter 8 are: 'Which people, institutions or organizations do respondents believe are causing climate change and who should be responsible for taking action?' and 'What are respondents' perceptions about the Government's priorities and actions to address climate change?'

The summary of results of actions related to climate change are presented in the table below.

Table 9: Summary of results of actions related to climate change, disaggregated by gender, broad age groups, residency, vulnerability and income groups, % (n=2804).

#	Indicators	Gender		Broad age groups				Residency		Vulnerability	
		F	M	18-24	25-34	35-59	>60	U	R	LV	V
1	Believe climate change is an urgent issue requiring action in Mongolia	86.5	84.7	75.0	84.1	89.5	92.1	85.5	85.9	85.6	86.1
2	Believe Government is causing climate change	24.6	26.6	18.9	28.2	26.9	26.4	27.7	21.7	23.8	27.5
3	Believe Citizens are causing climate change	36.8	35.0	38.3	38.9	33.4	35.3	40.8	27.1	39.5	31.8
4	Believe Industries are causing climate change	35.6	41.2	38.3	38.7	37.4	41.0	38.8	37.4	38.9	37.7
5	Believe Government is responsible for taking action	53.6	55.6	47.5	56.8	56.3	55.0	57.7	48.8	56.0	52.8
6	Believe Citizens are responsible for taking action	30.6	29.0	31.4	31.4	28.2	29.7	33.1	23.9	32.2	27.0
7	Believe Industries are responsible for taking action	9.1	10.6	8.7	11.0	9.3	11.0	11.3	7.0	10.3	9.3
8	Believe society as a whole should make changes to address climate change	51.1	52.6	52.8	53.2	52.2	45.3	52.8	50.0	52.3	51.3

Note: U – Urban, R- Rural, V – vulnerable, LV – Less vulnerable, Income group I – The lowest quintile and V – the highest quintile. Statistically significant differences are highlighted in green (p<0.01).

8.1 Climate change as an urgent action

When asked whether climate change is a priority, **85.7% said the country needed to take urgent action on climate change.** In contrast, 8.6% of respondents said it is not urgent and 5.7% said they didn't know. As indicated in Table 9, the proportion of older respondents that believed urgent action is necessary was higher compared to younger respondents. The proportion of those saying climate change is not an urgent issue was highest among youth. There were significant differences in the responses of respondents that depended on their dwelling type. More of those that lived in apartments said climate change is not an urgent issue or did not know whether it was urgent or not. Respondents that lived in detached houses and gers reported that it was an urgent issue. More of those that lived in Western aimags and semi-arid ecological zones said that urgent action was needed. There were no statistically significant differences in the responses

provided by women and men, rural and urban and income groups.

Table 10: Climate change as an urgent issue or not, by broad age group, dwelling type, region and ecological zones (n=2804).[49]

	N	Urgent	Not urgent	Don't know
Age groups				
18-24	551	75.0%	16.3%	8.7%
25-34	681	84.1%	9.1%	6.8%
35-55	1255	89.0%	6.3%	4.7%
60 and above	317	92.4%	4.4%	3.3%
Dwelling type				
Detached house	973	87.2%	7.7%	5.1%
Ger	735	87.9%	7.5%	4.6%
Apartment	1036	80.3%	11.8%	7.9%
Other (e.g. dormitory)	60	91.5%	1.7%	6.8%
Region				
Ulaanbaatar	1253	83.8%	8.7%	7.5%

49 Kruskal Wallis Test revealed that results shown in the table are significantly different, p< 0.01.

	N	Urgent	Not urgent	Don't know
Western region	345	90.4%	8.4%	1.2%
Khangai region	543	89.2%	5.5%	5.3%
Central region	450	85.3%	10.7%	4.0%
Eastern region	213	80.8%	12.2%	7.0%
Ecological zones				
Forest Steppe	1669	84.4%	8.5%	7.1%
Mountain & forest steppe	130	83.2%	6.9%	9.9%
Steppe	760	87.0%	9.6%	3.4%
Arid	65	85.9%	12.5%	1.6%
Semi-arid	180	92.8%	5.6%	1.7%

*Answers that are above average from the total sample are highlighted in green

More than half of respondents believed that society, as a whole, should make changes to address climate change issues. When asked at which level the issue of climate change should be addressed (regardless of whether it was urgent or not) 51.8% responded that it should be tackled by society, as a whole, including the government, citizens, industries and the non-profit sector. The table below presents the combination of answers for both the urgency and at which level the issues of climate change should be addressed – at the individual level, by the government or by society, as a whole.

Table 11: Trends in urgency and level of climate change actions, proportion of respondents (n=2804).

Climate change is an URGENT issue and SOCIETY, as a whole, should aim to make changes	45.0%
Climate change is an URGENT issue and it is down to the GOVERNMENT to introduce changes	20.5%
Climate change is an URGENT issue and it is down to CITIZENS to make changes	18.7%
Climate change is NOT URGENT yet SOCIETY, as a whole, who should aim to make changes	4.3%
Climate change is NOT URGENT yet it is down to CITIZENS should make changes at a personal level	2.4%
Climate change is NOT URGENT yet it is down to the GOVERNMENT to make changes	1.6%
Don't know	7.5%
Total	100.0%

A relatively high number of people believed that climate change is an urgent issue. This is not surprising given that the respondents had already noticed the connections between climate change and other economic, social and environmental issues that have the potential to directly or indirectly affect their lives and the country as a whole (results presented in detail in Chapter 5.1).

8.2 Responsible organizations and institutions

In Chapter 4, it was found that the most frequently named drivers of natural disasters and climate change were poor industrial practices, cutting down forests and trees, improper waste management and punishment by supernatural forces. Respondents mentioned that if these drivers continued, climate change would have a negative impact on the environment, public health, livelihoods (livestock and farming), the economy (causing broader economic issues), food security and social issues. Therefore, respondents were asked 'Who is responsible for causing or exacerbating climate change, in your opinion?' and 'Who in your opinion is mainly responsible for addressing climate change?'[50]

50 The answer options to the questions were not read out loud and when respondents answered, the corresponding answer was recorded by the interviewers to avoid response bias. There was an 'Other and record' option and 'Don't know, can't answer' option to the question.

Figure 39: Parties responsible for causing/exacerbating climate change and those who should be taking action to reduce the negative impacts of climate change.

Who is responsible for exacerbating climate change versus who is mainly responsible for taking action?
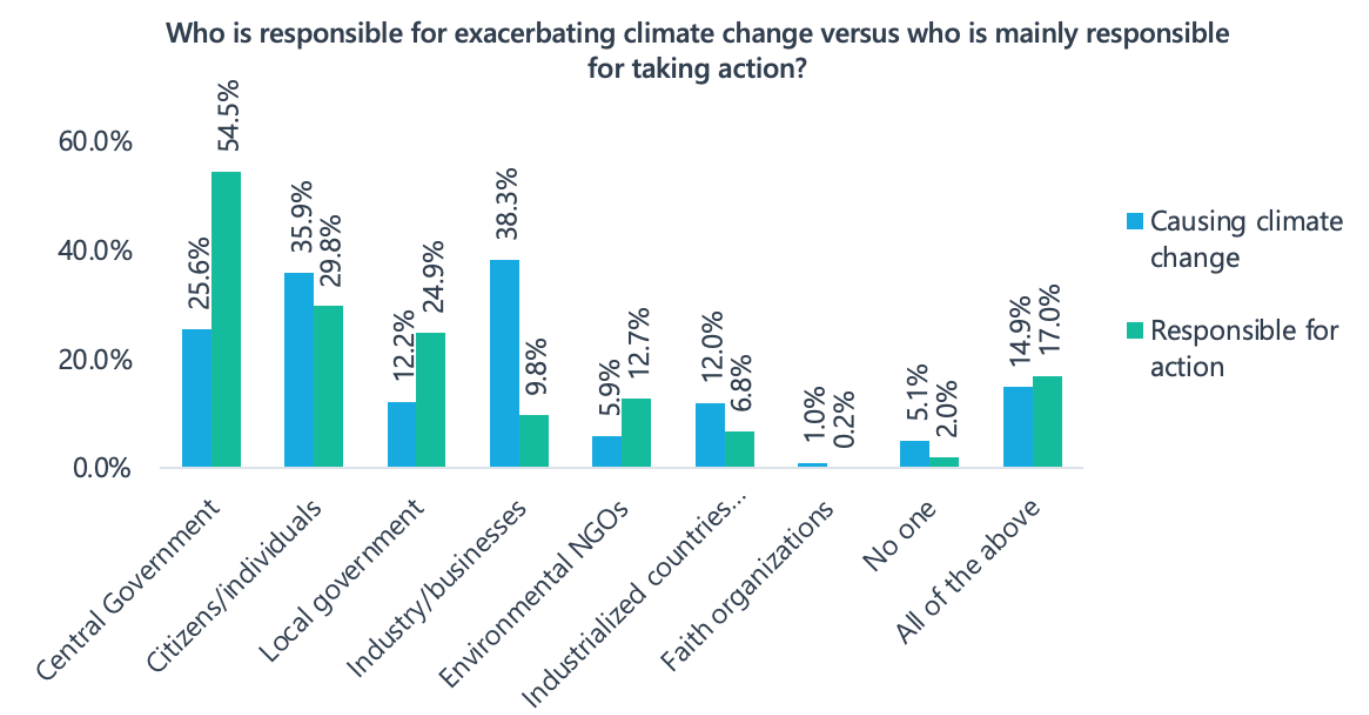
Many respondents thought that it was the Government and other national actors who were driving climate change and it was their responsibility to make changes rather than the responsibility of industrialized countries. Meanwhile only 12.0% believed industrialized countries were causing climate change and 6.8% believed they were responsible for addressing climate change. However, as emphasized in IPCC Assessment Report 6, *"the ability to deploy low-emission technologies, financial resources and capacity for innovation are currently concentrated in developed countries."* In fact, industrialized countries such as China, the United States and India account for around 50% of all global GHG emissions. Yet, this fact is not well-known in Mongolia, and people are less aware of the increased responsibilities of industrialized countries for reducing emissions and transferring knowledge and technology. This suggests the public's awareness of industrialized countries' contributions to GHG emissions is low and should be addressed through the awareness-raising campaign.

Respondents viewed businesses and citizens as the two main stakeholders driving climate change (38.3% and 35.9% respectively). Although the majority of respondents identified industries and businesses as the largest *contributors* to climate change, there were very few responses (9.8%) saying that industries and businesses were *responsible* for addressing it. Of the 275 respondents who said industries and businesses were responsible, 65.1% viewed that they were not doing enough to tackle climate change.

During the FGDs and fieldwork, the participants rarely talked about businesses as key stakeholders who were responsible for fighting climate change and instead focused on the Government. This might be because the major extractives, energy and manufacturing enterprises in Mongolia are state-owned and therefore respondents perceived them to be part of the Government rather than separate businesses and industries. When prompted about the roles of businesses and industries, participants often indicated they did not know a great deal about them and only a few mentioned that mining companies had a negative impact on the environment.

'Citizens' were identified as the second most important stakeholder for addressing climate change (29.8%). Of the respondents that lived in urban areas, 33.1% reported that *citizens* should address climate change compared to 23.9% of those lived in rural areas. There were also differences based on the education level of respondents - those with a higher level of education were more inclined to say 'it's up to citizens to take action' than those with a lower level of education.

The table below shows how respondents from a FGD believed 'citizens' were contributing to climate change and what actions they should take to reduce these impacts. As can be seen from the table, citizens' responsibilities, in terms of demanding and voting for appropriate policies and holding the Government accountable, were not mentioned. It should be noted that the findings from *the Survey* suggest that possessing knowledge and having positive attitudes does not necessarily lead to actual practice (in Chapter Segmentation Analysis). Out of those respondents who said it was the responsibility of citizens to take action, 54.2% perceived that citizens were not doing enough in relation to climate change (Figure 40). Therefore, if the onus is on the citizens to take action, it could be a less effective way of dealing with climate change. However, the actions suggested could be effective in adapting to climate change at local levels.

More than half of respondents believed that the Government of Mongolia should be responsible for taking action on climate change. A quarter of respondents also believed that local governments should be responsible for taking action. There were significant differences based on the residency of the respondents. Of the residents that lived in urban areas, 57.7% thought that the Government should be responsible compared to 48.8% of those in rural areas. In contrast, 31.9% of respondents in rural areas emphasized that it should be the responsibility of local governments and 21.0% of urban respondents shared the same view. When it came to local government, there were differences based on age. More older respondents thought local governments should be responsible for taking action compared to younger respondents (more than 28% of those aged above 34 versus 17.1% of youth aged 18-24 years old).

On the one hand, as shown in Chapter 8.3, citizens emphasized the importance of laws and policies that are appropriate, and effectively enforced to reduce the negative impacts of climate change. On the other hand, as Figure 40 shows, the majority of the respondents thought that the Government and local governments were not doing enough to tackle climate change (61.7% and 48.8% respectively). Slightly more men than women were dissatisfied.

Table 12: Perceptions of causes of climate change driven by citizens (FGD results).

How are individuals driving climate change?	How individuals should respond?
• People's livelihood choices including engaging in mining activities, increasing livestock size, and moving to urban areas.	The way individuals can take action are related to changing the bad practices identified in the column to the left.
• Living in hazard-prone areas (like flood risk areas) and, when disasters happen, blaming the government and others for their own choices.	• Planting more trees and flowers.
• Individuals are polluting the environment – through use of plastic and producing waste, using motorcycles to herd animals (which could increase air pollution), burning coal, and polluting soil in ger areas.	• Organizing and participating in community clean-up campaigns. • Switching to solar energy. • Avoid burning coal.
• Overuse and misuse of natural resources – water sources are being destroyed for construction, water use in apartments is too high, forests are being cut down, and people use too much energy (e.g. fuel, electricity).	• Improve house insulation. • Individuals should seek information about disaster preparedness and be prepared.

Figure 40: Are different types of institutions doing enough to tackle change? by percentage.[51]

Are the different type of institutions doing enough to tackle climate change?

Institution	Not doing anything	Insufficient	Neutral	Sufficient	Very sufficient	No action needed	Don't know
Industry/businesses	31.4	33.8	24.0	4.5	0.6		
Government of Mongolia	28.0	33.7	24.1	7.5	2.2		
Local government	22.6	26.3	31.9	12.0	4.0		
Citizens/individuals	19.0	35.2	26.3	12.0	3.9		
Environmental NGOs	15.3	20.5	32.5	16.3	6.9		
IOs and industralized countries	13.2	19.4	31.2	16.9	6.6		

■ Not doing anything ■ Insufficient ■ Neutral ■ Sufficient
■ Very sufficient ■ No action needed ■ Don't know

with the Government and local governments' current actions to address climate change.

During group discussions held in rural areas, one herder in Dornod aimag explained what he thought the different levels of responsibilities to reduce land degradation should be:

"In old times, there were 'collective farms [сангийн аж ахуй].' The herders had to follow standards and guidelines provided by the state. Back then everyone had to follow rules so it was easier to enforce rotation. Now there is no such thing and it mainly depends on the individuals and communities themselves. In Eastern aimags, due to difficulties such as lack of resources to build winter camps, and costs associated, herders are not rotating enough." (Herder, Dornod aimag, male)

Compared to other age groups, more youth said environmental NGOs and 'all actors' should be responsible for tackling climate change. As Figure 40 shows, of the 356 respondents (12.7% of all respondents) who said environmental NGOs should be responsible for tackling climate change, 35.7% reported these NGOs were not doing enough,

51 Government of Mongolia (n=1529), industry/businesses (n=275), local government (n=697), citizens (n=836), environmental NGOs (n=356), industrialized countries and international organizations (n=275)

8.3 Respondents' views on government actions needed to mitigate climate change impacts

In the previous section, the majority of respondents believed it is up to the Government to introduce and enforce changes for mitigating climate change impacts in Mongolia. Their biggest concerns were health, air pollution and their economic situations. They believed that the impact of changes in the weather, environment and natural resources would increase in the long term and negatively affect the environment, health, agriculture and economy.

Therefore, respondents were asked what they thought should be done to address climate change issues and what measures should be taken by the Government. The question was asked openly, and in doing so, the respondents were able to mention multiple actions and the interviewer selected the corresponding options from the questionnaire or recorded an 'Other' option.

Figure 41: Grouped responses to main actions to address climate change.

What should the government do to mitigate climate change or environmental issues related to changing weather?

Energy efficiency and renewable energy	53.4%
Improve livestock/agricultural management	38.0%
Waste management	31.1%
Environmental conservation	27.7%
Climate resilient infrastructure	23.2%
Improve legislation, enforcement, coordination	18.2%
Disaster prepardeness and management	14.2%
Transportation	13.4%
Don't know	10.4%
Construction	9.0%
Support local producers	7.4%
Raise public awareness and knowledge	5.4%

Note: The total does not add up to 100.0% as it is a multiple response question. The responses given by respondents were grouped.

It is interesting to note that, while the priority concern for respondents was health, actions related to public health and improving health care systems were not mentioned as potential solutions or actions that needed to be taken to address climate change issues.

The different actions respondents suggested fall under each category as found below:

'Energy efficiency and renewable energy': start using renewable energy (wind, solar and hydropower); switch to renewable energy; build hydropower stations and start using them; stop burning coal; find alternative sources for heating; reduce energy use at all levels; improve efficiency of the energy sector; and reform the energy sector. Energy efficiency and renewable energy was particularly important for urban citizens as they faced air pollution issues on a daily basis.

'Improve livestock and agricultural management': improve the quality of rangeland; improve rangeland management; reduce the size of livestock; find

solutions for exporting agricultural products; and increase the economic value of agricultural and livestock products.

'Waste management': find solutions for waste; reduce waste; for organizations and individuals to clean their local environments; participate in community clean-ups; make trash bins abundant and available; regulate industry waste and safety; sort and recycle waste; establish industries for recycling waste; and improve waste management in the country.

'Environmental conservation': protect the environment; rehabilitate the environment; discourage activities that harm the environment; plant more trees; accelerate MET's activities in strengthening protected areas; prepare plans to protect natural resources such as water and forests; increase and protect green space in cities; restore, rehabilitate degraded lands and forests; and bring back the diversity of plants and quality of grassland in the steppes.

'Climate resilient infrastructure': build roads that are resilient to natural disasters (such as floods): build flood protection: provide all households with access to clean water and toilets; and improve irrigation.

'Improve legislation, enforcement and coordination': formulate appropriate and new policies; 'legislate' and regulate (often mentioned in terms of sanctions) ; improve accountability for those polluting and degrading nature; actually implement legislation and improve enforcement; increase the number of effective norms and standards; improve relevant officers and organizations' capacity and coordination; develop industry standards and enforce them for implementation; and conduct more research and evidence-based decision-making.

'Disaster management and preparedness': spend budget on preparedness and preventing negative impacts of disasters, to improve civil protection like in the past (respondents mentioned during the communist regime, civil protection was effective), to conduct trainings and campaigns on how citizens should prepare for disasters, prevent from droughts by for example rain seeding when needed, herders to be better prepared for harsh winters, citizens in ger areas to move from disaster prone areas.

'Transportation': reduce private transportation; invest more in public transportation; and upgrade public transportation (for example by having more electric transport).

'Construction': integrate energy standards in construction sector; improve construction so that all new buildings are energy efficient and have less heating loss; provide incentives for construction companies that build efficient buildings; and reduce construction materials that are environmentally friendly.

'Supporting local producers': promoting livestock products and agriculture products (such as potatoes and wheat); and improving market access and livelihoods of local producers.

'Raise public awareness and knowledge': provide information on what the Government is doing to address climate change and to reduce air pollution; to provide data and evidence on the current rates of desertification; increase accessibility and availability of relevant information; introduce climate change to children from young age; organize trainings; and cooperate with media to improve public awareness.

There were significant differences between rural and urban residents' preferred response by the Government. Clean energy, infrastructure, construction, transportation and waste management were mentioned by mostly urban residents. Meanwhile livestock and agricultural management, environmental protection, and reducing mining licenses were mostly mentioned by rural residents. It should be noted that more residents in rural areas noted that they did not know which actions the Government should take in response to climate change.

When looking at the socio-economic status of the respondents to see variations:

- There was no significant difference based on gender.

- There was difference by vulnerability status - less vulnerable respondents mentioned renewable energy and transportation. More vulnerable respondents, compared to rural respondents, highlighted livestock and agricultural management and environmental protection. With regards to the other measures, there were no significant differences.

- There was difference by income groups – with regards to clean energy and waste management.

- There was difference by age when it came to waste management, clean energy, construction and transportation. More youth (aged between 18-24) indicated that various renewable energy and waste management measures were important compared to other groups. Comparatively, more older respondents emphasized the importance of legislation and enforcement and indicated they did not know which measures were important.

8.4 Perception of trust and communal action in Mongolia

The study explored how cooperative people are with each other and to what extent they trust others in society and in institutions.

The results from *the Survey*, and previous similar nationwide surveys, revealed that general trust is low in Mongolia. Mongolians trusted their families and those close to them, but displayed more caution when it came to people different to them. This included those from different *'nutag'* or lands, those of different nationalities and 'outsiders.' This shows the importance of face-to-face interactions and community cooperation rather than remote interactions. This will be important for behaviour change communication efforts.

Confidence in institutions, especially in Government officers and lawmakers was low among respondents. Figure 42 and Figure 43 show that trust in politicians and lawmakers was low with a mean score of 2.85 (0 was 'never trust' and 10 'fully trust'). 4.65 was the score for the national government which was slightly higher than for decision-makers. This could hinder the country's climate change adaptation efforts. However, respondents did believe that the government should take climate change action in key sectors including energy, agriculture, waste management, infrastructure, and the environment.

Figure 42: General trust in others, proportion of respondents, % (n=2804).

Generally, do you think you can trust most people, do you think you should not be too careful when you communicate with people? (%)
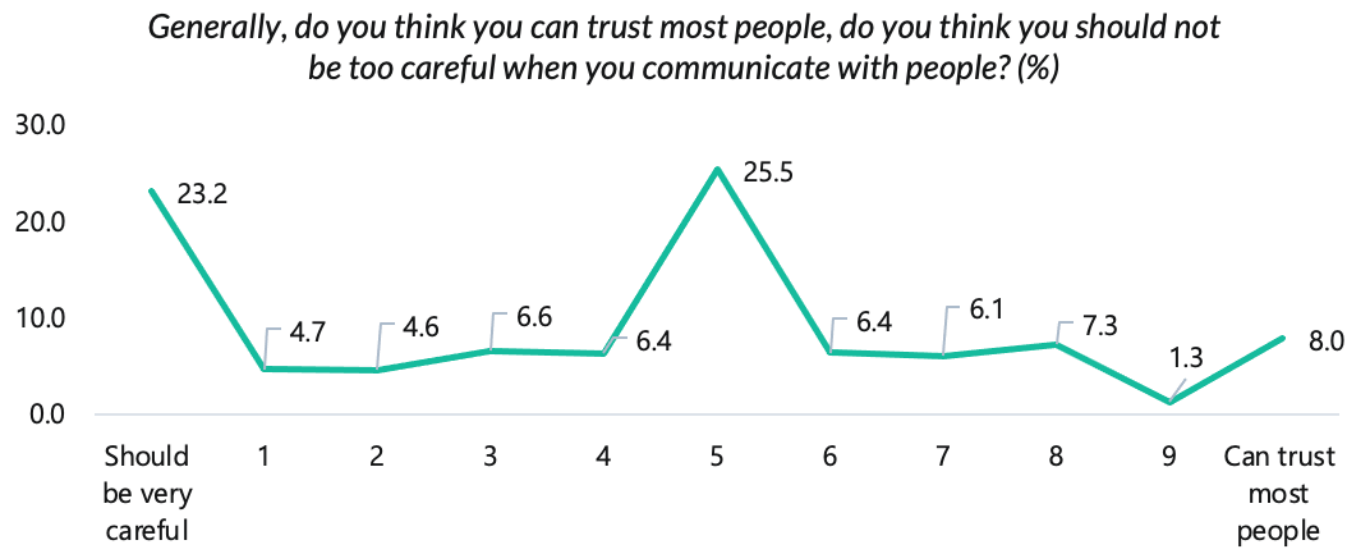
Figure 43: Mean score of trust in various groups, on a scale of 0 (never trust) to 10 (fully trust).

Which group of people do you trust the most? (mean score)
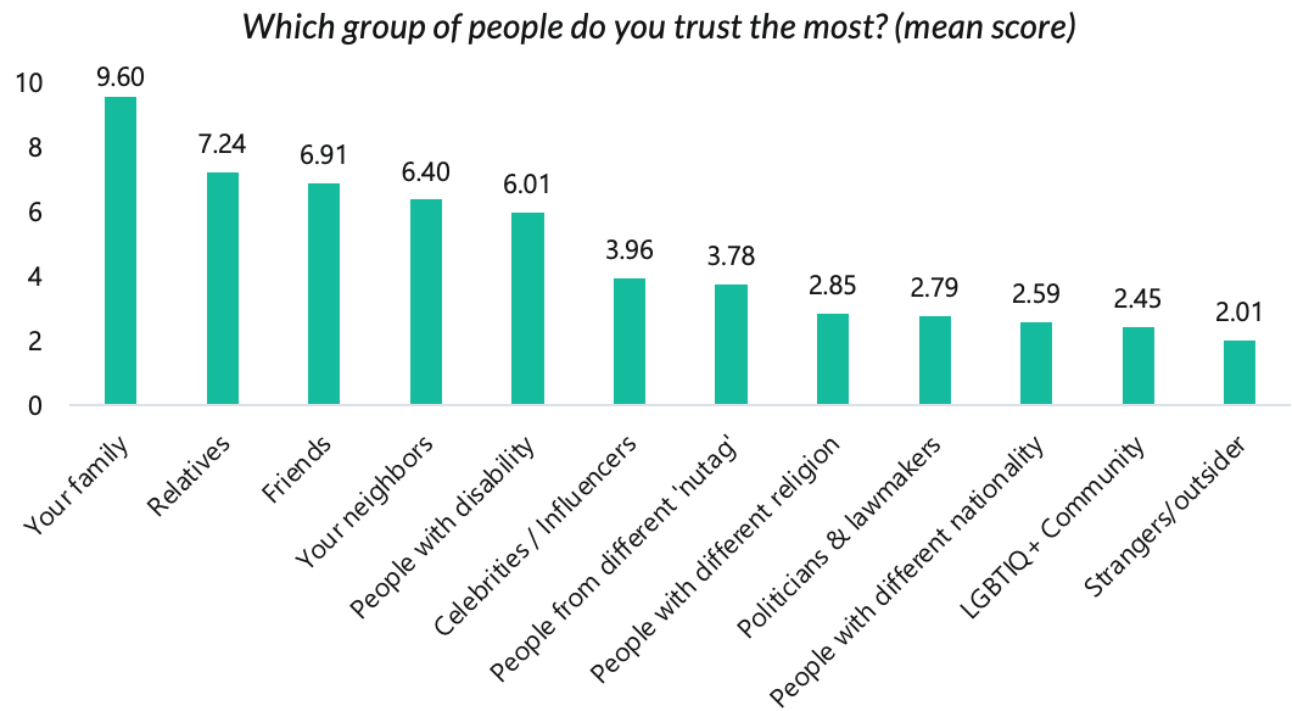
It should be noted, however, that confidence in Information and Research Institute of Meteorology, Hydrology and Environment (NAMEM) and the National Emergency Management Agency (NEMA) was high compared to other types of institutions. This allows the media awareness-raising campaign to use trusted scientific institutions as sources of information. The confidence of respondents in the media, NGOs, international organizations, local government and research institutions was average.

Figure 44: Mean score – trust in institutions (scale from 0 to 10), n=2804.

How much do you trust the following institutions?
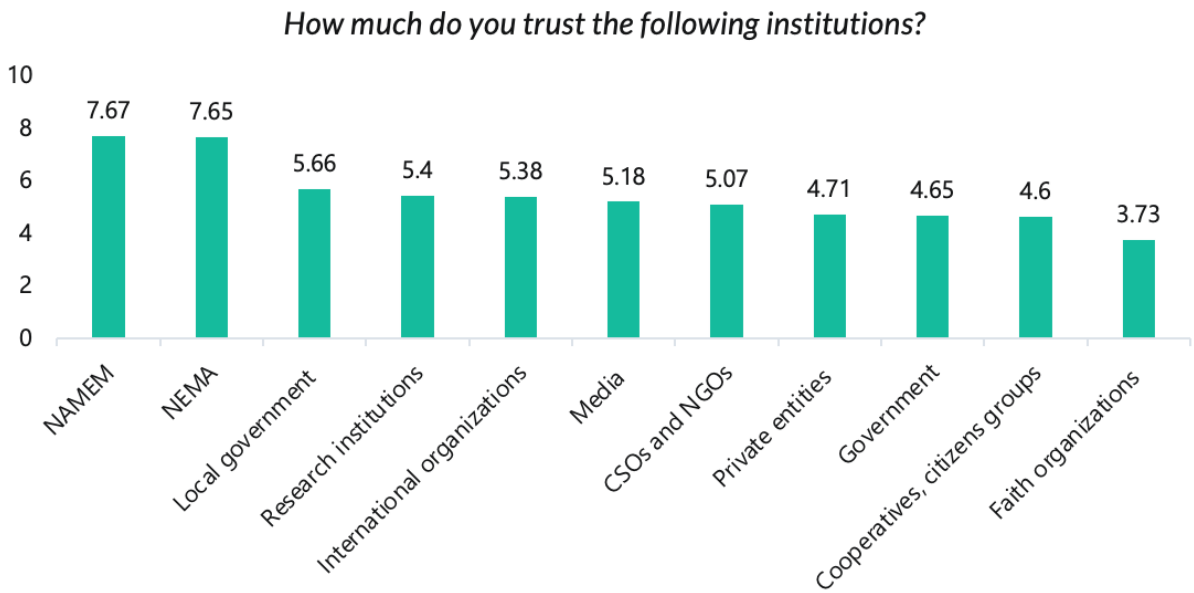
Figure 45: Perception about helpful groups in times of natural disasters (n=2804).

In times of natural disasters, to whom do you think you would give help and who do you think is most likely to help you?

Helpful groups in times of disasters

The following questions were asked to the respondents: 'In the time of disasters and natural phenomena (earthquakes, forest fires, floods, droughts, and dzuds) occurrence, how helpful do you think of the following groups versus how willing the respondents would be to support these groups in turn?' As Figure 45 shows, the proportion of respondents confident they would help other groups is relatively high. Nearly all respondents mentioned they were willing to help their relatives, close friends, emergency professionals and first responders in times of disaster. This shows trust is high in emergency professionals and first responders. Interestingly, many more people expected to help aid organizations and NGOs (73.6% and 70.1% respectively) than **receive help** from these organizations (56.1% and 53.6%) in times of disaster.

As a key informant from a national emergency agency explained:

> *"Citizens are becoming more and more active in mobilizing and helping emergency respondents. For example, when there was wild fire, many cars' drivers clubs [prius drivers' club; Toyota 200 drivers' club etc.] mobilized their members to help with transportation. Other citizens brought food and tea to the respondents. However, since these voluntary people are not properly equipped and have knowledge, it requires more management and coordination. Seeing images on Facebook and other social media sites where first responders are working, a lot of people feel empathy and want to help them"* (NEMA representative, male)

Membership in associations and organizations

One of the important indicators of cooperation between people is their membership in various voluntary, political and/or professional organizations and associations. It is the various organizations and groups that enable individuals to connect with the wider society and empower them to make changes and address the issues they face. Therefore, *the Survey* asked respondents if they were members of various types of organizations and groups. The results in Figure 46 show that the most common organization respondents were part of were political parties (9.0% were active members in political parties). Local councils, where each aimag has their own councils, were mentioned by 6.0% of the respondents. In total, 3.2% mentioned they were members of environmental movements and organizations.

Figure 46: Proportion of respondents who are active members in various types of organizations (n=2804).

Are you an active member of the following organizations?

This suggests that, on the one hand, there is significant room for raising awareness and building the capacities of existing environmental organizations and movements, local councils, cooperatives, and political parties regarding climate policies, priorities and issues so that they can reach out to citizens and effectively voice their concerns. On the other hand, there was an interest and demand among the population in participating and contributing to mitigating climate change, improving preparedness for disasters, and better adapting to changing environments. This interest and demand can be leveraged through sustained and effective strategies.

9. STAKEHOLDERS' VIEWS ON CLIMATE CHANGE MAINSTREAMING READINESS AND CAPACITY NEEDS

9.1 Assessment of stakeholders' climate change mainstreaming readiness

Qualitative data collection (using KIIs) was used to identify key stakeholders' assessment of the existing climate change capacity and readiness. The key informants were purposefully selected based on their positions and experience related to climate change and consisted of governments officials, sectoral experts, academics, private sector workers and media professionals.

Based on desk review and readiness assessment frameworks in other fields, to successfully mainstream climate change at all levels, the following factors are critical – awareness and knowledge, leadership, demand for climate change measures, resources (financial and technological), technical capacity, institutional arrangements, and values and standards. These factors are relevant in both state and non-state domains, covering both state and non-state actors, institutions, and processes. A score ranging from 1 (none), 2 (emerging), 3 (modest) to 4 (strong) was assigned to each of these factors by the interviewees and followed by a more in-depth discussion on the reasons and consequences for scoring each factor.

Overall, the stakeholders rated capacity factors necessary for mainstreaming climate change in Mongolia as 'emerging' and moving towards 'moderate' levels (2.6 average points on a scale of 1 to 4). This suggests, according to the key stakeholders, that most of the factors

in mainstreaming climate change have already emerged and are moving towards 'moderate' levels if efforts are intensified and sustained. The highest rated capacity factor was the demand and need for climate mitigation and adaptation measures within the country and within the experts' respective sectors (3.1 out of 4, suggesting moderate). In contrast, institutional arrangement and professional/technical capacity were rated the lowest by stakeholders (2.1 and 2.2 respectively) suggesting they are just emerging. The majority of the stakeholders interviewed emphasized that the roles and responsibilities of organizations within each sector are not clearly defined and yet to be institutionalized.

Interviewees also emphasized the need to improve knowledge, attitudes, and practices about climate change at all levels. However, the activities that need to be carried out and implemented in each sector were expressed in different ways. For example, it was mentioned that the workers in the agriculture sector should focus on diversifying livestock and conducting value-added farming, the workers in the energy sector should aim to increase green energy

sources, and the workers in the health sector should aim to intensify research and analysis.

Awareness and knowledge

The interviewees expressed that they themselves had acquired relative information and understanding of climate change at all levels, but considered it insufficient. The results show that valid knowledge and information on climate change was usually obtained from initiatives by official sources - such as workshops, seminars and training - yet questioned the accuracy and reliability of information found disseminated through mass media. The ability to apply and integrate their knowledge into work-related decisions was found to be low, except for those interviewees who were responsible for climate change issues. Officials working at the provincial level considered climate change to be an urgent/priority issue and highlighted the importance of its consideration when planning and decision-making.

Figure 47: Readiness assessment, average rating by capacity factors, n=49.
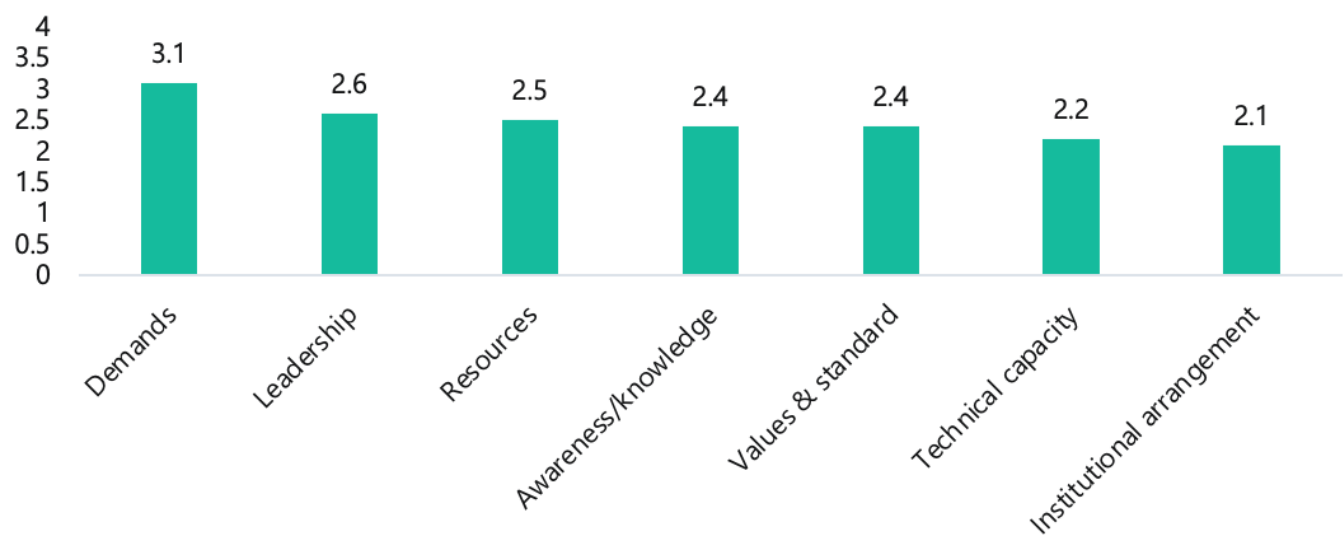
| Awareness and knowledge – Average score: 2.4 |
General results:

Sources of information: Information was mainly obtained from training, seminars and consultations, and information found on social media was neither inclusive nor adequate.

Attitude and culture: It was common to explain and understand climate change in terms of the environment or green development, etc. The concept of climate change adaptation, or tackling climate change, was poor.

Application in one's work: Processing and prioritizing climate change over other issues and the capacity to reflect on climate change in one's work was poor.

Reflection of the voices of the public and vulnerable groups: The public and vulnerable groups had limited knowledge and information about climate change actions and initiatives and it was insufficient.

Specific results for sectors and stakeholders:	
Local authority	Same as to general results.
Environmental sector	Compared to other institutions, the understanding was relatively satisfactory. Due to the MET's climate objective in the sector, the role and responsibilities were set out clearly. Therefore, the use of information and knowledge for policy development and decision-making was satisfactory. However, the sector often interpreted climate change as a part of the green development framework.
Energy sector	The issue of climate change was explained within the context of GHG emission and emission reduction, renewable energy, energy efficiency, and green energy. Since there was an increasing demand/requirement at the international level and in sectoral planning, climate change knowledge utilization was considered adequate.
Agriculture sector	There were a sufficient number of academics and researchers in the Agricultural University. Information on climate change was mostly obtained from research. As the sector is more vulnerable to climate change, there was a lot of research that linked climate change to agriculture and livestock.
Health sector	More attention was focused on public health problems caused by climate change. Currently, the health sector focuses on increasing the knowledge and skills of organizations and employees affiliated with the sector.

Leadership

Respondents considered government agencies to be highly capable of demonstrating effective leadership roles on climate change. It was common for government agencies to empower their internal resources rather than undertake outward-facing activities and operations on climate change. Examples given included supporting employees to participate in training seminars and allocating resources into empowerment activities.

Leadership – Average score: 2.6

General results:

- <u>Whether the sector's decision-makers have political leadership on the topic of climate change:</u> The climate change leadership demonstrated by state central administrative organizations (Agriculture, Energy, and Construction) was considered to be satisfactory by respondents when compared to other government agencies. Leadership could be enhanced by stabilizing employment, management and those in professional positions.

- <u>Decision-makers were supportive of building climate change capacity:</u> Climate change capacity-building activities and inclusiveness in training and seminars (organized by higher-level organizations) were adequate.

- <u>Organizations or individuals who could be described as champions of climate change</u>: In each field, respondents commonly named academics and individuals with extensive climate change knowledge and experience as a champion. At the local level, NGOs specializing in environmental and green development issues (and operating in the local area) were commonly named.

Specific results for sectors and stakeholders:	
Local authority	Local authorities did not prioritize climate change over other pressing issues. The issue of climate change has only been covered in the context of the environment and green development under development policies.
Environmental sector	Interviewees identified the environmental sector as having an important leadership role. The state central administrative organization in charge of environmental issues implements a comprehensive policy on climate change matters, ensures intersectoral coordination, and organizes capacity-building measures within the framework of the climate change.
Energy sector	The Ministry of Energy and the Energy Regulatory Commission were frequently mentioned by consultants, experts and those in the private sector. The interviewees consider these organizations show adequate leadership in addressing climate change although they expressed that the higher-level leadership could take more committed initiatives.
Agriculture sector	The same as the general results.
Health sector	The Ministry of Health, in the recent period, had regularly organized capacity-building sessions for its employees by linking climate change impacts to health and health services. A lack of leadership at the local level was due to poor awareness of climate change and its connection to health. Capacity-building of local health sector institutions on climate change issues were considered at the initial stage.

Resources (e.g. financial, information and data)

Financial resources for climate resilience were allocated differently depending on status and organization. Except for MET and its affiliated agencies, less than 10% of the total budget was spent on climate change issues (e.g. green development and environmental restoration). The projects and financial support were limited to climate change adaptation and building resilience.

Resources (e.g. budget, equipment) – Average score: 2.5

General results:

- <u>Adequacy of budget resources:</u> In terms of state budgeting, there was no specific allocation of finance for climate change at the sectoral level. Any relevant expenses were budgeted under sectoral measures (water, forest, pasture, land, renewable energy, heat efficiency, etc.). Since a certain percentage of income earned from the use of natural resources can be used for nature conservation measures, each aimag should have expenses related to nature conservation and restoration. Unfortunately, it was not effectively enforced and accessible in practice. There was a **limited budget for c**apacity-building **measures from the state budget. Capacity-building activities were mostly carried out by projects and programs funded by international organizations and donor countries.**

- <u>Amount of financial resources allocated to climate change issues:</u> Budgets, which varied depending on the nature of the organization, were independent of the implementation of priority climate change areas and NDC targets. Less than 10% of the annual budget of the organization was allocated for activities related to climate change. **There was an insufficiency of budgets, resources and funds to finance long-term climate policies and targets due to annual budgeting.**

- <u>Financial sources other than the state budget:</u> At the national level, projects and programs in sectoral ministries were implemented by the financing of international loans and projects. **There were some cases where certain activities were carried out with the financing from local development funds. In conformity with the LDF procedure, the tasks to be implemented were decided by citizens' participation. Therefore, it cannot be considered to be a stable financial source due to the lack of understanding of citizens.**

- <u>Accessibility of research, reports and analysis related to climate change:</u> These were not very accessible or adequate. NGOs and institutions (such as the CCRCC which is affiliated with the MET) had managed research and projects focused on climate change. However, there was a lack of integrating climate change into its relevant research or of enhancing coherency.

Specific results for sectors and stakeholders:	
Local authority	Same as the general results.
Environmental sector	Same as the general results.
Energy sector	Due to lack of state budget for climate change, the necessary measures related to climate change mitigation were financed by the budgets of projects that aimed at improving the efficiency of renewable energy and energy.
Agriculture sector	Same as the general results.
Health sector	In addition to the expenses reflected in the state budget, some necessary measures were organized with the funding of international donor organizations. The WHO and UNICEF provided more financial support for activities in this area.

Technical capacity and capacity needs

Stakeholders highlighted a lack of qualified and competent personnel, or experts (including at the sectoraral and organizational level), on overall climate change issues. The respondents stated that, particularly in rural and local areas, not enough specialists had a good understanding and knowledge of overall climate change issues. Most of the interviewees had limited information and understanding of the technical and professional terms that related to climate change.

Technical capacity and capacity needs – Average score: 2.2

General results:

- <u>Human resources, skills and capacity needs:</u> There was a shortage of, and increasing demand for, qualified climate change personnel at every level. The respondents highlighted the need to ensure the stability of employment in the long-term. It was suggested that a capacity-building approach is necessary and that a capacity needs assessment should be carried out at the sectoral level.

- <u>Climate change awareness amongst non-governmental organizations:</u> NGOs specialized in the environmental field had better awareness, understanding and attitudes toward climate change. Some entities demonstrated good practices, were leading the way by taking the initiative, and expressed their interest in cooperating with government agencies. **It was often highlighted that the government agencies needed to demonstrate leadership.**

- <u>Availability and accessbility of climate change-related data and needs:</u> Most stakeholders had limited knowledge about data and data collection systems related to climate change. Stakeholders working in the environment and energy sectors had an understanding of systems that estimate GHG emissions, however, they were critical of the fact that the information was not publicly and easily accessible.

Specific results for sectors and stakeholders:	
Local authority	In terms of climate change, the local authorities had very limited human resources and technical capabilities. They also had a poor understanding of professional systems related to climate change and the utilization of their data.
Environmental sector	The same as to general results.
Energy sector	The same as to general results.
Agriculture sector	The same as to general results.
Health sector	In terms of climate change, the health sector had the lowest levels of human resources and technical capabilities. There was a poor understanding of professional systems related to climate change as well as the utilization of their data.

<u>Institutional arrangements (e.g. horizontal and vertical coordination at national and sub-national)</u>

The majority of respondents highlighted that setting institutional arrangements and urgent actions were crucially needed to establish clear roles and responsibilities of all stakeholder at all levels. Furthermore, respondents perceived that environmental, climate and meteorology institutions were responsible for overseeing climate change-related activities. The participation of other sectors was limited due to unclear mandates and a lack of cordination. Experts were often working separately or individually, rather than collectively, to address climate change issues.

Institutional arrangements – Average score: 2.1

General results:

- <u>Clarity of the functions of state institutions:</u> The functions of government agencies concerned with climate change are ambiguous and often unclear – such as the roles and responsibilities of institutions, localities and governors; the reporting mechanism; the linkages to development policy issues; and the integrated climate change policy, etc.

- The MET role as a core ministry has changed to become a line ministry. This had limited its coordination of interdisciplinary functions. Therefore, the majority of respondents think that the MET role as a core ministry should be reinstated as there is no organization that has the capacity or experience to coordinate cross-sectoral functions associated with climate change.

- Interdisciplinary planning and budgeting were not sufficiently coordinated among key stakeholders. Despite the appointment of climate change focal points in line ministries, the objectives were not specified or supported by legal arrangements and regulations.

- At the local level, there was insufficient coordination and dedicated organization. There was also poor involvement and cooperation.

- <u>Cooperation between the government and non-governmental organizations:</u> Cooperation between the government, NGOs and the private sector was carried out to a certain degree. Cooperation with international organizations was carried out without an alignment of priority issues and only within the framework of implementing specific projects and programs.

- <u>Dedicated personnel who are specifically responsible for climate change:</u> Often climate change-related duties were carried out by personnel in addition to their core responsibilities. Moreover, low salaries, high workloads and an uneven distribution of duties of government employees were key factors that contributed to inadequate human resources on climate change.

Specific results for sectors and stakeholders:	
Local authority	At the local level, the implementation depended on the integration of climate change activities into the governor's agenda.
Environmental sector	Cooperation between the government, NGOs and the private sector was insufficient. Since the state cannot manage all the financing and carry out measures alone, the involvement of private entities are necessary to achieve common goals.
Energy sector	Cooperation between the government and NGOs has been rather passive, often limited to specific task or project. Although the participation of sectoral academics and experts was adequate, it was rarely led to actual practice.
Agriculture sector	The same as to general results.
Health sector	Health sector experts were confident about the sector's contribution towards an integrated comprehensive climate policy. Mainstreaming climate actions in the human health sector were considered adequate by the respondents.

<u>Values and standards</u>

Legal policy documents and standards specifically related to climate change were not mentioned by respondents. However, the respondents expressed the need for sufficient documentation about climate change that could be understood by those working in different sectors. In general, laws and standards were well established in Mongolia, but had a limited synergy with climate change adaptation and mitigation measures.

Values and standards – Average score: 2.4.

General results:

- **Regulatory status of sectoral laws and policies (Demands):** Each sector had policy documents to address climate change. In the future, it will be necessary to have an independent climate change law or legal document.

- **Existence of industry-specific guidelines, norms, and standards:** Stakeholders lacked knowledge or information on this issue.

- **Organizations that need to demonstrate leadership:** The majority of respondents named the state administrative organization in charge of environmental issues or the MET.

- Each sector needs to develop manuals, standards and guidelines related to climate mitigation and adaptation. For example, there should be climate-resilient infrastructure and construction documents in the Mongolian language. This should be supported by appropriate norms and regulations adopted, either voluntarily by sectorial professional associations, or by Government entities and the Mongolian Agency for Standardization and Metrology.

Specific results for sectors and stakeholders: The same as the general results.

9.2 Actions and initiatives taken by stakeholders

Mongolia's *Green Development Plan*[52] stipulates that all sectors will promote green development. In that sense, and in their respective sectors, the stakeholders have been paying attention to the issue of climate change and were working to realize specific proposals and initiatives. Organizations affiliated with the environmental sector have been involved in the general coordination of activities related to climate change and were mainly involved in awareness-raising and capacity-building. Stakeholders of the energy and agriculture sectors were working on setting goals related to reducing greenhouse gas emissions in their sectors. The health sector was researching and analyzing climate change-induced diseases among the population and working on their preparedness for such diseases.

Key activities and initiatives undertaken by stakeholders in relation to climate change :	
Local authority **(aimag, district, soum governors, citizens' representative khural, etc.)**	As a key aspect of the governor's action programme, general actions outlined below are planned, and due to be implemented, in terms of green development. There was no exact term for climate change. - Locally organize the *A Billion Trees* national campaign. - Take measures against deforestation, reforestation and desertification in the local area. - Increase the number of waterpoints, build floating ponds, and protect springs by fencing. - Increase the number of green facilities. - Reduce environmental pollution and improve waste management.
Environmental sector **(MET, NDC, National Climate Change Committee)**	In Mongolia, the government organizations responsible for climate change related matters aim to: - Ensure the implementation of international agreements, treaties and conventions that Mongolia has entered into in the field of climate change. - Plan, organize and monitor the implementation of Article 5.1.12 of the Government Action Programme. - Provide professional and methodological advice and assistance to thestakeholder - Develop and implement projects and programs in relevant areas. - Organize and monitor the implementation of the *A Billion Trees* national campaign, and reduce desertification and land degradation.
Energy sector **(Ministry of Energy, Energy Regulatory Commission, EBRD, etc.)**	In the field of energy production and consumption, policy documents, measures and projects that are concerned with climate change were directly aimed at reducing GHG emissions. - The share of renewable energy increased – as of 2020, nine solar and wind power plant sites were in operation. - The number of projects implemented to improve the efficiency of energy production and create efficient energy also increased.

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52 Government of Mongolia (2014), Green Development Plan, Available at: https://sdg.1212.mn/Content/files/Green_development_decision.pdf

Agriculture sector	Activities related to reducing GHG emissions in the livestock sector were predominant in the agriculture sector. • This included working to reduce the number of livestock by developing value-added intensive livestock farming. • The livestock tax policy is currently being implemented and the funds collected from the tax was being allocated to measures such as pasture management, mitigation of desertification, increased water points, etc. • Pasture and soil protection measures were being planned and implemented.
Health sector	In the health sector, climate change research and analysis was being carried out. Consultations and information dissemination were also main activities that were being undertaken.

9.3 Capacity needs of stakeholders

Who?	What?	How? And any considerations?
At the national level	An improvement in the methods, and methodology, for estimating GHG emissions and the GHG inventory. A strengthened and more clearly defined role and mandate of the key stakeholders (government-level authorities). The allocation of budgets and the disbursement of funds.	Establishing a database, data collection system and appropriate methodology will help improve the estimation of GHG emissions and the GHG inventory by sector. Given that current climate governance is complex and multi-dimensional, it requires a cross-sectoral function to strengthen the existing National Climate Change Commission into a functional body. This was highlighted as important by stakeholders. Green loans provided by banks for the agriculture and energy sector were insufficient.
At the local level	• Capacity-building and stability in the workplace. • Improved knowledge about climate change and how it will affect local aimags and soums. • Information about how to integrate climate issues in local development programs and sub-programs.	Due to high staff turnover and poor salary provisions, dedicated personnel in charge of working on climate change were easily replaced. Furthermore, the workload was uneven and climate change wasn't prioritized – instead it was treated as a secondary objective.
Decision-makers	• The creation of a sufficient tool for allocating budget to climate change issues - particularly on vulnerable and priority areas - and a focus on long-term planning. • The creation of mechanisms for convening stakeholders to align perspectives and efforts.	• Budget and financial resources were lacking at both stages. Budgetary allocations and financial resources need to be assessed and reported. • Climate Change issues should be prioritized rather than being focused on short-term problems - especially economic challenges. • Existing instruments that already govern sectors - such as regulations and policies - should be revised to integrate climate considerations. Doing so will ensure that they facilitate, rather than impede, climate change responses. Public participation in government decision-making on climate change issues should also be encouraged.
Media and journalists	• Capacity-building to improve the awareness and knowledge of journalists covering a variety of climate change topics that is frequently updated. • Improved collaboration between newsrooms and journalists covering issues related to the environment and climate change. • Strategic efforts aimed at getting the environment and climate change included in editorial policies.	• Curriculums, both for higher education institutions of journalists and for working journalists, need to be developed. By doing so, future and current journalists will acquire the knowledge and awareness to interpret events and issues through a climate change perspective. • Collaboration between newsrooms and journalists could be improved by establishing and/or building the capacity of clubs and coalitions of media personnel that focus on climate change. • Resources for long-term campaigns need to be allocated to improve the capacity of journalists and the quality and consistency of their reporting. A pool for raising awareness on climate change, which national and international donors are able to donate to, could be created.
Community	• An improved knowledge and understanding of climate change, its effects and practices. • Knowledge and skills of climate change adaptation measures that communities can implement in their local areas. • Knowledge and skills of specific climate change adaptation measures for households and individuals.	Communities will benefit by receiving information that is easier to understand, are helped to identify their vulnerabilities and risks, and learn about simple, straightforward actions they can take. Distributing information to communities and helping them understand how climate change affects them and their livelihoods will improve their knowledge and skills of climate change adaptation measures.

10. GENERAL & ENVIRONMENT SPECIFIC MEDIA CONSUMPTION

Part IV. MEDIA CONSUMPTION

One of the objectives of the Study was to assess the media consumption of the general population and vulnerable groups. This will help to identify the knowledge and skills the population requires to adapt to, or mitigate the impacts of, climate change. The results presented in this section are used to identify effective entry points for raising public awareness and capacity-building measures about climate change in Mongolia. As there have been other recent surveys on general media consumption, the Survey focused on information sources and media consumption related to climate change and the environment.

Table 13: Summary of results of climate change related-information, disaggregated by gender, broad age groups, residency, vulnerability and income groups, % (n=2804).

#	Indicators	Gender		Broad age groups				Residency		Vulnerability	
		F	M	18-24	25-34	35-59	>60	U	R	LV	V
1	Received any information from media that mentioned the terms 'climate change' or 'global warming' in the past 12 months?	41.3	47.0	45.9	45.1	42.1	46.4	46.0	40.5	42.3	45.6
2	Received information from the media related to the changes in weather patterns and occurrence of natural hazards in the past year.[53]	52.7	54.2	50.8	54.9	53.1	53.4	52.5	54.9	52.2	54.8
3	Would like to receive more information about climate change from media.	86.1	83.9	80.9	84.9	86.9	85.1	82.6	89.6	85.3	84.8

Note: U – Urban, R- Rural, V – vulnerable, LV – Less vulnerable, Income group I – the lowest quintile and V – the highest quintile. Statistically significant differences are highlighted in green.

10.1 General media consumption

The Survey aimed to identify the main sources of information the public consumed, determine the level of trust accorded to them, and examine media habits (including the frequency of use) to inform future communications and awareness-raising activities. In addition, environment-specific media consumption was analyzed to determine the public's exposure to existing environment and climate change-related information. It also looked at whether they would like to receive climate change-related information in the future and, if so, how and from who.

According to the Press Institute of Mongolia's annual monitoring report, *Mongolian Media – Today,*[54] there were over 500 media outlets in Mongolia in 2022. This included 7 national daily newspapers, 20 TV

broadcasters, 120 local TV broadcasters, 50 radio stations and 150 online news outlets. The report suggested that the number of online news outlets have been continuously increasing while traditional news agencies (e.g. TV, radio, newspaper) have been decreasing since 2013 (Figure 488).

As with the global trend, Mongolian news outlets are increasingly turning to digital platforms, in particular social media channels, to engage with more audiences. A 2020 study found that 74% of all active news outlets (including online news outlets) had official Facebook pages where they disseminated their news and content. A survey conducted among 500 respondents in 2020 found that most people did not know how to differenciate between the sources of information they encountered on Facebook.[55]

TV (73.6%), and the internet (63.7%) were the primary sources the respondents used to obtain information on important topics - such as politics, the economy, health, education and the environment. Respondents were asked to name the three most common sources of information and the interviewers did not show or read the response out loud. Figure 49 shows that TV, the internet and other face-to-face interactions (including with work colleagues and local authorities) were the most common way of getting general information in Mongolia.

54 The Press Institute of Mongolia. (2021) Mongolian Media – Today

55 Press Institute of Mongolia and IRI. (2020) Media Consumption Behavior and Education Level of Youth

Figure 48: Number of Mongolian news outlets, by traditional and online, 2013-2019.

■ Traditional news outlets ■ Online news outlets
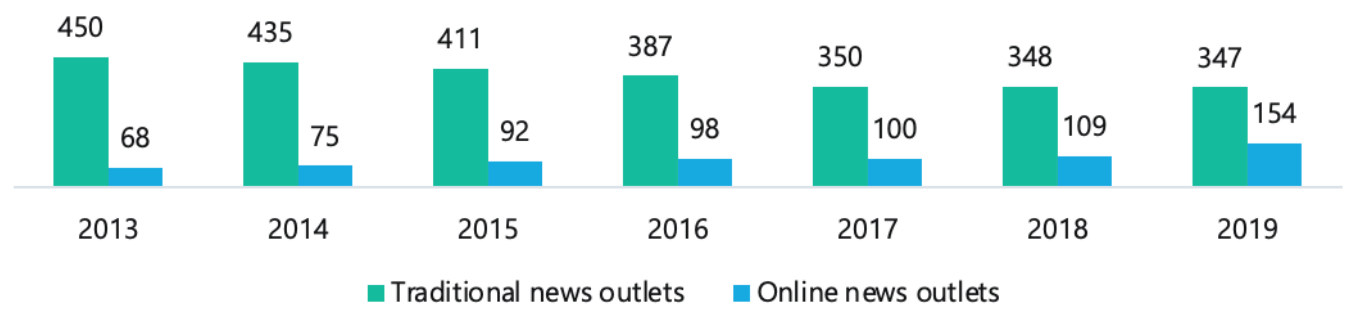
Figure 49: Three most common sources of information, proportion of respondents (n=2804).

What are your main sources of information about important topics such as politics, economy, health, and education and environment?

- TV — 73.6%
- Internet (websites and social media) — 63.7%
- Family and friends — 8.2%
- FM Radio — 4.6%
- Work colleagues — 3.5%
- Local authorities (Governors, khoroo, bag...) — 3.4%
- Newspaper — 2.9%
- Magazine — 1.6%
- Other (training, civil servants, brochures, boards) — 2.9%
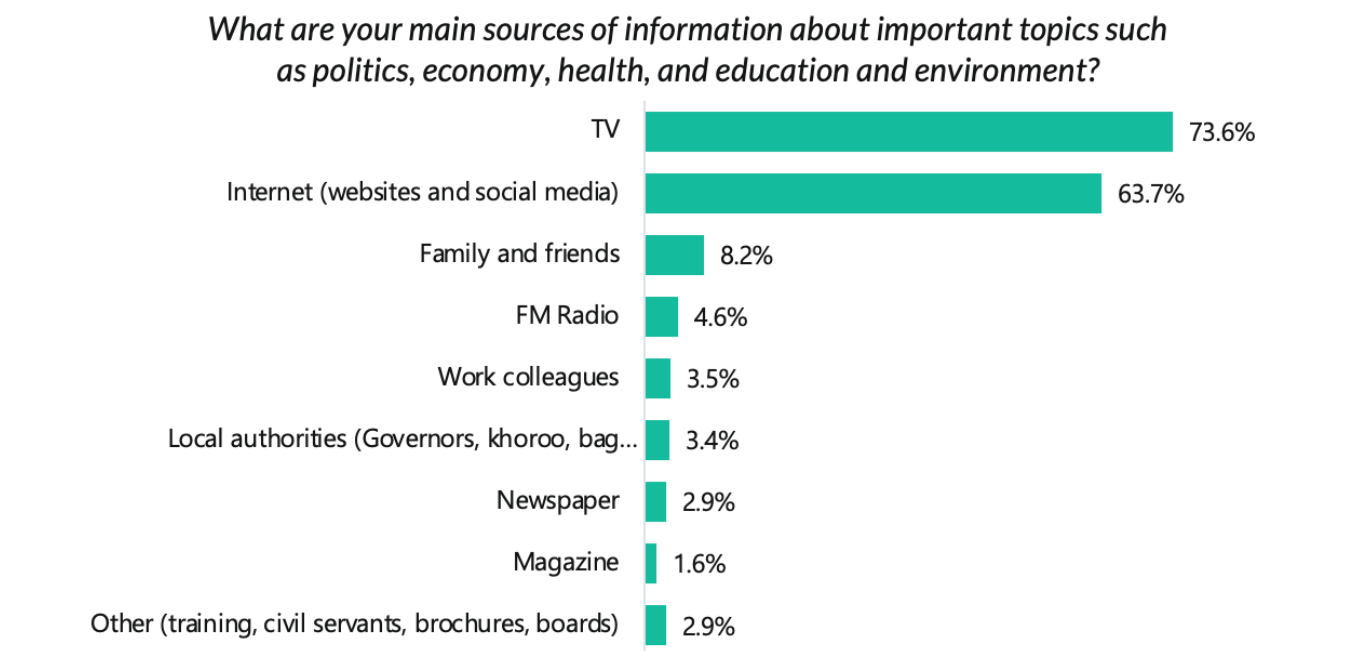
The internet was the main source of information among the younger population, while TV remained popular among older groups. As Figure 50 indicates, the internet was named as one of the top three main sources of information by 88.6% of youth aged 18-24 in contrast to 4.3% of those aged above 60 years old.

Respondents who named their common information sources as TV, the internet, FM radio, and word of mouth[56] received information from these sources on a daily basis. The table below

56 Word of mouth sources included - family members, work colleagues and civil servants (such as teachers and health workers).

Figure 50: Main sources of information by broad age group (n=2804).

- 18-24: TV 47.2%, Internet 88.6%
- 25-34: TV 66.0%, Internet 77.5%
- 35-59: TV 84.1%, Internet 54.7%
- >60: TV 92.4%, Internet 24.3%

■ TV ■ Internet
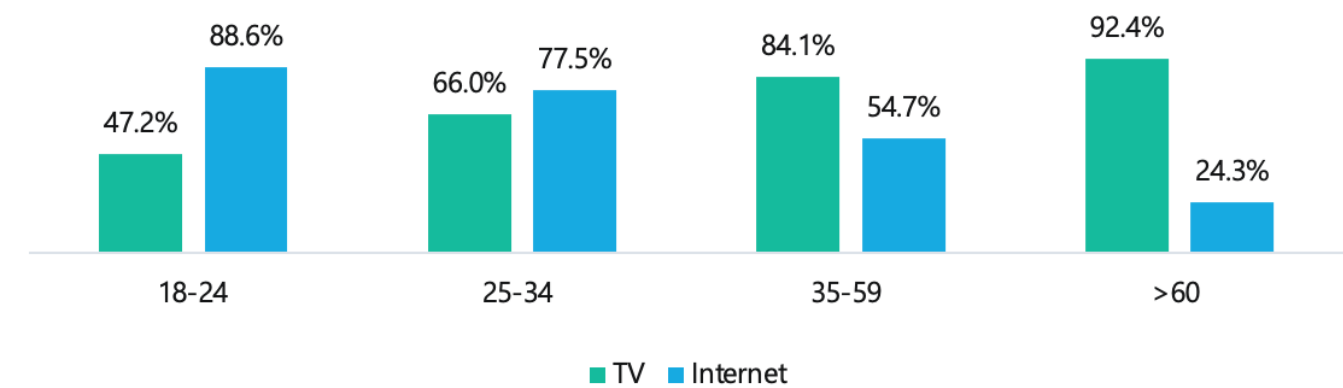
Local authorities, including governors, khoroo and bag leaders, were more common sources of information for rural respondents (3.4%) compared to urban respondents (1.6%). They were also more common sources of information for older (those 35 years old or above) respondents (6.5%) compared to younger respondents (1.2%).

shows that the most frequently used source was the internet. Of those that used the internet, 77.9% used it daily. Comparatively, 64% of those who chose FM radio, 67.3% of those who chose work colleagues, 58.9% of those who chose TV, and 59.5% of those who chose FM Radio said they used the sources daily. In terms of absolute number, the proportion of daily internet users was greater than daily TV users (49.3% and 43.2% of respondents, respectively).

Table 14: Frequency of common sources of general information, proportion of respondents.[57]

Type of source	N	Daily	Weekly	Monthly
TV	2057	58.9%	33.9%	6.9%
Internet (websites and social media)	1778	77.9%	18.3%	3.8%
Word of mouth (family, friends, colleagues)	330	53.5%	36.8%	9.4%
FM Radio	127	59.5%	28.9%	10.7%
Magazine and newspapers	125	31.5%	50.8%	16.1%
Local authorities	96	14.1%	29.4%	54.8%

Television

TV was the most accessible source of information for vulnerable groups, those in rural areas, those who have completed secondary education, and people living in detached houses and gers. More than half of respondents (58.9%) said they watched TV everyday. Among those whose primary source of information was TV, there was a slightly more rural (49.5%) than urban (43.6%) audience. There was no significant difference between the proportions of female (58.7%) and male (59.1%) respondents who watched TV every day. The proportion of older people (84.3% of those aged 60 years old and above) who watched TV every day was considerably higher than younger people (26.8% of those aged 18-24 years old). Almost half (45.3%) of respondents who said they watched TV every day had completed secondary education. The majority of those who watched TV every day lived in detached houses (39.9%) and gers (37.1%).

Figure 51: Types of dwelling of respondents who watch TV every day (n=1212).

- Detached house — 39.9%
- Ger — 37.1%
- Apartment — 20.6%
- Separate apartment — 1.6%
- Public dwelling for employees — 0.2%
- Other public dwelling — 0.6%
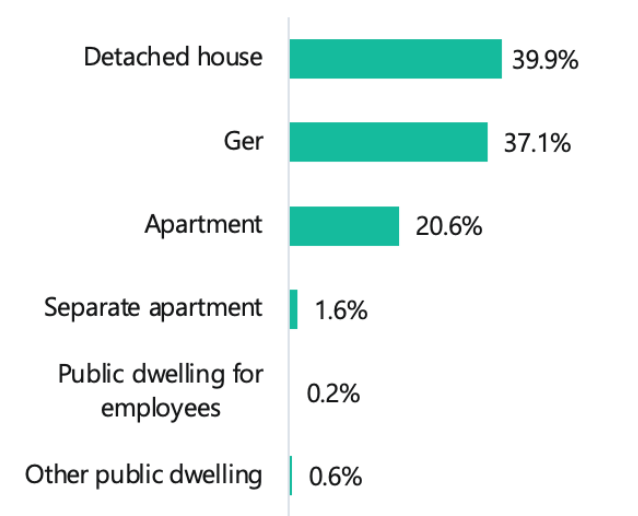
Figure 52: The most popular TV channels by residency (n=2520).

- MNB
- TV9
- Movie box
- Education TV
- Malchin TV
- Mongol TV

0.0% 20.0% 40.0% 60.0% 80.0%

■ Rural ■ Urban
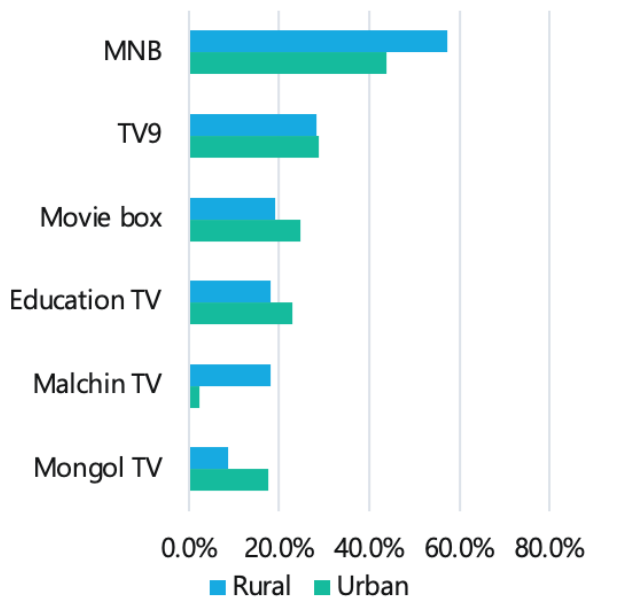
Mongolian National Broadcaster (MNB) and Malchin TV were popular among rural respondents, while Movie Box, Education TV, and Mongol TV were popular among urban respondents. According to the *Television Audience Measurement Annual Report 2020*, prime time TV was between 8pm and midnight with most viewers tuning in between 9pm and 11pm.[58] There was a slight difference in the timing of prime-time TV between rural and urban respondents. In 2015, prime time TV was between 6pm and 10:30pm in rural areas compared to 7pm and 11:30pm in Ulaanbaatar.[59]

58 Maxima Media LLC. (2020) Television audience measurement annual report. Available at: https://docviewer.yandex.com/view/0/?page=2&*=BuH5%2BxxxCqSy-I0hwpH9rgtC%2B7dJ7InVybCI6InlhLWRpc2stcHVibGljOi8vbXVDZzd-DVGZUeHITNDhXYjkzZUEwUFhBRmRpQWJnZlVsQ2RFTFNDdEFyWH-FPeW80a3BBWEVJeFh6WDlJTUErbFJBWDAzSFBZUXhjTisxWVJZY0N-0Wnc9PSIsInRpdGxlIjoiVEFNLTIwMjAucGRmIiwibm9pZnJhbWUiOmZhbHN-ILCJ1aWQiOiIwIiwidHMiOjE2NTkzMjU4Njc4NzUsInI1IjoiMzg5NzQyMjM-2MTY1OTMyNTg2NCJ9

59 Press Institute Mongolia. (2015) Media User Study. Available at: https://mongolia.mom-rsf.org/uploads/tx_lfrogmom/documents/5-243_import.

57 Due to missing values, the percentage does not add up to 100.0%.

Internet

According to the 2022 *Household Information, Communications and Technology Consumption and Accessibility Survey*,[60] 57.0% of all households in Mongolia had an internet connection (of which 72.0% were in urban areas and the remainder were in rural areas). 80.0% of households had access to the internet (86.3% of households in urban areas and 63.0% in rural areas). In contrast, in 2011, around 12.5% of Mongolia's population had internet access.

However, having access to the internet and using it to get information are different. In this respect, *the Survey* found that 63.0% of the respondents (mostly young and urban respondents) named the internet as their primary source of information. More than half of all respondents (64.7%, n=1814) used the internet every day over the past 3 months and 15.2% hadn't used it at all. Of respondents who used the internet over the past three months (n=2408), most (98.4%) accessed it through mobile phones, 12.5% accessed it through a computer or laptop, and 2.2% through a tablet.

Of those who accessed the internet every day, the majority were from urban areas (74.0%) and were younger - aged between 18-34 (83.5%). The main reasons for using the internet were to search for

information (23.0%), read the news (22.7%), use social media (20.4%), and contact others (17.5%).

According to national reports, the number of internet and social media users was the same. The *Digital 2020: Mongolia*[61] report by DataReportal indicated that there were 2.20 million internet users in Mongolia in January 2020 and that there was the same number of social media users. This suggests that most internet users in Mongolia have access to social media. Social media penetration in Mongolia stood at 68.0% in January 2020 and the results from this report indicate that social media is the most popular platform that could be used for future communication campaigns.

The Survey **found that Facebook was the most used social media and messaging platform in Mongolia (59.4% of all mentioned platforms).** 95.1% of respondents who used social media platforms (n=2409) stated that they used Facebook. More rural, female and older respondents said that Facebook was their most used social media platform. Instagram and Youtube were the next most used social media platforms. Among those who used Instagram the most, a higher proportion of respondents were female, younger and from urban areas. As for Youtube, a higher proportion of respondents were male, younger and from urban areas.

pdf

60   Ministry of Digital Development and Communications and National Statistics Office. (2022) Household Information, Communications and Technology Consumption and Accessibility Survey

61   DataReportal, Digital 2020: Mongolia. Available at: https://datareportal.com/reports/digital-2020-mongolia

Table 15: People who used Facebook by residency, gender and age group (n=2290).

Urban	Rural	Women	Man	18-24	25-34	35-59	60 and above
1516	774	1194	1096	501	629	1011	150
93.3%	98.6%	95.6%	94.5%	91.6%	95.7%	96.6%	93.9%

The digital divide and lack of accessibility to the internet were notable in Mongolia. The *Qualitative Assessment of Digital Access and Skills of Vulnerable Groups*[62] by IRIM & UNDP found that the access to digital devices of vulnerable groups (persons with

disabilities, seniors, remote and rural households, internal migrants, and low-income households) was insufficient to meet their needs. While each household owned a smartphone, the use of old-fashioned keypad phones remained high among the vulnerable groups.

62   IRIM & UNDP. (2021) Qualitative Assessment of Digital Access and Skills of Vulnerable Groups https://www.undp.org/sites/g/files/zskgke326/files/migration/mn/UNDP-A-Lab-Report-Eng-20211004.pdf

Mobile phone

Most people (84.4%) used mobile phones everyday. Among the respondents who used mobile phones (n=2781), the most common reasons for using mobile phones were to make calls (39.7%), use social media (19.4%), read news (14.4%), and send text messages (9.3%).

Figure 53: Frequency of mobile phone use (n=2804).
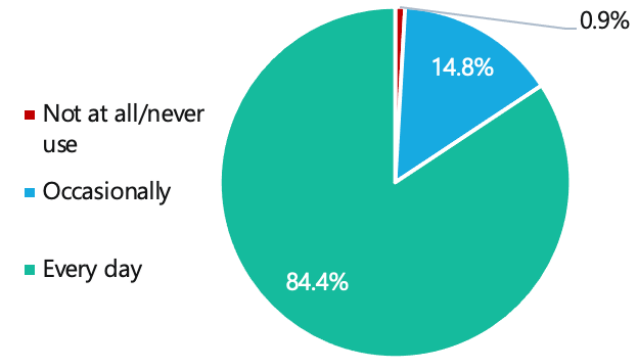
The mobile phone was the most accessible device for respondents from all segments. More than 99.1% of respondents who used mobile phones said they used their own, or someone else's, phone 'every day' or 'occasionally.' This was the same as the findings from the 2022 *Household consumption survey, national report on Information*.[63] Almost all (98.0%) of respondents of the *Household consumption survey* , and 54.8% of people with lower education had used smart phones.

63   Communications and Technology (2022), Household consumption survey, national report on Information

Table 16: Percentage of people who use mobile phones everyday of those who use mobile phones, by population groups (n=2781).

Urban	Rural	Female	Male	18-24	25-34	35-59	60 & above
88.3%	79.4%	86.5%	83.6%	90.7%	89.8%	83%	73.1%

Among those who use mobile phone everyday, there are more urban (88.3%), female (86.5%) and younger people (90.7% of those aged 18-24).

Radio

The majority of respondents (83.8%) said they did not listen to radio at all. Of those who did listen to the radio (n=454), 21.3% listened at least once a month, 37.7% listened at least once a week, and 41.0% listened every day. Among those who listened to the radio 'every day', slightly more respondents were from rural areas (47.1%) compared to urban areas (37.2%). More respondents were male (42.8%) than female (37.9%). There were also more older respondents (45.7% of those aged 35-59 and 63.6% of those older than 59) than younger (19.7% of those aged 18-24 and 29.5% of those aged 25-34).

Mongolian radio and Family Radio 104.5 were identified as the most popular radio stations in urban areas. MNB radio was the most popular station among rural listeners.

By type of employment, 30.1% of respondents who listened to radio every day worked in animal husbandry/livestock raising (herders) while 26.3% had paid jobs and 21.5% were retired.

Figure 54: Most popular radio stations among those who listen to radio, by residency (n=454).

Figure 55: Types of popular radio topics among those who listen to radio (n=454).

News	66.5%
Music	24.4%
Commentaries of current events	22.5%
Others	10.1%
Family programs	10.2%
Advertisements	7.6%
Traffic news	2.7%
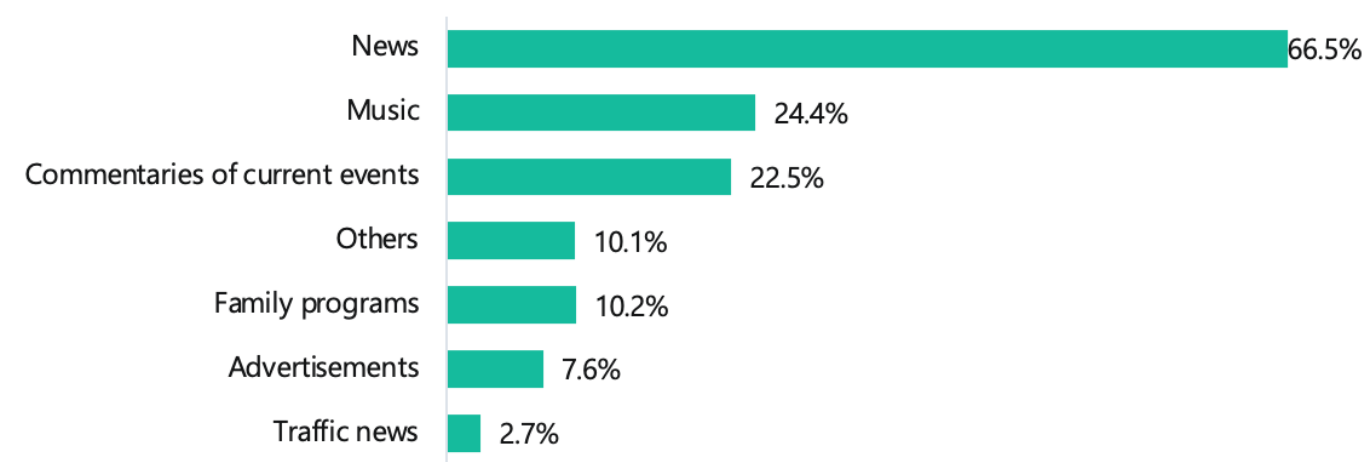
Figure 56: People who rated the level of trust in information on TV as 'the highest' by age group (n=2057).

Trust in information on TV as highest

18-24 y.o	25-34 y.o	35-59 y.o	60 and above
36.2%	38.0%	43.3%	49.5%
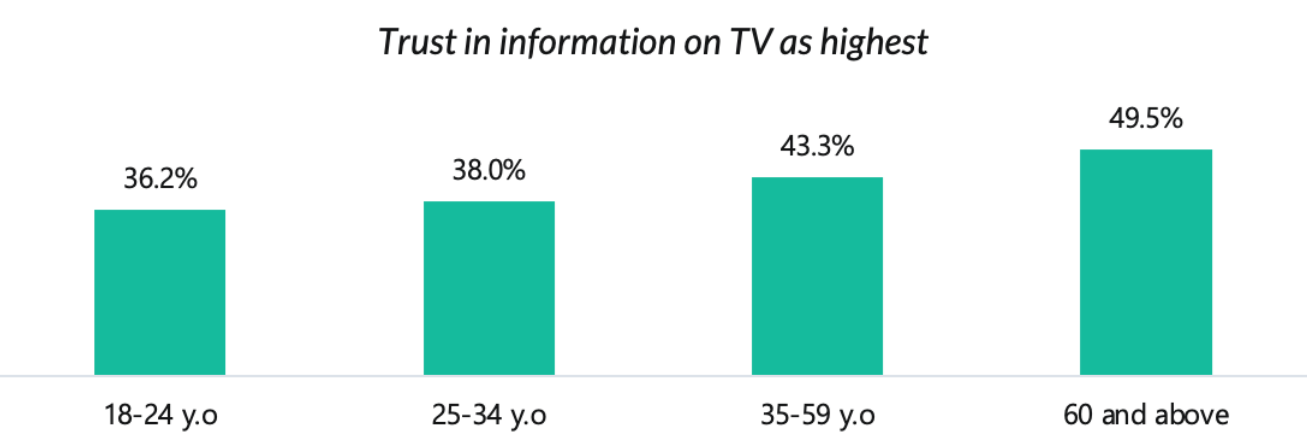
The most popular radio topic was the news (66.5%). Other popular topics included music (24.4%), commentaries of current events (22.5%), and family programs (10.2%).

Podcasts

The majority of respondents (73.6%) said that they did not listen to podcasts at all and only 3.8% said they listened to podcasts every day. Among those who listened to podcasts, the most popular podcasts were *Ideree's Podcast* (30.2%), *Waiting Room* (13.3%) and *Cocktail and Crime* (9.4%). Other popular podcasts included *Dark Room* (9.0%), *Unlock Podcast* (8.0%), *Manduulero* (7.6%), *Business.mn Podcast* (6.2%), and *6-minute English* (6.1%). Among those who listened to podcasts more than once a month, more respondents were from urban areas (32.8%) compared to rural areas (17.5%). More respondents were female (27.1%) than male (26.5%). There were

also more younger respondents (45.6% of those aged 18-24 and 35.1% of those aged 25-34) than older (19.7% of those aged 35-59 and 9.1% of those aged over 60).

10.2 Confidence in media and disinformation

TV was the most trusted information source, especially among older (49.5% of those older than 60), female (44.1%) and rural (46.0%) respondents. Only those respondents who indicated TV as their primary source of information rated their trust in information on TV. The majority of respondents of all ages (77.0%) said that TV was their most trusted source of information.[64]

_____
[64] Mongolian Marketing Consulting Group (2021). National Media Survey

Figure 57: Proportion of respondents confident in media overall (n=2804).

How much do you trust media and press?

Never trust	1	2	3	4	5	6	7	8	9	Fully trust	Don't know
9.3%	2.9%	4.5%	7.3%	8.0%	26.7%	9.1%	8.8%	9.4%	2.4%	9.4%	2.3%
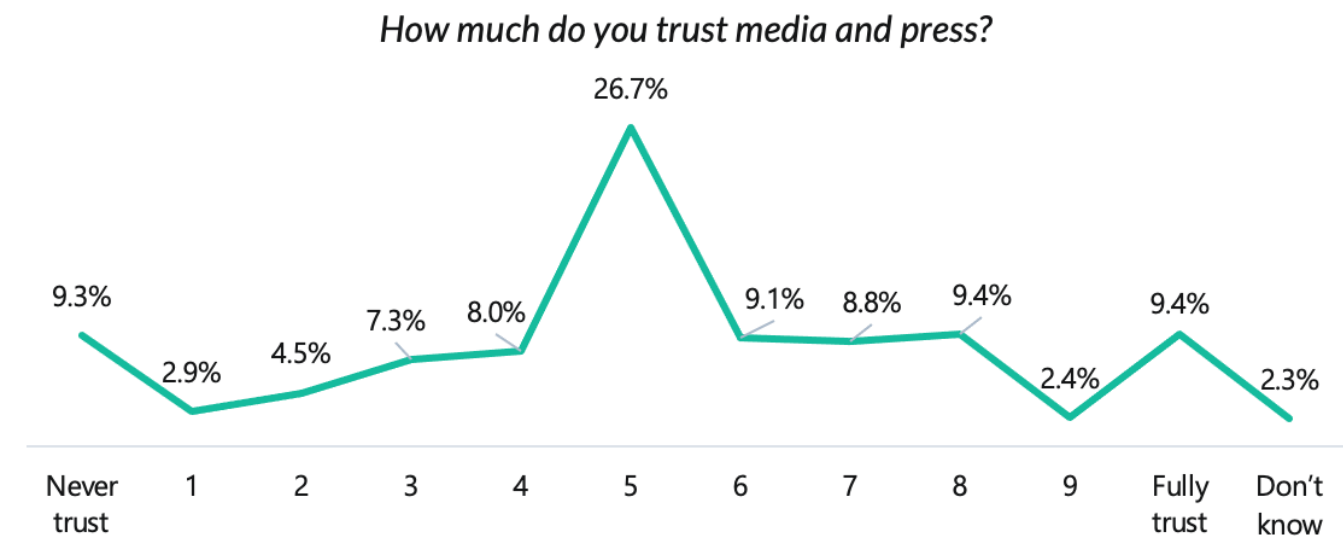
Although many respondents said the internet was their primary source of information, they reported that they trusted it less than TV. Around one-third of respondents considered the trustworthiness of information on the internet to be above average. Comparatively, more than half of respondents considered TV's trustworthiness to be above average. Just over half of the respondents (52.4%) who chose the internet as a main source of information rated their level of trust in it as 'medium' (3). There were no statistically significant differences in respondents' confidence in different

types of information sources when it came to gender, age, residency, vulnerability and education level.

The majority of respondents lacked sufficient knowledge to differentiate reliable information about climate change from unreliable information. Almost half of respondents (44.5%) believed that they never encountered untrue climate change-related information. Only 19.6% (n=243) of respondents assessed their knowledge about climate change to be above average.

Figure 58: The level of trust people have in the most common information sources (n=2057).

Level of trust in different sources of information

	1 (least trusted)	2	3	4	5 (most trusted)
Trainings, conferences, local hearings and meetings			9.7%	32.8%	54.5%
Local authorities			12.3%	18.1%	65.5%
Work colleagues			29.8%	30.4%	32.2%
Family and friends			21.9%	35.3%	38.6%
Internet	13.9%		52.4%	15.9%	13.9%
TV			28.6%	25.7%	41.8%
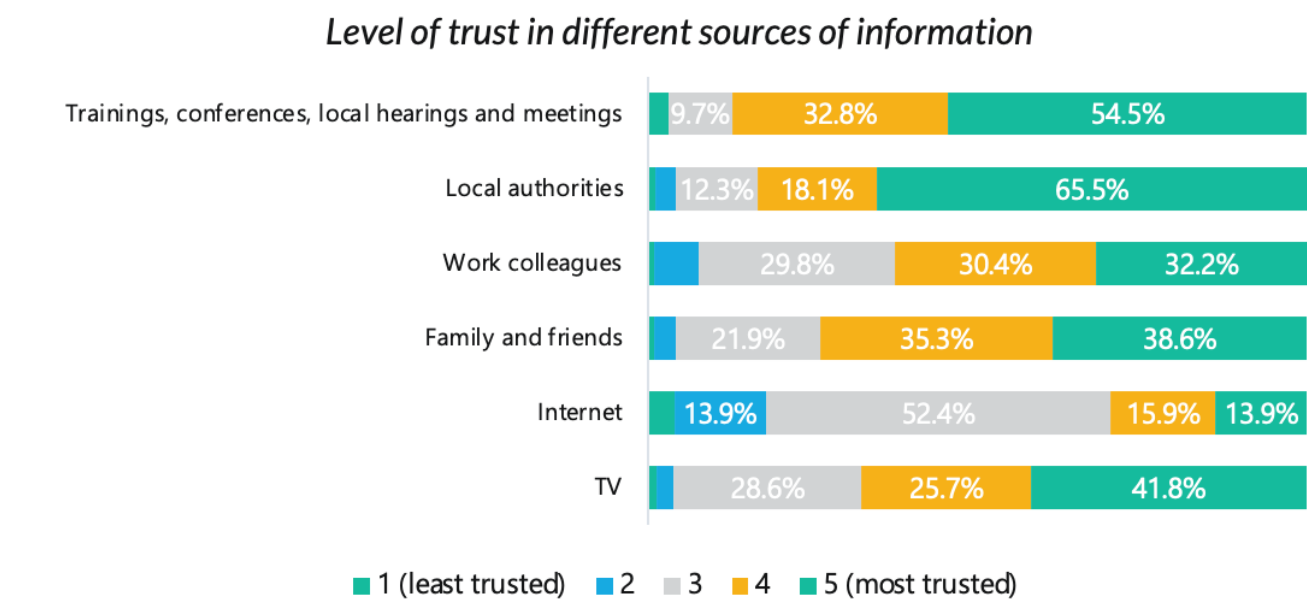
Figure 59: How frequent respondents say they encounter fake news related to climate change (n=2804).
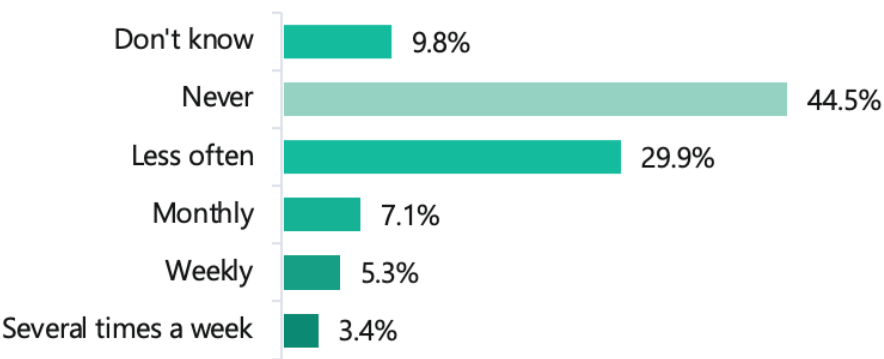
Figure 60: Self-assessment of people who said they had 'never' encountered fake news related to climate change about their knowledge about the topic (n=1246).
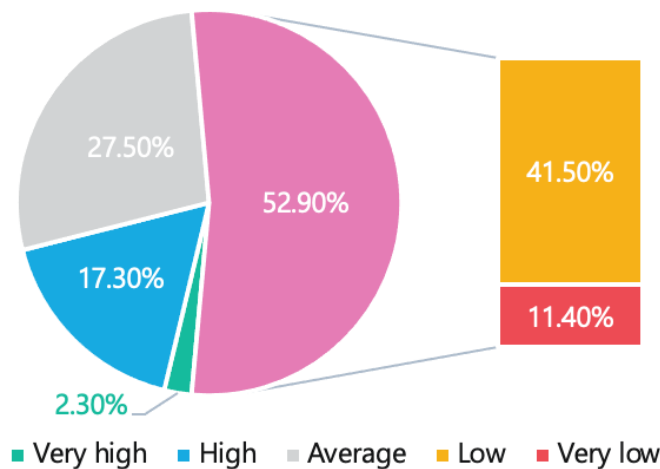
It is notable that respondents confidently answered that they had 'never' encountered fake news related to climate change - despite the fact that they had previously said their knowledge about the topic was low. Out of 44.5% of all respondents who said they had 'never' encountered fake news about climate change, more than half (52.9%) assessed their knowledge about the topic as 'low' or 'very low.' This may be related to the fact that most respondents received information about climate change from TV and it was the most trusted information source. Findings from a recent national poll on fake news showed a different result - more than half (63.0%) of the respondents of the *Public Opinion Poll 2022*[65] said they had frequently encountered fake news in the press and on social media.

10.3 Environment and climate change-related media consumption

Questions were asked to determine whether respondents recalled receiving information related to climate change in the past. It is highly likely that some respondents didn't recognize that the information they consumed was about climate change. Therefore, the terms 'climate change' and 'global warming' were not explicitly referred to in the questions. Instead, the questions included phrases such as 'changes in weather patterns' and 'changes in the occurrence of natural hazards.'

Figure 61: Proportion of people who received information from the media related to changes in weather patterns and occurrences of natural hazards over the past year (n=2804).
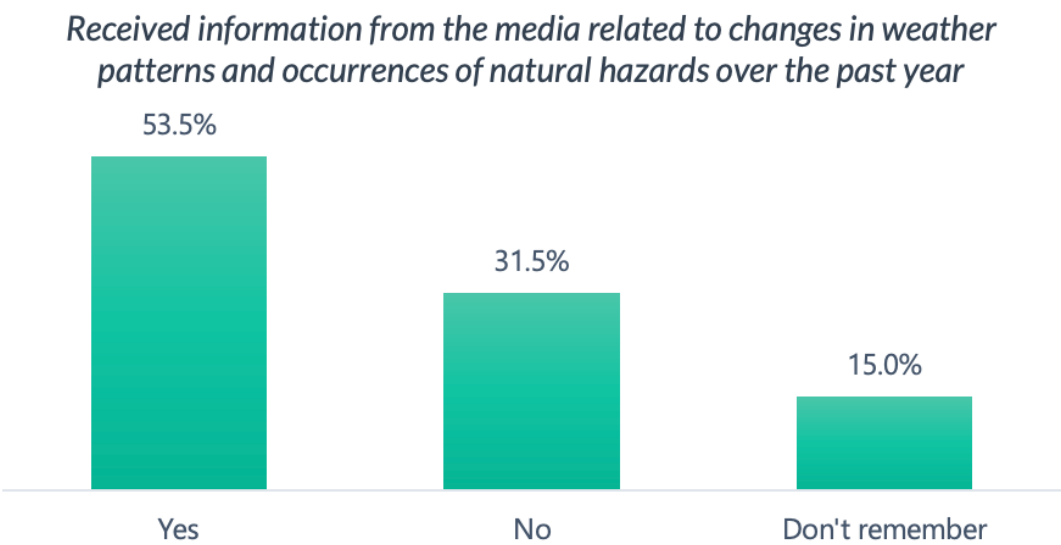
Slightly more than half (53.5%) of respondents had received information from the media about changes in weather patterns, natural hazards and climate change over the past year.

According to the respondents, information related to climate change was somewhat existent in the media. A significant number of respondents said that they received information from TV (66.2%, n=1148) and the internet (29.5%, n=511). In particular, they received climate change-related information from the MNB channel and its news program *Tsagiin Khurd* (48.2%), TV9 channel and its news commentary program *Mongol comment* (12.0%), Malchin TV (7.0%), Facebook (35.4%), Zarig.mn (12.8%), ikon.mn (6.4%) and tsag-agaar.mn (5.2%) - an official weather forecast website of the NAMEM. There was no significant difference between rural and urban populations, age, and gender among the respondents who received climate change information from the media in the past year.

Shagdarsuren Damba, a meteorologist and journalist at Malchin TV, was identified as one of the most credible sources of environment-related information during focus group discussions in both rural and urban areas. A survey participant in Ulaanbaatar said that *"people who are already known in the field for their vast knowledge need to be*

the ones raising awareness. For instance, herders trust and respect Mr. Shagdarsuren a lot because everything he says is very reliable." In addition, weather forecast programs and *Mongol Comment* on TV9 channel were mentioned as primary sources of environment-specific information during FGDs.

Two-fifths (45.3%) of the respondents had not received any information about the term 'climate change' or 'global warming' from the media. Comparatively, 44.1% had received information over the last 12 months - from sources including environmental TV programs, podcasts and official social media pages. There were significant differences based on the residency of the respondents (46.5% of rural, and 40.5% of urban, residents had received information). Although statistically not significant, more men than women had received information (47.0% versus 41.3%) from the media. Comparing the results by overall knowledge, attitude and practice scores, those who received information had higher levels of knowledge and attitudes scores. This suggests that receiving information from the media could be an effective way to improve the population's knowledge about climate change and promote positive attitudes.

65 International Republican Institute and IRIM. (2022) Public Opinion Poll. Available at:
https://www.iri.org/resources/public-opinion-poll-residents-of-mongolia-march-april-2022/

Figure 62: Education level of people who've heard the terms 'climate change' and 'global warming' from the media (n=1237).

Received any information from media that mentioned the terms 'climate change' or 'global warming' in the past 12 months
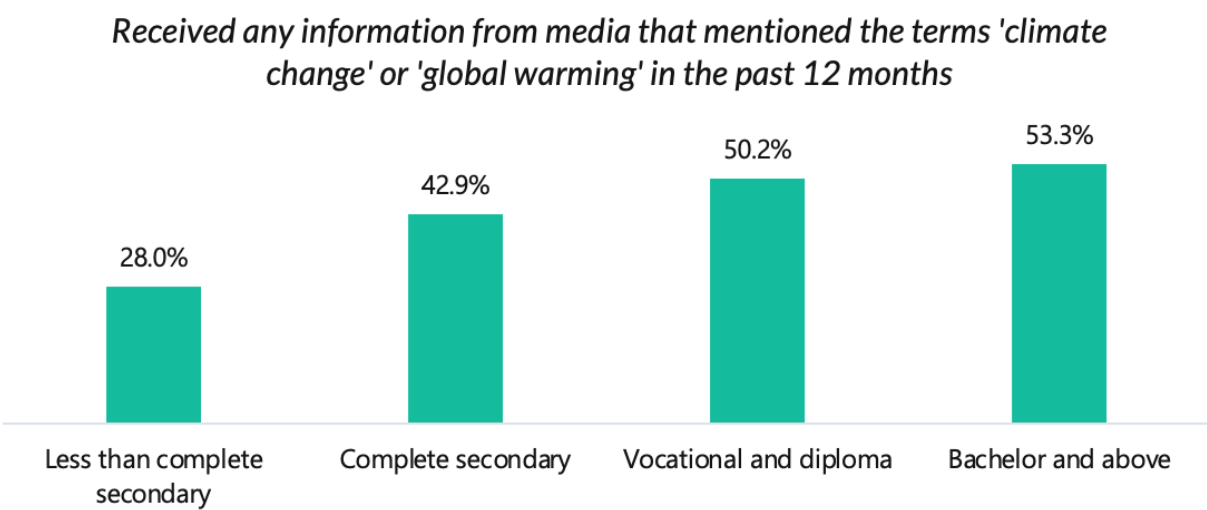
Table 17: Have you received any information from media that mentioned the terms 'climate change' or 'global warming' in the past 12 months?

	Knowledge score		Attitude score		Practice score	
	Received	Not received	Received	Not received	Received	Not received
Mean	0.5591	0.4849	0.7125	0.6617	0.4691	0.5053
Std. Deviation	0.14817	0.19750	0.11725	0.15929	0.17421	0.18530

Previous disaster experiences of the respondents played a significant role in accessing information through the media. Those who had experienced disasters had heard of the terms 'climate change' and 'global warming' from the media (62.6%).

As shown in Figure 62 below, only 28.0% of those with lower levels of education said they had heard the terms 'climate change' and 'global warming' from the media over the past year. This proportion increased with educational level. In total, 42.9% of those who had completed secondary education, 50.2% of those who had completed vocational or diploma-level education, and 53.3% of those who had completed bachelor's, master's or doctorate degrees had received information about climate change or global warming.

Two TV programs reached more respondents than any other media source. These were *Khureelen* – an environmental documentary - and the TV program *Nogoon Shoshgo*. To determine whether respondents received any information from existing environment and climate change- related programs and channels, they were asked to choose the sources which they had received information from in the past. The next two most common sources of information were the official Facebook pages of the Department of Ecological Police and the MET.

Figure 63: Three top environmental sources that reached most audience (n=2804).
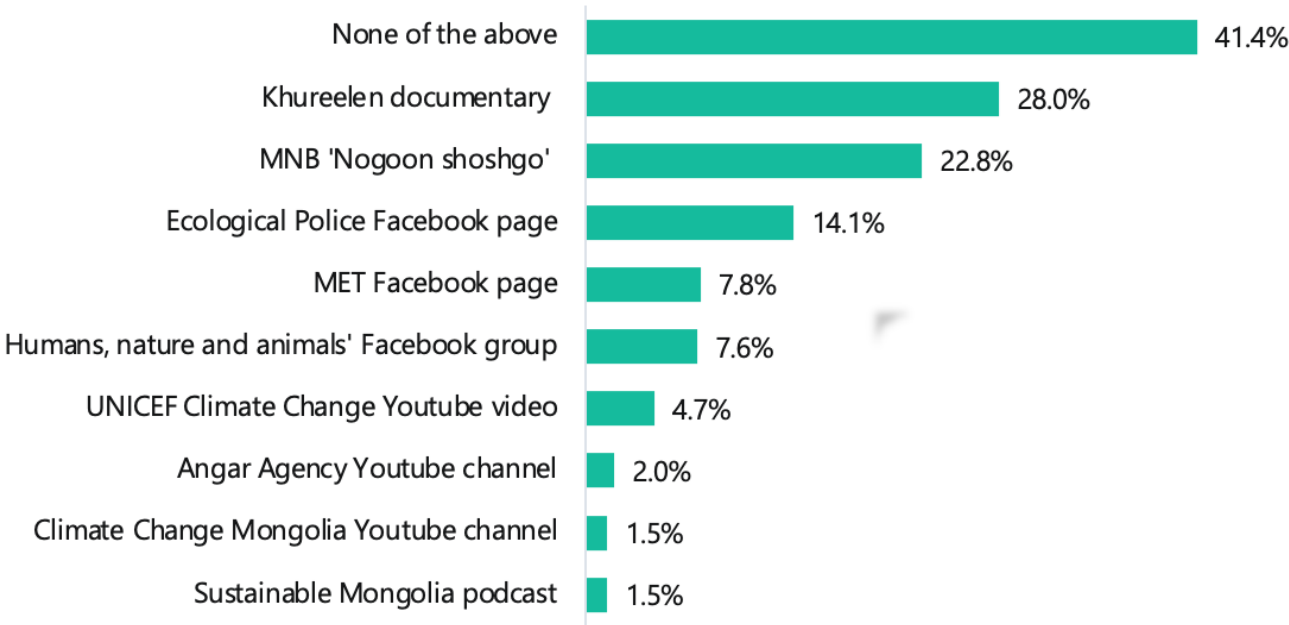
Figure 64: Percentage of people who want to receive information related to climate change in the future (n=2804).
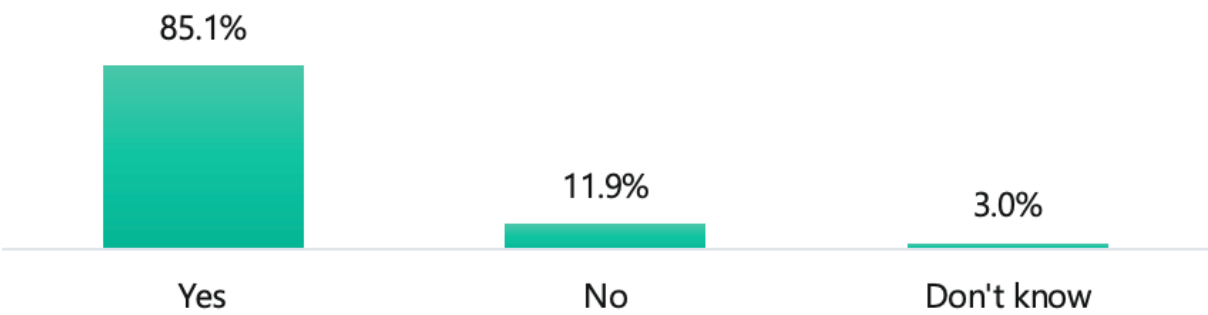
Figure 65: Climate change topics on demand (n=2385).
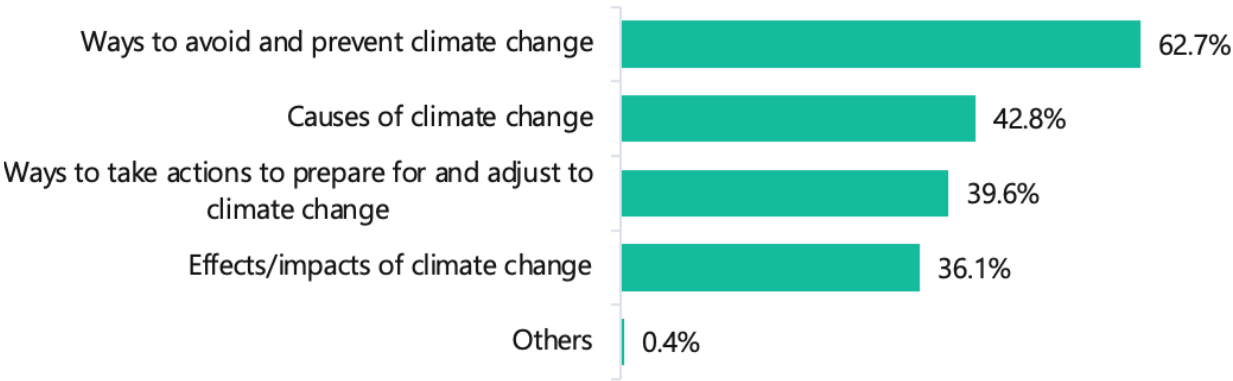
Figure 66: General topics on demand (n=2804).

Figure 67: The difference between people who would like to receive climate change information and people who are aware of the ways to minimize the effects of climate change (n=2804).

85.4%	•Want to receive more information on climate change
53.5%	•Received information on the changes in weather patterns & natural hazards
44.0%	•Heard the terms 'climate change' and 'global warming' from the media
24.0%	•Knowledge about climate change above average
9.9%	•"Aware" of actions to prevent or minimize the effects of climate change

The majority of the respondents (85.1%) said they would like to receive more climate change-related information from the media. The findings of *the Survey* suggest that there is a high demand for more information on climate change. Even those who hadn't been affected by natural disasters over the past year (92.1%) said they would like to receive climate change-related information in the future. Most people who did not want to receive climate change information from the media (11.6%) said they were not interested in the topic (76.7% of those who did not want to receive climate change information).

Of respondents who wanted to receive climate change-related information, most people were interested in receiving more information about climate change causes, mitigation and adaptation. Climate change mitigation was phrased as *"ways to avoid and reduce the effects of climate change"* and adaptation as *"ways to take actions to prepare for, and adjust to, climate change"* in order to make it sound less technical to survey participants. The results show that respondents were interested in information that would give them comprehensive knowledge - rather than reports about current events or the effects of climate change.

Topics related to climate change that are popular among respondents were categorized. Among urban respondents, frequently mentioned topics included ways to save energy, save water, reduce air, and soil pollutants. Frequently mentioned topics among rural respondents included ways to reduce desertification and pasture degradation; prevention of zoonotic and communicable diseases, and preparing for natural disasters.

The Survey participants from the media sector highlighted that the topic of climate change attracts less audience attention than other issues. Therefore, it will be crucial to frame climate change in terms of how it relates to the daily lives of people. A journalist at a daily newspaper said:

> *"In order to make people undertand the effects of climate change on their daily lives, it is crucial to connect it with other aspects of life - rather than framing it as just an environmental issue."* (Journalist, female, Ulaanbaatar)

***The Survey* found a lack of adequate and informative media content and programs about climate change. It is important that reliable and** consistent information is available in order to inform the Mongolian public.** However, there was a high demand for information about climate change. All stakeholders - including the government, media outlets and civil society organizations – considered this to be an opportunity to provide locally relevant, reliable information to the public.
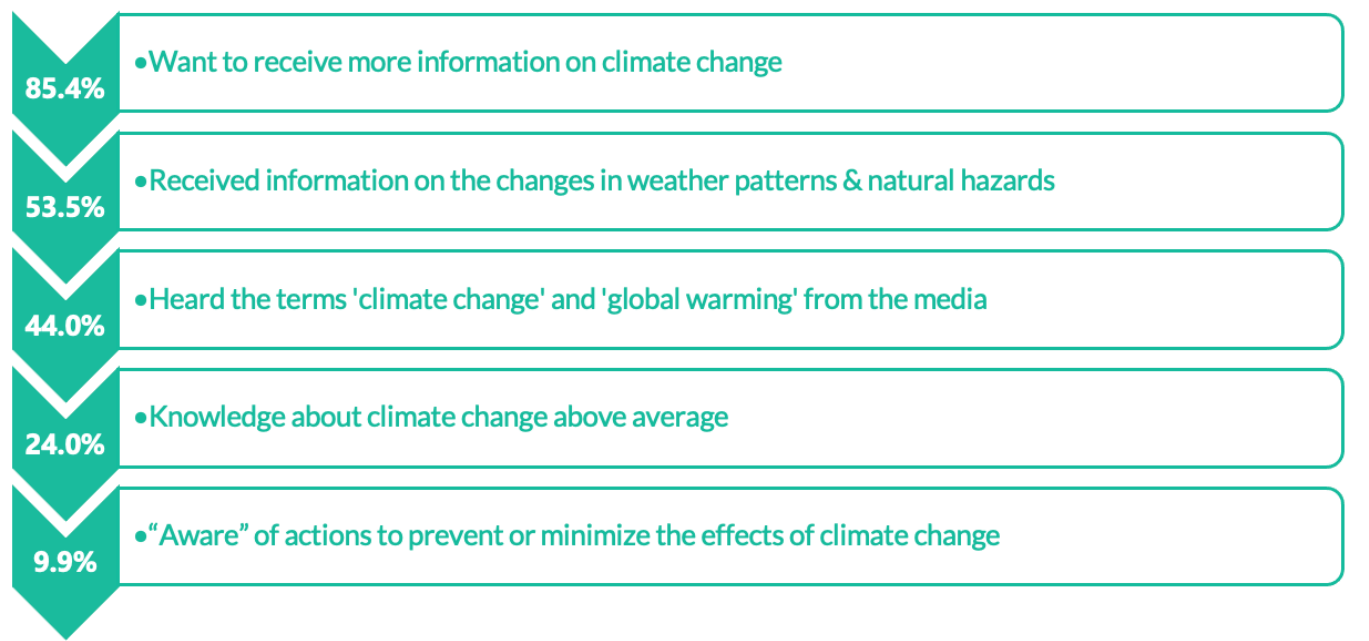
The majority of the Mongolian public (76.0% of all respondents) considered their knowledge about climate change to be 'medium' or 'below average.' They lacked adequate knowledge about the concept and methods to cope with the effects of climate change. This occurred even though almost half of respondents said they had received information related to climate change and had heard the terms 'climate change' and 'global warming' in the media over the last year.

One media sector respondent reported that the environment is not a high-priority topic in the editorial policies of most newsrooms. During a time when newsrooms are becoming less traditional workplaces and have fewer journalists, less popular topics are in danger of being ignored. A male teacher in journalism highlighted:

> *"Unless newsrooms strategically prioritize the topics of environment and climate change in their editorial policy, they will not make*

the headlines. Key stakeholders, including governmental and non-governmental agencies need to advocate and support the editors and newsrooms to prioritize the issue." (Lecturer, male, Ulaanbaatar)

There was a big difference between those who would like to receive information about climate change from the media and those who had received information on the topic over the past year. There was also a notable difference between those who had received climate change information in the past and those who had a good understanding about the issue and the ways to cope with its impacts. Although almost half of all respondents had heard the terms 'climate change' and 'global warming', only small group of people (9.9%) said they were aware of strategies to tackle the consequences of climate change. The percentages shown below represent the proportion of all survey respondents.

Respondents that had heard about climate change mainly heard about it from news reports about current events - such as natural disasters. Those who received this type of information, mainly heard about it from news programs such as *MNB News* (48.2%), *TV9 Mongol Comment* (11.6%), and *Malchin TV* (7.1%).

A journalist and teacher at the Press Institute of Mongolia elaborated on this by saying,

> *"The most of the time, Mongolian media outlets mention the term and talk about climate change when they report and translate foreign news. In almost all of the cases, people have heard the terms from international news reports and it is the western media that discusses natural disasters caused by climate change."*
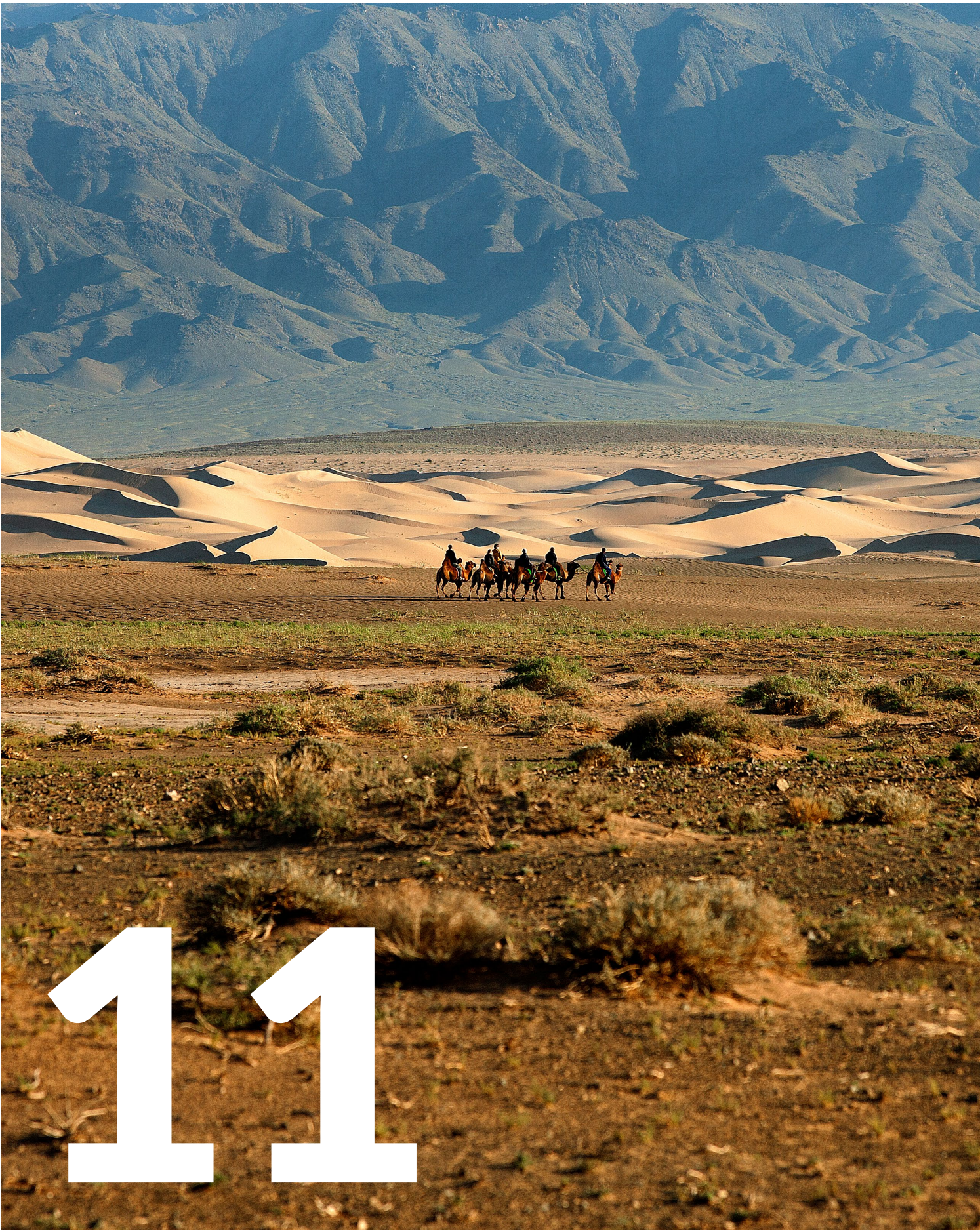
11. STRATEGIES FOR RAISING THE AWARENESS OF POPULATION GROUPS AND KEY STAKEHOLDERS

The research found that most Mongolians had experienced changes in weather patterns in their lifetime - such as an increase of extreme temperatures and weather events. However, the understanding of climate change was limited among the general public and even among key stakeholders - including the representatives from national and local governments, civil society organizations, media and journalism industry.

Many respondents were unaware of the processes driving climate change and the role that increasing GHGs in the atmosphere has in causing climate change. Although many respondents knew that climate change is primarily driven by human activities, they lacked the basic understanding of its causes and effects**. Most rural Mongolians, including herders and farmers, thought the main causes of climate change were common environmental issues – such as mining and livestock overgrazing. Urban populations associated the leading causes of climate change with poor waste management and air pollution in Mongolia and elsewhere.**

This chapter presents the recommended content for raising the awareness of climate change amongst population groups and key stakeholders. It identifies barriers, opportunities, effective outreach channels, key messengers, strategies, and stakeholders that are in a position to raise awareness about climate change and provide the public with reliable and consistent information.

One of the most significant barriers to improving the public's understanding of climate change has been a lack of leadership in communicating information about climate change in Mongolia. Although multiple government and non-governmental agencies could potentially take a leadership role on climate change awareness, they lack the resources to do so. They also have not prioritized information and communication as a response to climate change. There have been efforts to raise awareness on the topic through the media and press in the past. However, these efforts did not reach a broader audience and have not made an impact due to a lack of synergy and coordination.

Capacity-building, raising awareness, information dissemination and coordination of responsibilities are mandated to government organizations. However, due to inconsistency and instability, the activities have been largely ineffective. The multi-stakeholder engagement approach in decision-making, policy development and implementation are currently insufficient and needs to be improved. **Therefore, establishing a mechanism, and promoting leadership in communicating information about climate change, are the most crucial steps for effective awareness-raising in Mongolia.** A pool of financial resources that donors can contribute to (and is specifically dedicated to climate change awareness) could be created. This would help the sustainability of the awareness-raising campaign, support future climate change and communication efforts, and improve coordination between stakeholders working in the field.

Another potential barrier to raising awareness about climate change is the low prioritization of the issue among population groups and key stakeholders - including in the media and press. *The Survey* found that the primary concerns of Mongolians were health problems, air pollution and a lack of jobs and income. Environmental issues were among the least mentioned concerns by the respondents. The environment was one of the least trending topics found in the Mongolian media and among journalists and newsrooms according to participants. A journalist at a daily newspaper mentioned that reporters and journalists were not attracted to covering the topics related to the environment and climate change due to their lack of knowledge about the importance of the issue. There were also fewer opportunities and incentives to focus on these topics compared to other areas such

as politics and the economy. However, the primary concerns of the public and/or trending media topics could be used communicate information about climate change. To do so effectively would require there to be linkages between the primary concerns of the public and/or trending media topics and climate change.

The fact that many respondents thought they had a low understanding of climate change and awareness of the ways to cope with the effects of climate change should be taken as an opportunity for raising awareness. *The Survey* found that there was high demand for reliable and consistent information related to climate change. The majority of the respondents (85.4%) said they would like to receive more information related to the topic from the media. Key stakeholders - including local government officials, civil servants, journalists and others in the media sector - will play a crucial role in improving the public's understanding of climate change and their demand for climate change information. However, those who were in the position to inform and engage the public also had a low understanding of climate change and lacked resources.

Given the limited finances allocated from the state budget, it will be crucial to utilize other available financial resources – such as foreign investments and donor support – that can help with climate change awareness-raising and capacity-building. Communication, information, and awareness-raising initiatives in particular, will be central to Mongolia's response to climate change. The remaining sections of this chapter provide useful insights and strategies for future awareness-raising efforts and are based on the research findings.

11.1 Strategies for the general public

The strategies below are based on the findings from *the Survey* and a desk review. Table 18 lays out the recommended aims, strategies, key messages, effective channels, methods and activities, and key messengers thought to be useful for future awareness-raising initiatives. The content found in the table is described in greater detail later in this section.

Table 18: Strategies for the general public.

	General public	Urban population		Rural population	
		Younger population (Up to 35 y.o)	Older population (Older than 35 y.o)	Younger population (Up to 35 y.o)	Older population (Older than 35 y.o)
Objectives	1.1 Set up a common understanding of climate change among stakeholders				
	1.2 Inform and warn about climate induced natural disasters and its long-term impacts				
	1.3 Improve the knowledge of the practice and skills of climate change adaptation				
	1.4 Mobilize the public to advocate for climate policies through promoting participation				
Strategies	1.1 Framing climate change				
	1.2 Using human-interest stories				
	1.3 Appealing to fear & inspiring action				
	1.4 Applying Social Norms Interventions				
Key messages	1.1 Interconnections of primary concerns and the effects of climate change 1.2 Actions that can be taken by citizens for climate change mitigation and adaptation 1.3 Actions that need to be taken by local and national government	3.1.1 Public health issues, air pollution, lack of infrastructure, quality and access of education 3.2.1 Ways to reduce energy consumption 3.3.1 There are local government funds that can be utilized for responding to climate change; the Mongolian government needs to prioritize the issue	3.1.2 Public health issues, air pollution, infrastructure 3.2.2 Ways to reduce energy consumption 3.3.2 There are local government funds that can be utilized for responding to climate change; Mongolian government needs to prioritize the issue	3.1.3 Public health, unemployment, quality and access of education, pasture degradation, livestock management 3.2.3 Climate-friendly herding and farming practices 3.3.3 There are local government funds that can be utilized for responding to climate change; Mongolian government needs to prioritize the issue	3.1. 4 Public health issues, unemployment, pasture degradation, livestock management 3.2.4 Climate-friendly herding and farming practices 3.3.4 There are local government funds that can be utilized for responding to climate change; Mongolian government needs to prioritize the issue

	General public	Urban population		Rural population	
		Younger population (Up to 35 y.o)	Older population (Older than 35 y.o)	Younger population (Up to 35 y.o)	Older population (Older than 35 y.o)
Effective channels	1.1 TV channels 1.2 Internet and social media 1.3 Mobile phones / SMS and call-ins 1.4 In-person events and activities	4.1.1 Movie Box, Education TV, Mongol TV 4.2.1 Facebook, Instagram, Youtube, Podcasts, ikon.mn 4.3.1 SMS notifications and call-ins 4.4.1 School-based activities	4.1.2 MNB, TV9, Eagle TV, MN25 4.2.2 Facebook, ikon.mn 4.3.2 SMS notifications and call-ins 4.4.2 Community events	4.1.3 MNB, TV9, Malchin TV 4.2.3 Facebook, YouTube, tsag-agaar.mn, zarig.mn 4.3.3 SMS notifications and call-ins 4.4.3 School-based activities	4.1.4 MNB, TV9, Malchin TV 4.2.4 Facebook, tsag-agaar.mn, zarig.mn 4.3.4 SMS notifications and call-ins 4.4.4 Community events
Methods and activities	5.1 Video contents 5.2 Print materials 5.3 Broadcast programs 5.4 Awareness-raising events 5.5 Social media campaigns	Video contents Broadcast programs Awareness-raising events	Video contents Print materials Broadcast programs Awareness-raising events Social media campaigns	Video contents Broadcast programs Awareness-raising events	Video contents Print materials Broadcast programs Awareness-raising events Social media campaigns
Key messengers	1.1 Media and press 1.2 Weathercasters 1.3 Celebrities and opinion leaders 1.4 Experts from NAMEM and NEMA 1.5 Educational institutions 1.6 Local governments 1.7 People affected by climate change	Media and press Celebrities and opinion leaders Experts from NAMEM and NEMA Educational institutions People affected by climate change	Media and press Weathercasters Experts from NAMEM and NEMA Local government People affected by climate change	Media and press Weathercasters Celebrities and opinion leaders Experts from NAMEM and NEMA Educational institutions People affected by climate change	Media and press Weathercasters – Shagdarsuren Damba Experts from NAMEM and NEMA Local government People affected by climate change

Objectives

- Improve the understanding of climate change and how its impacts are connected to people's primary concerns – The first aim of the strategy should be to establish a common understanding of climate change among the general public by providing educational and informative communication to them about the processes of climate change - including its causes and direct and indirect impacts. The Survey found that most people lack general knowledge of the processes and drivers of climate change, even if they are aware of the fact that the climate is changing. Furthermore, the understanding of general terms of climate change are different and sometimes limited among stakeholders - in some cases the terms 'climate change' and 'air pollution' are considered to be the same issue. Therefore, creating a common understanding of climate change for the public and stakeholders is crucial.

- Inform and warn about climate-induced natural disasters – The second aim should be to inform and warn the public about current and future events caused by climate change with up-to-date information for disaster preparedness.

- Improve the public's knowledge about the practice and skills of climate change adaptation – The findings of the research suggest that Mongolians are not currently equipped with adequate knowledge or information about climate change adaptation practices. Improving the public's knowledge on climate change adaptation practices will be essential for Mongolia's response to climate change.

- Mobilize the public to advocate for climate change policies – The final aim of the strategy should be to mobilize the public to advocate for local and national governments to adopt climate change policies and better represent Mongolians' concerns and needs at the international level.

Strategies

- Framing climate change – A framing technique is a highly recommended strategy.

It can improve people's understanding about climate change by linking the effects of climate change with people's primary concerns - such as public health, air pollution and economic issues. Framing, which is a common mass communication technique, suggests that how something is presented to the audience ('the frame') can influence the choices people make about how to process the information they receive.[66] By emphasizing the implications of climate change on people's everyday lives and how it effects their primary concerns (including health, economy, national security and environmental issues), the Mongolian public's perception on climate change will shift.

- Using human-interest stories - Human-interest stories will be an essential tool to attract the attention of the public to the issue and create emotional responses. It is expected to trigger a sense of urgency to address climate change. According to the Oxfam Research Guidelines, human-interest stories aim to highlight a specific development issue from one person's or group of people's perspective.[67] Stories of people, or communities, who have been affected by climate change will also be effective means for sharing climate adaptation practices to a broader audience.

- Appealing to fear & inspiring action – The findings of the research suggest that many Mongolians perceive climate change to be a remote issue that may not affect them personally which is one of the main factors preventing public from responding to climate change. 'Fear appeal', a common strategy employed by climate change communicators to elicit an emotional response, may be an effective strategy for the awareness-raising campaign as focus group discussion participants have suggested. The strategy of 'fear appeal' must be countered with 'efficacy' messaging to prevent people from disengaging with 'fear appeals.'[68] This

66 Mass Communication Theory, Framing Theory - Theory to Practical Application. Available at: https://masscommtheory.com/theory-overviews/framing-the-ory/

67 Oxfam Research Guidelines. (2019) Researching Human Interest Stories. Available at: https://www.academia.edu/6004930/Researching_human_inter-est_stories

68 Victoria University of Wellington. (2022) Climate Catastrophe: The Role

strategy was recommended during multiple focus group discussions conducted as part of the research.

- Applying Social Norms Interventions – Social norm interventions is a social marketing approach based on the underlying principle that our perceptions of our peers' attitudes and behaviors have a great influence on our own attitudes and behaviors. It is a crucial strategy to improve knowledge and change attitudes - potentially influencing behavior on raising awareness of climate change adaptation practices.[69] [70]

Key messages

1.1 Interconnections of primary concerns and the effects of climate change:

- GHGs in the atmosphere have been increasing exponentially due to industrialization in the last few decades and human activities are the main factors driving it. The actions to mitigate and adapt to its impact needs to be taken immediately at all levels - from the government to individuals. Responding to climate change is not the sole responsibility of either the government or individuals - it requires efforts from all groups in the society.

- The main issues facing Mongolians - such as public health concerns and air pollution - are all interconnected with climate change. Climate change is not just an environmental issue, it is a threat to everyone's lives.

1.2 Actions that can be taken by citizens for climate change mitigation and adaptation:

- There are many actions and practices that citizens can adopt to contribute to climate change adaptation and mitigation. For instance: a) Reduce energy consumption by using energy-efficient appliances and

insulating their houses, b) Use public transportation and demand the service extension, c) Support renewable energy and d) Promote and participate in more sustainable land use practices etc. They should be communicated and explained to citizens.

1.3 Actions that need to be taken by local and national government:

- Mongolia is one of the countries most affected by climate change. The Mongolian government needs to prioritize the issue in policy-making and budgeting.

Effective channels

TV channels

The Survey found that TV (73.6%) and the internet (63.7%) were the most common information sources among both rural and urban Mongolians. Therefore, these mediums should be used as the main outreach channels for raising awareness on climate change among the public. The internet, specifically Facebook, will be an effective platform to reach younger and urban audiences. TV will be an essential channel to reach older and rural audiences. However, the fact that respondents had more trust in the information on TV than on the internet needs to be taken into consideration when designing media campaigns. Most people that used Facebook did not remember, or couldn't differentiate between, the sources and channels that they received information from. However, they did remember the TV channels they received information from. This was found in **the Survey** and in other studies.[71]

For these reasons, those communicating information about climate change via the internet and Facebook will need to pay less attention to which channels they are using to disseminate information. On the other hand, when communicating information about climate change via TV, channels and broadcast times will need to be chosen strategically. *MNB*, *Malchin TV* will be effective in reaching the rural population, whereas *Movie Box*, *Education TV* and *Mongol TV* will be effective in reaching the urban population. *TV9* channels could be used for both population groups.

It will be most effective to broadcast content during TV peak times (which is 6pm to 10:30pm in rural areas and 7pm to 11:30pm in Ulaanbaatar).[72]

The internet and social media

Facebook, in particular, will be an effective channel to reach the general public for awareness-raising purposes. For younger people (those under 35) and the urban population, Instagram and YouTube will also be effective platforms. News websites - specifically ikon.mn - were identified as popular information sources among these groups. tsag-agaar.mn and zarig.mn were identified as sources of environmental and weather-related information among younger people and the rural population.

Mobile phones / SMS and call-ins

As access to mobile phones was very high among respondents (and even among vulnerable groups), outreach activities undertaken via mobile phones will be an effective channel to reach the general public and different population groups. These activities could include SMS notifications and call-ins.

In-person events and activities

In-person events and activities could be very effective, but costly, approaches for raising awareness about climate change among the public. They could be large events or small-scale community events.

Methods and activities

Video contents

- Disseminate public service announcements for 'social norms interventions.'

- Disseminate educational content to explain how climate change works using experts in the field.

- Share know-hows and best practices of people, communities and other countries for climate change adaptation through media content and journalism approaches - such as 'Solutions Journalism.'[73]

Print materials

Document traditional practices of environmental conservation and promote them to the broader public and the younger generation.

Prepare and distribute handbooks of adaptation practices.

Distribute policy briefs to make climate change-related decisions and policies easy to follow and accessible to the public.

Broadcast programs

- Disseminate educational content to explain how climate change works using experts in the field.

- Have reporters and weathercasters frame current events from a climate change perspective.

- Provide public spaces (through talk shows, radio call-ins, and public debates) to exchange ideas, information, and best practices for responding to climate change. Foster understanding and plans for action.

Awareness-raising events

- Teach children and students the basics about climate change by engaging with them in an interactive way - through the school curriculum and after school activities.

- Organize mass or community events - such as photo exhibitions of people affected by climate change that have testimonials and community clean-ups.

Social media campaigns

- Implement social media campaigns and public challenges using celebrities and opinion leaders for 'fear appeal' and to create social norms of climate adaptation and mitigation practices.

- Distribute policy briefs to make climate change-related decisions and policies easy to follow and accessible to the public.

- Produce and disseminate infographics and posters that provide informative information on the basics of climate change.

of Fear Appeals in Climate Change Communication. Available at: https://open-access.wgtn.ac.nz/articles/thesis/_Climate_Catastrophe_The_Role_of_Fear_Appeals_in_Climate_Change_Communication/19446845

69 Jessica M. Nolan (2021) Current Opinion in Psychology, Social norm interventions as a tool for pro-climate change. Available at: https://www.sciencedirect.com/science/article/pii/S2352250X21000701

70 National Social Norms Center. (2019) Michigan State University, Social Norms Approach. Available at: https://care.berkeley.edu/wp-content/uploads/2019/07/Overview-of-the-Social-Norms-Approach.pdf

71 Press Institute of Mongolia and IRI. (2020) Media Consumption Behaviour and Education Level of Youth.

72 Press Institute Mongolia. (2015) Media User Study. Available at: https://mongolia.mom-rsf.org/uploads/tx_lfrogmom/documents/5-243_import.pdf

73 Solutions Journalism Network, Solutions Journalism (2020) What is it and why should I care? Available at: https://thewholestory.solutionsjournalism.org/solutions-journalism-what-is-it-and-why-should-i-care-e5acd0ab5332

Other activities

- Provide warnings and notifications on upcoming weather events for disaster preparedness through SMSs, call-ins and social media chat-bots and notifications.

Key messengers

Media and press

Newsrooms and journalists of traditional, and non-traditional, media organizations will play a crucial role in raising awareness and improving the understanding of climate change among the Mongolian population. The most influential and popular journalists and newsrooms will be central to improving the quality and consistency of climate change information.

Weathercasters

The research findings suggest that many people pay attention to, and trust, broadcast weather programs - despite increased access to online weather forecast apps and other platforms. Therefore, providing climate change information and communication through weather forecast programs will be highly effective. This could be done by framing climate change to the audience during weather forecasts.

Celebrities and opinion leaders

Celebrities, public figures, and opinion leaders can be valuable for communicating information that aims to change the public's behavior and attitudes towards climate change. To be effective, the messages they convey should be generated taking into account the public's current understanding of climate change, rather than solely on scientific facts and consensus. Scientific facts shouldn't be communicated through celebrities and influencers as only 1.0% of the respondents said that celebrities and influencers had credible knowledge about climate change. Instead, they could be used to create dialogues and behavioral changes among the public. The role of celebrities in climate change action has proven effective in forming social norms and promoting behavioral change worldwide in various

fields - including health and the environment.[74] [75] As stated in a scholarly article, *"Celebrities offer novel engagements with climate change that move beyond scientific data and facilitate more emotional and visceral connections with climate change in the public's everyday lives. Contemporary celebrities work to shape how audiences and the public ought to feel about climate change in an effort to get them to act or change their behaviors."*[76]

Experts from NAMEM and NEMA

Both urban and rural respondents reported that they trusted information from family, friends and relatives but were less trusting of information from people with different nationalities and religions. NAMEM and the NEMA were identified as the most trusted institutions. The level of trust respondents put in these institutions was higher than in local government and the media and press. The representatives and experts from these institutions could serve as the most credible messengers for disseminating climate change information, facts and coping strategies to the general public. **The Survey** found that the most popular climate change topics Mongolians were interested in were mitigation strategies (the ways to reduce negative impacts of climate change as phrased in **the Survey**) and the causes of climate change. This was followed by adaptation strategies (ways to take actions to prepare for and adjust to climate) and the effects/impacts of climate change. Information and communications from these institutions will prove most effective if they cover these topics. The majority of the respondents (74.6%) said that they believed scientists and meteorologists were the most credible sources of information on climate change.

However, information coming from agencies and individuals mentioned in this section should be illustrated in a way that people with different backgrounds and education levels can understand.

74   William J Brown et. al, (2009) Media Celebrities and Public Health: Responses to 'Magic' Johnson's HIV Disclosure and Its Impact on AIDS Risk and High-Risk Behaviours. Available at: https://www.tandfonline.com/doi/abs/10.1207/s15327027hc0704_4

75   Sejung Park. (2020) How Celebrities' Green Messages on Twitter Influence Public Attitudes and Behavioural Intentions to Mitigate Climate Change. Available at: https://www.mdpi.com/2071-1050/12/19/7948

76   Julie Doyle, Nathan Farrell and Michael K. Goodman, Celebrities and Climate, 2017 https://oxfordre.com/climatescience/display/

The participants of *the Survey* highlighted the importance of a simple language to communicate information about climate change. The communication and outreach departments of these agencies and media and press professionals could bridge the gap between scientists and the general public. Building simple and scientifically valid mental models, possibly using metaphors that would resonate with the public of how climate change works, will be a crucial step for awareness-raising.

Educational institutions

Educational institutions, educators, trainers and teachers will play a crucial role in raising awareness among the public from a young age. The participants of the research emphasised the importance of education to raise public awareness about climate change. Including the topic of climate change in curriculums and improving the knowledge and understanding of teachers on the issue are among the actions that can be stepping stones for improving Mongolians' awareness.

Local governments

Officials and specialists within local governments will be effective communicators for raising awareness about climate change among communities. Local government officials - such as bag, khoroo leaders, social security specialists – frequently serve as focal points and communicate with community members and households. Therefore, they could be key messengers of the awareness-raising campaign.

People affected by climate change

Another group that could serve as credible messengers for communicating information about climate change is people affected by climate change. **A significant number of respondents (9.1%) of *the Survey* believed people affected by climate change would have the most credible information.** They would effectively promote best practices and know-hows of climate change adaptation. They could also advocate and facilitate policies and public debates. The remainder of this section presents some valuable insights and strategies to communicate climate change information to rural and urban populations using these credible messengers.

11.2 Capacity-building strategies for key stakeholders

In this section, we develop a general strategy for improving the knowledge, understanding, and skills of key stakeholders involved in climate change work. It is based on qualitative research findings and other relevant documents.

According to *the Survey* results, it is important to systematically provide the authorities with knowledge and information about climate change and create a shared understanding. A total of 89 stakeholders with power, responsibilities, and capabilities to address climate change adaptation issues were identified at the national level. They have been classified into 14 groups.[77] We included 49 stakeholder representatives in our research and divided them into 4 different groups to develop the strategy. The groups were: decision-makers and government, the private sector, NGOs and professional organizations, and the media.

77 MET, GCF, UNEP, (2021) Strategy map for engaging multi-stakeholders in the national adaptation planning processes.

Table 19: Strategies for stakeholders

	Decision-makers and Government	Private sector	Professional organizations (NGO, research)	Media
Objectives	- Disseminate knowledge and information relevant to climate change for decision-makers. Teach them skills to coordinate and consider climate change issues during policy planning decision-making.	- Promote participation and provide a unified methodology for monitoring, reporting and validating GHGs in the field of climate change.	- Publicize the problem of respiration related to climate change. Provide stakeholders with the necessary information and skills to provide research and academic information on the topic.	- Improve the understanding of well-known and influential journalists, editors and reporters of popular newsrooms. - Improve the quality and consistency of climate change information in traditional and non-traditional Mongolian media to meet audience demands. - Increase the number of newsrooms that prioritize climate change in their editorial policy. - Build the capacity of traditional and non-traditional media to foster more effective public debate on climate change in Mongolia. - Build the capacity of journalists to advocate for effective climate change policies and budgeting and enable them to perform their role as 'watchdogs.'
Key messages	- Provide an understanding of the current situation and long-term effects of climate change in Mongolia. - Develop professional research papers related to climate change which focus on coping and adaptation. - Provide recommendations on how to incorporate climate change issues into policy, planning, and decision-making.	- Identify long-term business advantages and risks. - Explore opportunities for public-private cooperation. - Increase awareness about opportunities related to climate financing. - Provide information on the role and participation of the private sector in climate change mitigation and adaptation. - Identify private sector organizations that have created leadership and good examples and to publicize the system, laws, and regulations that encourage them. Publicize good case studies.	- Increase public awareness of professional organizations' participation and role in coping with and adapting to climate change. - Improve the understanding of current and long-term effects of climate change.	- The topic of climate change is related to all sectors and not only the environment sector. Therefore, it will be one of the trending topics. - There is a high demand for climate change-related information from the public - especially about climate change mitigation and adaptation. - There will be more funding and professional career opportunities for journalists and newsrooms covering climate change as it has become one of the top priorities

	Decision-makers and Government	Private sector	Professional organizations (NGO, research)	Media
Effective channels	- Formal training and seminars. - Government organization meetings and conferences. - Discussions and meetings involving relevant stakeholders.	- Meetings to initiate collaboration, conferences for information exchange, and presentations. - Public discussions and meetings. - Social media (television, social media platforms).	- Awareness-raising interventions such as science-based publications, textbooks and brochures.	- Journalists' clubs. - Associations of media and press agencies. - Journalism schools. - Social media pages and groups of journalists. - Newsletters, emails and telephone directories.
Key messengers	- Trainers and academics specializing in climate change. - Sector's experts and researchers. - Government administrative units and officials responsible for climate change.	- Representatives of government agencies responsible for climate change. - Relevant units and officials of the Chamber of Commerce and Industry. - Representation of private organizations. - Mongolian Banking Association.	- Representative of the central government organization responsible for climate change. - Famous scientists and researchers in the field.	- Newsroom editors. - Environmental journalists that are already covering the issue. - Climate change experts. - Development partners and NGOs/civil society organizations.
Strategies	- Integrated multi-stakeholder engagement strategy/plan. - Coordination of the overall awareness-raising and capacity-building efforts in key areas of climate change.	- Incentives and communication methods to enable private-sector participation.	- Constant and stable cooperation, exchange information and provide information to the public. - Integrate strategies for information dissemination to groups and stakeholders.	- Strategy to target the most influential individual journalists, editors and reporters from the most popular newsrooms for capacity-building. - Incentives to motivate and reinforce journalists.
Method activities/ action	- Organize training of trainers/coaches. - Organize training in a series. - Tailor capacity-building approaches in key/ vulnerable areas.	- Make private sector organizations aware of the possibilities of cooperation. - Organize meetings and discussions. - Produce promotional and incentivized programs and content.	- Identify, categorize and discuss potential professional organizations for collaboration. - Organize meetings and discussions. - Produce promotional and incentivized programs and content.	- Establish an annual Climate Reporting Fellowship program among journalists and media professionals. - Offer grant opportunities among journalists and newsrooms for climate reporting. - Organize climate reporting contests among all journalists and newsrooms. - Create an online platform with links to all climate change-related articles and content produced by journalists and newsrooms. - Organize frequent information-sharing sessions among all journalists.

Decision-makers and the government

It was evident from the results of the qualitative research that decision-makers and other government organizations *"do not consider the issue of climate change a priority issue."* Scientists believe that the speed and impact of climate change is increasing year by year and Mongolia remains one of the most affected countries. Mongolia is focusing on policy planning based on economic development rather than paying attention to issues such as reducing the impact of climate change, protecting the environment and society.

Therefore, it is necessary to provide decision-makers and government organizations with the knowledge and information about the following issues so they can improve their skills in these areas: How the current situation of climate change in Mongolia, its future trends and impacts will affect economic development and social development in the long term; how to consider climate change issues in policy planning and decision-making; and how to coordinate inter-sectoral coordination. It is also necessary to support decision-makers and government officials in making reasonable, evidence and science-based decisions using research and statistics.

According to the results of the qualitative research, the following issues arose in policy decisions and planning mitigation and adaptation activities:

- Decision-makers and the government require more knowledge and understanding of climate change and need to develop closer coordination with industries.

- Climate change is not considered to be a priority issue and is not being prioritised.

- There is a tendency to consider climate change as only a problem for the central state administrative organization responsible for environmental issues to tackle.

- While decision-makers and the government understand that the participation and contribution of the primary sector is important, they do not know how to contribute to it.

- Unless climate change issues are clearly reflected in the governor's agenda and local medium and long-term strategic planning, it will not be possible to take action on the issue.

- Due to the political party election system, positions often change and the role of civil servants can be unstable. This negatively impacts on any efforts to tackle climate change. Policies can frequently change making efforts to address climate change difficult to implement in the long run.

- There is no climate change officer at the sectoral level - it is a shared responsibility. Tasks related to climate change are performed as additional tasks and are not included in the main job functions.

- Most people agree that Mongolia is one of the countries most affected by climate change. However, the majority believe that Mongolia's contribution to climate change is small and its emissions of GHGs are negligible.

Therefore, it is important to consider these issues and address them step by step when delivering messages to stakeholders.

To convey key messages more effectively to government officials, the following activities can be considered:

- Training of trainers: training individuals so they can impart knowledge and information to stakeholders of climate change. It was mentioned earlier that there was no official in charge of the climate change area so they often worked adjunctly. It will be also be more effective if this is undertaken in cooperation with professional associations and NGOs.

- Organizing training for government institutes and decision-makers at different levels: Undertaking training and seminars will be a key way to provide knowledge and information to government organizations and decision-makers. However, in addition to doing so, it will be necessary to organize trainings for different branches and levels and ensure trainings are coordinated. Trainings will be more effective if organized in a series and system rather than only holding 1-2 training sessions.

Private sector

This strategy is aimed at medium and large enterprises in the transport, construction, energy, agriculture, waste and forestry sectors. The main

messages to be delivered to the private sector are: that there are opportunities for cooperation between the government and the private sector; the private sector has a role in mitigating and adapting to climate change; and there are risks and opportunities caused by climate change. In addition, encouraging private sector organizations that have created leadership to publicize laws, regulations and good examples to the public will be beneficial.

It will also be important to educate the GHG-intense private sector about the importance of engaging in climate change mitigation and adaptation. This is as inadequate responses could negatively impact their operations.

It will be more effective to deliver key message to private sector organizations through the following activities:

Identify and classify potential private sector organizations for cooperation: Identify medium and large-scale private sector organizations operating in key sectors (energy, agriculture, transport, construction, forestry, etc.). Identify opportunities for cooperation and potential business risks. Provide private sector organizations with knowledge and understanding about the possibilities for cooperation and discuss them.

Organize meetings and discussions.

Identify and promote the work of private sector organizations leading on climate change and prepare content that encourages them to act: Promote mechanisms (particularly rules and regulations) that encourages the introduction of energy-efficient and low-power consumption equipment. In cooperation with banking and financial institutions, research and discuss ways to increase green loan requirements and criteria, interest rates, and other sources of financing.

NGOs and professional associations

In addition to government organizations and the private sector, NGOs and professional associations also have an important role in mitigating and adapting to climate change. The main message to these organizations is: NGOs, professional associations, and government offices need to identify and prioritize cooperation and communication in collecting information and conducting necessary research and assessments. By doing so, they would

be able to manage their resources more effectively to address climate change challenges while developing their own unique capacity and position in the climate dialogue.

It would be helpful for the government to work with NGOs and professional associations to make decisions based on evidence and scientific research. For example, calculating pasture usage should be undertaken by the Union of Mongolian Pasture Users and the calculation of carbon dioxide absorption by the Mongolian Forest Research Society. It is also important to openly share statistical data from government organizations with NGOs and professional associations and use the data to inform decision-making.

To effectively deliver key message to NGOs and professional associations, the following activities should be undertaken:

- Identify and classify potential private sector organizations for cooperation: Identify medium and large private sector organizations operating in key sectors (energy, agriculture, transport, construction, forestry, etc.) and discuss cooperation opportunities.

- Organize meetings and discussions.

- Organize research, analysis and influencial activities in cooperation with NGOs and professional associations: The results of research, analysis, and consulting services should be regularly shared with decision-makers.

Media and journalists

To effectively deliver key messages to the media and journalists, the following methods (which focus on incentives and motivation) should be used:

- Establish an annual Climate Reporting Fellowship program among journalists and media professionals.

- Offer grant opportunities among all journalists and newsrooms for climate reporting.

- Organize climate reporting contests among all journalists and newsrooms with cash prizes or alternative prizes - such as laptops, cameras and other equipment which would support their professional capacity.

- Create an online platform with links to all climate change-related articles and content produced by journalists and newsrooms. This will make reliable climate change information and resources accessible to the public. The platform could also contain relevant data and resources useful for journalists.

- Create incentives and awards for journalists to cover global climate summits and conferences - such as COP.

- Organize frequent information sharing sessions among all journalists on local and international opportunities and grants for climate reporting.

Annexes

Annex 1. Glossary

Term	Definition
Adaptation	Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.[78]
Adaptive capacity	The IPCC has defined adaptive capacity as the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences – a concept that relates in many respects to resilience.
Anthropogenic greenhouse emissions	Greenhouse-gas emissions resulting from human activities.
Attitude	Attitude refers to inclinations to react in a certain way to certain situations; to see and interpret events according to certain predispositions; or to organize opinions into coherent and interrelated structures.[79]
Awareness (climate change)	Knowing that something exists, or understanding of a situation or subject at the present time based on information or experience.[80]
Carbon sequistration	The process of removing carbon from the atmosphere and depositing it in a reservoir.[81]
Climate change	Climate change refers to long-term shifts in temperatures and weather patterns.[82]
Climate change mainstreaming	Adaptation to climate change will be directly brought in when sustainable development planning is undertaken, and in the development of sector policies.[83]
Communication (of climate change)	'Communication' refers to the exchange of information related to climate change between people and social groups through various mediums including interpersonal communication and mass communication.

78 UNFCC, Glossary of climate change acronyms and terms. Available at:
https://unfccc.int/process-and-meetings/the-convention/glossary-of-climate-change-acronyms-and-terms

79 Ibrahim G. Badran. (1995) Knowledge, attitude and practice the three pillars of excellence and wisdom: a place in the medical profession. Available at: https://apps.who.int/iris/bitstream/handle/10665/116905/emhj_1995_1_1_8_16.pdf?sequence=1&isAllowed=y

80 Robert Trevethan. (2017) Deconstructing and Assessing Knowledge and Awareness in Public Health Research. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5545880/

81 ibid

82 United Nations. (2022) What Is Climate Change? Available at https://www.un.org/en/climatechange/what-is-climate-change#:~:text=Climate%20change%20refers%20to%20long,like%20coal%2C%20oil%20and%20gas

83 Erwin Hofman. (2015) Mainstreaming Climate Change Adaptation in the EU

Term	Definition
Coping strategies	A coping strategy refers to behavioral and cognitive tactics used to manage crises, conditions, and demands that are appraised as distressing.
Greenhouse gases (GHG)	Gases that trap heat in the atmosphere are called greenhouse gases.[84] This atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N20). Less prevalent, but very powerful, greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).[85]
Knowledge (on climate change)	Knowledge is a set of understandings, knowledge and of 'science.' It is also one's capacity for imagining, one's way of perceiving.[86] Knowledge about climate change has been approached from varying perspectives, mainly including general knowledge of climate change, knowledge of causes and/or effects of climate change, and knowledge of impacts of climate change.[87]
Media consumption	Media consumption is the audiences' behaviour of consuming information shared on mass media platforms such as TV, newspaper, radio and internet.
Mitigation	In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other 'sinks' to remove greater amounts of carbon dioxide from the atmosphere.[88]
National communication	A document submitted in accordance with the Convention (and the Protocol) by which a Party informs other Parties of activities undertaken to address climate change. Most developed countries have now submitted their fifth national communications; most developing countries have completed their first national communication and are in the process of preparing their second.[89]
Nationally Determined Contribution	According to Article 4 paragraph 2 of the Paris Agreement, each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.[90]
Practice	Practices or behaviors are the observable actions of an individual in response to a stimulus.[91]
Resilience	The ability of individuals, households, communities and nations to withstand and recover from climate shocks and their capacity to adapt to long-term stresses and uncertainty.

Term	Definition
Vulnerability (to climate change)	The degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.[92]
Vulnerable groups	Groups and communities that are particularly vulnerable and disproportionately affected by the impacts of climate change.[93]

84 US EPA, Overview of Greenhouse Gases. Available at: https://www.epa.gov/ghgemissions/overview-greenhouse-gases

85 UNFCCC, Glossary of climate change acronyms and terms

86 Médecins du Monde (2021) The Kap Survey model - Knowledge attitude and practices. Available at: https://www.im-portal.org/help-library/the-kap-survey-model-knowledge-attitude-and-practices

87 Gazzaz & Aldeseet, (2021) Assessment of the Level of Knowledge of Climate Change of Undergraduate Science and Agriculture Student. Available at: https://files.eric.ed.gov/fulltext/EJ1322610.pdf

88 UNFCCC, Glossary of climate change acronyms and terms

89 ibid

90 ibid

91 Médecins du Monde (2021) The Kap Survey model - Knowledge attitude and practices. Available at: https://www.im-portal.org/help-library/the-kap-survey-model-knowledge-attitude-and-practices

92 ibid

93 UN. (2018) Framework Convention on Climate Change

Annex 2. Sampling and weighting note

Sampling scope and strategy

In accordance with the ToR and technical proposal, IRIM conducted a nationally representative survey using a multi-stage stratified cluster sampling. Stratification of the total sample into relatively homogenous strata tends to improve the precision of the Survey results by reducing intra-strata variance and the associated sampling error. It is the most practical and cost-efficient way. The strata samples will be drawn independently from one another.

sample. 20 households per cluster allowed cost/time efficiency and quality/effectiveness of the sampling design. The cluster size is representative of the population.

Sample size

There were five stratums – regions. The following formula was used to calculate the sample size for each stratum.[94]

Here,

_____

94 Richard L. Scheaffer, William Mendenhall III et.al., (2006). Elementary Survey Sampling, Sixth Edition; and United Nations New York., (2005). Household Sample Surveys in Developing and Transition Countries

Table 20: Sampling phase.

	Stage-1	Stage-2	Stage-3	Stage-4	Stage-5
Sampling unit	Aimag/district	Soum/khoroo	Bagh/kheseg	Household	Respondent
Sampling frame	21 aimags and 9 districts: Official statistics of NSO.	Selected soums/khoroo from the sampled aimags and districts.	Selected baghs/khesegs from the sampled soums and khoroos.	Selected households in the sampled baghs and khesegs.	Persons aged 18 and over in the selected households.
Sampling methodology	Simple random sampling selecting aimags/districts in each stratum.	Simple random sampling selecting soums/ khoroos within the sampled aimags/ districts.	Simple random sampling selecting baghs/ khesegs within the sampled soums/khoroos.	A sampling cluster randomly draws households from each of the sampled baghs/khesegs.	Quota sampling and Kish Grid method.

The primary sampling unit (PSU) was aimag/district, which had been randomly selected with each stratum. After that, soums and khoroos were selected using the same sampling methodology. This methodology was used when selecting baghs and khoroos (stage 1-3). In the fourth sampling stage, 20 households were randomly selected from each of the sampled baghs/khesegs using systematic sampling to optimize intra-cluster variance of the

= n number of persons selected from stratum h

N   = total number of the population (or 'population')
     = total number of persons in stratum h
     = h population variance of the stratum
e   = margin of error
z   = critical value of level of significance
deff = design effect
rr   = adjustment of response and coverage rate

In order to determine the optimal sample size, we

needed the number of persons aged 18 and over in Mongolia. Unfortunately, the age brackets the NSO used started from 15-19. Therefore, using the number of persons aged 15 and over, the research team calculated the optimal sample size – a bigger target population (15 and over instead of 18 and over) which led to a larger sample size. The optimal sample size calculated from the number of persons aged 15 and over can therefore be nationally representative of persons aged 18 and over.

The optimal sample size of a nationally representative survey of persons aged 18 and over is 2,800, in which we assumed that the response rate was 90.0%.

Sample allocation

Practically, the proportional allocation method was used because the stratum's size was considerably different. We used this method, too.

Using these weights, the number of persons aged 18 and over sampled from each stratum is shown below.

Table 21: Sampling frame.

Persons aged 18 and over	
Nh	In 2021, the number of persons who were aged 15 and over was 2,227,674. It was as follows by stratum: Western region: 276,735, Khangai region: 415,216, Central region: 352,828, Eastern region: 154,558, and Ulaanbaatar: 1,028,337.
n^h/n	h (the ratio of the households in the stratum to the total number of households): Western region: 0.12, Khangai region: 0.19, Central region: 0.16, Eastern region: 0.07, Ulaanbaatar: 0.46.
Z	The significance level was 95.0%, and the critical value of the z distribution was 1.96.
$s_h{}^2$	Calculating for each stratum was impossible. Therefore, we replaced it with , in which was, we assume, 0.5.
e	0.028
$deff$	It was not possible to estimate the impact of the model and it is assumed that the level used in the Mongolian practice (or NSO household-based sample survey) was 2.0.
rr	The response rate was ≥80.0%. For the nationally representative survey, the response rate was allowed to be 90.0%. Therefore, for this survey, the rr was 1.1.
n	2,800

Source: Team's calculation

Table 22: Target population and the number of clusters.

Region	PSUs	Target population (thous)		Clusters	
		Urban	Rural	Urban	Rural
Central	4	104,935	154,371	10	12
Khangai	4	142,783	163,639	11	15
Western	3	58,894	117,926	6	11
Eastern	2	46,769	63,796	4	6
Ulaanbaatar	7	1,028,337	0	65	-
Total	20	1,381,718	499,732	96	44

Source: NSO and team's calculation

Sampling weights

Since the sampling design used a non-proportional allocation of the sample, it was necessary to apply sampling weights in the analysis of *the Survey* results to ensure the representativeness of the sample through the number of persons aged 18 and over, and by gender, and age.

Post-stratification weight was based on the joint distribution of stratification variables and post-stratification variables. When calculating the post-stratification weight, the following formula was used. Using this

Here, was the stratification.

After that, the research team defined the final weight using the inverse probability weight.

This weight was used to propogate this sample to the target group. It meant that after multiplying by the final weight, the number of observation numbers was around 1.3 million - the target population. Therefore, the standard procedure was to normalize the weight to the sample using the mean. After normalizing, the sample size was 2,804. This sample statistically represented the target population through gender and age.

Estimates of sampling errors

The two types of data errors affected the sample surveys: (1) sampling errors and (2) non-sampling errors. Sampling errors relate to the fact that selected households were one of many possible samples that could have been selected from the sampling frame. Each of these would have produced results that were somewhat different from one another and likely to be somewhat different from the total population. Non-sampling errors refer to a wide variety of other data errors that arose during the course of all survey activities, including questionnaire development, data collection and data processing. Whereas estimates of sampling errors could be quantified by calculating standard errors, non-sampling errors were difficult to evaluate statistically.

The following measures were provided:

- The standard error, as an estimate of the precision.

- The 95.0% confidence interval, giving the range of values within which 95.0% of possible sample results was expected to fall.

- The relative error, as an estimation of the importance of the standard error.

These measures indicate the statistical reliability of *the Survey*, for key indicators next to the point estimate.

Respondent selection criteria

The respondents must have satisfied the following criteria.

- Registered as a household member for the last six months.

- 18 years old or over.

- Capable of providing information of household income and other detailed questions.

In order to maintain the balance between male and female respondents, if the first respondent was male, then the next respondent was female.

Table 23: Sampling plan, by a sampling unit (Sample size – 2,800).

Region	Stage			Sample size
	I	II	III	
Central region	Darkhan	Darkhan	I, VII, XIII, XVII	80
		Khongor	III	20
	Selenge	Sukhbaatar	III, VII	40
		Mandal	II, VIII	40
		Shaamar	I, III	40
	Tuv	Zuunmod	II, VI	40
		Bayankhangai	I, II	40
		Zaamar	I, III	40
	Umnugovi	Dalanzadgad	I, V	40
		Mandal-Ovoo	I, II	40
		Nomgon	I	20
Khangai region	Bayankhongor	Bayankhongor	II, IV	40
		Bayan-Undur	II, IV	40
		Galuut	IV, V	40
	Orkhon	Bayan-Undur	I, IX, XIII, XIV, XXI	100
		Jargalant	I, IV	40
	Uvurkhangai	Arvaikheer	III, XII	40
		Bayan-Undur	II, III	40
		Khujirt	I, II	40
	Khuvsgul	Murun	II, X	40
		Alag-Erdene	III, IV	40
		Galt	III, IV	40
		Tsagaannuur	I	20

Region	Stage			Sample size
	I	II	III	
Western	Bayan-Ulgii	Ulgii	VIII, XI	40
		Buyant	III, IV	40
		Nogoonnuur	VI, VIII	40
	Uvs	Ulaangom	III, XI	40
		Baruunturuun	I, II	40
		Turgen	III	20
	Zavkhan	Uliastai	I, II	40
		Aldarkhaan	II, V	40
		Yaruu	II, III	40

Eastern region	Dornod	Kherlen	VII, VIII	40
		Bayan-Uul	III, VI	40
		Khalkh gol	I, V	20
	Khentii	Kherlen	I, V	40
		Binder	III, VI	40
		Umnudelger	V, VII	20
Ulaanbaatar	Bayangol	Khoroos	-	160
	Bayanzurkh	Khoroos	-	200
	Nalaikh	Khoroos	-	40
	Songinokhairkhan	Khoroos	-	320
	Sukhbaatar	Khoroos	-	200
	Khan-Uul	Khoroos	-	180
	Chingeltei	Khoroos	-	200

Annex 3. Description of survey respondents[95]

Table 24: The number of respondents, by region, urban/rural, and sex.

Regions	Urban/Rural		Sex		Obs. Number
	Urban	Rural	Female	Male	
Western	121	224	162	183	345
Khangai	212	331	289	254	543
Central	187	262	243	207	449
Eastern	35	178	116	97	213
Ulaanbaatar	1253	0	645	608	1253
Total	1808	995	1455	1349	2803

Table 25: The number of respondents, by aimag, sex, and broad age range.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Zavkhan	53	64	10	26	65	15	116
Bayan-Ulgii	63	70	29	33	61	10	133
Uvs	47	49	2	23	54	16	95
Orkhon	84	44	11	23	65	29	128
Uvunkhangai	56	69	19	29	59	18	125
Bayankhongor	56	64	5	31	68	18	122
Khuvsgul	93	78	61	44	55	11	171
Tuv	64	68	30	29	59	14	132
Selenge	76	46	13	24	73	10	120
Darkhan-Uul	54	36	16	20	39	14	89
Umnugovi	49	57	23	26	44	14	107
Dornod	61	39	16	28	43	11	98
Khentii	55	58	31	29	41	14	115
Ulaanbaatar	645	608	285	315	529	124	1253
Total	1456	1350	551	680	1255	318	2804

95 Due to rounding, numbers presented throughout this section may not add up precisely to the total number of respondents (n=2804).

Table 26: The number of respondents, by sex, age interval, and region.

Sex	Age interval	Regions					Obs. Number
		Western	Khangai	Central	Eastern	Ulaanbaatar	
Female	18-19	8	20	25	6	71	130
	20-24	12	25	17	18	68	140
	25-29	10	33	25	10	72	150
	30-34	27	34	26	18	83	188
	35-39	27	36	25	6	73	167
	40-44	16	23	29	10	66	144
	45-49	14	24	27	12	55	132
	50-54	12	23	21	8	49	113
	55-59	13	23	16	10	37	99
	60-64	8	16	13	8	32	77
	65-69	5	10	7	6	18	46
	70+	11	21	11	3	20	66
Male	18-19	5	28	17	10	76	136
	20-24	17	21	23	13	69	143
	25-29	23	23	26	14	68	154
	30-34	22	38	22	15	91	188
	35-39	23	18	27	10	85	163
	40-44	25	27	22	8	55	137
	45-49	22	28	18	5	47	120
	50-54	22	20	14	4	38	98
	55-59	8	22	18	10	25	83
	60-64	9	13	7	3	25	57
	65-69	3	8	7	2	13	33
	70+	4	8	7	3	17	39
Total		346	542	450	212	1253	2803

Table 27: The number of respondents, by education level and region.

	Western	Khangai	Central	Eastern	Ulaanbaatar	Total
Non-educated	9	5	0	2	3	19
Primary	22	38	15	5	15	95
Lower secondary	62	95	70	43	70	340
Complete secondary	146	263	208	79	617	1313
Technical	13	23	25	12	40	113
Vocational	14	10	18	2	36	80
Diploma (non-bachelor's degree)	10	15	10	3	24	62
Undergraduate (bachelor's degree)	64	88	92	63	390	697
Postgraduate (master's degree)	6	7	11	2	53	79
Doctorate and above	0	0	0	2	4	6
Total	346	545	449	213	1253	2804

Table 28: The number of respondents, by education level, sex, and broad age group.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Non-educated	13	7	0	4	12	4	20
Primary	52	43	0	11	46	37	95
Lower secondary	161	179	38	45	183	75	340
Complete secondary	645	668	394	240	585	94	1313
Technical	62	51	8	12	56	36	113
Vocational	45	35	8	17	41	13	80
Diploma (non-bachelor's degree)	45	17	11	11	25	14	62
Undergraduate (bachelor's degree)	393	304	91	312	259	34	697
Postgraduate (master's degree)	38	41	0	28	42	8	79
Doctorate and above	1	5	0	1	6	0	6
Total	1455	1350	550	681	1255	315	2805

Table 29: The number of respondents, by marital status and region.

	Western	Khangai	Central	Eastern	Ulaanbaatar	Total
Never married	40	94	95	36	352	617
Married: certified	242	324	229	114	557	1466
Married: not certified	15	47	79	42	199	382
Cohabitant	4	19	0	4	24	51
Separated	6	5	2	1	8	22
Divorced	2	10	11	7	52	82
Widowed	36	44	34	9	62	185
Total	345	543	450	213	1254	2805

Table 30: The number of respondents, by marital status, sex, and broad age group.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Never married	276	341	438	125	53	1	617
Married: certified	747	719	36	370	877	183	1466
Married: not certified	193	189	62	156	155	9	382
Cohabitant	23	28	11	12	26	2	51
Separated	13	8	2	6	11	3	22
Divorced	50	32	0	10	62	10	82
Widowed	152	32	1	2	71	109	183
Total	1454	1349	550	681	1255	317	2803

Table 31: The number of respondents, by employment status and region.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Employed	764	974	246	519	913	61	1739
Of which: Self-employed	271	436	84	180	398	46	708
Unemployed	65	74	32	36	71	0	139
Non-labor force participant	625	301	272	127	271	256	926
Total	1454	1349	550	682	1255	317	2804

Table 33: The number of respondents, by sex and broad age group.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Employed	764	974	246	519	913	61	1739
Of which: Self-employed	271	436	84	180	398	46	708
Unemployed	65	74	32	36	71	0	139
Non-labor force participant	625	301	272	127	271	256	926
Total	1454	1349	550	682	1255	317	2804

Table 34: The number of respondents, by economic activity and region.

	Western	Khangai	Central	Eastern	Ulaanbaatar	Total
Livestock	105	155	95	51	12	418
Crops/farming	14	9	9	1	5	38
Forestry, fisheries and hunting	0	0	1	3	2	6
Mining	3	9	12	2	47	73
Manufacturing	5	7	5	0	44	61
Electricity	4	5	4	2	16	31
Water supply	1	5	4	3	14	27
Construction	9	24	9	2	115	159
Trade	11	35	23	10	118	197
Transportation	6	7	19	4	27	63
Accommodation, hospitality	11	15	8	3	42	79
Information and communication	0	2	1	2	22	27
Finance	2	3	5	3	29	42
Real state	0	0	0	0	2	2
Professional service	4	3	7	2	18	34
Administrative activities	2	20	31	7	57	117
Public administration and defense	10	31	18	15	48	122
Education	25	28	31	10	51	145
Health and social security	13	12	10	2	44	81
Entertainment	1	0	4	17	16	38
International organizations	0	0	2	0	2	4
Activities of households	3	1	1	4	13	22
Other	0	1	0	0	1	2
Total	229	372	299	143	745	1788

Table 35: The number of respondents, by economic activity, sex, and broad age group.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Livestock	182	236	72	90	219	38	419
Crops /farming	14	24	4	5	28	1	38
Forestry, fisheries and hunting	1	5	2	1	3	0	6
Mining	5	67	8	24	41	0	73
Manufacturing	30	31	6	17	36	2	61
Electricity	5	26	4	11	16	1	32
Water supply	9	18	2	5	20	0	27
Construction	23	137	15	55	87	2	159
Trade	100	97	26	66	101	5	198
Transportation	12	51	5	21	35	2	63
Accommodation, hospitality	44	35	23	21	33	1	78
Information and communication	10	16	5	12	9	1	27
Finance	24	17	6	19	17	0	42
Real state	0	2	0	0	2	0	2
Professional service	13	20	8	10	14	1	33
Administrative activities	88	29	6	26	83	2	117
Public administration and defense	49	73	15	49	55	2	121
Education	97	48	26	40	76	2	144
Health and social security	53	27	3	33	42	1	79
Entertainment	13	25	8	14	16	1	39
International organizations	3	0	2	0	2	0	4
Activities of households	9	13	2	6	13	1	22
Other	0	3	0	1	1	0	2
Total	784	1000	248	526	949	63	1786

Table 36: The number of respondents, by economic activity and region.

	Region					Total
	Western	Khangai	Central	Eastern	Ulaanbaatar	
Wages and salaries (cash and in-kind)	271	368	382	162	512	1695
Income from sale (livestock products)	134	199	129	66	34	562
Income from sale (agricultural products)	22	5	16	2	5	50
Income from other household business	18	72	61	17	195	363
State pension	73	130	121	63	238	625
Benefits	275	396	302	143	887	2003
Foodstuff, consumed from private farm of enterprise	2	30	21	53	17	123
Received from others free of charge	2	1	3	7	87	100
Other income source	3	4	3	5	40	55
Total	800	1205	1038	518	2015	5576

Table 37: The number of respondents, by economic activity, sex, and broad age group.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Wages and salaries (cash and in-kind)	854	839	366	500	778	49	1693
Income from sale (livestock products)	266	295	111	126	274	51	562
Income from sale (agricultural products)	25	24	1	10	34	4	49
Income from other household business	161	202	63	99	181	20	363
State pension	354	270	64	74	210	276	624
Benefits	1074	929	342	577	933	151	2003
Foodstuff, consumed from private farm of enterprise	63	56	28	20	58	13	119
Received from others free of charge	60	40	28	18	49	5	100
Other income source	29	25	16	12	22	4	54
Total	2886	2680	1019	1436	2539	573	5567

Table 38: The number of respondents, by dwelling and region.

	Western	Khangai	Central	Eastern	Ulaanbaatar	Total
Ger	191	303	184	67	228	973
Apartment	1	20	48	29	637	735
Detached house	151	213	204	112	356	1036
Separate apartment	2	2	7	0	23	34
Dormitory	0	0	0	0	5	5
Public dwelling for employees	0	1	0	0	3	4
Other public dwelling	0	4	7	4	1	16
Non-living quarters	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	345	543	450	212	1253	2803

Table 39: The number of respondents, by dwelling, sex, and broad age group.

	Sex		Broad age group				Obs. Number
	Female	Male	18-24	25-34	35-59	>60	
Ger	509	464	175	224	458	116	973
Apartment	375	360	217	191	249	78	735
Detached house	545	492	148	249	522	117	1036
Separate apartment	14	20	2	8	20	5	35
Dormitory	1	4	5	0	0	0	5
Public dwelling for employees	2	1	1	1	2	0	4
Other public dwelling	8	7	3	8	4	1	16
Non-living quarters	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	1454	1348	551	681	1255	317	2804

Annex 4. Technical note on indicators

Residency

- Rural/urban.

- Ecological zones.

Broad age groups

- The age group '18-24 years old' was selected as a separate category as they are classified as 'youth' group according to the UN definition.

- '25-34 years old' was a separate category as they are defined as 'young' people according to the UN definition.

- '35-59 years old' reflected the population who are active in the labour force.

- 'Above 60 years old' – reflected older persons and the official retirement age in Mongolia.

Vulnerability index

The table below describes characteristics that render individuals more vulnerable to climate change and summarizes the variables included in constructing the vulnerability index. The groups that had zero scores for vulnerability, or those who scored below the median, were deliberately labelled 'less vulnerable' rather than 'non-vulnerable.' This was as other factors that were not fully captured in *the Survey* may have made a household or individuals vulnerable to the effects of climate change.

Table 40: The overall vulnerability index.

Characteristic	Description
Ethnic minority (=1)	If the respondent is either Kazakh or Tsaatan
Lower levels of education (=1)	Respondents with lower levels of education (no education, primary or lower secondary education) as classified as vulnerable. *Education can contribute to vulnerability reduction and enhance adaptive capacity. Formal education is considered as a primary way individuals acquire knowledge, skills, and competencies that can influence their adaptive capacity.[117] Education is an important factor for economic and social resilience through social networks skills, and jobs.[118]*
Older person (=1)	If male and female respondents were older than 60 and 55 years, respectively. *Older people tend to be more sensitive to the health effects from climate impacts like floods because of their higher physical susceptibility relative to others in the population.*
A large proportion of household members are children (=1	If the child dependency ratio was higher than 50.0%. *Children's physical and psychological health is harmed by weather-related disasters, cancer associated with various air pollution, and respiratory diseases. They are unable to make decisions and take preventive actions themselves. The absolute number of children could not be used, as this would place too much weight on this variable. Therefore, if the child dependency ratio was larger than one (more children under 15 were present than persons 15 – 64 years old) then one extra burden was added to the overall vulnerability index.*
Disability status (=1)	If the respondent had a 'a lot of difficulty' or 'could not do' one or more of the four questions on functioning, as proposed by the Washington Group. If he/she was disabled, then he/she was considered vulnerable. However, we did not consider the degree of vulnerability. *People with low personal mobility or living in areas with lower accessibility of services tend to be less able to respond to, and recover from, the effects of climate change. This is because it may take them longer to help themselves or to seek and receive help from others. People with existing physical or mental health problems are less able to take action due to physical constraints and a lower awareness of their circumstances.* If the respondent had a 'a lot of difficulty' or 'cannot do at all' one or more of the four questions on functioning, as proposed by the Washington Group. If he/she is disabled, then he/she is vulnerable. However, we do not consider a degree of vulnerability.

Chronic illness (=1)	If the respondent indicated he/she was chronically ill. *Some chronic medical conditions can increase an individual's risk of illness and death when facing climate change-related impacts, particularly exposure to heat, extreme weather events, water-related illnesses, and poor air quality.*
Lower levels of householdincome (=1	The number of sources of income and the self-assessment of the sufficiency of a household income were used for this variable. If a household had a single source of income and the respondent assessed the household as having insufficient income. *Income and wealth are important determinants of how people are likely to be affected by climate impacts. Individuals in poor households have the fewest resources to be resilient and cope with climate change, face higher exposure to the consequences over human development. In Mongolia, people on low incomes face shortage of employment opportunities and lack access to basic services[96] and there is an absence of a major, poverty targeted program and no effective safety net to protect the poor and vulnerable groups.[97]* Combination of two questions – number of sources of income and self-assessment of sufficiency of household income were used for this variable. If household has single source of income and the respondent assesses as having insufficient income.
Employment that depends on climate change or resulting in less adaptive capacity (=1)	Individuals in vulnerable employment and with livelihoods susceptible to climate change. If the respondent was unemployed, a herder, a farmer, or an informal worker. Herders and small-scale farmers are vulnerable to harsh natural conditions and risks due to their lack of regular income, remoteness from urban settlements, and exposure to frequent natural disasters. Informal workers lack social security and adaptive capacity in the face of climate change. If the respondent is non-employed, a herder, a farmer, or an informal worker.
Single-headed household (=1)	If the male/female was a single income earner in the household or if he/she was a single parent. *As explained in a working paper by UN Women, a higher percentage of the poor are living in female-headed households. According to the paper, "women's and those living in female-headed households' socio-environmental vulnerability is compounded by restricted and lacking access to land tenure and infrastructure, ecosystem health, access to insurance, equity of social and emergency services. This in turn impacts the ability of women and their family members to (1) pursue mitigation and adaptation responses to disaster-risks, (2) buffer disaster losses, (3) recover from shocks of disasters and climate change stressors, and (4) migrate to safer territories."[98]* Male single-headed households are also considered as being vulnerable.
Internal migration (=1)	Short length of residency in an area. *Migrants are likely to live in more vulnerable locations within cities with less access to service. Also, because they have lived in an area for a short time may be unaware of past natural hazards and the potential for future hazards. Also, migrants have in common the shared belief that migration can minimize any risk and vulnerability and increase their household's income which is not the case.* *A migrant household is defined as a household that moved to a province/city other than that of his/her usual residence for a period of at least 12 months, so that the province or city of destination effectively becomes his or her new province or city of usual residence.[99]*
Low social cohesion (=1)	Lower levels of trust and cooperation identified through the Module on Social cohesion in the questionnaire. *People who are socially isolated may not receive the help they need in the event of natural disasters as they lack the necessary support networks and could be excluded from accessing services.*

Urban ger area (=1)	If the respondent lives in ger districts in urban areas. *Key feature of the unplanned settlement in urban ger areas has been the migration of communities into hazard prone areas, notably exposed to flash flood. Air pollution and lack of access to basic services increase health risks of residents in urban areas.*
Disaster/hazard history (=1)	If the respondent lives in an area where the disaster/hazard has occurred in the last 12 months.

The research team then calculated the total score of each respondent and defined the sample average.

KAP index

This section consists of three independent indices – knowledge, attitude and practice index. The KAP index is a simple average of these indices. The indices were calculated using the questions outlined below. The following subsections present their calculation steps in detail. The indices are not aimed at defining a respondent's KAP level. The most important purpose of constructing the indices was to explore whether demographic factors played a role and the relationship that was between the indices.

Knowledge index

This index was calculated as a simple average using the following 10 questions.

#	Variable names	Questions	Answer options				
1	D4_1	Heard of terms-Climate change	Yes*	No			
2	D4_2	Heard of terms-Global warming	Yes*	No			
3	D4_3	Heard of terms-Ozone hole problem	Yes*	No			
4	D4_4	Heard of terms-Greenhouse effect and greenhouse gas emissions	Yes*	No			
5	D5.	In your opinion, how much do you know about climate change?	Never heard	Have a vague idea*	Neither aware or not aware*	Aware*	Fully aware*
6	D1.	Do you think human activities are the main causes of these problems in Mongolia and elsewhere?	Yes*	No	Don't know		
7	D6_1	Misconception-Changes in overall average temperature of the planet is not associated with climate change	Yes	No*	Don't know		
8	D6_2	Misconception-Climate change is not happening	Yes	No*	Don't know		
9	D6_3	Misconception-Changes in overall average temperature of the planet is not associated with climate change	Yes	No*	Don't know		
10	D6_4	Misconception-A few degrees warmer cannot affects us	Yes	No*	Don't know		

*Correct answers

The most knowledgeable respondent could obtain 10 points by choosing the correct answers. As mentioned earlier, the research team did not divide respondents into different groups based on their score.

96 Singh, Gayatri, (2017) **Urban Poverty in Ula**anbaatar: Understanding the Dimensions and Addressing the Challenges. Available at: https://thedocs.worldbank.org/en/doc/459481506972842865-0070022017/original/UrbanPovertyinUlaanbaatarFinal20170810.pdf

97 MET, (2017) Analysis of Social Inclusion and Gender Dynamic for REDD+ in Mongolia.

98 Available at: https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/66/EGM/Expert%20Papers/Erika%20RAMOS_CSW66%20Expert%20Paper.pdf

99 International Organization for Migration, Mongolia and IRIM (2019): Research study on Assessing the Effectiveness of Migration Restrictions in Ulaanbaatar City and Migrants' Vulnerability. Available at: https://publications.iom.int/books/research-study-assessing-effectiveness-migration-restrictions-ulaanbaatar-city-and-migrants?fbclid=I-wAR1ut09yHRqjkEWwKB9jrda7PmA_b0r9QRN9iOvGglG7g8tWQwPt9P6zppk

Attitude index

This index was calculated as a simple average using the following 15 questions.

#	Variable names	Questions	Answer options				
1	C14.	In your opinion, will these kinds of extreme events' frequency increase, decrease or stay the same in the future?	Increase*	Decrease	Stay the same	Don't know	
2	E1.	Do you believe the climate change is occurring globally?	Yes*	No	Don't know		
3	E2.	Do you believe the climate change is occurring in Mongolia?	Yes*	No	Don't know		
4	E3.	How concerned are you about climate change?	Not concerned at all	Not concerned	Neutral*	Concerned*	Very concerned*
5	E5.	In your opinion, how would climate change affect the way you live?	It may negatively affect my life*	It may positively affect my life	It will not affect my life		
6	E6.	In your opinion, will this effect be felt in the short run or long run?	In the short run*	In the long run*	I don't know		
7	D7.	To what extent do you need further knowledge and skills concerning the climate change?	To a large extent*	To a moderate extent*	To a small extent*	Don't need at all	Don't know
8	F4_1	Which of the following lifestyle changes you can make to help with the climate crisis? Make your home more energy efficient	Yes*	No			
9	F4_2	Which of the following lifestyle changes you can make to help with the climate crisis? Walk or cycle to work/other places.	Yes*	No			
10	F4_3	Which of the following lifestyle changes you can make to help with the climate crisis? Reduce the use of single-use plastic.	Yes*	No			
11	F4_4	Which of the following lifestyle changes you can make to help with the climate crisis? Get rid of personal motor vehicles if you can.	Yes*	No			
12	F4_5	Which of the following lifestyle changes you can make to help with the climate crisis? Buy energy efficient devices and home appliances.	Yes*	No			
13	F4_6	Which of the following lifestyle changes you can make to help with the climate crisis? Increase recycling (including food, glass, cardboard/paper etc.).	Yes*	No			
14	H32.	Would you like to receive more information about climate change from the media?	Yes *	No	Don't know		
15	G1.	In your opinion, is climate change the issue that our country needs to take urgent action on?	Yes *	No	Don't know		

*Correct answers

The highest possible total score on attitude was 15, and the index was a simple average. As mentioned before, the research team did not divide respondents into different groups based on their score.

Practice index

This index was calculated as a simple average using the following 9 questions.

#	Variable names	Questions	Answer options *Correct answers		
1	C10	In the last few years, have you taken any preventive action to protect yourself from natural disasters including flood, desertification, drought, storm, sand storm and fire?	Yes*	No	
2	F3_1	Which of the following represents your practices?: Leave my electronic devices/ appliances plugged when not in use.	Yes	No*	
3	F3_2	Which of the following represents your practices?: Use single-use plastic products such as straws, forks, and spoons.	Yes*	No	
4	F3_3	Which of the following represents your practices?: Use a private vehicle and encourage the use of the car for others.	Yes*	No	
5	F3_4	Which of the following represents your practices?: Use solar energy (solar panels).	Yes	No*	
6	F3_5	Which of the following represents your practices?: Turn off tap while cleaning your teeth and washing your face.	Yes*	No	
7	F3_6	Which of the following represents your practices?: Use reusable products including grocery bags, water bottles.	Yes*	No	
8	H5	Do you recall receiving information related to changes in weather patterns and climate change from media since Tsagaan Sar? (February this year)	Yes*	No	Don't remember
9	H31	Have you received any information from media that mentioned the terms 'climate change' or 'global warming' in the past 12 months?	Yes*	No	Don't remember

*Correct answers

The highest possible score was 9, and the index was a simple average. The aim of this index was primarily to examine the relationships between knowledge, attitudes, and practices.

Annex 5. Principal component analysis (PCA) and OLS estimation results

The following table presents the principal components constructed using the 15 variables. Eigenvalues were the standard way we determined how many components would be used for further analysis. If an eigenvalue was greater than 1, that principal component was statistically essential to account for the total variation. As shown below, the first five components had a higher eigenvalue than 1. The column presents what fraction of the total variation was explained by those components. According to the table, the first 5 components accounted for 62.1% of the total variation. This implies that these 5 components can represent the 15 variables.

Table 41: Principal components.

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1		0.844213	0.1824	0.1824
Comp2		0.549014	0.1262	0.3086
Comp3		0.114277	0.0896	0.3982
Comp4		0.119363	0.0819	0.4801
Comp5		0.104034	0.074	0.5541
Comp6		0.0980944	0.0671	0.6212
Comp7		0.028427	0.0605	0.6817
Comp8		0.0489461	0.0586	0.7403
Comp9		0.128257	0.0554	0.7956
Comp10		0.0474015	0.0468	0.8424
Comp11		0.109115	0.0436	0.8861
Comp12		0.0253024	0.0364	0.9224
Comp13		0.178118	0.0347	0.9571
Comp14		0.0411142	0.0228	0.9799
Comp15		.	0.0201	1

Source: the research team's calculation from the Survey

Table 42: The correlation principal components and variables.

Variable	Comp1	Comp2	Comp3	Comp4	Comp5
Sex	-0.003	-0.1842	0.0426	0.1614	0.6913
Age	0.1764	0.358	-0.0973	0.3498	-0.1251
Education	-0.3396	-0.2433	-0.0337	0.309	-0.2762
Employment	0.0892	0.394	0.1313	-0.2982	-0.3799
Savings	0.1609	0.3215	-0.2217	0.1627	0.2941
Income Q	-0.1538	0.3212	0.0748	-0.4505	-0.0744
Migration	0.1816	-0.0108	-0.4951	0.0659	-0.0661
Hazard experience	0.0559	-0.0976	0.5154	0.1881	0.0442
Environment changes	0.0011	-0.1749	0.4029	0.4261	-0.2023
Herders	0.379	-0.1851	0.1311	-0.1915	0.2196
Disabled	0.1063	0.1702	0.1023	0.3049	0.0323
Vulnerable	0.32	0.3117	0.4358	-0.2166	0.0753
Region	-0.4489	0.2361	0.119	-0.0683	0.1862
Ecological zone	0.3838	-0.2278	-0.0113	0.1672	-0.2314
Urban	-0.3922	0.3296	0.1028	0.0854	0.0588

Note: the total number of variables is 15, while the number of principal components is 5. On average, each component is correlated with three variables. Then, we select the first three-four variables on each component using their absolute value.

Source: the research team's calculation

Table 43: OLS estimation results.

	Knowledge		Attitude		Practice	
	coef	std.dev	coef	std.dev	coef	std.dev
Knowledge	-	-	0.2003***	0.0183	-0.0380	0.0254
Attitude	-	-	-	-	0.0034	0.0196
Sex (male)	0.0034	0.0075	-0.0194***	0.0059	-0.0001	0.0067
Age	0.0032**	0.0016	0.0010	0.0012	-0.0035***	0.0013
Age_squared	0.0000	0.0000	0.0000	0.0000	0.00005***	0.0000
Married	0.0030	0.0091	0.0047	0.0070	0.0004	0.0080
Education levels:						
Completed Secondary	0.0351***	0.0135	0.0138	0.0093	0.0042	0.0095
Technical vacation	0.0338**	0.0160	0.0199*	0.0112	0.0082	0.0128
University	0.0581***	0.0145	0.0267**	0.0106	0.0042	0.0114
Employment status:						
Self-employed	-0.0048	0.0104	-0.0073	0.0079	-0.0371***	0.0092
Unemployed	0.0007	0.0176	-0.0341**	0.0158	0.0088	0.0189
Non-labor force	0.0050	0.0103	-0.0040	0.0077	0.0135	0.0091
Income quintiles						
2	0.027*	0.0148	-0.0017	0.0108	0.0075	0.0139
3	0.0411***	0.0141	0.0005	0.0105	-0.0180	0.0136
4	0.0319*	0.0164	-0.0088	0.0128	-0.0195	0.0160
Richest	0.0314	0.0261	-0.0481	0.0202	-0.0108	0.0240
Migrated	0.0167	0.0089	0.0099	0.0068	-0.022***	0.0083
Previous hazard (b3)	0.0169	0.0147	0.0169*	0.0097	0.0210	0.0120
Environmental changes (c1)	0.0518***	0.0072	0.0496***	0.0056	0.0333***	0.0069
Dwelling: Ger	0.0102	0.0108	0.0071	0.0076	0.0060	0.0085
Herder	-0.0150	0.0185	-0.0014	0.0136	-0.0405	0.0150
Disabled	-0.0076	0.0216	0.0176	0.0167	0.0420	0.0186
More vulnerable	-0.0047	0.0103	-0.0083	0.0080	0.0072	0.0091
Regions:						
Khangai	0.0475***	0.0174	0.0096	0.0114	-0.0073	0.0137

	Knowledge		Attitude		Practice	
Central	0.0221	0.0163	0.0261**	0.0106	-0.0044	0.0127
Eastern	0.0399**	0.0201	-0.0223	0.0156	-0.034**	0.0165
Ulaanbaatar	0.0627***	0.0197	0.0396***	0.0137	-0.0051	0.0163
Ecological zones						
Mountain taig belt	0.0227	0.0236	-0.0240	0.0205	-0.0262	0.0198
Steppe zone	-0.0252*	0.0134	0.0247**	0.0106	-0.0156	0.0112
Desert zone	-0.0405	0.0287	0.0220	0.0240	-0.0281	0.0238
High mountain belt	-0.0247	0.0214	0.0189	0.0147	-0.062***	0.0175
Urban	0.0084	0.0118	-0.0033	0.0087	0.0184*	0.0100
_cons	0.2568***	0.0513	0.5383***	0.0356	0.597***	0.0424
Obs. Number	2804		2804		2804	

Note: * implies that an estimated coefficient is significant at a statistical level of 10.0%. ** and *** imply that the coefficient is significant at a statistical level of 5.0% and 1.0%, respectively.

Source: the research team's calculation

Table 44: The comparisons of the mean score over subgroups, by each component.

Knowledge	
Age	
18-24	0.50
25-34	0.51
35-59	0.53
>60	0.54
Education	
< Lower secondary	0.48
Complete secondary	0.52
Technical	0.53
University	0.55
Income quantile	
Poorest	0.51
Q2	0.53
Richest	0.51
Environmental changes	
Yes	0.55
No	0.50
Don't know	0.49

Attitude	
Regions	
Western	0.68
Khangai	0.7

Central	0.72
Eastern	0.67
Ulaanbaatar	0.72
Previous natural hazards	
Yes	0.74
No	0.71
Don't know	0.72
Environmental changes	
Yes	0.74
No	0.68
Don't know	0.68

Practice	
Age	
18-24	0.49
25-34	0.48
35-59	0.48
>60	0.53
Urban/rural	
Urban	0.5
Rural	0.46
Environmental changes	
Yes	0.5
No	0.47
Don't know	0.47

Annex 6. Questionnaire

MODULE A - DEMOGRAPHIC INFORMATION			FILTER/ SKIP
A1	Relationship to head of household What is your relationship to the head of household? Do not read out loud and select those mentioned.	01. Head of household 02. Spouse (wife/husband) 03. Daughter/son (adopted/stepchild) 04. Daughter-in-law/son-in-law 05. Grandchild 06. Sister/brother 07. Sister-in-law/brother-in-law 08. Mother/father 09. Grandparent 10. Other	
A2	Head of Household Is the head of the household a single mother/father or person?	01. Yes 02. No	
A3	Household size How many members including the head of the household are there in this household?	☐☐ Members	
A4	Members' age How many members including the head of the household are there in this household?	01. Aged 0-5 years old 02. Aged 6-14 years old 03. Aged 15-34 years old 04. Aged 35-64 years old 05. Above 65	Total number should be equal to A3
A5	Gender What is the respondent's gender?	01. Female 02. Male 03. Other	
A6	Respondent age How old are you? (in completed years)	Age ☐☐	

A7	Ethnic group What is your ethnic group? Do not read out loud and select those mentioned.	01. Khalkh 02. Kazakh 03. Durvud 04. Bayad 05. Buriat 06. Zakhchin 07. Dariganga 08. Uriankhai 09. Tsaatan 10. Other	
A8	Marital status What is your marital status?	01. Never married 02. Married: certified 03. Married: not certified 04. With a partner 05. Separated 06. Divorced 07. Widowed	
A9	Education What is the level of education you have completed?	01. None – illiterate 02. None – literate 03. Primary 04. Lower secondary 05. Complete secondary 06. Technical 07. Vocational 08. Diploma (non-bachelor's degree) 09. Undergraduate (bachelor's) 10. Postgraduate (master's) 11. Doctorate and above	

A10	Employment status Under which category does the main job you had during the last week fall into?	01. Paid worker 02. Employer 03. Self-employed: Animal husbandry/livestock raising 04. Self-employed: Farming/crop farming 05. Self-employed (other) 06. Domestic worker 07. Seasonal worker 08. Retired 09. Student 10. Unable to find work (lack of skills, couldn't find work,) 11. Unable to work (sick, disabilities, caring for others,) 12. Other	Go to A 12 Go to A 16
A11	Other employment status Specify other		

A12	Economic sector In which sector do you work? Do not read out loud and select those mentioned.	01. Livestock 02. Crops/farming 03. Forestry, fisheries, and hunting 04. Mining 05. Manufacturing 06. Electricity 07. Water supply 08. Construction 09. Trade 10. Transportation 11. Accommodation, hospitality 12. Information and communication 13. Finance 14. Real state 15. Professional service 16. Administrative activities 17. Public administration and defense 18. Education 19. Health and social security 20. Entertainment 21. International organizations 22. Household activities that hire employees or for own consumption 23. Others	Go to A 14
A13	Other Specify other		

A14	Ownership type What is the ownership type of the organization you work for ?	01. Partnership 02. Cooperative 03. Private entities/companies 04. State and locally owned factory 05. State budget funded organization 06. Non-governmental organization (including monasteries and church) 07. Household businesses 08. International organizations 09. Individual business (excluding farming and LLCs) 10. Other	Go to A 16
A15	Other Specify other		
A16	Employment insurance Do you pay any employment social insurance?	01. Yes 02. No	
A17	Migration Has your household ever moved or settled (not including season migration) in the last 10 years?	01. Yes 02. No	Go to A 22
A18	Moved from Where did your household last move from?	03. Capital city - district, khoroo 04. Aimag center 05. Soum center 06. Rural area 07. Abroad	
A19	Year moved What year did you last move?		

A20	*What was the principal reason for moving from the previous area?* *Probe for the most important reason.*	01. Better employment and business opportunities here 02. Better basic infrastructure - electricity, roads, transportation 03. Seeking safer and secure environment 04. Lack of arable or pastureland/housing at origin 05. Lack of necessities and services like water and food/market at origin 06. Better education opportunities 07. Marriage/separation 08. To join relatives already here 09. For health treatment 10. Other (specify)	Go to A 22
A21	Other *Specify other*		
A22	*What is the type of your main dwelling?* *Select the type of dwelling the households most of the time including winter in a year*	01. Ger 02. Apartment 03. Detached house 04. Separate apartment 05. Dormitory 06. Public dwelling for employees 07. Other public dwelling 08. Other	Go to A 24
A23	*Other dwelling type* *Specify other dwelling*		
A24	Sources of income *What forms of income did this household have in the last 1 year to pay for expenses?* *Read out the options and tick all that apply to the household*	a. Wages and salaries (cash and in-kind) b. Income from sale (livestock products) c. Income from sale (agricultural products) d. Income from other household business e. State pension f. Benefits (e.g., unemployment, maternity, disability/temporary incapacity, allowances to mothers with many children, survivor's benefit for children, child money, assistance to honored elders) g. Foodstuff, consumed from private farm of enterprise h. Received from others free of charge (e.g., community, friends, family) i. Other income source j. Not any one source of income	Go to A 26 Go to A 26

A25	Other sources of income *Specify other source of income*		
A26	Own animals *Does your household OWN and/or care for any animal?*	01. Yes 02. No	 Go to A 28
A27	Number animals *How many animals does your household OWN, and/or care for (belonging to others)?* *Use one cell in a row; with zero/none where appropriate.*	a. Cattles …….. b. Horses…….. c. Sheep…….. d. Goats…….. e. Camels…… f. Other……	
A28	Savings *Do you or other members of your household have a saving?*	01. Yes 02. No 03. Don't know	
A29	Insurance *Do you have any insurance other than employment insurace?*	a. Private insurance (property) b. Property insurance (vehicle insurance) c. Private insurance (life and/or health) d. Private insurance (livestock) e. I don't have insurance f. Other	Go to A 31
A30	Other *Specify other*		
A31	Income sufficiency *Which of the following describe your household's income sufficiency?* *Remind the respondent to think about the household's annual income as a whole*	01. It is very difficult to make ends meet and to afford basic needs (e.g., food) 02. It is difficult to make ends meet - we just manage to afford basic needs 03. It is okay to make ends meet and afford extra things such as clothing 04. It is sufficient and we can afford valuable things 05. We are living comfortably, can make savings, and afford valuable things	
A32	Difficulty seeing *Do you wear glasses?*	01. Yes 02. No	Go to A 35b
A33a	Difficulty seeing *Do you have difficulty seeing even if wearing glasses?*	01. No difficulty 02. Yes - Some difficulty 03. Yes - A lot of difficulty 04. Cannot do at all 05. Refused	

| A33b | Difficulty seeing

Do you have difficulty seeing? | 01. No difficulty

02. Yes - Some difficulty

03. Yes - A lot of difficulty

04. Cannot do at all

05. Refused | |
| A34 | Difficulty hearing

Do you have difficulty seeing? | 01. No difficulty

02. Yes - Some difficulty

03. Yes - A lot of difficulty

04. Cannot do at all

05. Refused | Go to A 35b |
| A35 | Difficulty hearing

Do you use a hearing aid? | 01. Yes

02. No | |
| A35b | Difficulty hearing

Do you have difficulty hearing sounds like peoples' voices? | 01. No difficulty

02. Yes - Some difficulty

03. Yes - A lot of difficulty

04. Cannot do at all

05. Refused | |
| A36 | Difficulty walking

Do you have uses equipment or receives assistance for walking? | 01. Yes

02. No | Go to A 37b |
| A37a | Difficulty walking

With equipment or assistance, do you have difficulty walking? | 01. No difficulty

02. Yes - Some difficulty

03. Yes - A lot of difficulty

04. Cannot do at all

05. Refused | |
| A37b | Difficulty walking

Without equipment or assistance, do you have difficulty walking? | 01. No difficulty

02. Yes - Some difficulty

03. Yes - A lot of difficulty

04. Cannot do at all

05. Refused | |
| A38 | Difficulty communicating

Using your usual language, do you have difficulty communicating? | 01. No difficulty

02. Yes - Some difficulty

03. Yes - A lot of difficulty

04. Cannot do at all

05. Refused | |

| A39 | Pregnant or breastfeeding

Are you currently pregnant or breastfeeding a child? | 01. Pregnant

02. Breastfeeding

03. Not pregnant or breastfeeding

04. Don't know/refuse to answer | Filter:

IF A5=2 and A6=15-49 |
| A40 | Chronically ill

Are you currently chronically ill or urgently requiring medication? | 01. Yes

02. No

03. Don't know/refuse to answer | |

MODULE B -RECENT DISASTER EXPERIENCE

| B1 | Weather changes

Have you noticed any changes in the weather patterns in Mongolia over your lifetime? | 01. Yes

02. No

03. Don't know | |
| B2 | Natural events

In the last 10 years, did you notice any changes in the following natural phenomena?

Choose one answer for each of the options

DD - Decreased dramatically

D - Decreased

S - Stayed the same

I - Increased

ID - Increased dramatically

DK - Don't know | ☐ ☐ ☐ ☐ ☐ ☐

a. Extreme temperature

b. Number of cold days

c. Number of hot days

d. Rainfall

e. Snowfall

f. Drought

g. Storm/wind

h. Flood

i. Lightening

j. Landslide

k. Uncontrolled fire

l. Desertification | |
| B3 | Hazard

In the last 12 months, have you experienced extreme/unusual events or disasters in your local area? | 01. Yes

02. No

03. Can't recall | Go to C 1

Go to C 1 |

B4	Types of hazard What types of disasters have you experienced? Select those mentioned	a. Flood b. Drought c. Storm/wind d. Lightening e. Landslide f. Uncontrolled fire g. Dzud	
B5	Damage to you What have been the damage of these hazards on you and your household, if any? Select those mentioned and probe for more	a. Damage to property and equipment b. Pushed my household into debt c. My health is harmed d. Forced to move to another place e. Lost assets/assets damaged f. Household income fell due to the loss in livestock and agriculture production g. There was no damage h. Other	Go to B 7 Go to B 8
B6	Other Specify other		
B7	Damage to community What has been the damage of these hazards in your area and community? Select those mentioned and probe for more	a. Roads damaged b. Water supply damaged c. Energy supply damaged d. Schools and health centers affected e. Agricultural fields destroyed f. Pastureland destroyed/affected g. Forests affected h. Other damage to community i. Don't know	
B7a	Other damage to community Specify other damage		
B8	Warning received Have you received any warning or notification about the hazard from government organizations?	01. Yes, received notification or warning of some kind 02. Did not receive any notification/warning 03. Don't know/don't recall	
MODULE C- ENVIRONMENTAL CHANGES OBSERVED AND FUTURE TRENDS				

C1	Environmental changes In the last 10 years have you noticed any environmental changes in your community (soum/area...)?	01. Yes 02. No 03. Don't know	 Go to C 5 Go to C 5
C2	Changes observed What are the changes you have observed? Do not read out loud and select those mentioned	a. Water availability for domestic use b. Water availability for animals c. Forests d. Variety of wild animals, birds, and insects e. Rivers and lakes f. Pasture/land degradation g. Quality of air h. Quality of soil i. Glacier/snow cap j. Other	 Go to C 4
C3	Other Specify other		
C4	Direction of change In the past 10 years, has <changes> worsened, improved or stayed the same?	01. Worsened a lot 02. Worsened 03. Stayed the same 04. Improved 05. Improved a lot 06. Not sure how it changed	Repeat for those selected in C 2
C5	Effects Have the environmental changes observed impacted different natural resources and livelihoods in your local area? read and select those mentioned Y - Yes N - No DN - Don't know	a. Poverty b. Migration/displacement c. Human-wild animal's conflict d. Threats to health - infectious diseases e. Availability of food f. Quality of life g. Environmental pollution (soil, water, & air pollution) h. Changes in seasonal specifications (e.g., warmer winters, cooler summer) i. Energy - for heating, cooking, light j. Safety/security k. Other l. None of the above	

C6	Other Specify other		
C7	Coping Have you or your household made changes to your current livelihood/job to deal with environmental issues?	01. Yes 02. No 03. Can't recall	 Go to C 10 Go to C 10
C8	Measures taken If yes, what changes did you make to deal with these environmental issues? Do not read out loud and select those mentioned	a. Changed job or sources of livelihood b. Travelled further to find work or income c. Went away from home/migrated to avoid pollution d. Migrated (permanently) e. Changed the number of livestock f. Diversified livestock g. Strengthened/renovated housing h. Supplemented income in other ways i. Changed our areas for agriculture (crops, livestock) j. Changed drinking water sources k. Other	 If A10=04 If A10=04 If A10=05
C9	Other Specify other		
C10	Preventive actions taken In the last few years, have you taken any preventive action to protect yourself and your household from natural disasters including flood, desertification, drought, storm, sand storm and fire?	01. Yes 02. No 03. Don't know	 Go to C 12 Go to C 12

C11	Preventive actions taken If yes, what preventive actions have you taken? Do not read out loud, select those mentioned	a. Improved water management - trapping water b. Bio-engineering - planting trees… c. Got my house and property insured d. Watching or listening to weather forecasts e. Made permanent adjustments to my home (strengthened) f. Moved to another place g. Using weather-related cultural/religious practices h. Using traditional approaches to predict natural events i. Stored food j. Started sharing experience with our neighbors k. Created a disaster/emergency supply kit l. Learning new skills to cope with extreme weather events m. Defended a flood n. increased green area through planting a tree and turning into lawn o. Other	
C11a	Preventive actions – herders What preventive actions related to herding, have you taken? Do not read out loud, select those mentioned	a. Increasing feedstock for animals b. Improved transportation c. Improved and warmed up livestock fence/camp d. Reduced livestock in anticipation e. Chose closer pastureland than usual f. Other	 If A10= 15
C12	Awareness- preventive actions To what extent are you aware of how to take appropriate actions to prevent or minimise the damage that climate	a. Somewhat aware – average b. Not aware c. Somewhat aware – average d. Aware e. Fully aware	
C13	Coping difficulty Overall how able do you feel to cope/deal with these issues? Please choose one answer.	01. Not able at all 02. Not able 03. Neutral 04. Able 05. Very able	

C14	Frequency In your opinion, will these kinds of extreme events' frequency increase, decrease or stay the same in the future?	01. Increase 02. Decrease 03. Stay the same 04. Don't know	
C15	Likelihood of being affected In your opinion, how likely it is such extreme events will affect various groups at different levels? 1- Absolutely not 2- Unlikely 3- Neutral 4- Likely 5- Very likely (Certain)	1 2 3 4 5 a. Our country (Mongolia) b. My region (gobi, khangai,east, central etc) c. My aimag/district d. My community (soum/khoroo) e. My household f. Myself	
MODULE D- KNOWLEDGE OF CLIMATE CHANGE			
D1	Human activities Do you think human activities are the main causes of these problems in Mongolia and elsewhere?	01. Yes 02. No 03. Don't know	
D2	Causes of climate change In your opinion what are the causes these natural disasters? Do not read out loud, select those mentioned	a. Burning coal for heating, using fuel for transportation etc. b. Increased number of livestock/overgrazing c. Natures or God/divinity's revenge against human development d. Cutting down forests and trees e. Poor industrial practices and pollutions (mining, factories) f. Acting against 'traditional' practices in environmental conservation g. It is a natural phenomenon h. Improper waste management i. Other j. Don't know k. Centralization l. humans' wrongdoing and human activities	
D3	Other causes, please elaborate Specify other causes		

D4	Heard of terms Before this interview, have you heard of the following terminologies and/or concepts? Please choose the one answer for each of the terms.	Yes No a. Climate change b. Global warming c. Ozone hole problem d. Greenhouse effect and greenhouse gas emissions	
D5	Self-assessment In your opinion, how much do you know about climate change? Choose one answer.	01. Never heard 02. Have a vague idea 03. Neither aware or not aware 04. Aware 05. Fully aware	
D6	Misconception Which of the following statements is (are) true? Please choose one answer for each of the statements.	Yes No Don't know Changes in overall average temperature of the planet is not associated with climate change a. Climate change is not happening b. Changes in temperature is the one and only sign of climate change c. A few degrees warmer cannot affects us d. The climate has always changed. It's natural	
D7	Need for further learning To what extent do you need further knowledge and skills concerning the climate change?	01. To a large extent 02. To a moderate extent 03. To a small extent 04. Don't need at all 05. Don't know	
MODULE E - ATTITUDES AND CONCERNS			
E1	Global change Do you believe the climate change is occurring globally? Choose the one answer.	01. Yes 02. No 03. Don't know	
E2	Climate change in Mongolia Do you believe the climate change is occurring in Mongolia? Choose the one answer.	01. Yes 02. No 03. Don't know	

E3	Level of concern How concerned are you about climate change? Choose the one answer.	01. Not concerned at all 02. Not concerned 03. Neutral 04. Concerned 05. Very concerned	
E4	Feelings How do you feel about climate change? Multiple choice	a. Fearful/afraid b. Disbelief/denial c. Confused d. Powerless/hopeless e. Hopeful (we can do something) f. Angry g. Regretful h. Satisfied/grateful i. Worried j. Feeling pressure to act k. No feeling l. Other m. I don't know n. Unpleasant	
E4a	Other feeling Specify other causes		
E5	Expected effect on life In your opinion, how would climate change affect the way you live?	01. It may negatively affect my life 02. It may positively affect my life 03. It will not affect my life 04. I don't know	 Go to E 7 Go to E 7
E6	Expected effect time In your opinion, will this effect be felt in the short run or long run?	01. In the short run 02. In the long run	

E7	Main concerns related to climate change What are main concerns related to climate change impact at the country level? Do not read out loud and select those mentioned.	a. Health issues including infectious diseases b. Environmental issues including deforestation, floods, and droughts, limited access to water, fires c. Economic issues including losses to property caused by extreme events, unemployment caused by internal d. Social issues including movements of migrants, threat to indigenous people e. Food insecurity f. Agriculture - livestock, farming g. Other h. I don't have any concerns	
E8	Other concerns Specify other		
MODULE F- PRACTICE			
F1	Proverbs Is there any Mongolian traditional environment conservation-related proverb/sayings that you keep it in your mind? Please choose the one answer.	01. Know 02. Don't know	 Go to F 2
F1a	If so, please name a proverb/saying that you know?	....	
F2	Traditional practice Are you aware of any Mongolian traditional 'environmental conservation'-related practices that you follow? Please choose the one answer.	01. Know 02. Don't know	 Go to F 3
F3	Daily practice Which of the following represent your practices? Please choose the one answer for each of the statements. 1- Yes 2- No	a. Leave my electronic devices/appliances plugged when not in use b. Use single-use plastic products such as cups, plates, straws, forks, spoons. c. Use a private vehicle and encourage the use of the car for others d. Use solar energy (solar panel) e. Turn off tap while cleaning teeth and washing my face f. Use reusable products including grocery bags, water bottles	

| F4 | Willingness to change lifestyle

Which of the following lifestyle changes you can make to help with the climate crisis?

Please choose the one answer for each of the statements.

1- Yes

2- No | a. Make my home more energy efficient

b. Walk or cycle to work/other places

c. Reduce the use of single-use plastic

d. Get rid of personal motor vehicles

e. Buy energy efficient devices and home appliances

f. Increase recycling (including food, glass, cardboard/paper etc.) | |

| HERDER SPECIFIC QUESTION |||

| F5 | Nature related practice

Which of the following represent your traditional practices?

Please choose the one answer for each of the statements.

1- Yes

2- No | a. Use traditional methods in predicting weather and climate

b. Follow traditional practices related to environmental conservation

c. Offerings to mountain/local owners (lus savdag)/spirits and Mountain and 'Ovoo' worship

d. Hunt animals and consume their meat (marmot, gazelle, wolf, etc.)

e. Use medicinal and healing herbs

f. Cleaning river and protecting water sources | Filter:

If A 10= 04 |
| F6 | Livestock-related practice

What do you do to cope with climate change including changes in natural resources and ecosystems on your livelihood?

Please choose the one answer for each of the statements.

1- Yes

2- No | a. Reserve and rotate pastures

b. Construct deep well structure for watering livestock

c. Use motorbike/car in herding

d. Reduce livestock numbers

e. Prepare supplementary feed

f. Diversify livelihoods

g. Improve winter livestock shelter

h. Diversify livestock species

i. Share experience with other herders

j. Increase number of livestock | Filter:

If A 10= 04 |

| MODULE G- ACTION AND SOCIAL COHESION |||

| G1 | Urgent action

In your opinion, is climate change the issue that our country needs to take an urgent action? | 01. Yes

02. No

03. Don't know | |

G2	Responsible for climate change Who is responsible for causing or exacerbating climate change, in your opinion? Read options and thick those mentioned (Max 3 answers) Other parties Specify other	a. Government of Mongolia b. Local governments c. Businesses/industry d. International organizations/donors/NGOs e. Citizens f. Developed/industrialized countries g. Monasteries/church/faith organizations h. Environmental NGOs/community groups i. Media/journalists/influencers j. All of the above k. No one l. Other	
G3			
G4	Stakeholders to address Who in your opinion is mainly responsible for addressing climate change? Read options and thick those mentioned (Max 3 answers)	a. Government of Mongolia b. Local governments c. Businesses/industry d. International organizations/donors/NGOs e. Citizens f. Developed/industrialized countries g. Monasteries/church/faith organizations h. Environmental NGOs/community groups i. Media/journalists/influencers j. All of the above k. Other l. No one needs to address climate change	Go to G 6 Go to G 8
G5	Other stakeholders Specify other		

G6	Stakeholders' level of effort Are the different type of institutions doing enough to tackle climate change? 1 - Not doing anything 2- Not sufficient 3- Neither sufficient nor insufficient 4- Sufficient 5-Very sufficient 6 - they don't need to tackle climate change	☐☐☐☐☐ a. Government of Mongolia b. Local governments c. Businesses/industry d. International organizations/donors/NGOs e. Citizens f. Developed/industrialized countries g. Monasteries/church/faith organizations h. Environmental NGOs/community groups i. Media/journalists/influencers	Repeat for all options selected in G 4
G7	Level of action Which of the following statements do you agree the most to address cliamte change? Choose one option.	01. It is down to the Government to legislate and regulate 02. It is down to the individual to make personal changes 03. It is the society as a whole to make changes 04. Don't know	

G8	Government action What should the government do to mitigate climate change or environmental issues related to changing weather? Read out loud, select those mentioned Prompt for more	a. Switch to/invest in renewable energy sources including wind, solar and hydro b. Increase investment/allocate budget in climate change c. Improve public awareness d. Improve infrastrusrture to adapt to environmental changes e. Switch to clean heating f. Regulate harmful industry practices g. Reduce plastic and increase recycling h. Stop burning fossil fuels (generate electricity, and to power transportation (for example, cars and planes) etc.) i. Invest in public transportation j. Improve/regulate housing efficiency k. Increase and protect rangelands and green space l. Improve land use/pasture management and m. Protect local environments /ecosystems- protected area n. Improve disaster preparedness o. Improve emergency preparedness and response - fire, flood… p. Improve coordination and capacity of those responsible q. Support local producers for eco-services and products r. Restore, rehabilitate degraded lands and forests s. Enforce building energy performance standards t. Improve energy efficiency u. Electrify transportation sector v. Reduce livestock (provide incentives for herders to reduce emissions from livestock) w. Other	
G9	Other government action Specify other		

G10	**Social cohesion- trust,**	**cooperation and wellbeing**	
	Trust		
	Generally, do you think you can trust most people, do you think you should not be too careful when you communicate with people?		
	0 Should be very careful	0 1 2 3 4 5 6 7 8 9 10 88	
	10 Can trust most people		
	88 Don't know		

G11	Trusted groups		
	Which group of people do you trust the most?	0 1 2 3 4 5 6 7 8 9 10 88	
	0 Never trust		
	10 Completely trust	a. Your family	
	88 Don't know	b. Your neighbors	
		c. Strangers/outsider	
		d. Friends	
		e. People with different religion	
		f. People with different nationality	
		g. People from different 'nutag'	
		h. Relatives	
		i. People with disability	
		j. LGBTIQ+ Community	
		k. Politicians & lawmakers	
		l. Celebrities / Influencers	

G12	Trusted institutions		
	How much do you trust the following institutions?	0 1 2 3 4 5 6 7 8 9 10 88	
		The government institutions and ministries	
	0 Never trust	a. Research institutions/academies	
	10 Completely trust	b. Donor/aid organizations	
	88 Don't know	c. Private sector organizations	
		d. Cooperatives/community groups	
		e. Church, religious organizations	
		f. Media and press	
		g. National agency meteorology and the environmental monitoring	
		h. National emergency management agency	
		i. The local government	
		j. Civil society organization	

G12a	Cooperation		
	Generally, do you think people are kind and helpful to each other, or just mind their own business?	0 1 2 3 4 5 6 7 8 9 10 88	
	0 Mostly they mind their own business		
	10 Mostly, they are kind and helpful		

G13	Membership and Affliation	1 2 3	
	Are you an active member of the following organizations, active or not a member? Rate each of them?		
	3	a. Church, religious organization	
		b. Cooperatives/groups	
		c. Trade federation	
	1	d. Political party	
		e. Environmental movements and organizations	
		f. Professional association	
		g. Humanitarian and voluntary	
		h. Consumer protection	
		i. Local council	
		j. Other	

G14	Helpful group In the time of disaster and natural phenomenas (earthquakes, forest fire, floods, droughts, and dzuds) occurrence, how helpful do you think of the following people? Y- Yes N- No 1. I am willing to take time for them to spend my free time and help. 2. They are willing to support and help me.	a. Your family b. Bagh/khoroo level administration c. Soum/district administratio d. Non-governmental organization e. Emergency and first responders f. Aid organizations/donor organizations g. People with disability h. National government i. Friends j. Relatives k. Colleagues		
G15	Life satisfaction Overall, how satisfied are you with your life as a whole these days?	0 1 2 3 4 5 6 7 8 9 10 88		
G16	Ladder How much would you rate your life, on a scale of 1 to 10? a. 5 years ago b. Today c. 5 years later	0 1 2 3 4 5 6 7 8 9 10 88		
G17	Happiness Taking all things together, how happy would you say you are?	0 1 2 3 4 5 6 7 8 9 10 88		
G18	Satisfaction on safety How satisfied are you with how safe you feel?	0 1 2 3 4 5 6 7 8 9 10 88		

G19	Environmental satisfaction How satisfied are you with the quality of your local environment?	0 1 2 3 4 5 6 7 8 9 10 88	
G20	Satisfaction in interpersonal interaction How satisfied are you with your social involvement and social engagement	0 1 2 3 4 5 6 7 8 9 10 88	
G21	Biggest worries At the moment, what are your three biggest worries? Do not read out loud. Ask the respondent to state three worries in order of most worried to second and third worried.	01. COVID-19 pandemic 02. Air pollution 03. Corruption 04. Unemployment 05. Gender based violence 06. Poor infrastructure 07. Health concerns 08. Insufficient income 09. Unequal education 10. Other….........................	
G22	Specify others		

MODULE H - COMMUNICATION AND MEDIA CONSUMPTION			
H1	Source of information What are your main sources of information about important topics such as politics, economy, health, and education and environment? Don't read options and thick those mentioned (Max 3 answers)	a. Tv b. Newspaper c. Magazine d. FM Radio e. Internet (websites and social media) f. Bulletin boards g. Brochures and leaflets h. Family and friends i. Work colleagues j. Training, conferences, local hearings and meetings k. Local authorities (Governors, khoroo, bag leaders etc.) l. Civil servants (teachers and health workers) m. Religious leaders (lamas/monastery, church, shamans etc.) n. Others	Go to H 3
H2	Specify others		
H3	Frequency of information How often do you recieve information from these sources? Choose the frequency of only those mentioned in E1 If 'At least once a week', probe: Would you say this happens almost every day? If 'Yes' record 3, if 'No' record 2	01. Not at all 02. At least once a month 03. At least once a week 04. Every day	Repeated from all sources selected in H1
H4	Trustworthiness of sources Please rate how much you trust these sources from the scale of 1-5 (1 - least, 5 most) Choose the credibility of only those mentioned in E1		Repeated from all sources selected in H1
H5	Heard from media Do you recall receiving information related to changes in weather patterns, climate change, or natural hazards from media since Tsagaan Sar? (February this year)	01. Yes 02. No 03. Don't remember	 Go to H 8 Go to H 8

H6	Types of media If yes, which media was it from?	a. TV b. Newspaper c. Magazine d. FM Radio e. Internet (websites and social media) f. Don't remember	Go to H 8
H7	Name of media Please specify the name of the program, website or social media channels if you remember Write down the names of only those mentioned in H6	a. TV _____ b. Newspaper_____ c. Magazine_____ d. FM Radio _____ e. Internet (websites and social media)_____ f. Don't remember any	Repeated from those mentioned in H6
H8	Environment program Do you recall receiving information related to environment from any of the following programs and channels in the last 12 months? Show all options and select those mentioned	a. Ногоон шошго TV program by MNB b. Khureelen environmental documentary program c. Sustainable Mongolia podcast d. Хүн, Байгаль орчин, Амьтад групп facebook group e. The official facebook page of the Ministry of Environment and Tourism f. The official facebook page of the Department of Ecological Police g. Climate Change Mongolia youtube channel h. Climate change videos by Angar agency youtube channel i. Climate change videos by UNICEF j. None of them	
H9	Disinformation How frequently do you encounter environment and climate change information in the media, including social media, that you believe is misleading or false?	01. Several times a week 02. Weekly 03. Monthly 04. Less often 05. Never 06. Don't know	
	Internet		

H10	Device to aclimate changeess the internet Which device do you use the most to access the internet? Don't read options and thick those mentioned	a. Computer and laptop b. Mobile phone c. Tablet d. Others	Go to H 12
H11	Specify others		
H12	Frequency of internet usage During the last 3 months, how often did you use the internet: everyday, at least once a week, at least once a month, or not at all? If 'At least once a week', probe: Would you say this happens almost every day? If 'Yes' record 3, if 'No' record 2	01. Not at all 02. At least once a month 03. At least once a week 04. Every day	Go to H 7
H13	Reason of internet usage For what purpose do you use the internet? Don't read options and thick those mentioned	a. Exchange e-mail b. Chat with others c. Search information d. Listen to radio e. Watch videos or movies f. Read news g. Use social media h. Others	Go to H 15
H14	Specify others		
H15	Active platform Which social media or messaging platforms do you use the most? Don't read options and thick those mentioned	a. Facebook b. Instagram c. Twitter d. Youtube e. Linked-In f. TikTok g. WhatsApp h. Viber i. WeChat j. Others	From those who answered H 13 Go to A 17
H16	Specify other		
	Mobile phone		

H17	Use of mobile phone How often do you use mobile phone (yours or someone else's)	01. Not at all/never use 02. Every day 03. Oclimate changeasionally	Go to H 20
H18	Reasons of using phone What are the main reasons you use your phone? Don't read options and thick those mentioned	a. make calls b. send texts c. listen to music d. listen to podcast e. play games f. taking videos g. read news h. use social media i. others	Go to H 20
H19	Specify others		
	PODCASTS		
H20	Podcasts During the last 3 months, how often did you listen to podcasts? Everyday, at least once a week, at least once a month, or not at all?	01. Not at all 02. At least once a month 03. At least once a week 04. Every day	Go to H 23

H21	Popular podcasts What is the Mongolian podcast(s) you usually listen to Don't mention options thick those mentioned	a. Cocktail and Crime b. Kharankhui Uruu c. Unlock d. Manduulero e. Khuleelgiin Uruu f. Bidnii Nuuts g. Lunch hour by Lemon Press h. Nomtoi tarkhi i. OZIA j. Bitgii sons k. 6 minute english l. Keks m. Ideree's podcast n. Negative Mongolians o. Podlogy podcast p. Ailiin Khuukhduud podcast q. Nisdeg tavag podcast r. The English we speak s. Mend podcast t. Business.mn podcast u. Others	Go to H 23
H22	Specify others		
	TV		
H23	Frequency of TV usage How often do you watch TV: everyday, at least once a week, at least once a month, or not at all? If 'At least once a week', probe: Would you say this happens almost every day? If 'Yes' record 3, if 'No' record 2	01. Not at all 02. At least once a month 03. At least once a week 04. Every day	Go to H 26

H24	TV Channels What is the TV Channel(s) you watch the most? Don't read options and check those mentioned (max3)	a. Movie box b. Dream TV c. М ОНТ d. Asian box e. Боловсрол f. TV9 g. NTV h. Монгол ТВ i. MN25 j. UBS k. TV5 l. Монголын мэдээ m. Ийгл n. Стар o. SBN p. C1 q. Эх орон r. TV8 s. VTV t. TV4 u. None v. Others	Go to H 26
H25	Specify others		
	Radio		
H26	Frequency of radio usage How often do you listen to radio: everyday, at least once a week, at least once a month, or not at all? If 'At least once a week', probe: Would you say this happens almost every day? If 'Yes' record 3, if 'No' record 2	01. Not at all 02. At least once a month 03. At least once a week 04. Every day	Go to H 31

H27	Radio stations What is the Radio station(s) you listen more than 3 times a week? Don't read options and thick those mentioned (max 3 options)	01. Family Radio 104.5 02. Arga bilge radio 95.7 03. Ikh Mongol radio 99.7 04. MNB Radio 106 05. Lavain Egshig 97.5 06. Mongol radio 07. FM radio 88.8 08. FM radio 88.5 09. Others	Go to H 29
H28	Specify others Show the Other Radio Options Card to respondent		
H29	Radio program types What programs do you usually listen to? Don't read options and thick those mentioned (max 3 options)	a. News b. Music c. Advertisements d. Commentaries of current events e. Traffic news f. Family programs g. Others	Go to H 31
H30	Specify others		
ATTITUDE TOWARDS CLIMATE CHANGE INFORMATION			
H31	Information received- climate change Have you received any information from media that mentioned the terms 'climate change' or 'global warming' in the past 12 months?	a. Yes b. No c. Don't remember	
H32	Information about climate change from media Would you like to receive more information about climate change from media?	a. Yes b. No c. Don't know	Go to H 35 Go to H 33
H33	Reasons no If no, what are the reasons? Don't read options thick those mentioned (max 3)	a. Not interested b. Don't trust news outlets and journalists c. Quality of media content is poor d. Others	
H34	Specify others		

H35	Topic about climate change If yes, which of the following do you want to learn about the most? Read all options and those mentioned	a. Causes of climate change b. Effects/impacts of climate change c. Ways to take actions to prepare for and adjust to climate change d. Ways to avoid and prevent climate change e. Others	
H36	Specify others		
H37	Credible climate change source Who do you think has the most credible information about climate change? Select the most credible	a. People affected by climate change b. Policy makers, government officials and local authorities c. Scientists and meteorologiests d. Civil servants (khoroo, bag leaders, teachers and health workers) e. Influencers (celebrities and opinion leaders) f. Don't know g. Others	Go to H 39
H38	Specify others		
H39	Popular topics Which of the following information on different ways would you be interested in receiving from media? Show all options on device (max 3 answers)	a. Ways to save energy b. Clean and renewable energy sources c. Save water d. Reduce desertification and pasture degradation e. Prevent zoonotic and communicable diseases (mouth and hoof etc) f. Prepare for natural disasters such as dzud, draught and flood g. Reduce pollution (soil and air pollution) h. None of them i. Others	Go to next module
H40	Specify others		

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