Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

МОНГОЛ УЛСЫН ЗАСГИЙН ГАЗАР
БАЙГАЛЬ ОРЧИН АЯЛАЛ ЖУУЛЧЛАЛЫН ЯАМ

IRIM
INDEPENDENT RESEARCH INSTITUTE OF MONGOLIA

Pre-KAP Survey (Knowledge-Attitude-Practice Survey) associated with the Environmental Communication Component of the SPACES Project

Final report

Ulaanbaatar
2021

CONTENTS

ABBREVIATIONS AND ACRONYMS

CAPI	Computer-assisted personal interviewing
CATI	Computer-assisted telephone interviewing
CoC	Code of Conduct
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GORBI	Georgian Opinion Research Business International
GTNP	Gorkhi Terelj National Park
IRIM	Independent Research Institute of Mongolia
KAP	Knowledge-Attitude-Practice
KKSPA	Khan Khentii Strictly Protected Area
MET	Ministry of Environment and Tourism
OLS	Ordinary least squares
OVNP	Orkhon Valley National Park
PA	Protected Area
QSN	Questionnaire
SPACES	Supporting Protected Areas for the Conservation of Ecosystem Services
SRS	Simple random sampling

TABLES AND FIGURES

SUMMARY

The pre-Knowledge-Attitude-Practices (KAP) assessment of Protected Areas' (PAs') staff and domestic visitors was conducted by the Independent Research Institute of Mongolia (IRIM) under Output 4 of the Supporting Protected Areas for the Conservation of Ecosystem Services (SPACES) project. The Project is implemented by GIZ Mongolia, and the Ministry of Environment and Tourism (MET). The SPACES project aims to improve framework conditions for the long-term development of PAs in Mongolia. Within this objective, the Project aims to improve knowledge - correct information about the PA's features, and correct information concerning a Code of Conduct (CoC) – among the PA's staff and domestic visitors (within particular PAs) through environmental communication measures.

In doing the above, the Project's staff determined the knowledge about ecosystem services (e.g. their economic and cultural importance), as well as the associated positive attitude of the population and technical personnel were an essential framework condition for an effective and sustainable PA system. The impact hypothesis was that through targeted communication measures - such as social media campaigns, social marketing, and edutainment - the necessary knowledge would be conveyed to visitors and residents in PAs. The same would apply to technical personnel, and attitudes towards nature conservation would be positively changed; resulting ultimately in improved behavior. The survey team understood that substantial knowledge of the ecosystem and PAs was fundamental for the improved CoC.

In accordance with the above, a survey questionnaire was developed; consisting mainly of demographic questions, questions on the general motivations of the visitors; and questions on PAs and their features (including ecosystems, the importance of PAs, CoCs in PAs, and information sources. From these components of the questionnaire, about PAs and their features, questions on CoCs were used to measure the knowledge of visitors. During the course of the data collection, 793 visitors to GTNP, 402 visitors to OVNP, and 147 visitors to KKSPA were surveyed. The proportion of the visitors to each PA was based on the number of total visitors for each PA, as well as the availability of the visitors to participate in the survey.

The average age of respondents was 37 years, with 63.3% being higher educated. Respondents visited the PAs to relax and reduce stress (60.4%), and for the fresh air (34.1%); with no difference by demographic characteristics. Visitors were accompanied by family (66.0%), friends (23.1%), and colleagues (8.2%). At 56.4%, a majority of them stayed in ger camps and the tourist camps. Just 12.5% of respondents visited PAs only on a day-tour only, and 36.7% had visited PAs more than once during the previous 12 months. A tenth (9.8%) of all respondents were frequent visitors; visiting a PA five or more times during the previous 12 months.

In terms of maintaining and managing PAs (Q1-Q4), the highest score a visitor could get was ten. The average score of respondents on this subsection was 3.96; meaning their level of knowledge was lower than 40%. This section had four questions, and the easiest was about the name of the PA visited. Interestingly, over one-fourth of participants were unable to provide the correct name of the PA visited; which was much higher than expected. The average score was higher for male visitors than for females; and was highest among the middle-aged. The level of knowledge was 5.65 (out of 10) among PAs' staff. Male and middle-aged employees tended to have a higher level of knowledge than other demographic

groups. However, domestic visitors and PAs' staff have insufficient knowledge on maintaining and managing PAs because their average score was less than half of the potential.

Regarding PAs' features (Q5-Q8), the level of knowledge was higher than on maintaining and managing PAs. The average score of visitors was 5.03 out of ten. Using the number of correct names of PAs' features, visitors were more familiar with animals and plants, compared to landmarks or cultural sights, rivers, or lakes. By demographic characteristics, there was a variation in the level of knowledge of PAs' features. For example, male visitors had a higher-level knowledge than females, except about plants. Furthermore, the level of knowledge increased with age. For PAs' staff, the average score was 8.43. The relationship between the level of knowledge and demographic characteristics was observed among PAs' staff, too.

In respect to the CoC (Q9-Q14), the average score of participants was 2.78 out of 10; meaning that the level of knowledge was lower than 30% of the potential. There was no considerable difference between male and female respondents. However, the level of knowledge of the CoC decreased with age. In other words, older visitors tended to have a lower level of knowledge than younger ones. For PAs' staff, the average score was 5.12 out of 10. That is, the level of knowledge of PA's staff was double that of visitors. In addition, male workers had a higher level of knowledge than females; but not significantly so. Younger ones were more knowledgeable than older ones. This shows that the relationship between demographic factors and the level of knowledge was similar among visitors and workers.

Based on the sub-levels of knowledge, the overall level of knowledge of visitors was insufficient. According to our calculation, the overall score of domestic visitors was 11.72 out of 30 (around 30% of the potential, maximum level). The overall level of knowledge was slightly different by sex and age, but not significantly so. In terms of PAs' staff, the average score was 19.2 out of 30. The level of knowledge tended to be higher among old workers, while the difference between male and female workers was just 0.13 points. The main conclusion is that the level of knowledge of domestic visitors and PAs' staff was insufficient. Therefore, there needs to be a targeted program and campaign to increase knowledge and further protect PAs in the future.

With regards to sources of information (Q15-Q17), several finding need to be highlighted. For example, the share of visitors who did not see or read the comic books was more than 80%, even though they were targeted to delivering knowledge to the group. The same was observed among the PAs' staff, as well. A majority of domestic visitors said that they did not have any information about PAs and the CoCs before visiting. The main source of information of PAs - among visitors - was verbal (informal) information (23.4%), followed by the internet (14.0%) and social media (11.0%). For the CoCs, the most frequent source of information was social media (10.4%), followed by verbal contacts (8.5%) and the internet (7.4%). For PAs' staff, the fraction of survey participants without information declined dramatically. The main source of information was verbal and information boards; for PAs and the CoCs, respectively. Generally, the source of information about PAs and the CoCs (among domestic visitors and staff) depended on their demographic characteristics. So, the channels to be used to provide information, need to be selected according to the target group.

1. PROJECT CONTEXT AND SURVEY OBJECTIVE

1.1. SPACES project

Due to climate change, adverse human impacts upon environmental degradation and depletion of natural resources have increased in recent years. Therefore, it is vital to declare vulnerable sites as PAs, preserve their natural state (and ecological balance), and restore natural resources.

Currently, Mongolia has a total of 78 PAs, including[1]:

- 19 Strictly PAs,
- 42 National Parks,
- 10 Nature Reserves, and
- 7 Natural Monuments.

These PAs allow visitors to reconnect with nature and offer many benefits upon which human life depends. However, the visitors are causing impacts in specific ways upon the PAs they visit. If these areas are damaged, the livelihoods of people will also be affected. Therefore, it is essential to improve the knowledge, practices, and attitudes of visitors.

Recognizing this, GIZ Mongolia and the MET have been implementing the SPACES project (March 2019 to February 2022). The Project's overall objective is that '*framework conditions for the sustainable development of PAs are improved,'* and it is implemented at the national and local level.

The SPACES project has four Outputs. These include:

Output 1: Supports the development of regulations that legally enable protected area administrations to generate their revenues and reinvest them in the management of their protected area. Within this output, the significant activities of the SPACES team are advising the management level of the MET on sustainable financing and budget planning of PAs and the development of sustainable nature tourism.

Output 2: Supports the structures for an organized collaboration in the pA clusters and enables stakeholders to use these structures for decisions to improve the management of the entire cluster. Within this output, the significant activities of the SPACES team are advising on communication structures, drafting cooperation agreements, and organizing capacity building for the effective management of PA, provincial, and district administrations.

Output 3: Supports poverty reduction through developing and implementing income-generating utilization alternatives in selected PAs and their buffer zones. Within this output the significant activities of the SPACES team are conducting analysis for evaluating cost-effectiveness and protective function of income-generating measures identified as priorities (among others market analyses; environmental impact assessments), advising on the applications for funds and the implementation, monitoring, and documentation of income-generating measures.

[1] http://www.mpa.gov.mn/

Output 4: Develops a target group-specific environmental communication strategy for the PA system and implements selected components of it. Within this output, the significant activities of the SPACES team are the development of a target group and gender-specific environmental communication strategy for the protected area system, development of a method adapted to local conditions to measure the effectiveness of pilot measures, and advising the MET on the development and implementation of three prioritized measures to raise awareness among the general public and strategic government agencies about the importance of protected area management. The Output Indicator 4 stipulates that the percentage of respondents (men and women) with positive knowledge on protected areas increases from 20% to 50% among a statistically significant sample size drawn from (1) PA staff and (2) domestic visitors in relevant PAs, where environmental communication measures are implemented. The baseline value will be established by this pre-KAP survey.

This survey supports the implementation and evaluation of the fourth output of the SPACES project; which is to contribute to improving the PA's staff's knowledge (and that of domestic visitors of PAs) through environmental communication measures. Within Output 4, the following main activities were to be organized:

- Development of a target group and gender-specific environmental communication strategy for the PA system.
- Development of a method adapted to local conditions to measure the effectiveness of pilot measures.
- Advising the MET on the development and implementation of three prioritized measures to raise awareness (about the importance of PA management) among the general public and strategic government agencies

1.2. Survey objectives

The main objectives of the KAP survey were to:

- conceptualize and plan, pre-and post-KAP surveys in target PAs,
- conduct location-specific and statistically significant KAP studies through individual interviews in the target PAs, and
- conduct a pre-KAP survey and develop baseline data about the PA's features and information concerning a CoC.

1.3. Survey context

The survey aimed to conceptualize the evaluation - pre-and post-intervention assessment - of the knowledge of PA's staff and domestic visitors; concerning PAs, their features, and the CoC.

The SPACES project acknowledges that sound knowledge about ecosystem services and their economic and cultural importance (as well as the associated positive attitudes of the population and technical personnel) are essential framework conditions for an effective and sustainable PA system. All relevant stakeholders agree that framework conditions need to be improved (the Project objective). The SPACES project developed a target group-specific, environmental communication strategy for the PAs system,

and will implement the selected components (Output 4). The impact hypothesis is through targeted communication measures (such as social media campaigns, social marketing, and edutainment), the necessary knowledge will be conveyed to visitors and residents in PAs. It will also be conveyed to technical personnel, and attitudes towards nature conservation will be changed positively, which ultimately will result in improved behavior.

From May to October 2021, IRIM conducted the pre-KAP survey, to provide an evidence base for the implementation and evaluation of Output 4. During this survey, the IRIM team assessed knowledge, attitudes, and practices among domestic visitors related to PAs, including the Gorkhi-Terelj National Park (GTNP), the Khan Khentii Strictly Protected Area (KKSPA), and the Orkhon Valley National Park (OVNP). This research will be used as a baseline to measure future changes.

Although it is formulated as a pre-KAP survey, the overall objective of Output 4 of the SPACES project focuses on knowledge, and the survey framework was designed to measure the knowledge. In doing so, it is also considered to be coherent with the content of the information to be distributed through project activities. The Project is looking to improve knowledge of:

- information about the PA's features (including the ecosystem, and establishing PAs), and
- information concerning a CoC that has been developed for the above-mentioned PAs.

The survey was limited to knowledge assessment and was not able (nor aimed) to provide an assessment of the attitudes and practices of respondents.

The pre-KAP survey covered 1,342 domestic visitors and 147 PAs' staff, and this report assesses current levels of knowledge, attitudes, and practices of domestic visitors and PAs' staff.

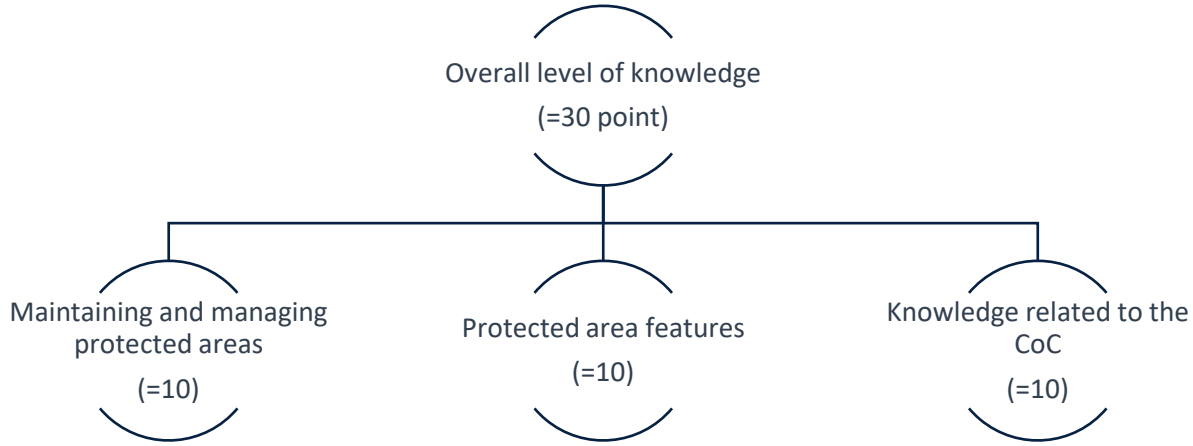
Details of the survey approach and its implementation are provided in Appendices 1 and 2.

1.4. Methodology

The overall level of knowledge of domestic visitors and PA staffs followed the questionnaire. Specifically, the questionnaire consists of three parts:

- Maintaining and managing PAs.
- PAs' features, and
- Knowledge related to the CoC.

Therefore, the overall level of knowledge is measured by aggregation of sub-knowledge levels of the above three parts. The research team assigns ten points on each subsection of the questionnaire, which makes comparisons of their knowledge level easier. Therefore, the overall point can be thirty at the maximum, representing the overall level of knowledge. Each subsection of the questionnaire consists of several questions.



In regards of the ***'Maintaining and managing PAs'***, (2.2.1), there are the following four questions (their corresponding points are in parentheses). For Q2 and Q3, the respondent had to provide at least three answers to score the full points, whereas, for Q1 and Q4, one reason was enough.

- Do you know what an ecosystem is? (Q1-1.5 point)
- Why are ecosystems so important for a human being? (Q2-3.5 point)
- Why are PAs created? (Q3-3.5 point)
- Would you know the correct name of the PA? (Q4-1.5 point)

In terms of the ***"PAs features"***, (2.2.2), looks at more specific features, which are

- Landmarks or cultural insights (2.5 point),
- Rivers and lakes (2.5 point),
- Animals (2.5 point), and
- Plants (2.5 point).

Each feature of PAs has 2.5 point (one-fourth of 10 point at the maximum). The following table shows how many correct answers a respondent had to give to score the full points on each feature at each PA.

Table 1. Maximum number of correct answers; by a PA.

PA	Landmark	Rivers	Animal	Plants
GTNP	5	5	5	5
KKSPA	5	5	5	5
OVNP	5	3	5	3

Source: KAP survey

On the questionnaire, the research team asked respondents to suggest up to five names of each feature, excepting rivers or lakes and plants (in OVNP). That was because the number of correct names of rivers, lakes, and plants was three in OVNP.

In respect with the ***"Knowledge related to the CoC",*** (2.2.3), focuses more on the guidelines on what to do and not to do inside the PAs, which consist of six open-ended questions. The research team categorized participants responses based on their similarities. The following table present how many correct reasons is required to get the full score on each question and their corresponding points.

Table 2. Required number of correct answers and the maximum point; by question.

	Number of required answers	Maximum point
Setting up a camp (Q9)	4	1.5
Disposing of human waste (Q10)	5	2.0
Showing respect for nature (Q11)	5	2.0
Disposing of waste and leftovers (Q12)	5	2.0
Protecting local water systems (Q13)	5	2.0
Off-road driving (Q14)	1	0.5

As discussed here, the knowledge level is measured by the corresponding points scored on a whole questionnaire (overall level of knowledge) and sub-sections (the specific knowledge level). Before moving on to the main body of the report, in the questionnaire, open-ended questions required respondents to provide multiple reasons and responses to show that they are knowledgeable. Therefore, the knowledge level directly depends on how many correct answers survey participants gave on each question and subsection.

2. SURVEY RESULTS

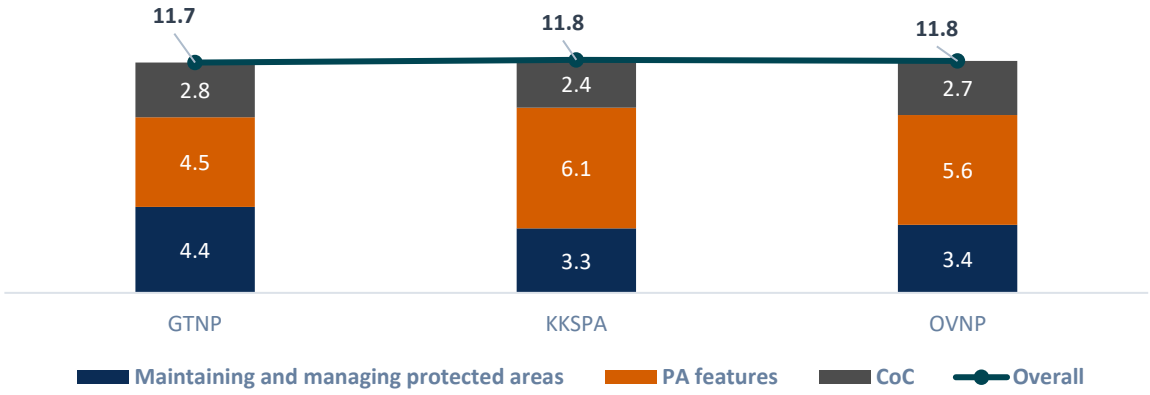
2.1. Overall KAP survey results

Overall Results

As presented in the methodology section, the overall score is the total point a survey participant scored. It consists of the three subsections: (1) maintaining and managing PAs; (2) PA features; and (3) CoC. As mentioned before, each subsection has ten, which means that the overall point can be thirty at the maximum. The overall score is used to measure the overall level of knowledge among visitors. If the overall score is close to the maximum value, thirty, then their overall level of knowledge is higher. Otherwise, their overall level of knowledge is insufficient, and we need to do something, like a a targeted program and campaign, to increase their knowledge. The knowledge level in the subsection will be discussed in their corresponding sections.

The overall score of respondents was 11.72 out of 30, showing that the overall score was slightly higher than one-third of the potential (maximum) points. The conclusion is that the overall level of knowledge was insufficient among visitors.

Figure 1. Overall score; by PA.

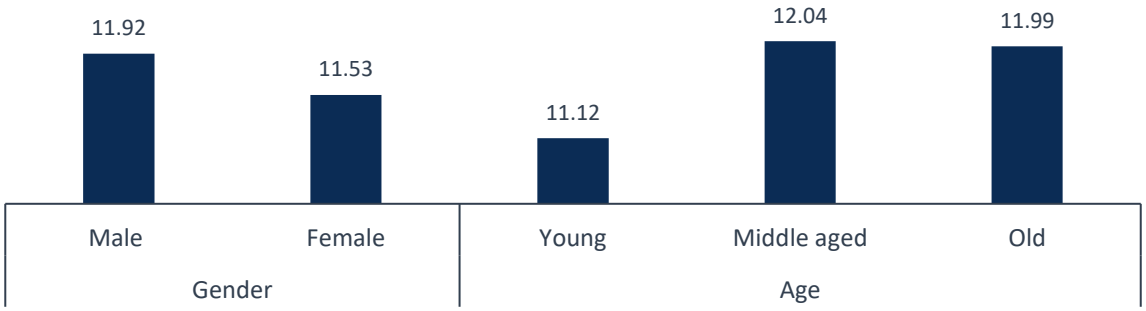


Source: KAP survey

As shown above, the overall level of knowledge was comparable among visitors regardless of where they visited and were sampled. For example, the overall score was 11.8 for respondents who visited KKSPA and OVNP, whereas it was slightly lower for those in the GTNP (11.7). From the above figures, one can see the average scores of three sub=components (by PA). Based on their average scores, visitors were more knowledgeable on PAs' features and less knowledgeable on the CoC.

The overall level of knowledge was higher among male respondents compared to females. Specifically, the overall score was 11.9 and 11.5 for male and female visitors, respectively. Furthermore, it was dependant upon their age. For instance, young visitors tended to have a lower overall score than middle-aged and older ones. Based on the following figure, the most knowledgeable visitors were males and middle-aged ones (Table A2 1 in Appendix 2).

Figure 2. Overall score; by gender and age.



Source: KAP survey

Note: *Middle-aged means between 31 and 50 years.*

In brief, the overall level of knowledge was insufficient among visitors because their average score was slightly higher than just one-third of the potential maximum. A targeted program is necessary to improve their level of knowledge. The following outcome matrix briefly presents which demographic group had the highest and lowest levels of knowledge on each question. The overall knowledge consisted of three sub-levels. Based on their average scores, visitors were more familiar with PAs' features, rather than maintaining and managing PAs and the CoC. Their sub-levels will be discussed shortly.

Table 3. Outcome matrix (visitors)

Item	Male			Female		
	Young	Middle-aged	Old	Young	Middle-aged	Old
Maintaining and managing PAs						
Ecosystem (Q1)						
Importance for human beings (Q2)						
PAs are created (Q3)						
Name of PA visited (Q4)						
PA features						
Landmarks or cultural sights (Q5)						
Rivers or lakes (Q6)						
Animals (Q7)						
Plants (Q8)						
Code of Conduct						
Setting up a camp (Q9)						
Disposing of human waste (Q10)						
Showing respect for nature (Q11)						
Disposing of waste and leftovers (Q12)						
Protecting local water systems (Q13)						
Off-road driving (Q14)						

Note. The '**green**' represents the most knowledgeable demographic group, where the '**red**', the least.

2.2. Domestic visitors' interviews

2.2.1. Maintaining and managing PAs

The level of knowledge was measured using the total points participants had scored on the corresponding questions. Even though the potential maximum points were, as mentioned before, ten, ***the average score was just 3.96***. That is, the current level of knowledge did not reach 40% of the maximum possible. The average score related to maintaining and managing PAs depended on demographic characteristics and the PA. For example, the level of knowledge of maintaining and managing PAs was 4.36 and 3.45 among respondents at GTNP and OVNP, respectively. At KKSPA, it was lower (3.27).

One important thing to be discussed is the standard deviation, which measures the magnitude of deviations from the mean. Over PAs, the standard deviations of the average of participants' scores were comparable to each other, implying that the level of knowledge of maintaining and managing PAs was similar among visitors (regardless of which PA they visited).

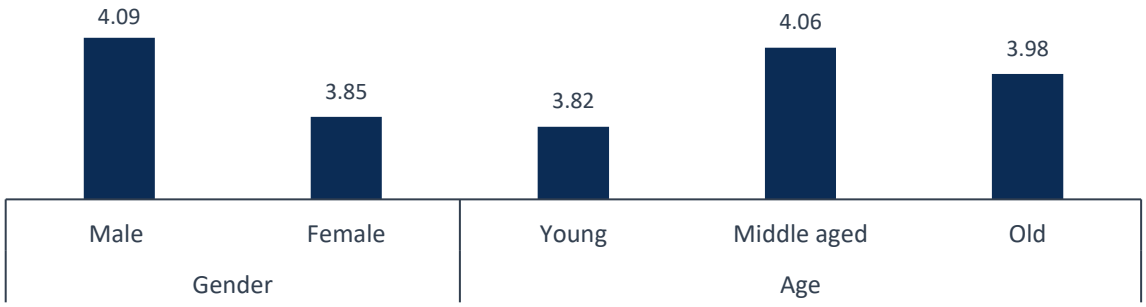
Table 4. Level of knowledge of maintaining and managing PAs; by PA.

PA	Mean	Std. Dev.	Frequency
GTNP	4.36	2.15	793
KKSPA	3.27	1.99	147
OVNP	3.45	2.04	402

Source: KAP survey

The average scores of male and female participants were 4.1 and 3.85, respectively. That is, male visitors were more knowledgeable than female ones. Furthermore, the average score depended on age. For example, the average score was 3.82 for young people, whereas it was 3.98 for older ones. The highest score - by age - was 4.06 among the middle-aged. Therefore, the most knowledgeable visitors – regarding maintaining and managing PAs - were males and middle-aged.

Figure 3. Knowledge level of maintenance and management of PA; by sex and age.



Source: KAP survey

As mentioned in the methodology subsection, the knowledge level of maintenance and management of PA measured by how survey participants answered the four questions. Therefore, providing descriptive statistics (prevalence or frequency) about those questions' responses helps us to see why the knowledge level is lower than or around 40% of the maximum possible.

The table presents shares of respondents who knew (and did not know) what an ecosystem was. Half (49%) of participants knew what the term meant, whereas they remained 51% were unsure. More specifically, 26.7% of respondents answered that they had heard of the ecosystem but did not know what it meant, whereas 24.4% stated that they had never heard the term. Even though this question seemed simple, the high level of participants who do not know what the ecosystem meant was surprising.

A fraction of respondents who answered that they did not know what ecosystem meant depended on demographic characteristics. For example, female visitors were less familiar with what the ecosystem meant compared to males. That is, 46.2% of female respondents knew what the term meant, whereas this share was 51.9% for males. In terms of age, young visitors were less familiar than middle-aged and older visitors. For example, the fraction of respondents who knew what ecosystem meant was 51.0% and 55.7% among middle-aged and old visitors, respectively. For young ones, it was 42.9%. (Table A2 2, Appendix 2).

Table 5. What an ecosystem is, (%)

Answer	Total, %	Age groups		
		Young	Middle age	Old
Yes	49.0	42.9	51.0	55.7
I have heard the term but do not know what it means	26.7	30.1	25.6	22.9
Never heard of the term	24.4	27.0	23.5	21.4

Source: KAP survey

People who answered they knew what ecosystem meant gave their definitions. The research team categorized their open-ended responses into groups based on their similarity. Most respondents defined the ecosystem as a dynamic complex of plant, animal, and micro-organism communities and their non-living environment that interact with and depend on each other'. For example, 87.2% of young respondents (who said that they knew what ecosystem meant provided this definition, whereas it was 94.0% among the elderly. Visitors have similarly defined the ecosystem even though it was an open-ended question (Table A2 2, Appendix 2).

Just 6.9% of respondents stated that they did not know why the ecosystem was essential for human beings. The others (93.1%) referred to at least one reason why it was important for people. The following table provides the most repeated responses. The top four reasons (why the ecosystem is important for human beings accounted for 73.8% of all responses. The top two reasons were 'preserve the environment for the future generations' and 'the relationship between the environment and human beings, which were closely related to the Mongolian traditional concept.

Table 6. Reasons why an ecosystem is important for human being, (%).

Reason	Share,
Preserve the environment for the future generations	21.6
Relationship between the environment and human being	19.2
Health	19.1
Provide a variety of services of value upon which people depend: maintenance of water cycles; clean air and water, maintenance of oxygen in the atmosphere, crop pollination, beauty, inspiration, and opportunities for research	13.9
Maintaining a stable climate; support climate change mitigation (carbon storage) and provide options for climate change adaptation.	7.8
Sustain nutrient cycles (photosynthesis in plants; plants eaten by animals, animals eaten by animals; dead organic matter decomposes; can be readily used by plants) and so forth.	7.1
Provide a variety of goods of value upon which people depend; tangible, material products such as food, construction material, and medicinal plants; less tangible items like tourism and recreation, and genes from wild plants and animals that can be used to improve domestic species.	4.4
Other	4.7
Not important	0.1
Do not know	2.1

Source: KAP survey

Compared to female participants, males were more likely to refer to reasons of 'preserving the environment for the future generations and 'the relationship between the environment and human beings'. Female visitors were more likely to suggest a reason related to 'health' than the males. Regarding age, the proportion of respondents who stated a reason associated with 'health' increased with age. For example, 14.2%, 18.9%, and 27.5% for young, middle-aged, and older participants, respectively. The fraction of participants who suggested 'the relationship between the environment and human beings' decreased with age (Table A2 3 Appendix 2).

Participants explained why PAs were created in their way. Most (95.6%) of all responses were correct. The most frequent response 'to celebrate our natural and cultural heritage', constituted 51.9% of all responses, followed by 'conserving vital gene pools' (15.6%) and 'providing safe havens for wild plants and animals' (13.5%). In terms of 'to celebrate our natural and cultural heritage, its share was 52.3%; and 51.4% for males and females, respectively. Regarding age, this increased with age. For example, it was 49.7%, 52.6%, and 54.4% for young, middle-aged, and old visitors, respectively. The share of 'conserving vital gene pools' was lowest among the middle-aged and highest among the young. The fraction of respondents who stated 'to provide safe havens for wild plants and animals increased with age (Table A2 4., Appendix 2).

Table 7. Reasons why PAs are created, (%)

Reason	Share,
Celebrate our natural and cultural heritage	51.9
Conserve vital gene pools	15.6
Provide safe havens for wild plants and animals	13.5
Build knowledge and understanding of natural systems and the impacts of human activity	3.9

Maintain functioning ecosystems and the benefits they provide	2.6
Improve overall health and well-being through contact with nature	2.3
Attract visitors	1.9
Preserve the environment for future generations	1.5
Strengthen resilience to climate change	0.9
Provide opportunities for outdoor recreation	0.8
Benefit and diversify local economies	0.7
Other	2.0
Do not know	2.4

Source: KAP survey

The last question was about the name of the PA a respondent had visited. Interestingly, over one-fourth of participants (27.3%) did not know the correct name of the PA visited. It was 29.9% and 24.5% among female and male respondents, respectively. In respect to age groups, it was the lowest for middle-aged visitors (24.5%) and highest for older ones (30.5%). For young respondents, it was 29.9% (Table A2 5., Appendix 2). Even though it was the easiest question in this section, the share of respondents who do not know the correct name was higher than expected. It shows that the level of knowledge was insufficient

In conclusion, visitors were unable to score above 40% of the total point. The easiest question was about the correct name of the PA they visited, but more than one-fourth of respondents did not know the correct name. That is, the level of knowledge of maintaining and managing PAs was low among domestic visitors. This result strongly suggests that a targeted program is necessary to improve the level of knowledge and further protect the ecosystem and PA in the long term.

2.2.2. PA features

The average score on PAs' features was 5.03. Visitors were more familiar with PAs' features than maintaining and managing Pas or generally, the average number of correct names was around (or less than) 50% of the potential, excluding animals. As shown below, the average score was highest among KKSPA's visitors. Their standard deviations were comparable to each other, implying that the knowledge of PA features was similar among all visitors.

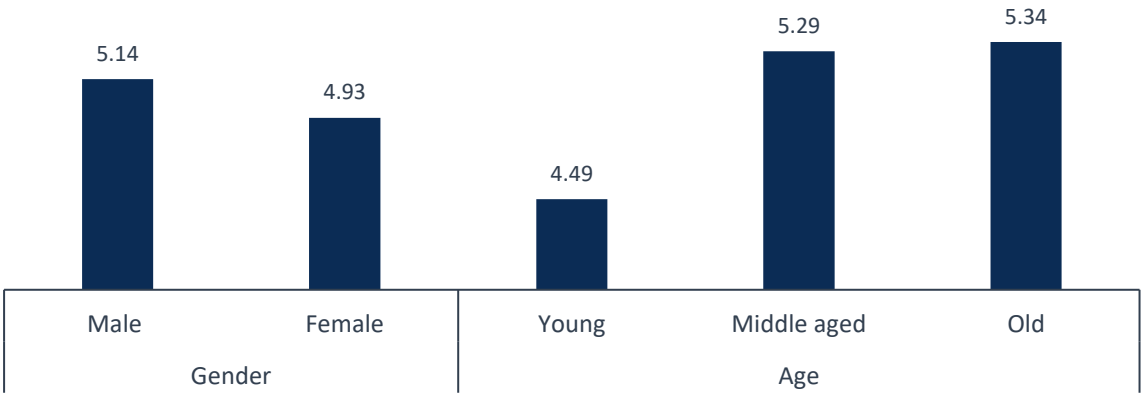
Table 8. Level of knowledge of PAs' features; by PA.

PA	Mean	Std.Dev	Freq
GTNP	4.547	1.930	793
KKSPA	6.122	2.139	147
OVNP	5.579	2.061	402

Source: KAP survey

The level of knowledge was higher among males than females. For example, the average score was 5.14 and 4.93 for male and female participants, respectively. Moreover, the level of knowledge depended on age. For instance, the average score was 4.49 and 5.29 for young and middle-aged visitors, respectively. It was the highest among the elderly, at 5.34.

Figure 4. Knowledge level of PAs' features; by gender and age.



Source: KAP survey

The following table illustrates the average number of correct names for features in each PA. Based on the number of correct names, visitors were more familiar with animals; and visitors in KKSP were more knowledgeable.

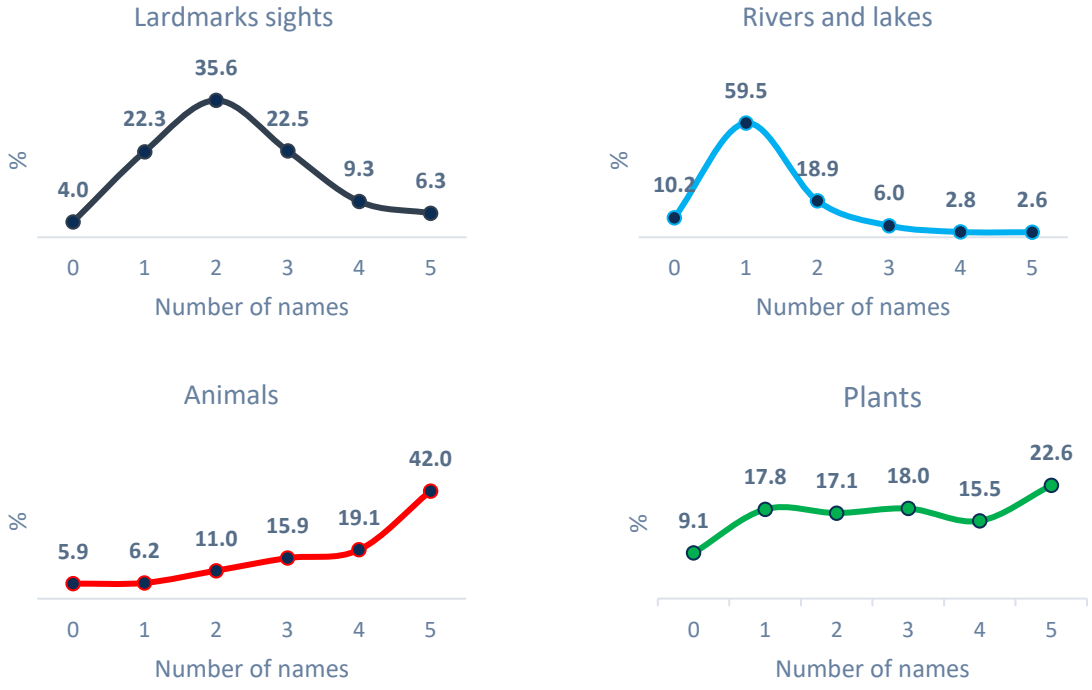
Table 9. Average number of correct answers; by a PA.

PA	Landmark	Rivers	Animals	Plants
GTNP	2.1	1.1	3.5	2.9
KKSPA	2.6	2.9	4.3	2.9
OVNP	2.5	1.3	3.6	2.6

Source: KAP survey

The following figures show how many correct names respondents provided on each feature.[2] As shown below, the majority of participants named two landmarks (or cultural sights) and one river or lake, respectively. In terms of animals and plants, more people mentioned more correct names.

Figure 5. Distribution of number of correct names; by a PA.



Source: KAP survey

Compared to female respondents, males were more likely to refer to more correct names of PAs' features, excepting plants. Female visitors were more familiar with plants than males. Concerning age, there was no significant difference (Table A2 6., Appendix 2).

To conclude, visitors were more knowledgeable about PAs' features than maintaining and managing PAs. However, the level of knowledge was still insufficient because the average score was only slightly higher than half of the potential points.

[2]. In the report, we are presenting a simple average of the number of answers. Even though there must be three names of rivers and plants in OVNP, its impact on the distribution is not significant

2.2.3. Knowledge related to the CoC

The knowledge level of the CoC directly depends on a point on the related questions participants scored. According to researchers' calculations, ***the average score for the CoC was 2.78 out of 10,*** less than 30% of the potential. This illustrates that even though respondents mentioned correct answers, they were unable to score the full points because the number of correct answers did not reach the required one. That is, visitors were familiar with the CoC but not fully knowledgeable.

It is noteworthy that those questions related to the guidelines are open-ended. In other words, survey participants did not see those pre-prepared answers. A field researcher openly asked those questions and wrote down answers participants provided.

The following table presents the average point an average respondent got for each question. The average respondent was more familiar with Q14 (about off-road driving) because we asked them to provide only one correct answer to get the full score. In terms of Q12 (disposing of waste and leftovers inside PA) and Q11 (showing respect for the nature inside PA), the respondent scored 36.7% and 30.4% of the potential maximum, respectively. For the other three questions, the level of correct answers did not exceed 30%. This shows that the level of knowledge of the CoC was insufficient among visitors.

Table 10. Average score; by question

№	Average point	Maximum point	Percent
Q9	0.31	1.50	20.9
Q10	0.31	2.00	15.4
Q11	0.61	2.00	30.4
Q12	0.73	2.00	36.7
Q13	0.29	2.00	14.6
Q14	0.48	0.50	95.4

Note Q9, Q10, and Q13 are about setting up a camp, disposing of human waste, and protecting local water resources inside PA, respectively.*

Source: KAP survey

The average scores of respondents were comparable to each other over PAs. For example, it was 2.78 and 2.74 for respondents visiting GTNP and OVNP, respectively. In terms of KKSPA, it was 2.43. The standard deviations were similar to each other, implying that the level of knowledge was similar among respondents regardless of where they visited.

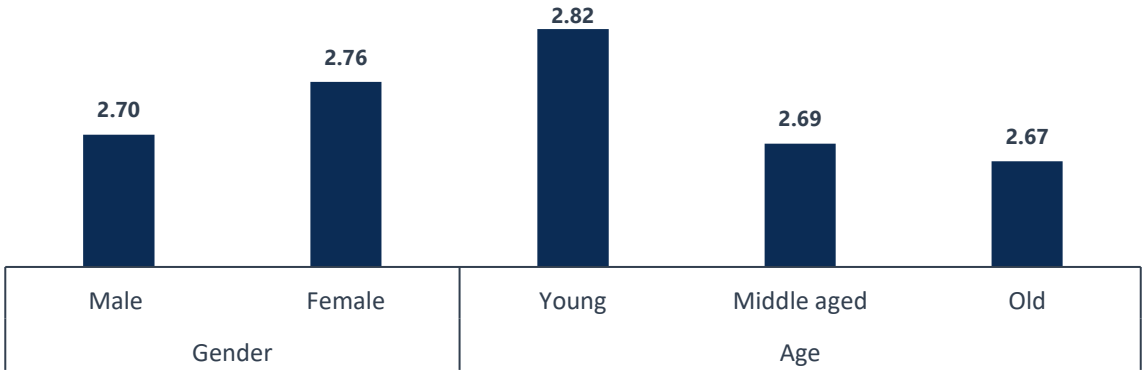
Table 11. Level of knowledge of the CoC; by PA.

PAs	Mean	Std.Dev	Freq
GTNP	2.783	0.892	793
KKSPA	2.429	0.770	147
OVNP	2.737	1.005	402

Source: KAP survey

In terms of gender, the average score was higher for women than men. In terms of age, the level of knowledge of the CoC decreased with age. For example, the average scores were 2.82 and 2.67 for the young and the elderly, and for the middle-aged, it was 2.69.

Figure 6. Knowledge level of the CoC; by sex and age.



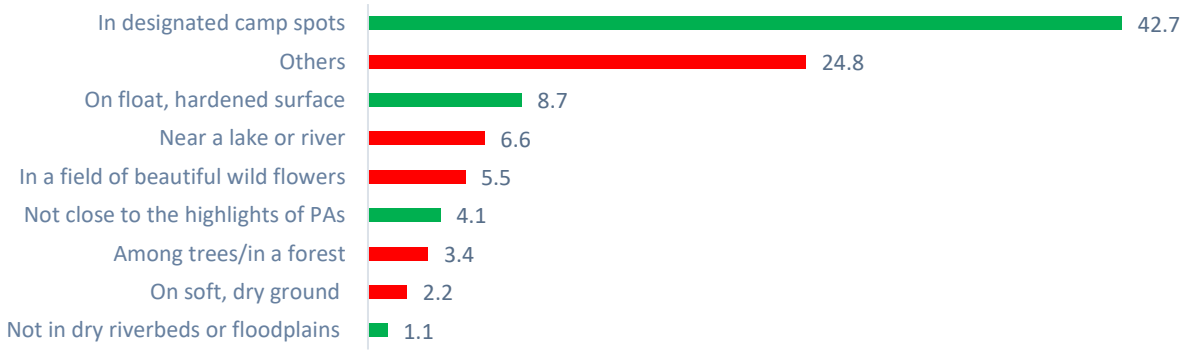
Source: KAP survey

The knowledge level of CoC was calculated by six questions: (1) setting up camp inside a PA; (2) disposing of human waste inside a PA; (3) showing respect for the nature inside a PA; (4) disposing of waste and leftovers inside a PA; (5) protecting water resources inside a PA; and (6) off-road driving. Let's present how survey respondents answered those questions.

Concerning setting up camp inside a PA, 56.5% of all responses were correct. For male and female respondents, it was 57.8% and 55.3%, respectively. Males were more familiar with where they could set up a camp (inside PAs) than females. Concerning age, the proportion of correct answers was comparable to each other. Specifically, the lowest was 55.1%, and the highest was 57.2% for the elderly and middle-aged, respectively.

Visitors frequently stated they set up camp in designated camp spots. More specifically, an '*in designated camp spots*' accounted for 42.7% point out of 56.6%, while the remaining 13.9% were other correct answers. The fraction of respondents who mentioned '*in designated camp spots*' was similar by gender (42.4% for males; 42.9% for females). With respect to age, there was a noticeable difference. For example, the share was 44.6% and 36.4% for the young and elderly, respectively. For the middle-aged, it was 43.2%. In brief, the proportions decreased with age (Table A2 7., Appendix 2).

Figure 7. Setting up camp inside a PA, (%).

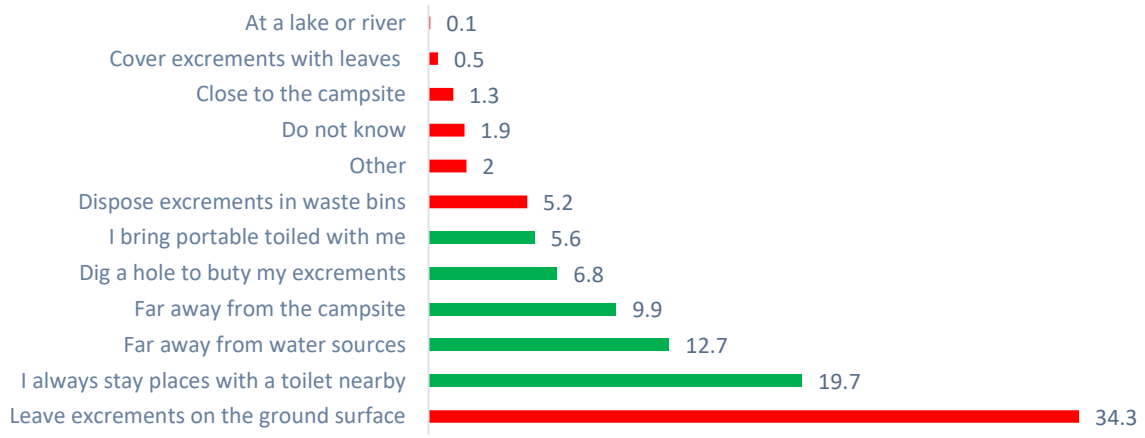


Source: KAP survey

Regarding disposing of human waste inside PAs, the correct answers accounted for 54.7% of the total responses. The fraction of correct answers within the total response was 53.4% and 55.9% for males and females, respectively. That is, female participants were more knowledgeable on disposing of human waste inside PAs. Furthermore, this share was 53.0% and 58.1% for the middle-aged and elderly, respectively. For young visitors, it was 55.6%.

As shown below, the most frequent answer, '*leave excrement on the ground surface*', which was incorrect. More specifically, 34.3% of respondents suggested '*leaving excrements on the ground surface*', showing that visitors often do so. Unfortunately, this is the incorrect way of disposing of human waste inside PAs. Its share was depended on respondents' gender and age. For example, it was 31.9% for women, 37.0%, and for men. Female respondents were more familiar with how to properly dispose of human waste inside PA than the males. Furthermore, the middle-aged were more likely to believe that *'leaving excrements on the ground surface' was the correct answer than the young and the elderly (*Table A2 8*,* Appendix 2). The most knowledgeable visitors - about disposing of human waste inside PAs - were women and the elderly).

Figure 8. Disposing of human waste inside PA (if you do not find a toilet nearby), (%).

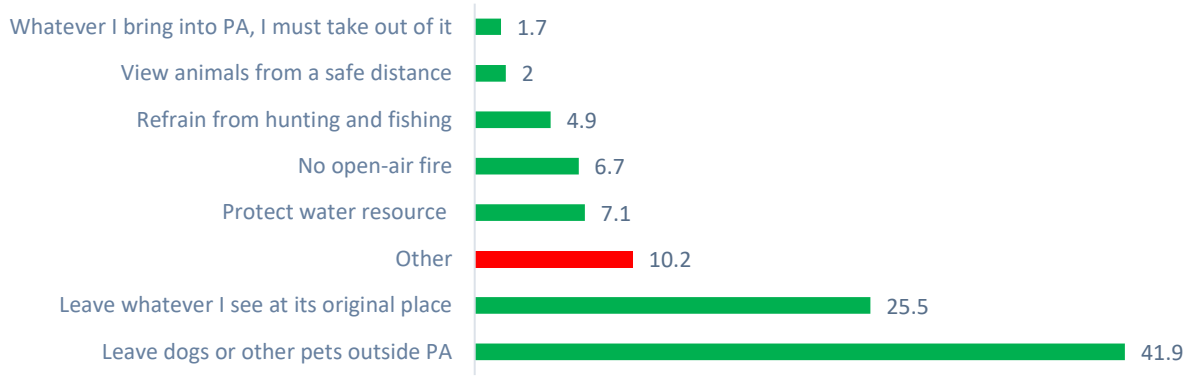


Source: KAP survey

In terms of showing respect for nature inside PA, 89.8% of the total responses were consistent with the pre-prepared list of correct answers. It was 89.5% and 90.1% for male and female visitors, respectively. In terms of age group, a fraction of correct answers in the total ones was comparable to each other (young – 91.1%, middle-aged – 89.4%, and old – 87.9%).

The most popular answer was '*leaving dogs or other pets outside PA'* (41.9%), followed by *'leaving whatever I see at its original place'* (25.5%). By gender, there was no significant variation in the share of respondents who suggested the two responses. By age, younger visitors tended to be more familiar with *'leaving dogs or other pets outside PA'* than older ones, whereas older respondents were more likely to refer to '*leaving whatever I see at its original place'* than younger ones (Table A2 9., Appendix 2). The most knowledgeable visitors, on showing respect for nature inside PAs, were females and the young.

Figure 9. Showing respect for nature inside PAs, (%).



Source: KAP survey

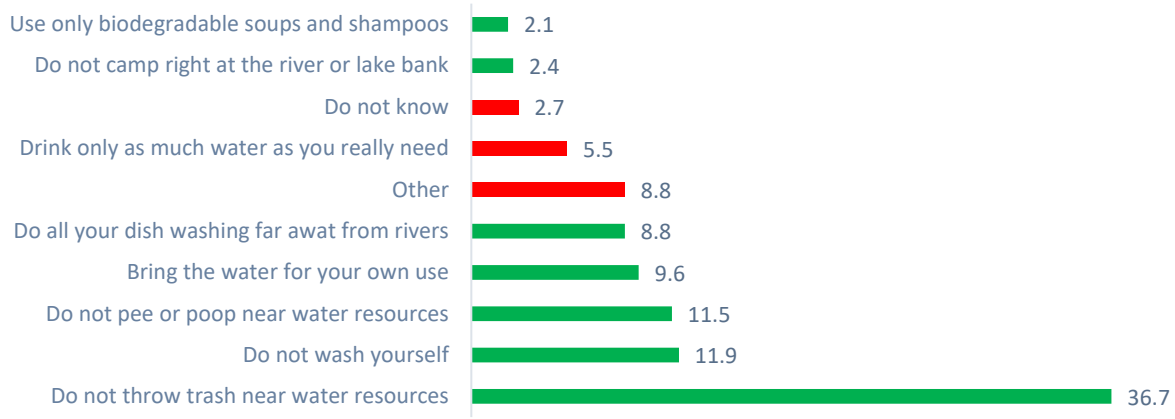
With respect to disposing of waste and leftovers inside PAs, respondents were more familiar with this topic in comparison with the previous ones. The fraction of correct answers was 98.1%, whereas wrong answers constituted just 1.9%. This ratio was constant over age and gender (Table A2 10., Appendix 2).

Figure 10. Disposing of waste and leftovers inside PAs, (%).

Source: KAP survey

Regarding protecting local water systems inside PA, 83.0% of all responses were correct. For male and female participants, it was 79.3% and 86.4%, respectively. In addition, the proportion of correct answers was almost the same among the middle-aged (81.4%) and the elderly (81.3%). It was 85.9% for young visitors. The most frequent answer was '*don't throw trash near water resources*' (36.7%), followed by '*don't wash yourself*' (11.9%) and '*don't pee and poop near water resources*' (11.5%). The proportion of correct answers - by gender and age - were. This implies that respondents had the same level of knowledge regardless of their demographic characteristics (Table A2 11., Appendix 2).

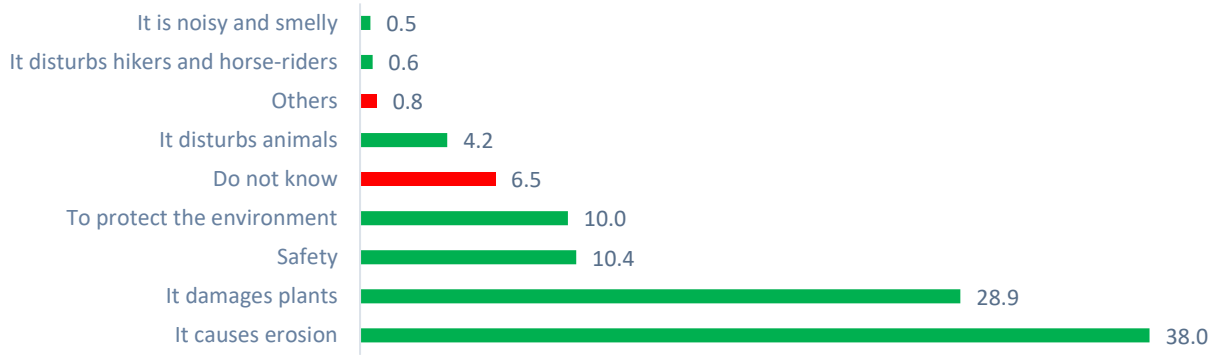
Figure 11. Protecting local water systems inside PAs, (%).



Source: KAP survey

Regarding off-road driving, correct answers accounted for 92.6% of all responses. The most frequent response was '*causing erosion*' (38.0%), followed by '*damaging plants*' (28.9%) and '*safety*' (10.4%). The answers did not depend on age and gender (Table A2 12., Appendix 2).

Figure 12. Refraining from off-road driving inside PAs, (%).



Source: KAP survey

A fraction of correct answers was the majority. However, survey attendants must provide multiple answers on each question, excepting off-road driving, to get the full score.

In this section and the preceding ones, some questions were closely related to Mongolian traditions, which made those questions easier for domestic visitors. For example, since ancient times, Mongolians have banned polluting water resources due to religion and tradition. However, the level of knowledge was still insufficient among visitors. Therefore, a targeted program is important to improve their level of knowledge of the CoC.

2.2.4. Sources of Information

This section discusses sources of information about PAs and the guidelines that are the most popular among visitors. First to be mentioned are the comic books *Goo Mongol, Tselmeg and Tsengeg Planted a Tree,* and *Snow Friend,* devoted to delivering information to visitors. Unfortunately, the share of respondents who had seen and read a comic book was just 0.8% and 0.9% for Snow Friend and Goo Mongol, respectively. For *Tselmeg* and *Tsengeg Planted a Tree*, it was 1.1%. The share of participants who had seen but not read a comic book was 9.8% for *Tselmeg* and *Tsengeg Planted a Tree*. For *Snow Friend* and *Goo Mongol,* it was 13.1% and 13.5%, respectively. Over 80% of respondents answered that they had not seen and/or read the comics, implying that the books did not reach their target groups (Table A2 13., Appendix 2).

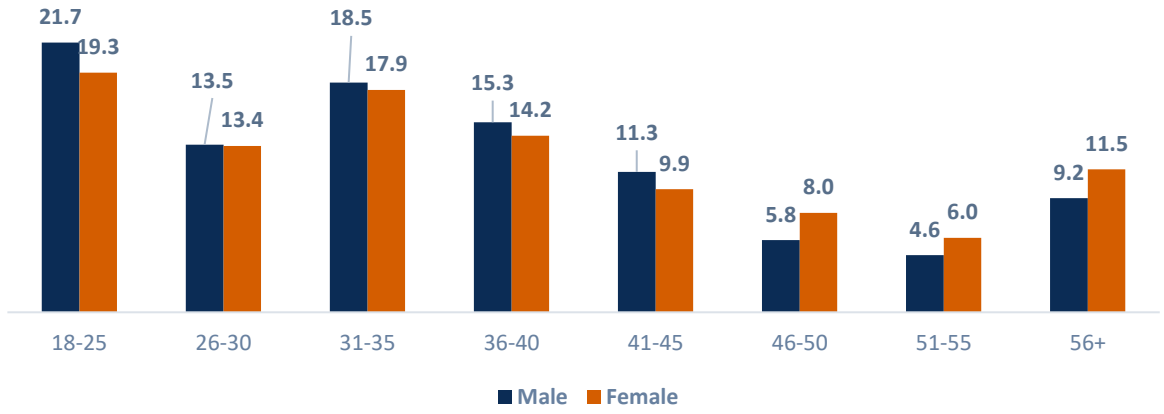
A majority of respondents (53.2%) did not have information about PAs before their visits. In terms of sources of information about PAs, the most common was verbal (informal) information (23.4%), followed by internet (14.0%) and social media (11.0%). The verbal information played the same role across all age groups and genders (Table A2 14., Appendix 2). However, the internet and social media were much more popular among younger visitors compared to middle-aged and the elderly. Depending on the group targeted, the source of information about PAs must be prepared differently accordingly.

Most participants (62.0%) answered that they did not have information on guidelines of what to do and not to do inside PAs. The main source of information was social media (10.4%), followed by verbal (8.5%) and internet (7.4%) (Table A2 15., Appendix 2). Based on the statistics, information about PAs and guidelines was insufficient and did not reach their target groups. Across age and gender, the conclusion was similar.

2.2.5. Profile of respondents (domestic visitors)

The sample size of domestic visitors was 1,342, of which 48.7% were male. The average age of the participants was 37 years, and the share of respondents between the age of 18 and 25 was 20.5%. (Figure 13).

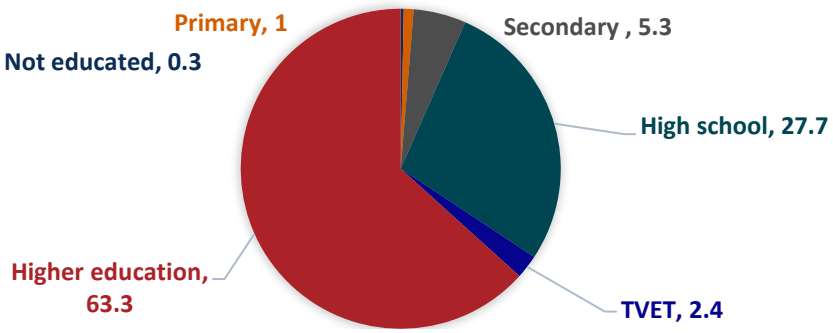
Figure 13. Respondents; by age and gender (%).



Source: KAP survey

More than half of the respondents (63.3%) had received higher education, whereas 27.7% were had a high-school degree. A majority of participants (62.5%) with a TVET degree were women, while the majority of participants with primary (69.2%) or secondary (62.0%) degrees were men. Participants' education levels were mixed, which made the sample more representative of the population.

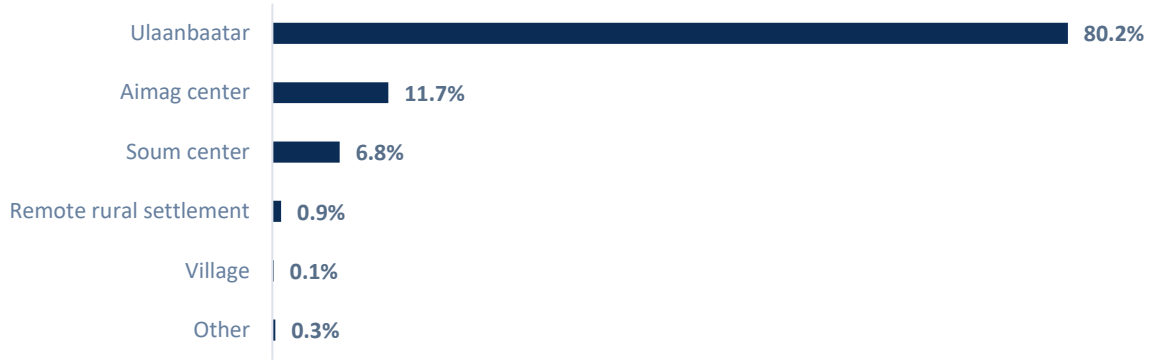
Figure 14. Respondents; by education (%).



Source: KAP survey

Most (80.2%) of participants were from Ulaanbaatar; 19.5% were from aimags centers (soum centers, villages, and other rural areas). The remaining 0.3% was from abroad; Korea, Germany, and Japan.

Figure 15. Respondents; by location (%).



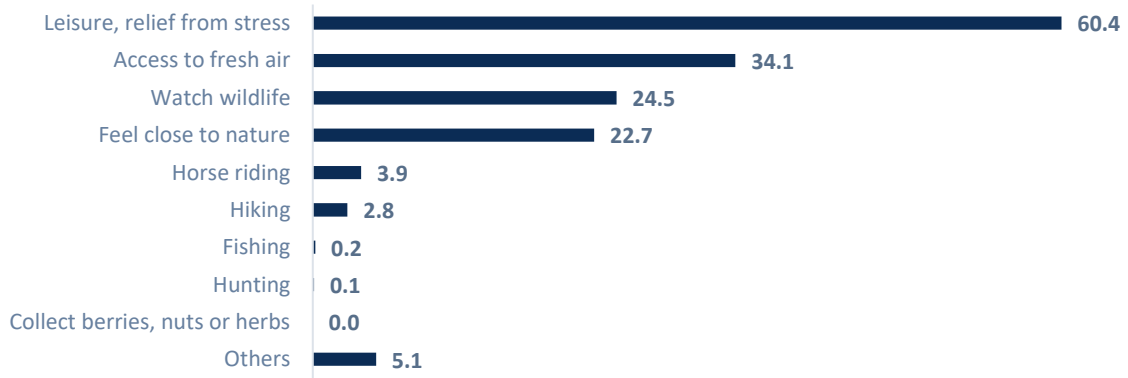
Source: KAP survey

The total sample was calculated to be 1,316. To allow any gender or age disaggregated analysis, researchers adjusted the percentages of the samples to be collected in each PA to 60%, 10%, and 30% in the GTBP, KKSPA, and OVNP, respectively. Furthermore, the team successfully collected 59% of interviews from GTNP, 11% from KKSPA, and 30% from OVNP. In terms of gender, 48.7% of the surveyed respondents were men and 51.3% were women. This shows that the research team successfully collected data according to the sample size; representative of the original population.

2.2.6. General motivation to visit a PA

This section explores the reasons for visiting PAs. According to the survey, the main reason was for leisure and relief from stress (60.4%), followed by access to fresh air (34.1%), regardless of demographic characteristics (Figure 16). Concerning destination, the main reason for domestic visitors going to the GTNP was to get relief from stress and access to fresh air, while those visiting OVNP and KKSPA reasons were to feel close to nature and discover wildlife.

Figure 16. Respondents' reasons for visiting (%).

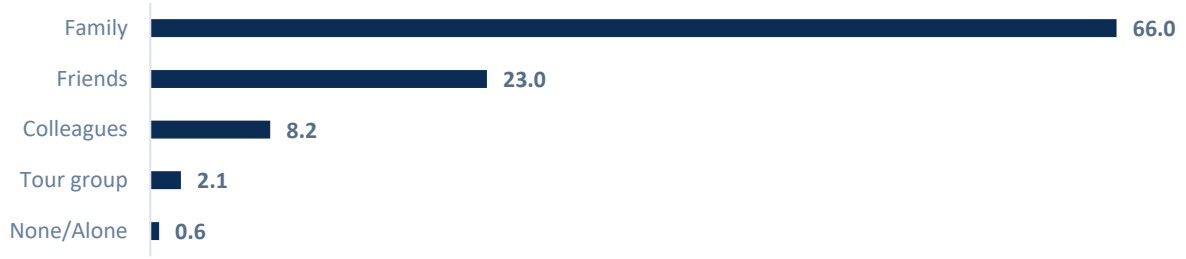


Source: KAP survey

Note: *Due to the multiple-answer question, the calculation was based on the percentage of answers, not on the percentage of cases*

The popular companions of domestic visitors were family (66.0%), followed by friends (23.1%) and colleagues (8.2%). These three categories of companions accounted for 97.3% of the total. The average number of friends and colleagues visiting a PA was ten, while the average number of family members was eight.

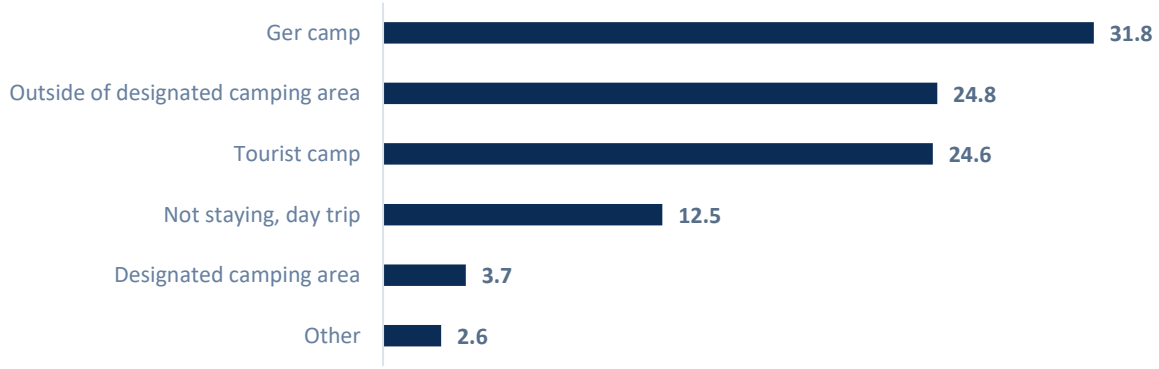
Figure 17. Respondents' companions (%).



Source: KAP survey

Visitor's accommodation concentrated on ger camps (31.8%), outside of designated camping areas (24.8%), and tourist camp (24.6%). Interestingly, 3.7% of participants stayed in a designated camping area, which implies that designated camping areas might be rare inside PAs.

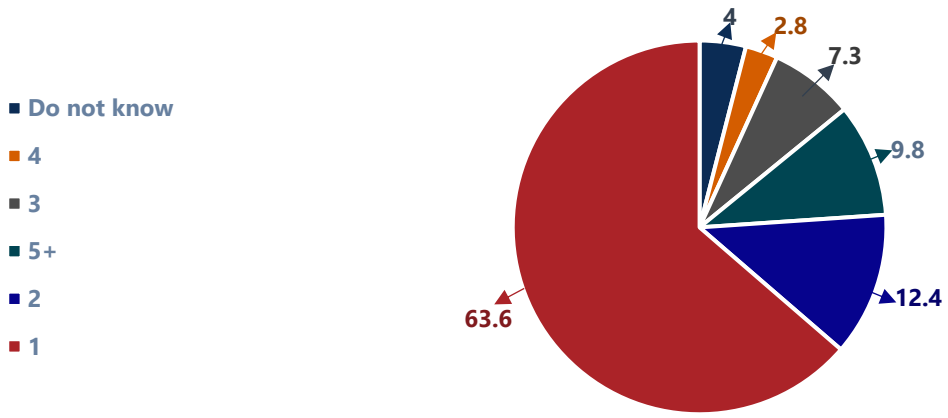
Figure 18. Visitors' accommodation in PAs (%).



Source: KAP survey

Respondents' choice of accommodation depended on demographic factors. For example, younger visitors were more likely to stay in ger camps or tents, while older visitors used visitor camps. Furthermore, visitor and ger camps were popular among respondents visiting OVNP, while tents were more popular among visitors to KKSPA. GTNP was the most popular PA for day trips.

Figure 19. Number of visits in previous 12 months (%).



Source: KAP survey

Two-thirds (63.6%) of participants visited PAs for the first time during the previous twelve months. The first-time visitors went mostly to KKSPA and OVNP, and the respondents who visited GTNP had done so five or more times. The frequency of traveling increases as the age of the respondent increases, while the frequency of travel decreases as the age of the respondent decreases.

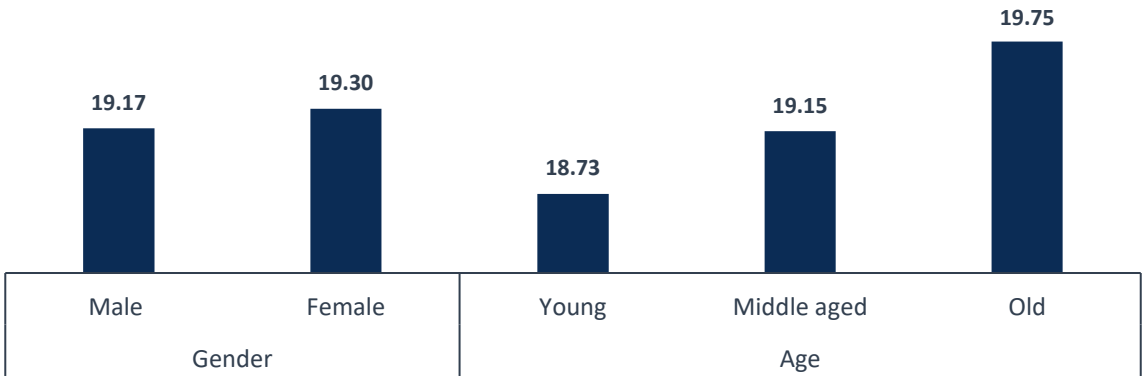
2.3. PAs' staff

2.3.1. The level of knowledge

The methodology used to measure staffs' levels of knowledge was exactly the same as that used in the visitor`s section. Therefore, a description of the methodology is not repeated here. Moreover, the research team presents only the main results because the sample size of staff surveyed was not as large as that of visitors.

The overall score was 19.2 out of a maximum of 30, showing that PAs' staff were more knowledgeable than visitors; where the score was 11.72 among visitors. The following figure displays the average score by gender and age. Compared to male workers, females had a higher level of knowledge. Furthermore, the overall level of knowledge increased with age. That is, older employees were more knowledgeable than younger ones.

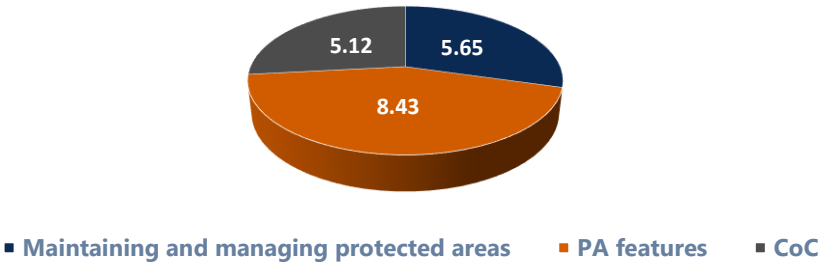
Figure 20. Staff's overall level of knowledge; by gender and age.



Source: KAP survey

As mentioned before, the overall measure of knowledge consisted of three sub-components. The following figure shows the average scores of the sub-components. For example, the average score was 5.12 on the CoC, whereas it was 5.65 on maintaining and managing PAs. In terms of PAs' features, the average score was 8.43, which implies that staff was more familiar with PAs' features than the other two sub-components (like visitors).

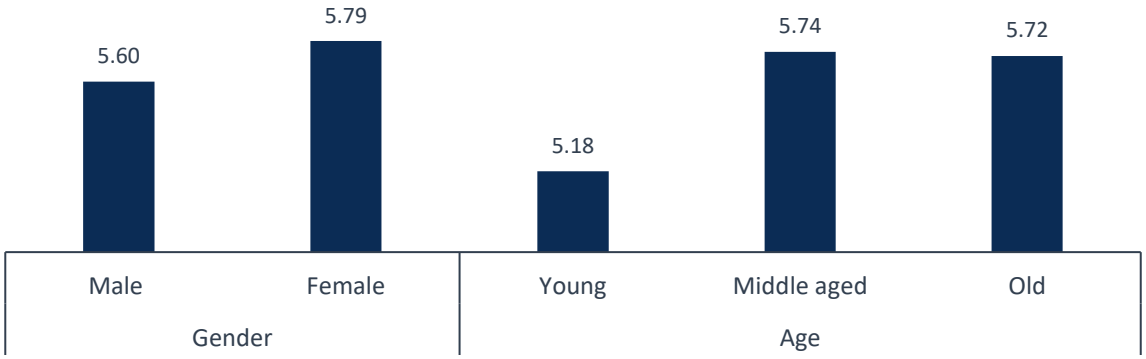
Figure 21. Average scores of sub-components.



Source: KAP survey

As shown before, **the average score of staff on maintaining and managing PAs was 5.65 out of 10**, just above half of the potential maximum. In terms of gender, females had a higher score than males. Furthermore, middle-aged and older workers tended to be more knowledgeable than younger ones.

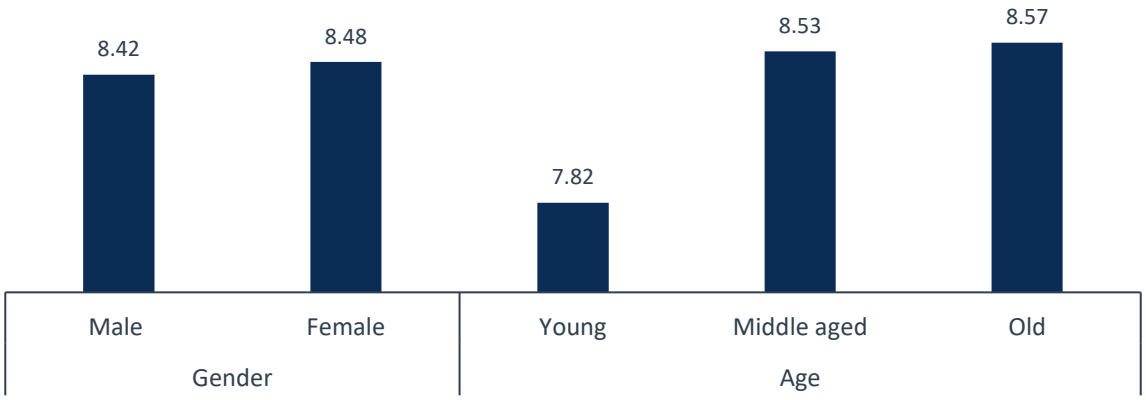
Figure 22. Staff's level of knowledge of maintaining and managing PAs; by gender and age.



Source: KAP survey

The next sub-component was about PAs' features. The staff was more familiar with PAs' features than the other two sub-components. **The average score was 8.43 (out of a maximum of10)**, higher than 80% of the potential maximum points. There was no large difference between the level of knowledge of male and female workers about PAs' features. With respect to age, the level of knowledge increased with age, implying that older workers had a higher level of knowledge.

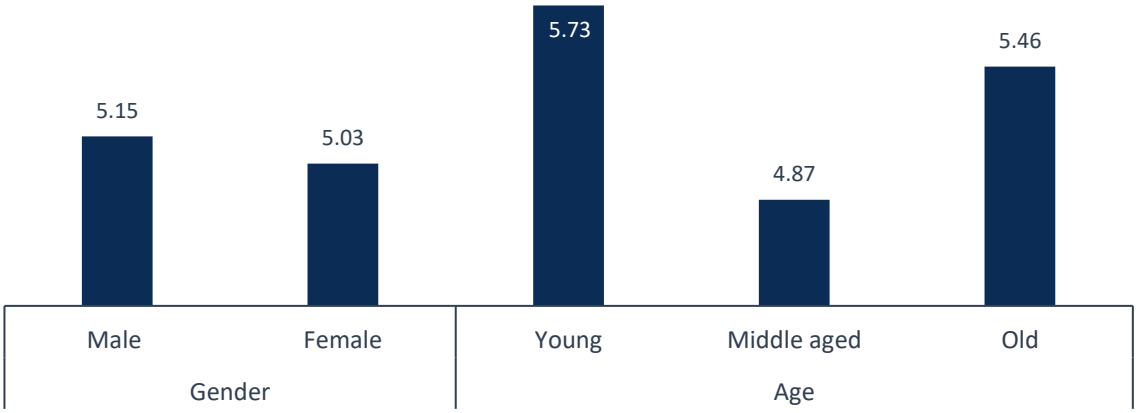
Figure 23. Staff's level knowledge of PA features; by gender and age.



Source: KAP survey

The last sub-component was the CoC. **The average score was 5.12 out of 10**. Regarding gender, male workers had a higher level of knowledge, but the difference was not considerable. In terms of age, it is possible to observe a large difference in the average scores. For example, the averages were 5.73 and 4.87 for young and middle-aged employees, respectively. For elderly workers, it was 5.46. Compared to visitors, the average scores were much higher.

Figure 24. Staff's level of knowledge of the CoC; by gender and age.



Source: KAP survey

In conclusion, the level of knowledge was around 50% of the potential maximum, excepting PAs' features. It is important to mention that PAs' staff were more knowledgeable than visitors. However, there is still a room to improve their level of knowledge; and there needs to be a targeted program. The following outcome matrix briefly presents which demographic group had the highest and lowest level of knowledge on each question.

Table 12. Outcome matrix (staff).

Item	Male			Female		
	Young	Middle-aged	Old	Young	Middle-aged	Old
Maintaining and managing PAs						
Ecosystem (Q1)						
Important for human beings (Q2)						
PAs are created (Q3)						
Name of PA visited (Q4)						
PA features						
Landmarks or cultural sights (Q5)						
Rivers or lakes (Q6)						
Animals (Q7)						
Plants (Q8)						
Code of Conduct						
Setting up a camp (Q9)						
Disposing of human waste (Q10)						
Showing respect for nature (Q11)						
Disposing of waste and leftovers (Q12)						
Protecting local water systems (Q13)						
Off-road driving (Q14)						

Source: KAP survey

Note. The **'green'** represents the highest knowledgeable demographic group, where the **'red'**, the lowest.

2.3.2. Sources of Information

This section describes the sources of information about PAs, and the guidelines, that are most popular among staff. Firstly, the comic books *Goo Mongol, Tselmeg and Tsengeg Planted a Tree,* and *Snow Friend;* devoted to delivering information. The share of workers who had seen or read the book was 18.4% and 10.2% for Goo Mongol and Tselmeg and Tsengeg planted a tree respectively. For *Snow Friend*, the share was 29.3%. That is, the fraction of employees who have read/seen none of them was as high as 70%, implying that the comic books did not reach visitors and even staff (Table A2 16., Appendix 2).

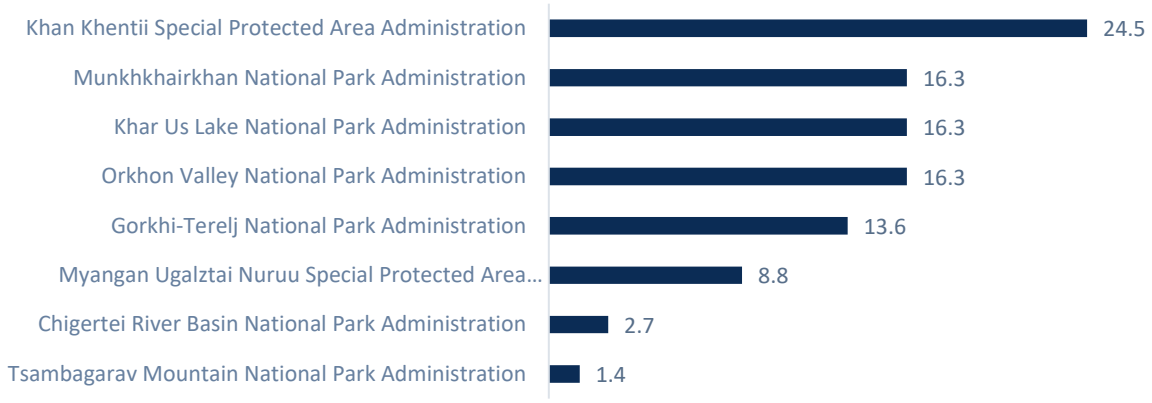
The proportion of workers who did not have information about PAs was 13.7%, lower than that of visitors by 44.9% percentage points. The most common source was verbal (20.9%) and social media (20.9%), followed by television programs (19.0%) and the internet (10.0%). In terms of the verbal information, there was no significant variation in its share by gender, whereas its share was 24.3% and 17.3% for workers under 40 and over 41 years of age, respectively. That is, verbal information is more important for younger employees than for older ones. Furthermore, there was no considerable difference in the share of social media, by age, whereas this source of information was more important for females (28.1%) than males (18.2%). Therefore, sources of information of PAs depend on demographic characteristics (Table A2 17., Appendix 2).

The main source of information about the CoC among staff was information boards (45.0%), followed by social media (10.7%) and television programs (10.1%). The share of workers who answered that they did not have information on the guidelines (about what to do and not to do inside PAs) was 13.1%, lower than that among visitors by 48.9% percentage points. In terms of information boards, the share was relatively constant by age and gender. Television programs are more important for older and male employees, whereas social media is more important for younger and female workers (Table A2 18., Appendix 2).

2.3.3. Profile of respondents (PA staff)

A total of 147 staff were sampled (from eight PAs consisting of six national parks and two strictly PAs), of which 33.3% were from PAs and 66.7% from National Park administrations.

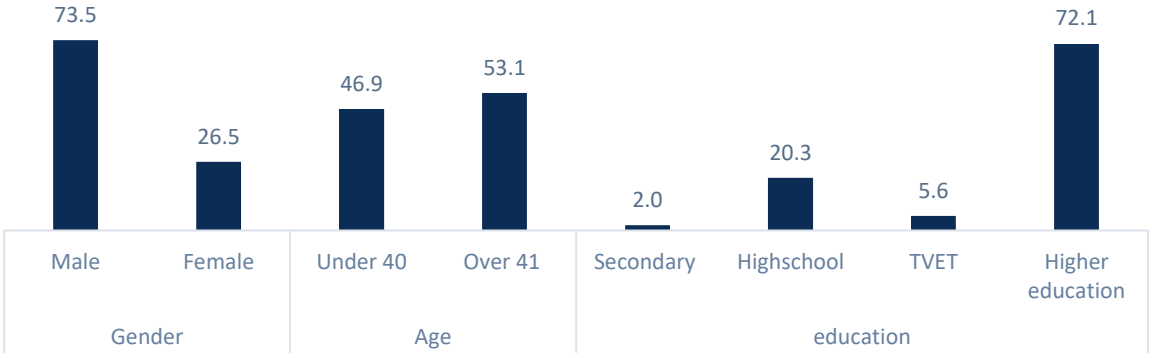
Figure 25. PAs' staff; by location (%).



Source: KAP survey

Of the total of 147 PAs staff surveyed, 73.5% were male, and 26.5% were female. A majority of respondents (53.1%) were over 41 years of age.

Figure 26. Respondents; by gender, age and education, (%)

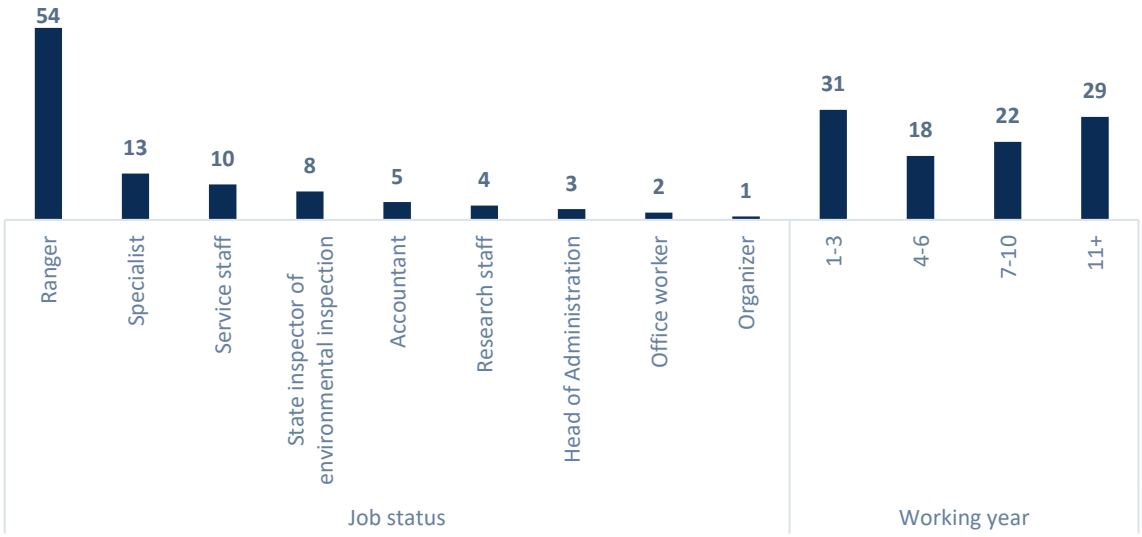


Source: KAP survey

A majority of staff (72.1%) had higher education, and 20.4% had completed secondary education. PA staff with higher education held positions such as managers and specialists, while staff with high school or secondary education held positions such as service staff and ranger.

According to the job status of the surveyed staff, the majority (54.4%) were rangers, and of these 87.5% were men and 12.5% were women, while 47.4% of the specialists were women.

Figure 27. Respondents; by employment type and duration, (%).



Source: KAP survey

In terms of years of service, 30.6% of respondents had worked for 1-3 years, while 29.3% had worked for 11 years or more in the PAs' administration. The average number of years worked among all participants was eight.

CONCLUSIONS

This report describes the measurement of levels of knowledge among domestic visitors and PAs' staff within the three components:

- maintaining and managing PAs,
- PAs' features, and
- the CoC.

Furthermore, researchers were interested to know whether comic books reached their target group and whether sources of information of PAs (and the guidelines) depended on demographic factors.

In terms of maintaining and managing PAs, the highest score a visitor could get was ten. The average score of respondents in this subsection was 3.96, meaning their level of knowledge was lower than 40%. This section had four questions, and the easiest was knowledge about the name of the PA visited. Interestingly, over one-fourth of participants were unable to provide the correct name of the PA visited, which was much higher than expected. The average score was higher for male visitors than for females; and was highest among the middle-aged. The level of knowledge was 5.65 (out of 10) among PAs' staff. Male and middle-aged employees tended to have a higher level of knowledge than other demographic groups. However, domestic visitors and PAs' staff have insufficient knowledge on maintaining and managing PAs; their average score was less than half of the potential.

Regarding PAs' features, the level of knowledge was higher than on maintaining and managing PAs. The average score of visitors was 5.03 out of ten. Using the number of correct names of PAs' features, visitors were more familiar with animals and plants, compared to landmarks or cultural sights, rivers, or lakes. By demographic characteristics, there was a variation in the level of knowledge of PAs' features. For example, male visitors had a higher-level knowledge than females, except about plants. Furthermore, the level of knowledge increased with age. For PAs' staff, the average score was 8.43. The relationship between the level of knowledge and demographic characteristics was observed among PAs' staff, too.

In respect to the CoC, the average score of participants was 2.78 out of 10, meaning that the level of knowledge was lower than 30% of the potential. There was no considerable difference between male and female respondents. However, the level of knowledge of the CoC decreased with age. In other words, older visitors tended to have a lower level of knowledge than younger ones. For PAs' staff, the average score was 5.12 out of 10. That is, the level of knowledge of PA's staff was double that of visitors. In addition, male workers had a higher level of knowledge than females, but not significantly so. Younger ones were more knowledgeable than older ones. This shows that the relationship between demographic factors and the level of knowledge was similar among visitors and workers.

Based on the sub-levels of knowledge, the overall level of knowledge of visitors was insufficient. According to researchers' calculations, the overall score of domestic visitors was 11.72 out of 30 (around 30% of the potential maximum level. The overall level of knowledge was slightly different by sex and age but not significantly so. In terms of PAs' staff, the average score was 19.2 out of 30. The level of knowledge tended to be higher among old workers, while the difference between male and female

workers was just 0.13 points. The main conclusion is that the level of knowledge of domestic visitors and PAs' staff was insufficient. Therefore, there needs to be a targeted program and campaign to increase knowledge and further protect PAs in the future.

With regards to sources of information, several finding need to be highlighted. For example, the share of visitors who did not see or read the comic books was more than 80%, even though they were targeted to deliver knowledge to the group. The same was observed among the PAs' staff, as well. A majority of domestic visitors said that they did not have any information about PAs and the CoCs before visiting. The main source of information of PAs - among visitors - was verbal (informal) information (23.4%), followed by the internet (14.0%) and social media (11.0%). For the CoCs, the most frequent source of information was social media (10.4%), followed by verbal contacts (8.5%) and the internet (7.4%). For PAs' staff, the fraction of survey participants without information declined dramatically. The main source of information was verbal and information boards; for PAs and the CoCs, respectively. Generally, the source of information about PAs and the CoCs (among domestic visitors and staff) depended on their demographic characteristics. So the channels to be used to provide information need to be selected according to the target group.

APPENDIX 1. SURVEY APPROACH AND METHODOLOGY

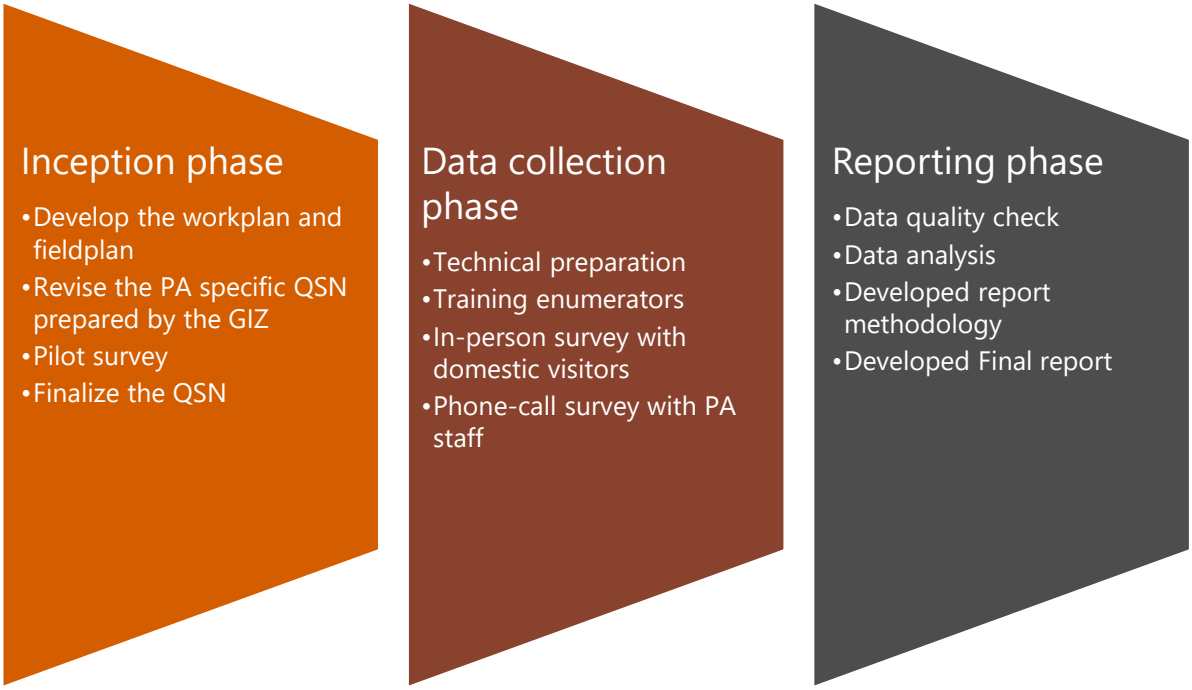
A1.1. Methodology Overview

The main purpose of the data collection was to identify and assess knowledge, attitudes, and practices among domestic visitors related to PAs. The research would also be used as a baseline to measure future changes.

To achieve these objectives, the pre-KAP survey utilized a quantitative research methodology. Two key populations were interviewed as part of the survey, including:

- ***Domestic visitors:*** people over the age of 18 years who traveled to the three target PAs during the data collection period.
- ***PAs' staff:*** employees of the three target PAs and the Western Cluster.

The figure below describes the data collection and analysis process for the survey, including the inception phase, data collection phase, and reporting phase. The inception phase included revising the PA-specific questionnaires, piloting the survey, and finalizing the questionnaires (QSNs). After the inception phase, data collection started. This included conducting in-person interviews with visitors and telephone-based surveys with PA staff. The final phase of the survey was the reporting phase. During this phase, data quality checks were conducted, data was analyzed, and the report was developed.



This appendix of the report provides an overview of this process, including details about sampling, data collection, data entry, quality control, data analysis, and survey limitations; an overview of the above process.

A1.2. Sampling

A1.2.1. Sampling approach

To attain a representative sample of visitors to the different PAs, the sample size was calculated in proportion to the number of visitors to each PA. The visitor figures of 2019 showed that a total of 109,892 visitors visited the GTNP, KKSPA, and the OVNP PAs overall. Based on that, a simple random sampling methodology was selected, set to the desired level of confidence (of 95%) and confidence interval of 2.5%. Thus, the sample composition was calculated as described in the table below.

Table A1 1. Sample size of each PA applying SRS separately in all three target PAs.

PA	Domestic visitors per year	Sample size
GTNP	75,026	1,506
KKSPA	3,200	1,038
OVNP	31,666	1,466
Total	**109,892**	**4,010**

The result was a recommended total number of completed interviews of 4,010. However, due to the constraints imposed by the COVID-19 pandemic and the limited amount of time and human resources, an alternative approach was more feasible. So, to determine the most appropriate sampling scenario at a more feasible sample size, the total number of visitors was divided by 12 to calculate the average number of visitors per month. Furthermore, using SRS with a confidence interval of 2.5% at the 95% level of confidence, the total sample size of domestic visitors was estimated to be 1,316.

To allow any gender or age disaggregated analysis, the percentages of the samples to be collected in each PA were adjusted; to 60%, 10%, and 30% in the GTBP, KKSPA, and OVNPA, respectively. The resulting sample sizes (per PA) are shown in the table below.

Table A1 2. Quasi-proportional sample size.

PA	Domestic visitors per year	Domestic visitors per month	Proportion	Proportional sample	Quasi-proportion	Quasi-proportional sample
GTNP	75,026	6,252	68%	898	60%	789
KKSPA	3,200	267	3%	38	10%	145
OVNP	31,666	2,639	29%	379	30%	382
Total	**109,892**	**9,158**	**100%**	**1,316**	**100%**	**1,316**

Enumerators ultimately collected data from a total of 1,342 domestic visitors. Regarding the PAs' staff, due to the small number of people involved and to eliminate sampling error completely, the enumerators surveyed all staff from each PA. However, 12 people from the GTNP, OVNP, and KKSPA were not surveyed because of telephone network errors and the COVID-19 pandemic. The table below illustrates the achieved sample size by target location.

Table A1 3. Planned and achieved sample size.

PA	Domestic visitors		PAs staff	
	Planned sample size	Achieved sample size	Planned sample size	Achieved sample size
GTNP	789	793	23	20
KKSPA	145	147	46	36
OVNP	382	402	24	24
Western cluster	-	-	66	67
Total	**1,316**	**1,342**	**159**	**147**

After discussing the sample size for each PA with GIZ and GORBI representatives, the survey team started to sub-divide the sample size for each PA in more detail. To do this, the team collected information from the administration of each target PA and the travel companies that organize trips to these sites. The following information was provided by the PAs' administrations.

1. The total number of domestic visitors visiting each PA from May to August 2021.
    a. GTNP – 94,500 people.
    b. OVNP – 23,013 people.
    c. KKSPA – 22,851 people.
2. Most visited places at each PA, among domestic visitors:
    a. GTNP – Turtle Rock, Ariyabal Monastery, high and low-cost facilities, and the Tuul river basin.
    b. OVNP – Ulaan Tsutgalan Waterfall, Tuvkhun monastery, Kharkhorin, and the Banks of Orkhon river.
    c. KKSPA - Baldan Bereeven Monastery, Uglugchin Kherem, Rashaan khad, Khagiin Khar Lake, and Burkhan Khaldun Mountain.

Based on this information, the sample size is sub-divided as follows.

Table A1 4. Sample size of each PA.

#	Target Population	Planned % of Interviews	Planned # of interviews
Gorkhi-Terelj National Park			
1	High-cost visitor facilities near Turtle Rock	35	276
2	Low-cost visitor facilities near Terelj Village	40	316
3	Campers along the Terelj River	15	118
4	Nature lovers in the northern part of GTNP	10	79
	Total	**100**	**789**
Orkhon Valley National Park			
1	Banks of Orkhon River	14.2	54
2	Ulaan Tsutgalan Waterfall and Uurtiin tokhoi cliff	55.4	212
3	Tuvkhun monastery	30.4	116
Total		**100**	**382**

Khan Khentii Strictly PA			
1	Baldan Bereeven Monastery	40	58
2	Binderiin Ovoo, Uglugchiin Kherem, Rashaan Khad	40	58
3	Khagiin Khar Nuur	20	29
Total		**100**	**145**

A1.3. Data collection

The survey consisted of face-to-face and remote (distance-based) interviews using the computer-assisted personal interviewing (CAPI) method and the computer-assisted telephone interviewing (CATI) method. The respondent selection criteria were different for each approach. This section describes the respondent sampling and data collection approach for each.

A1.3.1. Face-to-face data collection

Face to face interviews were conducted at the following locations in GTNP, KKSPA, and OVNP.

A total of 40 enumerators visited the three target PAs from 13 July to 30 August 2021 and surveyed 1,342 domestic visitors. Details of the numbers of domestic visitors interviewed are shown in the table below.

Table A1 5. Number of interviews collected from each PA.

#	Target Population	Enumerator number	Collected # of interviews
Gorkhi-Terelj National Park			
1	High-cost visitor facilities near Turtle Rock	7	275
2	Low-cost visitor facilities near Terelj Village	8	316
3	Campers along the Terelj River	3	117
4	Nature lovers in the northern part of GTNP	2	85
	Total	**20**	**793**
Orkhon Valley National Park			
1	Banks of Orkhon River	2	56
2	Ulaan Tsutgalan Waterfall and Uurtiin tokhoi cliff	6	225
3	Tuvkhun monastery	4	121
	Total	**100%**	**402**
Khan Khentii Strictly PA			
1	Baldan Bereeven Monastery	3	61
2	Binderiin Ovoo, Uglugchiin Kherem, Rashaan Khad	3	61
3	Khagiin Khar Nuur	2	25
	Total	**100%**	**147**

Note. The number of interviews shown in this table does not correspond to the final sample size because some interviews were excluded from the sample during the quality control phase of the survey.

Researchers did not collect data from the following individuals at the time of data collection:

- People who had recently consumed alcohol
- People with obvious mental instability

Also, enumerators interviewed only one respondent from each group of visitors (i.e. one person in a group of friends or family).

A1.3.2. Data collection by telephone

As noted at the beginning of the report, the survey covered two types of people. One of them was the staff working in each target PA. So, in addition to the face-to-face data collection, the survey included data from a telephone survey. The telephone survey was conducted from 1 August to 1 September 2021 with five enumerators. A total of 147 PA staff were interviewed during the telephone survey.

Due to the small number of staff members and to eliminate sampling error, it was planned to interview all staff members of each PA. The total number of staff working in the target PAs was 159. The aim was to survey all of these people, but 12 were on vacation, hospitalized, or had resigned. Therefore, no survey was conducted with these 12. Details of the numbers of the PA staff interviewed are as shown in the table below.

Table A1 6. Number PA staff interviews.

#	PAs	Planned # of interviews	Achieved # of interviews
1	Gorkhi-Terelj National Park Administration	23	20
2	Khan Khentii Special Protected Area Administration	46	36
3	Orkhon Valley National Park Administration	24	24
4	Western cluster	66	67
Total		**159**	**147**

In order to conduct the survey, contact was established with the administration of each target PA in advance, and the total number of their staff (and the telephone numbers) were obtained.

A1.4 Data entry and quality control

The CATI and CAPI methods were used for the quantitative survey interviews, during which enumerators entered data. Enumerators sent their data immediately to the server throughout the survey. Afterward, the data manager checked the incoming data for integrity.

The data manager was supported in quality control efforts by IRIM`s internal data quality team. The team performed data quality checks from 15 July to 3 September 2021. Three different data quality checks were organized before cleaning the data, namely: phone check, audio recording check, and data entry check. Through this process, data accuracy, reliability, and logical consistency were ensured before data analysis. Interviews that did not meet quality requirements were discarded. The table below summarizes the results of this process.

Table A1 7. Data quality check results.

Types of data quality checks	Phone check	Audio recording check	Data entry check
Checking purpose	To determine whether a researcher interviewed an eligible respondent	To determine whether data corresponds to the responses	To determine whether data is correctly entered
Error percentage from the data quality checks	0.08%	0.41%	0.53%

During data quality checks, the data quality team worked closely with the Project coordinator and discussed corrective actions when required. In order to document the corrective actions, the data quality team developed and recorded the protocols.

Phone checking

In accordance with the organization's quality procedures, phone checking was carried out on 30% of all completed interviews. IRIM conducted phone checks on all interviews when no audio was recorded. Calls that could not be tracked (were not in service, call-service days had expired, where no phone number was provided, or there was an unwillingness to reply) were transferred to the audio recording check.

Audio checking

The audio checking ensured interviewers asked survey questions appropriately. The check was conducted on 984 of the interviews.

Data entry checking

This check ensured data entry was performed correctly. The research team also recoded answers to open-ended questions and processed the data in the SPSS program. When coding an open-ended question, each answer was checked and coded using the auto recode of the SPSS program.

A1.5. Limitations of the survey

The survey had several limitations that should be considered by the reader. In terms of the framework of the survey:

- The survey questionnaire was designed to assess the level of knowledge of respondents. Consequently, no analysis of attitudes and practices as possible. For example, questions on the CoC provided information on respondents' attitudes towards correct practices rather than whether or not they engaged in that practice.
- The combination of knowledge-related questions reflects the contents of information materials that were planned to be distributed. Inclusion of questions beyond this content may result in the identification of no (or little) increase of knowledge in the post-KAP survey. Therefore, survey results may not reflect all aspects/components of knowledge related to the ecosystem, PAs, and the CoC.

In terms of data collection:

- The road to Khagiin Khar Lake is very difficult, often inaccessible, and many kilometers can only be reached by horseback. Also, when it rains a lot, the road is very muddy and people usually do not travel this time. It took a lot of time to conduct the survey in this area, as it was very rainy during the data collection period, and they're a lot of trips to Hagiin Khar Lake were canceled.
- During the survey of PAs' staff, it took a lot of time to call the rangers. This was because they were required to work in areas where there was no telephone network (in the mountains or steppe) and they returned to places with a telephone network (to report to the administration) only once every 7-10 days. So, enumerators often had to wait for them, to call them and complete the survey.

APPENDIX 2. FREQUENCY TABLES

Table A2 1. Overall score; by gender and age group.

Score (Out of 30)	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Total	**11.920**	**11.537**	**11.127**	**12.041**	**11.994**	**11.724**
Maintaining and managing PAs	4.086	3.8488	3.82	4.057	3.977	3.964
PA features	5.135	4.928	4.490	5.293	5.344	5.029
CoC	2.699	2.76	2.818	2.690	2.672	2.730

Table A2 2. What the ecosystem means (%).

QSN		Gender		Age			Overall
		Male	Female	Young	Middle aged (21-50)	Old	
Do you know what an ecosystem means	Yes	51.9	46.2	42.9	51.0	55.7	49.0
	I have heard the term but don't know what it means	26.6	26.7	30.1	25.6	22.9	26.7
	Never heard of the term	21.4	27.1	27.0	23.5	21.4	24.4
If yes, can you briefly explain what the term means	An ecosystem is a dynamic complex of plant, animal and micro-organism communities and their non-living environment that interact with and depend on each other	90.0	89.0	87.2	89.3	94.0	89.5
	Living organisms in combination with non-living components of their environment interacting as a system	5.0	7.5	9.2	5.8	2.6	6.2
	Living and non-living components linked together through nutrient cycles and energy flows	0.9	0.9	1.0	1.2	0.0	0.9

	Controlled by external factors such as climate, soil and topography and internal factors as decomposition, shading, succession, and the types of species present	2.7	1.3	1.0	2.0	3.4	2.0
	Dynamic, subject to periodic disturbances and in the process of recovering from some. Past disturbance	0.6	0.0	0.5	0.3	0.0	0.3
	Internal factor and ecosystem processes often in feedback loops	0.0	0.9	0.0	0.9	0.0	0.5
	Driven by nature of species and number of individuals per species	0.9	0.3	1.0	0.6	0.0	0.6
	Other	0.0	0.0	0.0	0.0	0.0	0.0

Table A2 3. Why the ecosystem is important for human being (%).

Item	Gender		Age		
	Male	Female	Young	Middle aged (21-50)	Old
Preserve the environment for the future generations	24.1	19.1	22.6	21.7	19.8
The relationship between human being and environment	21.5	16.8	21.5	18.3	18.0
Health	15.2	23.0	14.2	18.9	27.5
Provide a variety of services of value upon which people depend: maintenance of water cycles; cleaning air and water, maintenance of oxygen in the atmosphere, crop pollination, beauty, inspiration, opportunities for research	15.0	12.8	16.1	14.1	9.6
Important for maintaining a stable climate; support climate change mitigation (carbon storage); provide options for climate change adaptation.	7.2	8.5	8.8	7.8	6.6

Sustain nutrient cycles (photosynthesis forms plants; plants eaten by animals, animals eaten by animals; dead organic matter decomposes; can be readily used by plants) and so forth	6.1	8.1	5.5	8.2	6.6
Don't know	4.6	4.7	4.4	4.2	6.6
Provide a variety of goods of value upon which people depend tangible, material products such as food, contruction material, and medicinal plants; less tangible items like tourism and recreation, and genes from wild plants and animals that can be used to improve domestic species.	3.8	5.1	2.9	5.2	4.8
Other	2.3	1.9	3.6	1.8	0.6
Not important	0.2	0.0	0.4	0.0	0.0

Table A2 4. Why PAs are created (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
To provide safe havens for wild plants and animals	12.9	14.1	14.8	13.5	10.7	13.5
To strengthen our resilience to climate change	0.5	1.2	1.2	0.8	0.3	0.9
To maintain functioning ecosystems and the benefits they provide	2.3	3.0	2.0	3.4	1.7	2.6
To improve our overall health and well-being through contact with nature	2.9	1.7	2.3	2.4	2.0	2.3
To benefit and diversify local economies	0.5	0.8	0.3	1.0	0.3	0.7
To celebrate our natural and cultural heritage	52.3	51.4	49.7	52.6	54.4	51.9
To build knowledge and understanding of natural systems and the impacts of human activity	4.0	3.9	3.5	4.4	3.4	3.9
To provide opportunities for outdoor recreation	1.0	0.6	0.9	0.7	1.0	0.8
To conserve vital gene pools	16.5	14.7	18.6	13.8	14.8	15.6
To attract visitors	1.9	1.9	0.6	1.5	5.7	1.9
To preserve the environment for future generations	1.6	1.4	1.4	1.6	1.3	1.5
Other	1.3	3.6	3.5	2.0	1.3	2.4
Don't know	2.4	1.6	1.1	2.2	3.0	2.0

Table A2 5. Name of the PA (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Correct	49.92	48.33	53.85	49.48	37.62	49.11
Wrong	50.08	51.67	46.15	50.52	62.38	50.89

Table A2 6. Average number of correct answers; by gender, age, and PA.

Features	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Landmarks and cultural sights	2.4	2.2	2.2	2.4	2.2	2.3
Rivers and lakes	1.5	1.3	1.2	1.5	1.6	1.4
Animals	3.8	3.5	3.4	3.7	3.7	3.6
Plants	2.7	2.9	2.4	3.0	3.2	2.8

Table A2 7. Setting up camp inside PAs (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Don't know	1.0	0.9	0.9	1.0	1.0	1.0
Not in dry riverbeds or floodplains	1.6	0.7	0.7	1.3	1.3	1.1
On soft, dry ground	2.3	2.2	1.7	2.1	3.6	2.2
Among trees/in a forest	2.8	3.9	5.2	2.5	2.0	3.4
Not close to the highlights of PAs	5.1	3.1	3.2	3.8	6.9	4.1
In a field of beautiful wild flowers	5.6	5.4	4.9	5.3	7.5	5.5
Near a lake or river	6.2	7.0	8.3	6.0	4.9	6.6
On float, hardened surface	8.8	8.5	7.7	8.8	10.5	8.7
Others	24.2	25.3	22.7	25.9	25.9	24.8
In designated camp spots	42.4	42.9	44.6	43.2	36.4	42.7

Table A2 8. Disposing of human waste inside PAs if you don't find a toilet nearby (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Leave excrements on the ground surface	37.0	31.9	33.1	36.6	29.9	34.3
I always stay places with a toilet nearby	19.6	19.7	20.4	18.3	22.5	19.7
Far away from water sources	11.4	13.9	13.3	12.7	11.4	12.7
Far away from the campsite	9.9	9.8	11.7	9.2	7.7	9.9
Dig a hole to bury my excrements	7.4	6.3	6.0	6.6	9.4	6.8
I bring portable toiled with me	5.0	6.2	4.2	6.2	7.0	5.6
Dispose excrements in waste bins	3.8	6.5	5.3	4.7	6.7	5.2
Other	2.0	2.0	2.0	1.9	2.3	2.0
Don't know	2.1	1.6	1.7	2.0	1.7	1.9

Close to the campsite	1.1	1.4	1.2	1.4	1.0	1.3
Cover excrements with leaves	0.7	0.4	0.8	0.4	0.3	0.5
At a lake or river	0.0	0.2	0.3	0.0	0.0	0.1

Table A2 9. Showing respect for nature inside PAs (%)

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Leave dogs or other pets outside PA	43.0	41.0	42.7	42.0	39.7	41.9
Leave whatever I see at its original place	25.0	25.9	23.8	25.7	28.7	25.5
Other	10.5	9.9	8.9	10.6	12.1	10.2
Protect water resource	5.0	8.9	7.6	7.4	4.9	7.1
No open-air fire	6.3	7.0	7.1	6.8	5.1	6.7
Refrain from hunting and fishing	5.3	4.6	5.3	4.4	5.6	4.9
View animals from a safe distance	2.2	1.7	2.5	1.7	1.5	2.0
Whatever I bring into PA, I must take out	2.6	0.9	2.0	1.3	2.3	1.7

Table A2 10. Disposing of waste and leftovers inside PAs (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Take waste and leftovers to nearest designated area	38.5	33.9	35.4	36.8	35.6	36.1
Refrain from leaving or throwing away excess food	23.6	26.9	24.5	26.1	24.5	25.3
Bring your own waste bags	23.7	26.2	23.7	24.9	28.4	25.0
Use the waste bins or containers set up for that purpose	12.4	10.4	13.5	10.4	10.1	11.4

Wrong answers	1.7	2.1	2.4	1.7	1.3	1.9
Reduce excess packaging before entering the PA	0.1	0.5	0.6	0.1	0.3	0.3

Table A2 11. Protecting local water systems inside PAs (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Don't throw trash near water resources	34.6	38.7	36.7	36.6	37.1	36.7
Don't wash yourself	9.2	14.5	13.3	11.1	11.3	11.9
Don't pee or poop near water resources	12.0	11.1	11.7	11.9	10.0	11.5
Bring the water for your own use	10.5	8.7	10.1	9.4	8.7	9.6
Do all your dish washing far away from rivers	8.7	8.9	9.3	8.5	8.4	8.8
Other	11.2	6.5	6.2	10.4	9.7	8.8
Drink only as much water as you really need	5.9	5.1	5.2	5.3	6.8	5.5
Don't know	3.6	1.9	2.7	3.0	2.1	2.7
Don't camp right at the river or lake bank	2.3	2.4	2.0	2.2	3.9	2.4
Use only biodegradable soaps and shampoos	2.0	2.1	2.8	1.7	1.8	2.1

Table A2 12. Refraining from off-road driving inside PAs (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
It causes erosion	39.2	36.9	36.8	38.3	39.7	38.0
it damages plants	27.1	30.7	31.3	27.6	27.8	28.9
Safety	9.2	11.4	11.0	10.4	8.8	10.4
To protect the environment	10.0	10.0	8.3	10.2	13.3	10.0
Don't know	9.0	4.2	6.4	6.7	6.2	6.5
it disturbs animals	3.6	4.8	4.1	4.6	3.1	4.2

Others	0.9	0.8	0.7	1.0	0.6	0.8
it disturbs hikers and horse-riders	0.5	0.7	0.7	0.7	0.3	0.6
it is noisy and smelly	0.5	0.5	0.6	0.5	0.3	0.5

Table A2 13. Ever seen or read any of the comics (%)

Item		Gender		Age			Overall
		Male	Female	Young	Middle aged (21-50)	Old	
15.1. Goo Mongol	Seen/read none of them	83.6	84.2	85.2	83.3	83.0	83.9
	Seen and read	0.6	1.2	0.9	0.9	1.0	0.9
	Read or seen	15.8	14.6	13.9	15.8	16.0	15.2
15.2. Tselmeg and Tsengeg planted a tree	Seen/read none of them	89.7	85.5	90.4	86.6	84.3	87.5
	Seen and read	0.6	1.5	1.1	0.8	2.0	1.1
	Read or seen	9.7	13.0	8.5	12.7	13.8	11.4
15.3. Snow Friend	Seen/read none of them	87.2	80.8	84.8	84.2	81.3	83.9
	Seen and read	0.3	1.2	0.9	0.6	1.0	0.8
	Read or seen	12.6	18.0	14.3	15.2	17.7	15.3

Table A2 14. Sources of information about PAs (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Flyer by	0.9	0.3	0.7	0.3	1.4	0.6
Info board	2.1	1.2	1.5	1.6	1.9	1.6
Video clip	0.3	0.4	0.7	0.1	0.5	0.4
TV program	2.8	2.2	1.8	2.5	3.8	2.5
Internet	14.1	14.0	18.0	14.1	5.2	14.0
Social media	11.0	11.0	14.9	9.9	6.2	11.0
Guidebooks	0.5	0.7	0.4	0.6	1.0	0.6

Magazine	0.8	0.7	0.7	0.7	1.0	0.7
Verbal information	22.5	24.3	22.2	24.4	22.9	23.4
Other	6.9	3.5	5.3	5.2	4.8	5.1
No information	51.8	54.5	51.0	53.0	58.6	53.2

Table A2 15. Sources of information about guidelines on what to do and not to do in PAs (%).

Item	Gender		Age			Overall
	Male	Female	Young	Middle aged (21-50)	Old	
Flyer by	2.3	1.7	1.8	1.8	3.3	2.0
Info board	3.8	2.3	3.3	2.4	4.8	3.1
Video clip	0.2	0.0	0.2	0.0	0.0	0.1
TV program	8.6	6.1	7.7	7.3	6.7	7.3
Radio program	0.6	0.3	0.2	0.6	0.5	0.4
Internet	7.4	7.4	10.3	6.2	4.8	7.4
Social media	9.8	11.0	13.2	9.8	6.7	10.4
Guidebooks	0.8	1.2	0.9	1.0	1.0	1.0
Magazine	0.6	0.3	0.4	0.3	1.0	0.4
Verbal information	8.3	8.7	8.8	7.6	11.0	8.5
Other	7.7	6.5	7.7	6.2	8.6	7.1
No information	59.4	64.5	57.6	65.6	60.0	62.0

Table A2 16. Ever seen or read any of the comics (staff) (%).

Item		Age		Gender		Overall
		Under 40	Over 41	Male	Female	
Goo mongol	Read	17.4	19.2	16.7	23.1	18.4
	Seen and read	0.0	0.0	0.0	0.0	0.0
	Seen/read none of them	82.6	80.8	83.3	76.9	81.6
Tselmeg and Tsengeg planted a tree	Read	8.7	11.5	11.1	7.7	10.2
	Seen and read	0.0	0.0	0.0	0.0	0.0
	Seen/read none of them	91.3	88.5	88.9	92.3	89.8
Snow Friend	Read	31.9	26.9	25.9	38.5	29.3
	Seen and read	0.0	0.0	0.0	0.0	0.0
	Seen/read none of them	68.1	73.1	74.1	61.5	70.7

Table A2 17. Sources of information about PA; staff (%).

Item	Age		Gender		Overall
	Under 40	Over 41	Male	Female	
Info board	0.0	1.0	0.6	0.0	0.5
Video clip	0.9	0.0	0.6	0.0	0.5
TV program	16.8	21.2	20.1	15.8	19.0
Radio	1.9	1.9	1.9	1.8	1.9
Internet	9.3	10.6	9.7	10.5	10.0
Social media	21.5	20.2	18.2	28.1	20.9
Guidebooks	0.9	1.0	1.3	0.0	0.9
Magazine	7.5	1.9	3.9	7.0	4.7
Verbal information	24.3	17.3	21.4	19.3	20.9
Other	6.5	7.7	5.8	10.5	7.1
No information	10.3	17.3	16.2	7.0	13.7

Table A2 18. Sources of information about guidelines on what to do and not to do in PA; staff (%).

Item	Age		Gender		Overall
	Under 40	Over 41	Male	Female	
Flyer by	2.6	2.3	1.3	5.6	2.4
Info boards	44.8	45.1	45.4	43.8	45.0
Video clip	0.6	0.0	0.4	0.0	0.3
TV program	8.4	11.6	11.8	5.6	10.1
Radio	0.6	0.6	0.8	0.0	0.6
Internet	4.5	2.9	3.4	4.5	3.7
Social media	11.7	9.8	9.7	13.5	10.7
Guidebooks	0.6	2.9	1.7	2.2	1.8
Magazine	0.6	0.0	0.4	0.0	0.3
Verbal information	4.5	6.4	5.9	4.5	5.5
Other	6.5	6.4	6.7	5.6	6.4
No information	14.3	12.1	12.6	14.6	13.1

APPENDIX 3. QUESTIONNAIRE

00. [text] Which location did the interview take place in? (Max 1)

MAINTAINING AND MANAGING PROTECTED AREAS

1. [coded] Do you know what an ecosystem is?

1) Yes: _____ >> GO TO 1B
2) I have heard the term but don't know what it means >> GO TO 3
3) Never heard of the term >> GO TO 3

1B. **[coded] Can you briefly explain what the term means?** (open-ended question, max 1 answer)

Possible correct answers (enumerator use only)	
1) An ecosystem is a dynamic complex of plant, animal and micro-organism communities and their non-living environment that interact with and depend on each other. 2) Living organisms in combination with non-living components of their environment interacting as a system 3) Living and non-living components linked together through nutrient cycles and energy flows 4) Controlled by external factors such as climate, soil and topography and internal factors as decomposition, shading, succession, and the types of species present 5) Dynamic, subject to periodic disturbances and in the process of recovering from some past disturbance 6) Internal factors and ecosystem processes often in feedback loops 7) Driven by nature of species and number of individuals per species	>> GO TO 2
8) Do not know 9) Other	>> GO TO 1C

1C. **[text] Specify Other**

Other:_____

2. [coded] Why are ecosystems so important for human beings? (open-ended question, no max answers)

Possible correct answers (enumerator use only)	

1) Sustain nutrient cycles (photosynthesis forms plants; plants eaten by animals, animals eaten by animals; dead organic matter decomposes; can be readily used by plants) and so forth 2) Provide a variety of goods of value upon which people depend: tangible, material products such as food, construction material, and medicinal plants; less tangible items like tourism and recreation, and genes from wild plants and animals that can be used to improve domestic species 3) Provide a variety of services of value upon which people depend: maintenance of water cycles, cleaning air and water, maintenance of oxygen in the atmosphere, crop pollination, beauty, inspiration, opportunities for research 4) Important for maintaining a stabile climate; support climate change mitigation (carbon storage); provide options for climate change adaptation 5) Preserve the environment for the future generations 6) The relationship between human being and environment 7) Health	>> GO TO 3
8) They are not important 9) Don't know 10) **Others**	>> GO TO 2B

2B. [text] Specify other.

Other:_____

3. [coded] Why are protected areas created? (open-ended question, max 3 answers)

Possible correct answers (enumerator use only)	
1. To provide safe havens for wild plants and animals 2. To strengthen our resilience to climate change 3. To maintain functioning ecosystems and the benefits they provide 4. To improve our overall health and well-being through contact with nature 5. To benefit and diversify local economies 6. To celebrate our natural and cultural heritage 7. To build knowledge and understanding of natural systems and the impacts of human activity 8. To provide opportunities for outdoor recreation 9. To conserve vital gene pools 10. To attract visitors 11. To preserve the environment for future generations	>> GO TO 4
12. **Don`t know** 13. **Others**	>> GO TO 3B

3B. [text] Specify other.

Other:_____

4. [coded] Would you know the correct name of the protected area you are in right now? (open-ended question, max 1 answer)

Possible correct answers (enumerator use only):

a. GTNP >> GO TO 5
b. KKSPA >> GO TO 5
c. OVNP >> GO TO 5
d. Other >> GO TO 4B
e. Don't know >> GO TO 5

4B. [text] Specify others _____

PROTECTED AREA FEATURES

Questions 8-11 are specific to the PA, where the data collection is going. Therefore, explain this to the respondent and provide information about the territory of the PA.

5. [coded] Which landmarks or cultural sights inside this Protected Area do you know? (open-ended question, max 5 answers)

Possible correct answers (enumerator use only):

Existing landmarks in the GTNP	>> GO TO 6	Existing landmarks in the KKSPA	>> GO TO 6	Existing landmarks in the OVNP	>> GO TO 6
Ariyabal Temple		Burkhan Khaldun mountain		Ulaan Tsutgalan waterfall	
Turtle Rock		Ruins of Saridag Khiid		Uurtiin Tokhoi cliff, Tuvkhun monastery	
Cave Rock		Baldan Bereeven monastery		Khar Balgas ruin	
Gunjin Sum		Uglugchiin Kherem		Doit hill	
Altan-Ulgii Mountain		Rashaan Khad		Mogoit hot springs	
Others	>> GO TO 5B	Asralt Khairkhan (mountain)		Khushuu Zaidam museum	
		Onongiin Khaluun Rashaan, Yestiin Rashaan and Yeruugiin Rashaan (hot springs)		Erdene Zuu monastery (close outside the national park)	
		Others	>> GO TO 5B	Others	>> GO TO 5B

5B. [text] Specify others _____

6. [coded] Can you name important rivers or lakes inside this Protected Area? (open-ended questions, max 5 asnwers)

Possible correct answers (enumerator use only):

Rivers/lakes existing in the GTNP		Rivers/lakes existing in the KKSPA		Rivers/lakes existing in the OVNP	
Terelj river	>> GO TO 7	Khagiin Khar nuur lake	>> GO TO 7	Orkhon river	>> GO TO 7
Tuul river		Onon river		Ulaan river	
Zamt river		Tuul river		Khuisiin Naiman nuur	
Baruun bayan river		Kherlen river		Others	>> GO TO 6B
Chuluut river		Yeruu river			
Buren river		Yestii river			
Zuun Bayan river		Khangal lake			
Others	>> GO TO 6B	Others	>> GO TO 6B		

6B. [text] Specify others _____

7. [coded] What are the first five animals living inside this Protected Area that come up in your mind? (open-ended question, max 5 answers)

Possible correct answers (enumerator use only):

Animals living in the GTNP		Animals living in the KKSPA		Animals living in the OVNP	
Bar headed goose	>> GO TO 8	moose,	>> GO TO 8	capricorn,	>> GO TO 8
Pied wagtail		brown bear,		deer,	
Siberian and black-billed Capercaillies		musk deer,		roe deer,	
Brown bear		wolverine,		marmot,	
Moose		lynx,		wild boar,	
Musk deer		red deer,		fox,	
Wolf		roe deer,		wolf,	
Red fox		wild boar,		lynx,	
Roe deer		taimen		eagle,	
Others	>> GO TO 7B	Others	>> GO TO 7B	vulture,	
				crane	

				Others	>> GO TO 7B

7B. [text] Specify others _____

8. [coded] Would you know what type of plants can be found inside this Protected Area? (open-ended question, max 5 answers)

Possible correct answers (enumerator use only):

Plants existing in the GTNP		Plants existing in the KKSPA		Plants existing in the OVNP	
Larch	>> GO TO 9	Silver fir tree (жодоо мод),	>> GO TO 9	Birch,	>> GO TO 9
Siberian elm		Pine Alder,		moss cedar,	
Siberian stone pine		Cedar,		larch	
Scots pine		Birch,		Others	>> GO TO 8B
Manchurian birch		Larch forest			
Edelweiss		Others	>> GO TO 8B		
Speedwell flower					
Siberian larkspur					
Others	>> GO TO 8B				

8B. [text] Specify others _____

INFORMATION ON … PROTECTED AREA AND CODE OF CONDUCT (GUIDELINES ON WHAT TO DO AND NOT TO DO IN PROTECTED AREAS)

9. [coded] Where would you set up a camp inside this Protected Area? (open-ended question, no max answers)

Possible correct answers (enumerator use only):

In designated camp spots
On flat, hardened surface
Not close to the highlights of protected areas
Not in dry riverbeds or floodplains
Near a lake or river >> GO TO 10
Among trees / in a forest
On soft, dry ground
In a field of beautiful wild flowers
Do not know
Others >> GO TO 9B

9B. [text] Specify others _____

10. [coded] Where and how would you dispose of human waste inside this Protected Area if you do not find a toilet nearby? (open-ended questions, no max asnwers)

Possible correct answers (enumerator use only):

Far away from the campsite
Dig a hole to bury my excrements
I always stay in places with a toilet nearby
Far away from water sources
I bring a portable toilet with me
At a lake or river >> GO TO 11
Cover excrements with leaves
Leave excrements on the ground surface
Close to the campsite
Dispose excrements in waste bins
Do not know
Others >> GO TO 10B

10B. [text] Specify others _____

11. [coded] How would you show respect for nature inside this Protected Area? (open-ended questions, no max answers)

Possible correct answers (enumerator use only):

View animals from a safe distance
Leave dogs or other pets outside the protected area
Whatever I bring into the protected area, I take out of it again
Refrain from hunting & fishing >> GO TO 12
No open-air fire
Protect water resource
Leave whatever I see at its original place

Do not know
Others

>> GO TO 11B

11B. [text] Specify others _____

12. [coded] Where and how would you dispose of waste and leftovers inside this Protected Area? (open-ended question, no max answers)

Possible correct answers (enumerator use only):

Refrain from leaving or throwing away excess food
Use the waste bins or containers set up for that purpose
Take waste and leftovers to the nearest designated area
Bring your own waste bags
Reduce excess packaging before entering the protected area

>> GO TO 13

Do not know
Others

>> GO TO 12B

12B. [text] Specify others _____

13. [coded] How can you help to protect local water systems inside this Protected Area? (open-ended question, no max answers)

Possible correct answers (enumerator use only):

Do all your dish washing far away from rivers
Use only biodegradable soaps & shampoos
Don't camp right at the river or lake bank
Do not pee or poop near any water source
Do not wash yourself
Do not trash near water resources
Bring the water for your own use
Drink only as much water as you really need

>> GO TO 14

Do not know
Others

>> GO TO 13B

13B. [text] Specify others _____

14. [coded] Why should visitors refrain from off-road driving inside this Protected Area? (open-ended question, no max asnwers)

Possible correct answers (enumerator use only):

it causes erosion
it damages plants
it disturbs animals
it is noisy and smelly
it disturbs hikers and horse-riders
To protect the environment
Safety

>> GO TO 15

Do not know
Others

>> GO TO 14B

14B. [text] Specify others _____

SOURCES OF INFORMATION

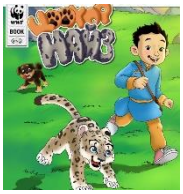
15. [coded] Did you or anyone in your family ever see or read any of the comics presented below? (variable line 1 and 2 mutually exclusive)

1. seen / read
2. seen / read none of them

>> GO TO 16

1. seen / read
2. seen / read none of them

>> GO TO 16



1. seen / read
2. seen / read none of them

>> GO TO 16

16. [coded] May we ask what sources of information you had about this Protected Area (before you came here)? (open-ended questions, max 4 asnwers)

Possible correct answers (enumerator use only):

flyer by .....
infoboard at .....
video clip through .....
TV program on .....
radio program on .....
Internet at ..... website
social media through .....
guide books .....
magazine ...
verbal information by ...
No information >> GO TO D1
Other: ..... >> GO TO 16B

>> GO TO 17

16B. [text] Specify others _____

17. [coded] May we ask what sources of information you had about guidelines on what to do and not to do in a protected area (before you came here)? (open-ended question, max 4 answers)

Possible correct answers (enumerator use only):

flyer by .....
infoboard at .....
video clip through .....
TV program on .....
radio program on .....
Internet at ..... website
social media through .....
guide books .....

>> GO TO D1

magazine ...
verbal information by ...
No information
Other: ..... >> GO TO 17B

17B. [text] Specify others _____

DEMOGRAPHIC DATA

D1. [coded] Gender: (interviewer simply records)

1. Male
2. Female

D2. Age: How old are you?

[number] _____ years old

D3. [coded] What is your level of education?

1. Uneducated
2. Primary
3. Secondary
4. High school
5. Technical, vocational
6. Higher education

D5. [coded] Where do you live? (Max 1)

1. Ulaanbataar >> GO TO D6
2. *Aimag* center >> GO TO D6
3. *Soum* center >> GO TO D6
4. Village >> GO TO D6
5. Remote rural settlement >> GO TO D6
6. Other: ..... >> GO TO D5.B

D5.B [text] Specify others _____

D6. [coded] Who is the respondent accompanied by? (Max 1)

1. Family >> GO TO D6.C
2. Friends >> GO TO D6.C
3. Colleagues >> GO TO D6.C
4. Tour group >> GO TO D6.C
5. None/Alone >> GO TO D7
6. Other: >> GO TO D6.B

D6.B. [text] Specify others _____

D6.C. [text] Group size _____

D7. [coded] You are here in a protected area. May we ask what you came here for? (max 3)

1. Leisure, get relieved from stress >> GO TO D8
2. Spend time/rest in fresh air >> GO TO D8
3. Feel close to nature >> GO TO D8
4. Watch wildlife >> GO TO D8
5. Collect berries, nuts or herbs >> GO TO D8
6. Hiking >> GO TO D8
7. Horse riding >> GO TO D8
8. Hunting>> GO TO D8
9. Fishing >> GO TO D8
10. Other>> GO TO D7.B

D7.B. [text] Specify others _____

D8. [coded] Where are you staying in the protected area? (Max 1)

1. Tourist camp>> GO TO D9
2. Ger camp>> GO TO D9
3. Designated camping area>> GO TO D9
4. Outside of designated camping area>> GO TO D9
5. Not staying, it is a day trip>> GO TO D9
6. Other>> GO TO D8.B

D8.B. [text] Specify others _____

D9. How many times have you visited the … Protected Area over the period of past 12 months?

[number] _____ times