

**BASELINE COMMUNITY PERCEPTIONS SURVEY
FOR INTERNATIONAL FINANCE CORPORATION
(IFC)**



FINAL REPORT

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Abbreviations and Acronyms.

ANEGD	Agency for Nature, Environment and Green Development
CAO	Compliance Advisor Ombudsman
CSO	Civil Society Organisation
DEIA	Detailed Environmental Impact Assessment
EAP	East Asia Pacific
ERM	Environmental Resources Management
ESIA	Environmental and Social Impact Assessment
GASI	General Agency for Specialised Inspection
IEA	International Energy Agency
IFC	International Finance Corporation
IRIM	Independent Research Institute of Mongolia
MNEGD	Ministry of Nature, Environment and Green Development
MNT	Mongolian tugrik
NGO	Non-governmental Organisation
NPO	Not-for-profit
NSOM	National Statistical Office of Mongolia
SBA	Sustainable Business Advisory
SME	Small and/or Medium Enterprise
ToR	Terms of Reference
UHG	Ukhaa Khudag
USD	United States dollar
WB	World Bank

1. SUMMARY

In October of 2013, the Independent Research Institute of Mongolia was contracted by IFC to implement a baseline survey among rural communities in Omnogobi province to improve understanding of local perceptions of:

- access to water,
- use of water, and
- opinions on water management.

This Final Report describes the entire 2013 Baseline Survey process, including:

- a review of project documents
- the collection of 1,043 duly completed survey questionnaires,
- data analysis,
- presentation of results, and
- conclusions.

Completed questionnaires were collected by five pairs of researchers travelling throughout all 15 districts of Omnogobi - seven of which had significant mining operations - during the period 14 to 27 November, 2013. The questionnaires collected data, statistics and information on a sample of the community in Omnogobi, including:

- respondents' age, gender, education and employment
- households' size, income, status and water consumption
- access to, and assessment of, water for various purposes
- people's perceptions of and perspectives on water-related issues: past, present and future¹

Generally, the respondents' answers are statistically representative of the province as a whole. Interrogation of the accumulated database provided scope to determine, for example, characteristics relating to: people living in district centers (versus those living elsewhere), people living in mining districts (versus those living in non-mining districts) and so on. However, the residents of Omnogobi are not wholly typical of those living elsewhere in Mongolia, for example in terms of income level, so caution is required in applying the results of the Baseline Survey nationally.

The review of project-specific documents was handicapped by the limited number of such items, but offset by the availability of other sources of equally relevant materials, on the Internet in general, and some websites in particular. There was a significant amount of detailed technical information and advice available in English, but very little material in the form of easy-to-access brochures and leaflets (in Mongolian) suitable for the majority of people living in Omnogobi.

In general, the Baseline Survey:

- Revealed a rather pessimistic attitude to the current status of the quantity and quality of local water; with a widespread perception that it had worsened in the past, and would continue to do so in the future.

¹ Within the context of this report – and based on explicit questions in the Survey – *'past'* means the previous five years, *'present'* means the current year, and *'future'* means the next five years.

- Confirmed the poor image of the mining industry – with respect to perceptions about its responsibility for deterioration (and/or threats) to the quantity and quality of water available to residents of Omnogobi in the future.
- Highlighted a shortage of trust in the mining sector’s capacity to manage water resources.

However, the results also provided opportunities for improvement, especially through the use of information management.

Respondents targeted in the Survey included men and women – ranging in age, education and nature of employment – from within:

- the provincial capital of Dalanzadgad
- the fourteen district centers
- rural areas outside of district centers

Disaggregation of respondents’ answers to particular questions revealed the presence of some statistically significant variations in attitudes and perceptions, such as:

- People in mining districts are more trusting of district (and sub-district) administrations in the management of water resources.
- People in mining districts are more trusting of neighbors in the management of water resources.
- People in mining districts are more negative in their perception of the quantity (and quality) of cooking/drinking water available (past, present and future).
- People in rural areas seem to be most sensitive to the possible effect of mining activities on water.

Disaggregation of the data also revealed the absence of statistically significant variation relating to:

- People’s gender, age, education, employment, and income and their trust in administrations (and neighbors) in the management of water resources.
- People’s residence in mining districts, and their level of income.
- People’s income, and their perception of the quantity of cooking/drinking water available (past, present and future).

However, the presence of variations was more a sign of subtle difference, rather than any major divergence. Many questions generated answers which showed an overwhelming general trend; whether it was households’ average incomes (72.3 percent of households having less than MNT9.0/year), sources of water (64.9 percent using wells), or 50.4 percent thinking that the quantity of water available from cooking and drinking would worsen in the future.

The single most important source of employment for respondents was herding (34.3 percent) while 27.6 percent were unemployed or retired. The average household was 3.7 people and 82.7 percent lived in traditional gers. Only 19.4 percent owned or rented land (never more than 2.0 hectares), and average household livestock count was 203 animals.

86.5 percent of households consumed less than 20 litres of water for cooking and drinking each day, and from less than 10 to more than 60 litres for other, personal uses. While many respondents thought the quantity of water for cooking and drinking was currently “okay,” more were negative about how it had deteriorated in the past, and how it was likely to worsen in the future. Similarly, many respondents thought the quality of water for cooking and drinking was currently “okay,” but had not deteriorated in the past. However, the proportion of those with “no opinion” about past changes in quality was somewhat higher. Though weather was the most

popular choice of factor impacting the quantity of water for cooking and drinking, mining (formal and informal) and industry (heavy and light) were rated as the most important (in terms of severity of their impact) with respect to both quantity and quality

The most common use of water for work-related purposes was livestock production, and the most common source was wells (of various sorts). 65.2 percent of households used 0.5 to 3.0m³/day. Respondents were – overall – negative about the current status of the quantity of water for work-related purposes; as well as past and prospective changes. Mining (formal and informal) was identified as a major factor impacting the quantity of water for work-related purposes. Though industry (heavy and light) was only mentioned by a small proportion of respondents, it and mining (formal and informal,) were both highly rated as “severe” or “very severe” in terms of their impact.

Fifty-five percent of respondents identified formal mining as the preeminent factor responsible for the quantity of water available for cooking and drinking, and 22.1 percent considered it the preeminent factor in water quality. With respect to the factors affecting the quantity of water for work-related purposes, 24.4 percent cited formal mining, a close second to the weather (26.2 percent). All of which confirms the poor image of the formal mining industry in Omnogobi and the belief that it is responsible for the deterioration of the quantity and quality of water available to residents of Omnogobi. In addition, the formal mining industry is not highly regarded as being “involved” in the management of water resources, though it does benefit from “some” degree of trust.

The most popular choices of individuals and organisations involved in the management of water resources (nominated by one to two thirds of all respondents) were – in descending order of importance – district administration, sub-district administration, close neighbor, distant neighbor and the Government of Mongolia (GoM). These were selected by between 67.8 and 34.0 percent of all respondents, respectively, while all others were less than 21.7 percent. The same choices, with the exception of the GoM, attracted almost equally high levels of trust.

There was a range of opinions on the status of water-related disputes – some respondents thinking it was “very good” - but the predominant view was that the current situation is “bad.” There was more consensus around the view that the situation had “worsened” in the past five years and was expected to “worsen” in the next five years. The most popular choices for those identified as able to settle water-related disputes included: district and sub-district administration, neighbors (close and distant) GoM and mining, but were led by the local (district) administration.

A majority of respondents (69.5 percent) said they had not been consulted on water-related issues by anyone in the previous year, and 71.7 percent felt inadequately consulted on water management issues in particular, and water resources in general. Very few respondents were able to explicitly name any of the laws or rules related to water management, and most (92.3 percent) wanted to receive more information, preferably by television, meetings and radio.

The results of the Baseline Survey described in this Final Report are expected to be complemented by a follow-up exercise to be conducted around 2016. To facilitate future comparisons with the results of the present survey, two analyses were conducted on answers to groups of questions related to:

- perspectives on the past, present and future status of water; with respect to quantity and quality for cooking and drinking, and the quantity for work-related purposes, and
- the factors related to the above, and people’s trust in those responsible.

The somewhat complex procedure resulted in two simple web-type diagrams (Figures 53 and 54) which should provide the basis for simple comparisons during the course of any follow-up survey. If there are improvements in people’s perception of water availability, the profile of the

first web will expand. And, if there is an improvement of trust in the mining sector's activities, the profile of the second web will have reduced in size by the time of the follow-up survey.

Details of the training of researchers who were engaged in the completion of questionnaires in the field and the data entry personnel who were responsible for archiving the information collected, are available separately in three other documents: the Researcher's Training Manual, the Data Entry Manual, and the Data Quality Manual.

2. INTRODUCTION.

This Final Report describes the completion of work related to a Population Perception Survey conducted for IFC's Mongolia Mining, Communities and Water Management project. In particular, it describes a 2013 Baseline Survey undertaken in Omnogobi. As such, it is likely to be one of a series of documents that will culminate with a Final (Evaluation) Report at the end of 2016, though the actual date of the follow-up survey is still subject to confirmation.

The Terms of Reference (ToR) for the work described in this document are reproduced in Appendix 1. IRIM's Technical Proposal for the work to be undertaken is available separately. This, the Final Report of the Baseline Survey, includes details of three stages, namely:

- Data collection
- Database creation
- Reporting

The format and style of this Final Report are like that of other IRIM documents. An outline of the overall structure was presented in advance for approval by IFC and was adhered to in the draft version of this document. Some of the technical terms used throughout the Report are defined in the Glossary (Appendix 2) and other general documents are listed in the Bibliography (Appendix 3). Similarly, some of the significant dates involved in completion of the Survey are provided in the Calendar of Events (Appendix 4).

Details of the training of researchers (engaged in the completion of questionnaires in the field) and data entry personnel are available separately in three other (Mongolian only) documents:

- Researcher's Training Manual (IRIM, 2013b)
- Data Entry Manual (IRIM, 2013c)
- Data Quality Manual (IRIM, 2013d)

As required in the ToR, and provided for in the Technical Proposal, IRIM staff kept IFC fully informed of progress in the completion of the Baseline Survey.

The initial draft version of the Final Report, submitted to IFC on 1 January, 2014, was modified in response to suggestions provided by IFC on 16 and 21 January, and resubmitted to IFC on 5 February. In brief, the changes consisted of the incorporation of excerpts from the Inception Report, reformatting of figures, the substitution of some appendices and increased emphasis on and/or elaboration of topics related specifically to mining and water. Thereafter, a few remaining requests for changes, received from IFC on 13 March, were provided in the final version supplied on 21 March.

The ToR did not require the presentation of recommendations and proposals prompted by the results of the Baseline Survey, nor the evaluation of respondents' perceptions. The results are therefore presented with limited comments, and the only recommendations provided are those related to the dissemination of the results of the Survey, and provision for the follow-up survey. The latter is an essential complement to the Baseline Survey, and will provide for the monitoring and evaluation of any interventions prompted by the results of the Baseline Survey.

Some opinions on the implications of the results were inserted in response to requests during the revision of the Final Report.

3. METHOD

3.1. Literature Review

In the ToR, there was a requirement to “Review the project documents, relevant regional reports and other related materials,” in part to facilitate the preparation of the survey questionnaire. The questionnaire used in the Baseline Survey was also to contain questions (e.g., questions 47 to 50) related directly or indirectly to the existence of such documents. Similarly, the questionnaire was also to contain questions (e.g., 56 to 59) related to the dissemination of information, and IFC required IRIM to provide inputs on the improved dissemination of the results (as contained in the Final Report) of the Baseline Survey.

Based on the above, to collect documents related to the scope of the Baseline Survey (and with particular reference to Omnogobi) the following activities were undertaken:

- participants of a 16 September, 2013 workshop were invited to provide information,
- IRIM researchers (engaged in the Baseline Survey in Omnogobi) undertook searches locally,
- websites of mining enterprises and Civil Society Organizations (CSOs) were reviewed, and
- a generalised search for documents was undertaken in Ulaanbaatar.

The final collection of documents, and other sources of information, were summarised as follows:

Project Documents. Most of the project-related documents – other than those provided initially by IFC – were obtained from the Internet. All were in English, and 23 were used to prepare an annotated bibliography, which is available separately, as are copies of all the documents themselves. The reports contain a wealth of information, little of which (with the exception of all documents on the Oyu Tolgoi website) is available in Mongolian.

Provincial Reports. Only three documents were found locally in Omnogobi, by researchers during the course of their fieldwork, and all were essentially sets of tables with no accompanying narrative. Details of these, as well as four leaflets, were summarised and are available separately.

Websites. Websites were, by default, a major source of documents used in the literature review, and details of some of the most significant ones used are available separately.

Other Materials. During the course of the online searching the following was found, (translated below from the original Mongolian):

Interview note,

“Water source/point census was conducted in 2003, 2007, 2009, 2011 in Omnogobi and the survey results showed that water resource has decreased continuously. The province CRK has approved resolution (2013.07.02) on banning use of underground water for mining purposes from January 1, 2016. They expect that if the mining companies running activities in this province modify their technology before this date, they will not have any problem with exploiting the mineral resources. They suggest other options such as drawing surface water from mountainous regions and using recycled water. Projects on “Kherlen-Gobi” and “Orkhon-Gobi” are under discussion, why can’t we implement those projects (Kherlen and Orkhon are big rivers in Khentii and Khangai region).”

The document suggests that use of subterranean water resources will be banned in two years unless mining companies modify their technology. No other information was available on the topic at the time this report was written.

The results of the Literature Review, which revealed a dearth of locally-available leaflets and brochures (on water-related issues) in Mongolian, were reinforced by respondents to the survey in their answers to questions about consultation and information (see Section 8).

3.2. Data Collection

Sampling design. Respondents to the questionnaire had to be over 14 years of age² at the time of the Survey.

According to the Statistical Office of Omnogobi province (Socio-Economic Report, 2012) the total population of the province was 56,586 of which 41,300 (73 percent) were older than 14. It was determined that a sample size of 1,040 respondents would be required to provide adequate statistical significance. of the sample included respondents from the provincial center, Dalanzadgad, and centers and rural areas of each of the other constituent 14 districts, as shown in the following table.

Table 1. Sample Composition by Location

Item	Population	Sample	
		Number	Percentage
Province center	20,376	375	36
District, center	16,332	301	29
District, rural area	19,878	367	35
Total	56,586	1,043	100

To provide some scope for ‘over-sampling’ in mining-oriented districts, it was decided to select a minimum of 30-31 households from each mining-oriented district, and just 23-24 households from each non-mining district (as shown in the last column – ‘adjusted’ - of the following table). This was used instead of simply selecting ‘proportionally’ according to the rural population’s size. The need for ‘oversampling’ only affected four mining districts; Bayan-Ovoo, Khankhongor, Mandal-Ovoo and Tsogtsetsii. Nomgon was only identified as a ‘mining’ district after the Survey was underway.

As a result of the above, from among all the rural households sampled (those not in district center) 50 percent were from the seven mining-oriented districts and the other 50 percent from the eight non-mining districts. These percentages would have been 40 percent and 60 percent, respectively, without the oversampling adjustment.

Table 2. Respondents’ Distribution

District	Population			Sample		
	Center	Rural	Total	Planned	Actual	percent
Bayandalai	514	1,719	2,233	32	32	3.1
Bayan-Ovoo* ³	770	942	1,712	44	34	3.3
Bulgan	831	1,415	2,246	38	40	3.8
Dalanzadgad			20,376	374	375	36.0
Gurvantes*	2,431	2,071	4,502	76	75	7.2
Khanbogd*	1,524	717	2,241	58	67	6.4
Khankhongor*	2,494	1,806	4,300	77	58	5.6
Khurmen	484	1,185	1,669	31	35	3.4

² That is, 14-year olds were not eligible; must be 15, 16, 17 ... years of age.

³ Asterisk indicates ‘mining’ district.

Mandal-Ovoo*	598	1,160	1,758	41	39	3.7
Manlai	734	1,796	2,530	36	36	3.5
Nomgon*	613	2,174	2,787	34	54	5.2
Noyon	427	908	1,335	31	32	3.1
Sevrei	515	1,544	2,058	32	32	3.1
Tsogt-Ovoo	564	1,095	1,659	33	35	3.4
Tsogttsetsii*	3,833	1,347	5,180	101	98	9.4
Total	16,332	19,878	56,586	1,038	1,043	100.2

A random pattern was determined to be more suitable for the completion of the Survey, with households and individuals being the final units. Households were drawn from within the provincial center, Delanzadgad, using a ‘sampling with a skip of five’ technique. Households were drawn from within the district centers using a ‘sampling with a skip of three’ technique because of the smaller population size. In the province center, eight different starting points were selected, and four in the district centres.

Rural households were selected using a random walk technique. The enumeration team began in the center of the district and randomly selected two or three directions in which to travel: north, south, east, or west. They continued in the selected direction, sampling every second household they come across.

Questionnaire. The ToR for the Baseline Survey provided for the supply, by IFC, of a 21-question survey document. During the course of the completion of contractual arrangements for execution of the Survey, IRIM staff were duly provided with an incomplete, 41-question draft document, and an invitation to attend a workshop, Water and Mining in the Provinces, organized by IFC (20 September, 2013). The Workshop included 23 environmental and/or community officers from various organizations within the mining sector, and was widely accepted as a good opportunity for IRIM to present the draft questionnaire. Based in part on feedback from the workshop, a revised version of the questionnaire consisting of 60 questions was approved for pretesting on 23 October.

After translation into Mongolian, a group of four researchers pretested the questionnaire among a collection of twenty respondents: ten in the Ger area of Ulaanbaatar, and ten in the Zaamar district of Tuv province.

Given the positive results of the initial pretesting, no further work was considered necessary, and only a slightly revised version of the questionnaire was presented to IFC for approval on 1 November. A copy of the 60-question document used in the Survey is provided in Appendix 5.

Field work. Five survey sampling routes, provided in Tables 4 and 5, and Appendix 8 of the Inception Report, were used by researchers to complete their fieldwork. IFC staff joined some of the researchers for the last days of their field work in Omnogobi (Appendix 6). Upon completion of the field work (and their return to Ulaanbaatar) all researchers attended a debriefing meeting (Appendix 7) that also included IFC staff. A summary of the analysis of the Researchers’ ‘Field Observation Notes’ is provided in Appendix 8).

3.3. Data Processing

Data Checking. Personnel responsible for data checking were provided with instructions during the course of a training exercise (Appendix 9) and were supplied with an accompanying manual. The Training Manual – in Mongolian only – is available separately.

DataEntry. Personnel responsible for entering data into the database were provided with instructions during the course of a training exercise (Appendix 10) and were supplied with an accompanying manual. The Training Manual – in Mongolian only – is available separately.

Analysis. Raw data was supplied to IFC in the form of an Excel file. After approval by IFC, the data was transferred to SPSS and subjected to various analyses. The results of the analyses were transferred back to Excel which was then used to present the results provided as tables and figures in subsequent sections of this report.

4. PRESENTATION OF RESULTS

4.1. General

The Survey questionnaire was deliberately constructed in three parts (“Respondents’ and Households’ Characteristics,” “Access to Water,” and “Water Management”) to provide a convenient ordering of general topics. Within each of the three parts, the questions were arranged in a sequence that was expected to facilitate the course of interviews. With a few minor exceptions, the same sequence – of parts and questions – was used to present the results in the following sections of the Final Report.

Again, with very few exceptions, it was considered more useful to present many of the results (throughout the text of this Final Report) as figures, rather than tables. Moreover, as much as possible, to facilitate examination of the results the fewest possible styles and formats of figure were used. And (unless stated otherwise) the vertical axis of all figures is frequency (as a percentage).

To facilitate access to, and understanding of, the results presented in the next three sections, each constituent sub-section begins with a preview, and each section ends with a brief conclusion.

4.2. Specifics

The raw data (in the form of an Excel file) of all answers to all the Baseline Survey questions is available separately. The basic results of all analyses used in the presentation of results are provided in Appendix 11.

In some instances, for the sake of completeness, the full range of answers to particular questions is presented in the accompanying figure, for example in Figure 3. Respondents’ Occupations. More often, when the full range of answers is presented, it is to highlight the very low level of some particularly important answer; e.g., the low level of ownership of mobile phones in Figure 4. Households’ Possessions. Otherwise, wherever possible, numerous answers are combined into Others as in Figure 8. Households’ Sources of Water for Cooking and Drinking.

Similarly, most answers are presented in the same order as the questionnaire; e.g., Figure 1. Distribution of Respondents’ Ages by Percent. But, in others, the order has been rearranged – by sorting – to highlight rankings or ratings, e.g., Figure 3. Respondents’ Occupations.

5. RESPONDENTS' AND HOUSEHOLDS' CHARACTERISTICS

5.1. Respondents

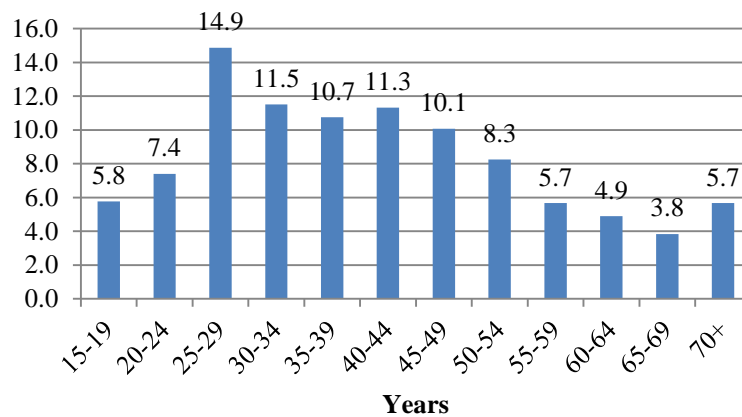
General Preview. Eight of the 14 questions in Part 1 of the questionnaire (“Respondents’ and Households’ Characteristics”) related to the respondents themselves. Their answers indicated they were diverse, at least in terms of gender, age, and education.

The respondents were less diverse in terms of their occupations: herding (or some other form of self-employment) was the most important activity. Other examples, albeit at a lower level, included mining (2.2 percent) and employment within a CSO (0 percent).

In terms of ethnicity and religion, the respondents were essentially all Khalkhs and (among those with a religion) Buddhists, which is typical of Mongolia. However, unlike the country as a whole, very few of the respondents in Omnogobi were divorced. The majority, 76.3 percent, of respondents were married, and 99.7 percent (all but three of the respondents) were ethnic Khalkhs. Although 45.0 percent said they were religious - almost wholly Buddhists, at 40.7 percentage points – the majority, 55.1 percent, of respondents were adiamorphic. In total, eighty-seven percent of respondents were the head of the household, or spouse of the head; 47.8 percent and 39.0 percent.

Specifics. Fifty-seven percent of respondents were female, and 43.0 percent were male. The distribution of respondents’ ages was as shown.

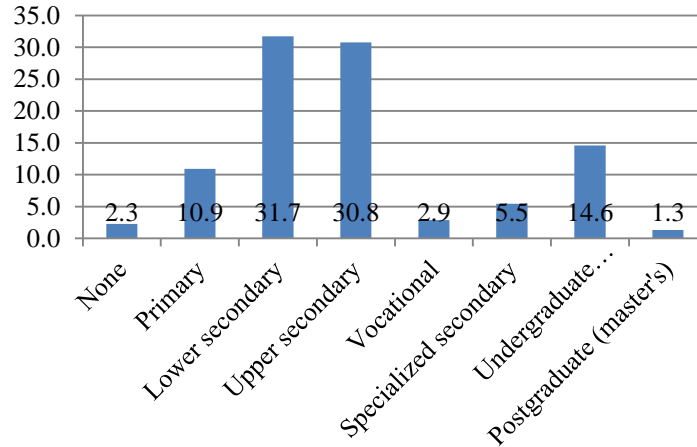
Figure 1. Distribution of Respondents’ Ages by Percent⁴.



The overwhelming majority (62.5 percent) of respondents only had a secondary education, while 14.6 percent had a bachelor’s degree.

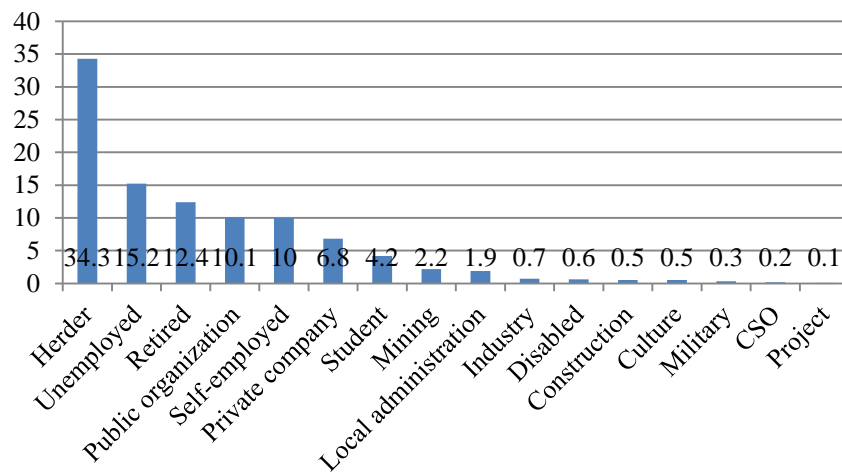
Figure 2. Respondents’ Education.

⁴ Unless stated otherwise, the distribution in all figures is ‘percent’.



The most important occupation – accounting for 34.3 percent of all respondents – was herding; with 27.6 percent unemployed or retired. Only 2.2 percent of respondents were involved with mining and 0.2 percent worked in CSOs.

Figure 3. Respondents' Occupations.



5.2. Households

General Preview. Six of the 14 questions in Part 1 of the questionnaire (“Respondents’ and Households’ Characteristics”) related to the respondents’ households. The questions were accompanied by observations to be made (by the researchers) on the construction of the floor, wall, and roof of the householder’s home. The answers reveal broad similarities in the respondents’ households. Most households (84.0 percent) consisted of two, three, four or five people living in a small flat in the province center (or small ger elsewhere).

Although many households had a television, ownership of radios and phones was very low. Ownership of even a small amount of land was very limited, as were households’ resources of livestock. Seventy-three percent (72.6 percent) of all households’ average incomes were less than MNT9.0 million a year.

Specifics. The sizes of households in Omnogobi – by number of members – ranged from one to nine persons, with an average of 3.7 ± 1.5 people. Only a small proportion, 17.3 percent of households - occupied flats (or other types of solid buildings) while the majority of 82.7 percent lived in a traditional ger. Households’ use of gers was equally prevalent in the province and district centers, and outside district centers, but flats were more common among households in the provincial and district centers.

Table 3. Location of Flats and Gers

Location	Flat	Ger
Provincial center	45.0	34.2
District Center	31.7	27.5
Rural area	23.0	38.2
Total	100.0	99.9

Among those people living in flats, the size of the accommodation ranged from one to six rooms, with an average size of 2.3 ± 1.0 rooms (about 45m^2). 95.8 percent of gers were four or five panels in size, with an average of 4.6 panels (about 11m^2).

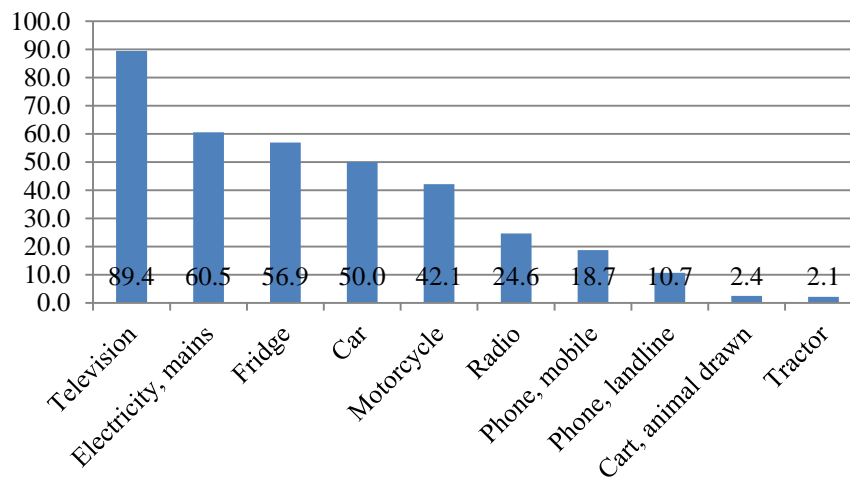
During the course of their visits to 1,043 households, researchers made 1,349 observations on the construction of the floors, 1,254 on the construction of the walls and 1,273 on the roofs. The results, as a percentage of the numbers of households (since some households were seen to have a wooden floor and a carpet, for example) are as shown in the following table. The high proportion of walls and rooves constructed with felt are consistent with the high level of occupancy of traditional gers.

Table 4. Researchers' Observations on Construction of Household (percent).

Item	Material												
	Carpet/inoleum	Wood planks	Earth/Sand	Parquet	Cement	Felt, two layer	Brick, or block	Felt, three layer	Cement	Felt, one layer	Stone, and mud	Metal	Other
Floor	61.4	39.3	18.9	6.0	3.5								0.3
Wall		24.2				61.7	15.5	9.2	5.3	3.3	1.1		0.1
Roof		23				70.9		4.8	6.8	6.0		10.4	0.3

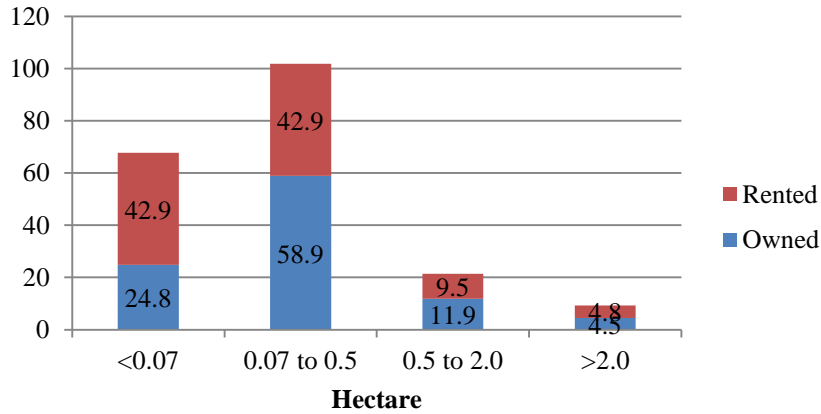
Households' possessions of various consumer durable goods are shown below. Though most (89.4 percent) possessed a television, the ownership of radios (24.6 percent) and mobile phones (18.7 percent) were particularly low.

Figure 4. Households' Possessions.



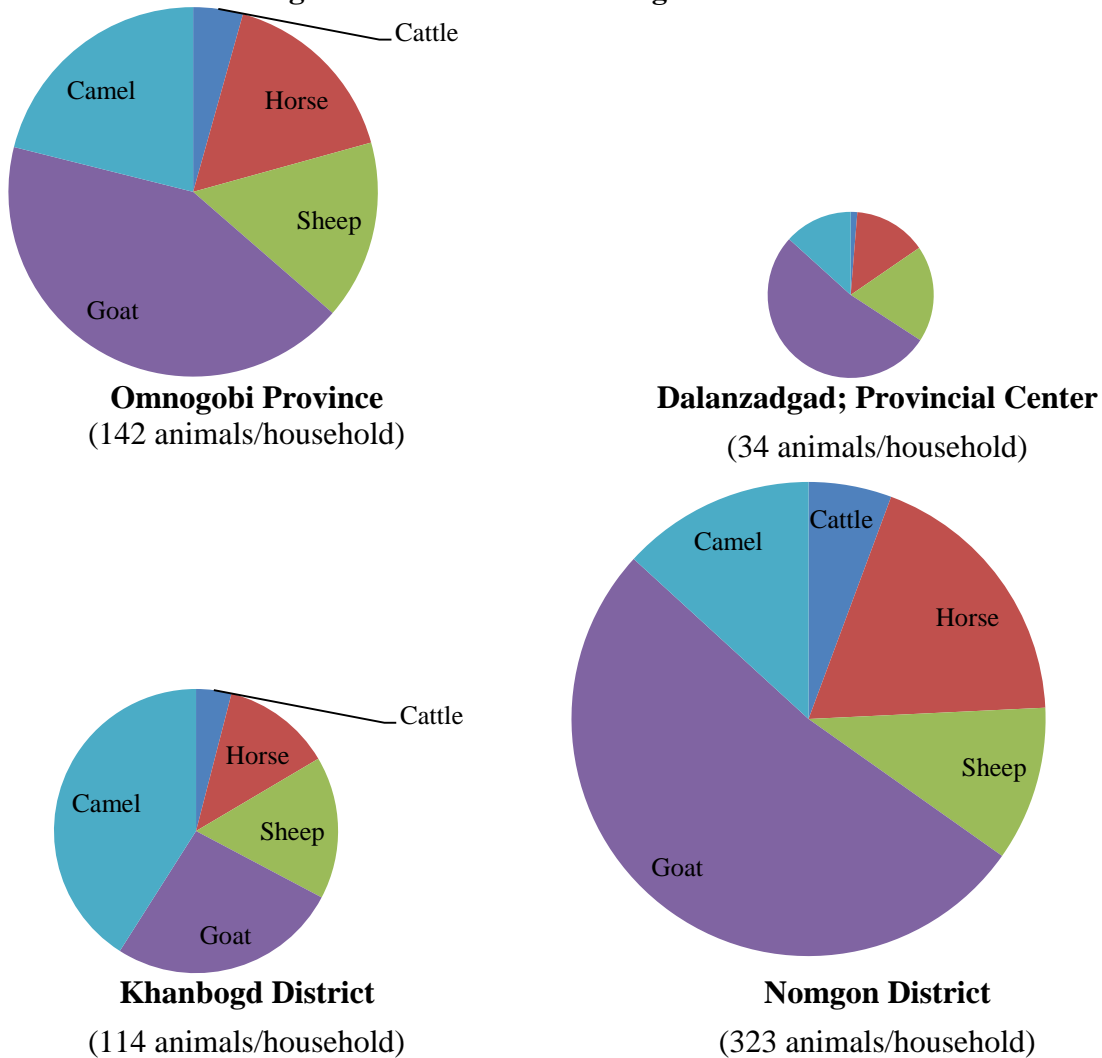
Only 19.4 percent of households owned land, and just 2.0 percent rented it. No one owned or rented more than 2.0 hectares, and most (about 90 percent) owned or rented less than 0.5 hectare.

Figure 5. Households' Land Resources, Owned or Rented



Throughout the province, households' average resources of livestock amount to 142 animals, ranging from 114 in Khanbogd district to 323 in Nomgon and just 34 per household in the provincial center of Dalanzadgad. Some of the variations in the size and composition of households' livestock resources are illustrated below; where the sections of the charts are proportional to the numbers of the various animals.

Figure 6. Households' Average Livestock Resources

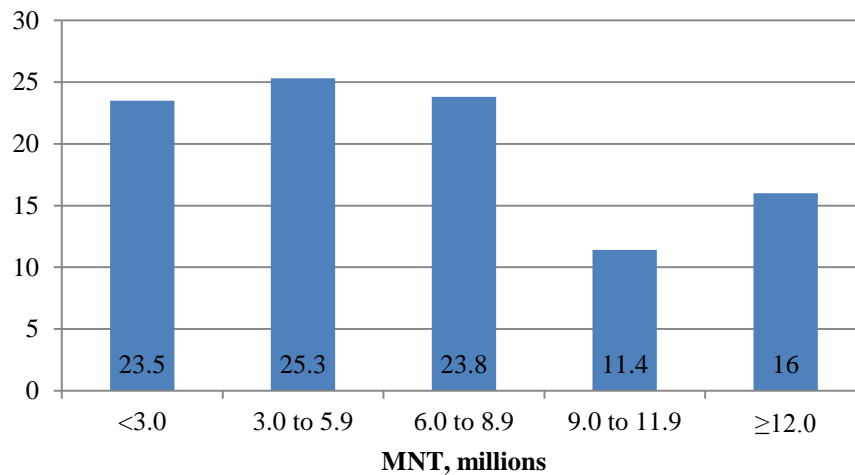


Note. The area of each circle is proportional to local herd size; so (for example) the figure for Dalanzadgad is half the area of the Omnogobi province's figure.

In Khanbogd, for example, the small herds. are dominated by camels, while in the larger herds of Nomgon, goats predominate.

Given the relatively small size of households' livestock resources, average incomes are similarly low, with 72.6 percent of households earning less than MNT9.0/year.

Figure 7. Households' Average Annual Income.



5.3. Conclusions

Answers from the first part of the survey questionnaire provided information about respondents and Households.

The respondents were diverse in terms of age (15 to more than 70 years), gender (57 percent female) and educational level (17 percent attended university). The respondents were, however, less diverse in terms of their occupations. The most common occupation was herding (34 percent), while unemployment and retirement combined accounted for 27.6 percent of respondents. Just 2.2 percent were engaged in mining. Similarly, essentially all respondents were Khalkhs; and Buddhism predominated among the 45 percent who identified themselves as religious.

Due to the sampling design, there were obvious differences in the location of households examined in the Survey; 36 percent were in Dalanzadgad (the provincial center), 29 percent in the 14 district centers, and the balance of 35 were in rural areas (outside of the provincial and district centers). Similarly, due to the sampling design, 40.6 percent of households were located in mining districts, and 23.6 percent in non-mining ones; with the balance of 36.0 percent in Dalanzadgad. Otherwise, there were many similarities among the households. For example, most (84.0 percent) consisted of two, three, four or five people; who most often (82.7 percent) were living in a small ger.

With the exception of a television (in 89.4 percent of households) the ownership of other possessions was low; and ownership of phones (of one sort or another) was particularly low, at 29.4 percent. This has obvious implications for the type of dissemination campaign that might be adopted to provide for better communication with the people of Omnogobi in the future. Access to land (owned or rented) was restricted to just 21.4 percent of households; and never more than 2.0 hectares. Limited and/or insecure access to land is widely accepted as a constraint upon the development of livelihoods in general and, more particularly, restricts the scope for herders to produce their own fodder for supplementary feeding of livestock in winter. Households' livestock resources averaged just 142. Given the predominance of herding as a livelihood, – this

figure is considered to have contributed to low incomes among the respondents, with 72.6 percent of average household incomes at less than MNT9.0 million a year. It is widely accepted that livestock resources of 200 to 250 animals per household is barely enough to sustain a family financially.

6. WATER FOR COOKING AND DRINKING

6.1. Quantity

General Preview. Nineteen of the 30 questions in Part 2 of the questionnaire “Access to Water” related to water used for cooking and drinking. Eleven of those questions concerned the quantity of the water (the topic of this sub-section), and eight were on its quality (the topic of the next sub-section).

For most people, wells and kiosks were the most important sources of water for cooking and drinking. Though 82.9 percent of respondents said they relied on existing protection (of drinking water sources) only 40 percent actually used a protected well (See Figure 9 for varieties of well protection).

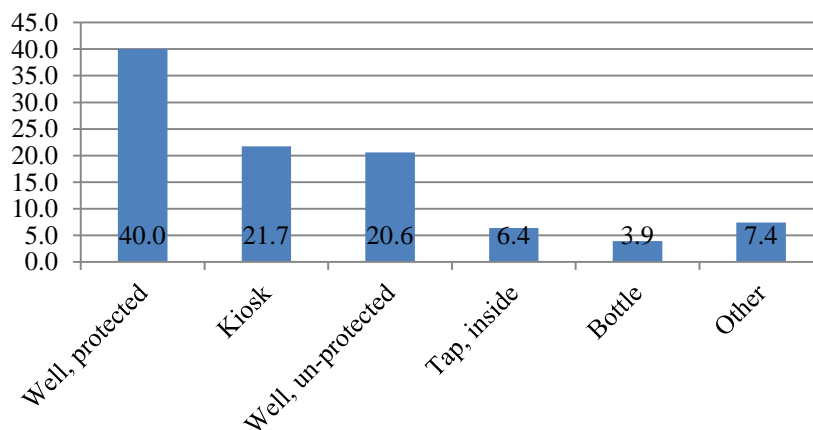
In the majority of households, an adult male was responsible for the collection of water for cooking and drinking, and water was usually accessible within ten minutes. 86.5 percent of households consumed less than 20 litres of water for cooking and drinking each day.

While many respondents thought the quantity of water for cooking and drinking was currently “okay,” more were negative about how it had deteriorated in the past, and even more were negative about how it was likely to worsen in the future.

Though weather was the most popular choice of factor impacting the quantity of water for cooking and drinking, mining (formal and informal) and industry (heavy and light) were rated as the most important (in terms of severity of their impact).

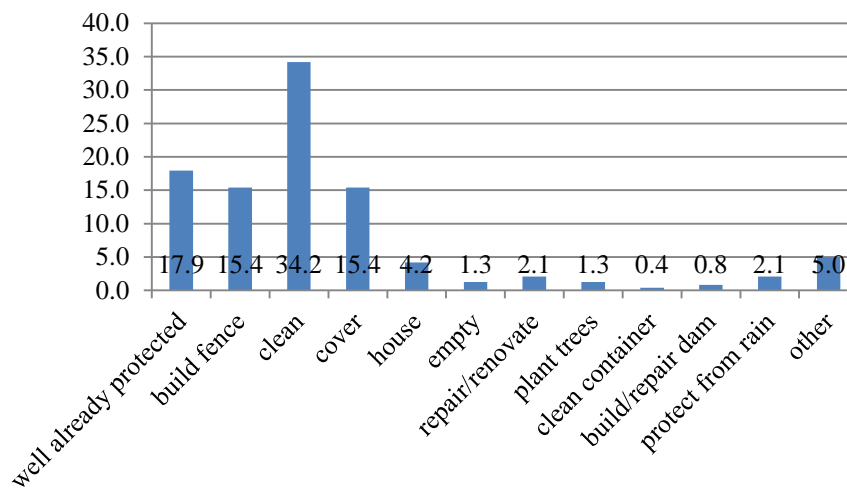
Specifics. Households’ most important sources of water for cooking and drinking were wells (protected and un-protected) and kiosks, accounting for 82.3 percent of first choices. Only 70 (of the total of 1,043 respondents) provided a second choice and just two, a third choice.

Figure 8. Households’ Sources of Water for Cooking and Drinking.



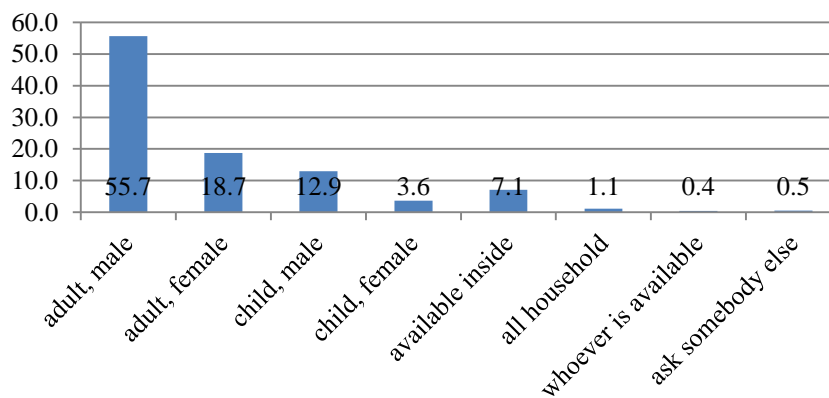
77.3 percent of households did nothing to protect their source of water for cooking and drinking. Of the 22.7 percent that did do something, 82.9 percent used pre-existing protection, fencing, cleaning and covering

Figure 9. Households' Protection of Sources of Water.



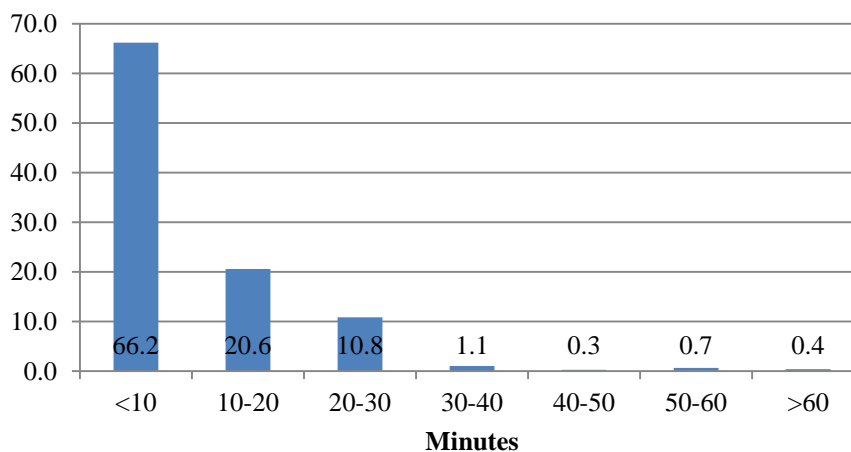
In the majority of households (55.7 percent) an adult male was responsible for the collection of water for cooking and drinking.

Figure 10. Individuals Responsible for the Collection of Water for Cooking and Drinking.



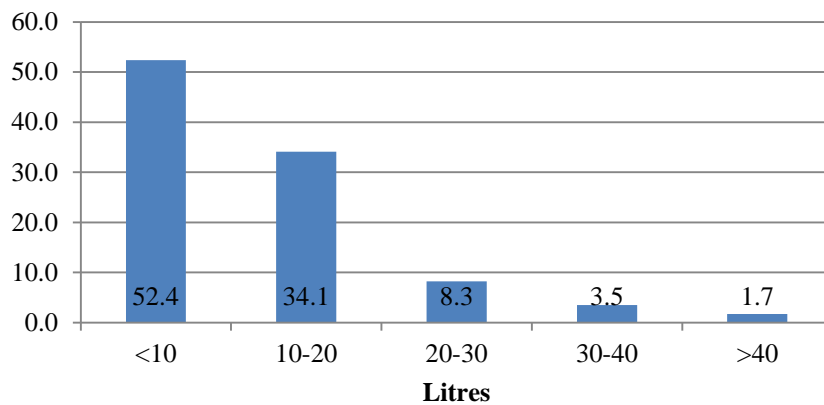
66.2 percent of households could reach a safe source of water for cooking and drinking within 10 minutes.

Figure 11. Time to Reach a Safe Source of Water for Cooking and Drinking.



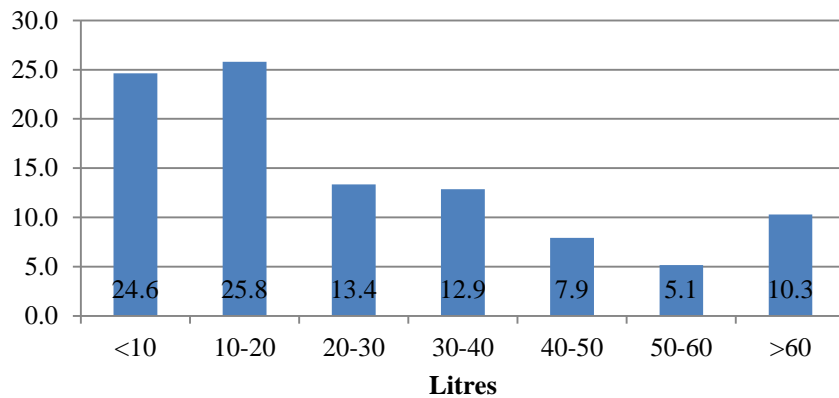
86.5 percent of households consumed less than 20 litres of water for cooking and drinking, with all but 24 respondents able to provide this information.

Figure 12. Households' Daily Consumption of Water for Cooking and Drinking.



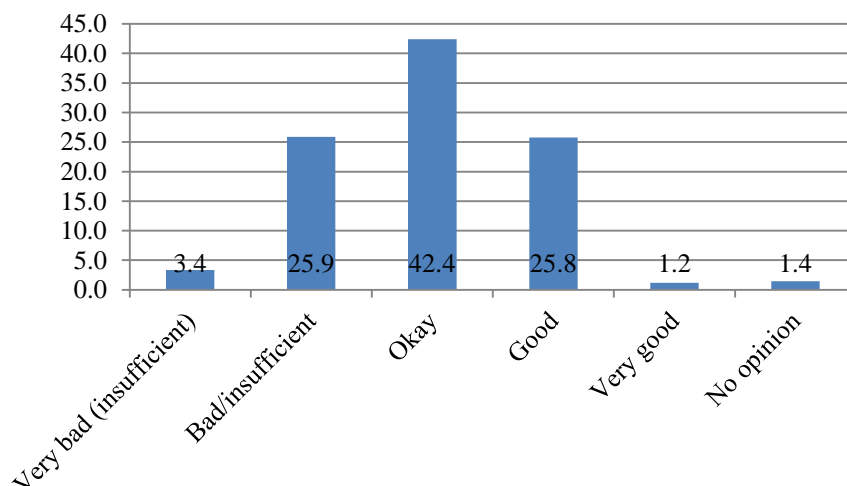
Households' consumption of water for personal purposes (bathing and so on) was much more variable. Though all but 32 respondents were able to give a figure, the consumption ranged from less than 10 to more than 60 litres/day.

Figure 13. Households' Daily Consumption of Water for Personal (Bathing, etc.) Purposes.



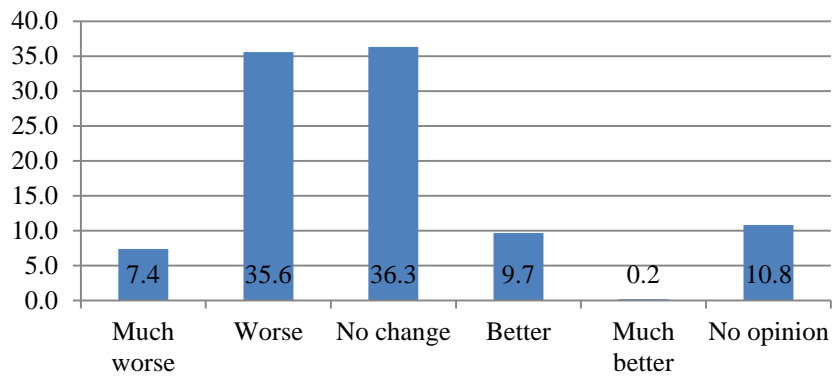
Respondents' opinions on the current status of the quantity of water available for cooking and drinking were quite equivocal with most (42.4 percent) stating it was "okay."

Figure 14. Present Quantity of Water for Cooking and Drinking.



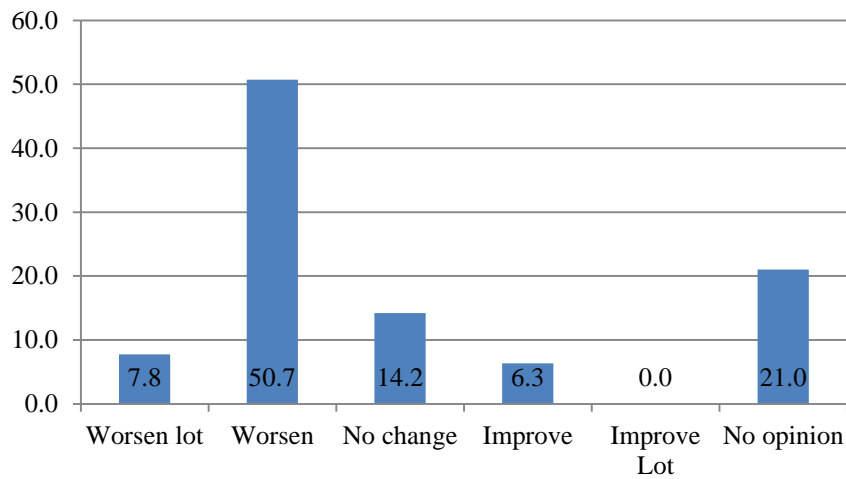
However, while 36.3 percent of respondents thought the quantity of water available for cooking and drinking had not changed in the previous five years, 35.6 percent thought it had worsened, in contrast to 9.7 percent who thought it was better.

Figure 15. Past Changes in Quantity of Water for Cooking and Drinking.



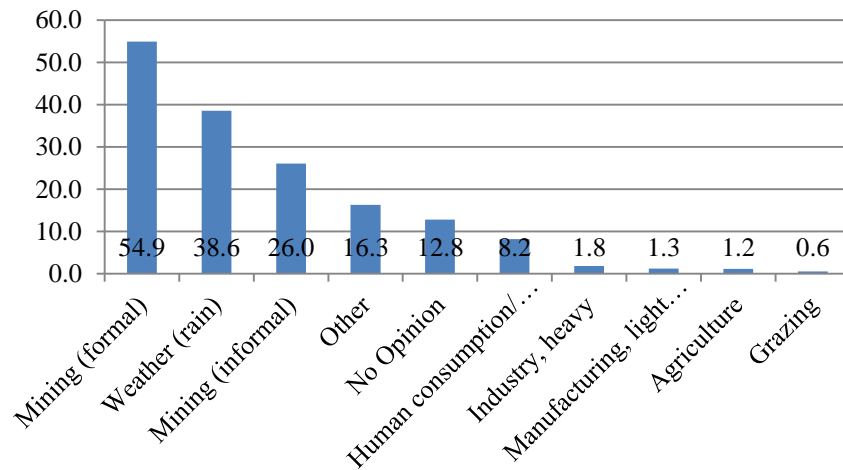
And the outlook was even more negative for the future, with 50.7 percent of respondents expecting the quantity of water available for cooking and drinking to worsen.

Figure 16. Prospective Changes in Quantity of Water for Cooking and Drinking.



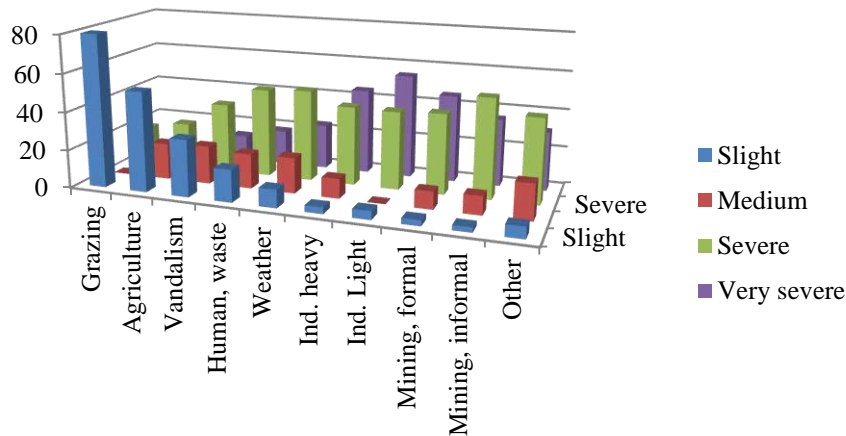
All but 12.8 percent of respondents volunteered (without prompting) at least one suggestion for the factors impacting the quantity of water available for cooking and drinking: 80.9 percent thought it was mining (formal mining 54.9 percent, informal mining 26.0) and 38.6 percent suggested weather. All other factors (in total) were each less than 10 percent.

Figure 17. Factors Impacting the Quantity of Water for Cooking and Drinking.



In response to a request to rate the factors previously identified, mining (formal and informal) and industry (heavy and light)⁵ were all rated as “severe,” or “very severe” by between 86.2 and 95.4 percent of all respondents.

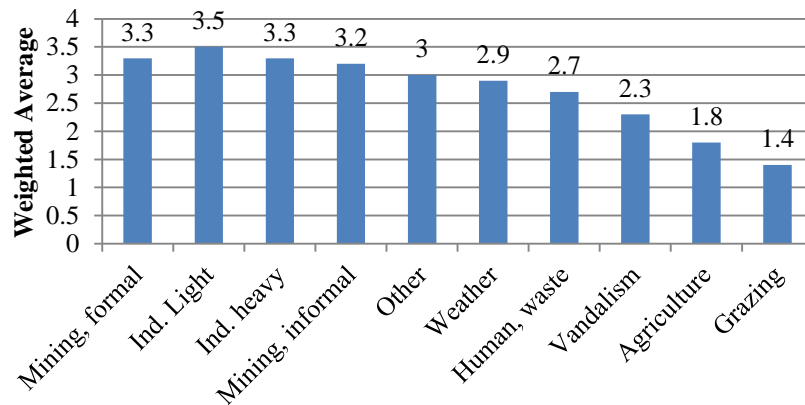
Figure 18. Rating of Factors Impacting Quantity of Water for Cooking and Drinking.



The above figure reveals major contrasts in the rating of particular factors, with, for example, “grazing” rated “slight” by most respondents, while “mining” was rated predominantly “severe” or “very severe.” To facilitate understanding of the overall ratings of all factors, averages for each were determined by assigning a value of one to “slight,” two to “medium,” three to “severe,” and four to “very severe.” The results show that formal mining is second only to “light industry,” though it is one of four closely rated factors (along with heavy industry and informal mining).

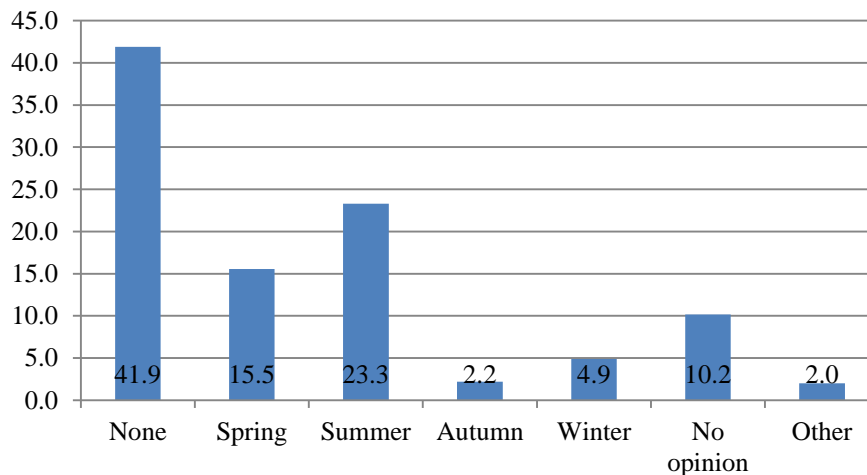
⁵ Respondents were routinely able to distinguish between heavy and light industry. Examples of “heavy” industry include cement and steel manufacture, and the generation of electricity and (community) heating. Examples of light industry include the manufacture of leather and felt, dairy processing and so on

Figure 19. Average Rating of Factors Impacting Quantity of Water for Cooking and Drinking



Most (45.9 percent) of respondents were aware of some seasonal problems related to the availability of water for cooking and drinking, but (in decreasing order of importance) the seasons cited were summer, spring, winter and autumn. 41.9 percent of respondents were unaware of any seasonal problems related to the availability of water for cooking and drinking.

Figure 20. Seasonal Variation in the Quantity of Water for Cooking and Drinking



6.2. Quality

General Preview. Nineteen of the 30 questions in Part 2 of the questionnaire “Access to Water” related to the water for cooking and drinking; 11 on the quantity and 8 on the quality (the topic of this sub-section).

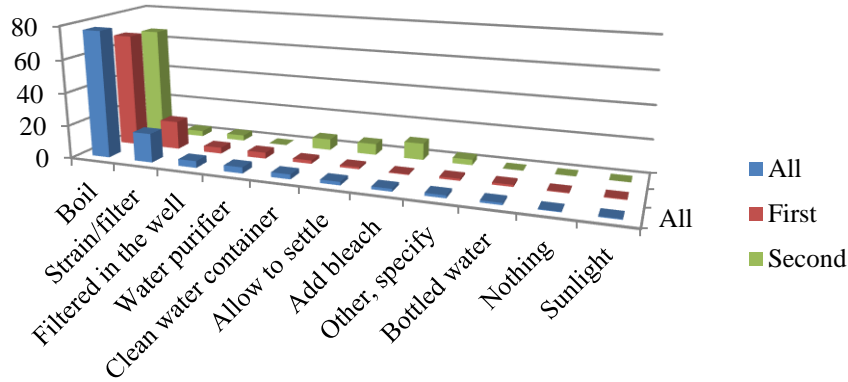
Three quarters of people did nothing to water to make it safer for cooking and drinking, and among those that did, boiling and filtering predominated.

Many respondents thought the quality of water for cooking and drinking was currently “okay”, and had not deteriorated in the past. However, the proportion of those with “no opinion” about past changes was somewhat higher. And, for the future, there was a larger proportion of people who thought it would worsen, and more with “no opinion.”

Most people determined quality of water for cooking and drinking by its taste or color. Though “other” factors predominated, and “weather” was a popular choice of factor impacting the quality of water for cooking and drinking, mining (formal and informal) and industry (heavy and light) were again rated as the most important (in terms of severity of their impact).

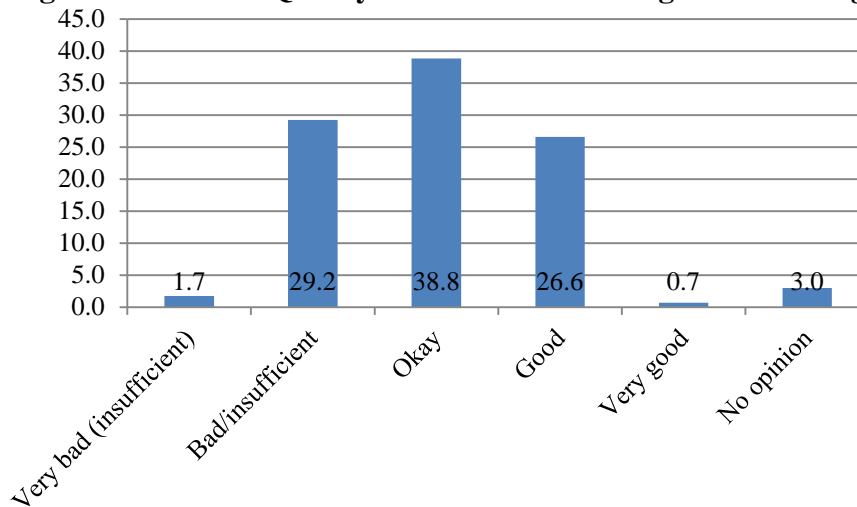
Specifics. Seventy-six percent of all respondents said they did nothing to the water to make it safer for cooking and drinking. Among the 24.2 percent that did do something, boiling and filtering accounted for 68.5 percent and 15.6 percent of people’s first choice. Only 30 people made a second choice, and none a third.

Figure 21. Households’ Pre-treatment of Water for Cooking and Drinking.



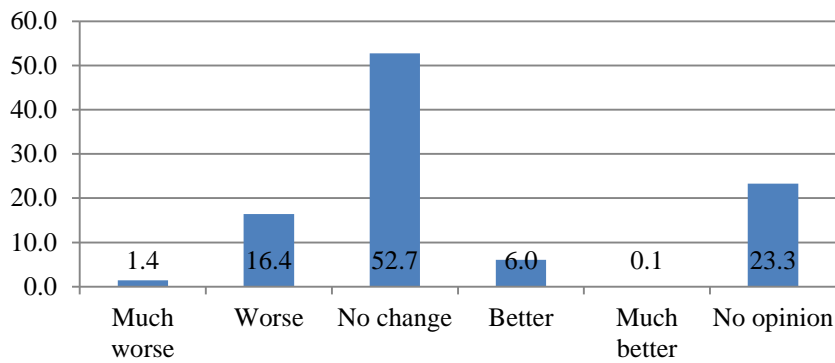
Respondents’ opinions on the current status of the quality of water available for cooking and drinking were quite equivocal with most (38.8 percent) stating it was “okay.”

Figure 22. Present Quality of Water for Cooking and Drinking.



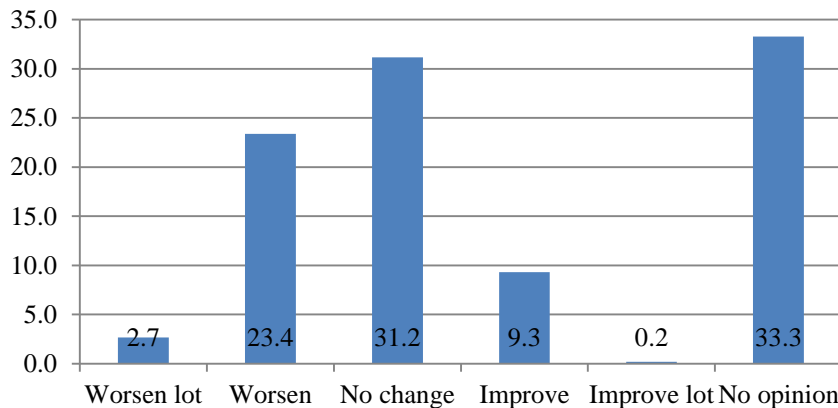
As many as 52.7 percent of respondents thought the quality of water available for cooking and drinking had not changed in the previous five years, but the proportion with “no opinion” was 23.3 percent (in contrast to 10.8 percent in the case of water quantity (see previous sub-section)).

Figure 23. Past Changes in the Quality of Water for Cooking and Drinking



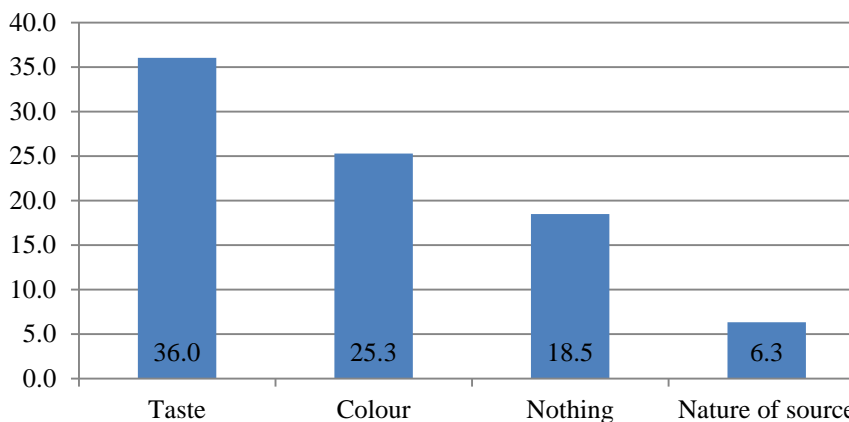
Regarding the future, respondents were more negative (with 23.4 percent suggesting it would worsen) or more reluctant to say what might happen (with 33.3 percent stating “no opinion”).

Figure 24. Prospective Changes in Quality of Water for Cooking and Drinking.



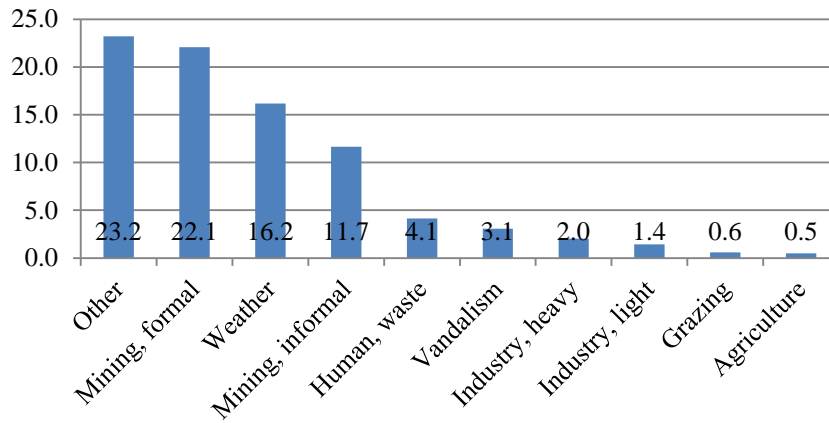
1,310 answers were presented by the respondents regarding what they do to assess the quality of water for cooking and drinking. 61.3 percent used taste and/or color, while 18.5 percent did nothing. In addition to “nature of the source,” fourteen other measures were used, but none of them exceeded 1.0 percent each (13.9 percent in total).

Figure 25. Means Used to Determine Quality of Water for Cooking and Drinking.



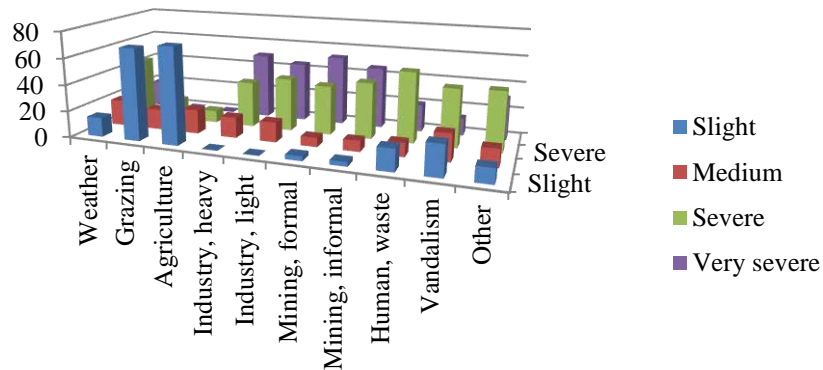
451 respondents (43.4 percent) volunteered (without prompting) suggestions for factors impacting the quality of water available for cooking and drinking. And, miscellaneous “others” predominated.

Figure 26. Factors Impacting the Quality of Water for Cooking and Drinking.



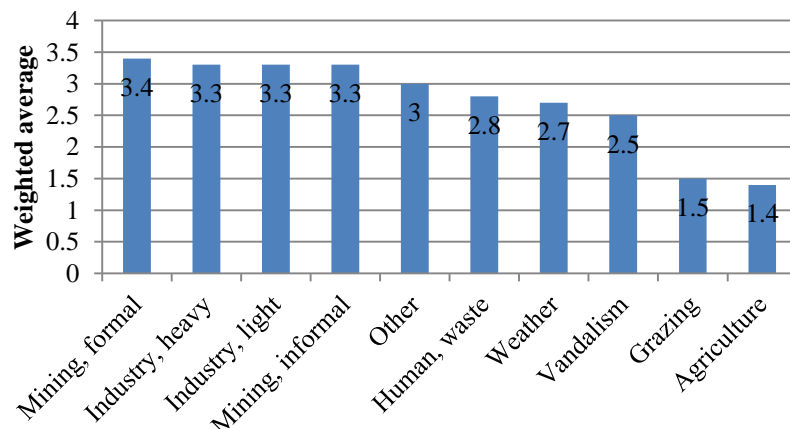
In response to a request to rate the factors previously identified, mining (formal and informal) and industry (heavy and light) were all rated as “severe,” or “very severe” by between 84.6 and 88.6 percent of all respondents. Unlike the ratings related to quantity “other” factors were rated highly.

Figure 27. Rating of Factors Impacting Quality of Water; Cooking and Drinking.



The above figure reveals major contrasts in the rating of particular factors on water quality. For example, “grazing” was rated “slight” by most respondents, while mining was rated predominantly “severe” or “very severe.” To facilitate understanding of the overall ratings of all factors, averages for each were determined by assigning a value of 1 to “slight,” 2 to “medium,” 3 to “severe” and 4 to “very severe.” The results show that formal mining is the highest rated factor; though it is one of four closely rated factors (along with heavy industry, light industry, and informal mining).

Figure 28. Average Rating of Factors Impacting Quality of Water Used for Cooking and Drinking



6.3. Conclusions

Answers from the second part of the survey questionnaire provided information about “Access to Water.” In particular, issues related to the quantity and quality of water for cooking and drinking (the subject of this section of the Final Report) and the quantity of water for work-related purposes (the subject of the next section).

For 82.3 percent of people in Omnogobi, wells and kiosks were the most important sources of water for cooking and drinking. Though 82.9 percent of respondents said they relied on existing protection (of drinking water source) only 40 percent actually used a protected well. And three quarters of people did nothing to water to make it safer for cooking and drinking; though among those that did, boiling and filtering predominated.

In the majority of households, an adult male was responsible for the collection of water for cooking and drinking, and water was usually accessible within ten minutes. 86.5 percent of households consumed less than 20 litres of water for cooking and drinking each day. Consumption for other (personal) purposes such as bathing varied considerably from less than 10 to more than 60 litres/day.

Almost half (45.9 percent) of respondents thought there were seasonal variations in the quantity of water available throughout the year (worst in summer) but a similar proportion (41.9 percent) thought there was not. And most people determined quality of water for cooking and drinking by its taste or colour.

While many respondents thought the quantity of water for cooking and drinking was currently “okay,” more were negative about how it had deteriorated in the past, and more so about how it was likely to worsen in the future. Similarly, many respondents thought the quality of water for cooking and drinking was currently “okay,” but had not deteriorated in the past. However, the proportion of those with “no opinion” about past changes in quality was somewhat higher. And, regarding the future, there was a larger proportion of people who thought the quantity would worsen, and more with “no opinion.”

Mining was the most popular choice of factor impacting both the quantity and quality of water in Omnogobi, and (in close conjunction with informal mining and industry; heavy and light) rated among the most important.

People’s opinion on the existing (current) status of the quantity and quality of water available for cooking and drinking – as “okay” – would generally be considered reasonably positive, and encouraging. But such an assessment has to be qualified by the mixed (negative/neutral) opinions about past changes, and the generalised belief that both quantity and quality will deteriorate in the future. This suggests that a situation has developed where people have accepted the current situation, and become resigned to it getting worse. If so, then efforts will be required to halt simply the deterioration, and more efforts required to rectify it. However, this raises questions about the credibility of people’s measures of quantity and quality; especially their dependence upon taste and color to determine quality.

7. WATER FOR WORK-RELATED PURPOSES

7.1. Quantity

General Preview. Ten of the 30 questions in Part 2 of the questionnaire related to water for used work-related purposes, particularly in terms of its quantity.

The most common use of water was livestock production, and the most common source, wells (of various sorts). 65.2 percent of households used 0.5 to 3.0m³/day.

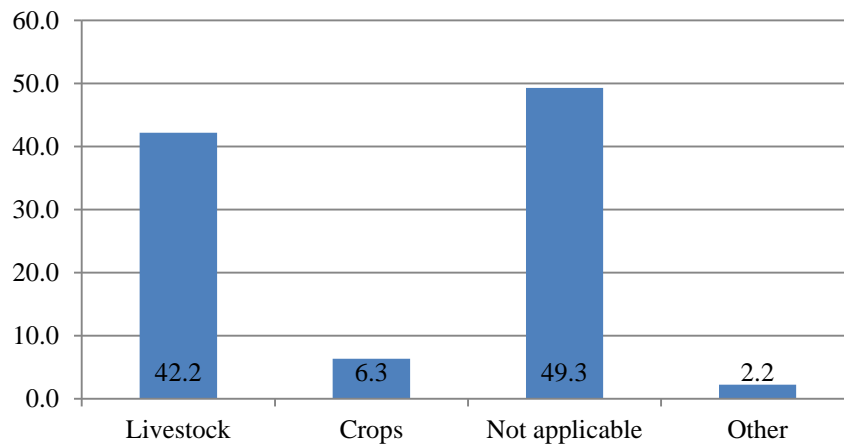
Respondents were overall negative about the current status of the quantity of water for work-related purposes; as well as past and prospective changes. 43.5 percent were aware of seasonal (spring and summer) problems in the quantity of water available for work-related purposes.

Mining (formal and informal) was identified as a major factor impacting the quantity of water for work-related purposes.

Though industry (heavy and light) was only mentioned by a small proportion of respondents, it and mining were all highly rated “severe” or “very severe” in terms of their impact. For most people (45.3 percent) extra water – were it available – would be used for production of vegetables; but 17.7 percent also wanted more animals.

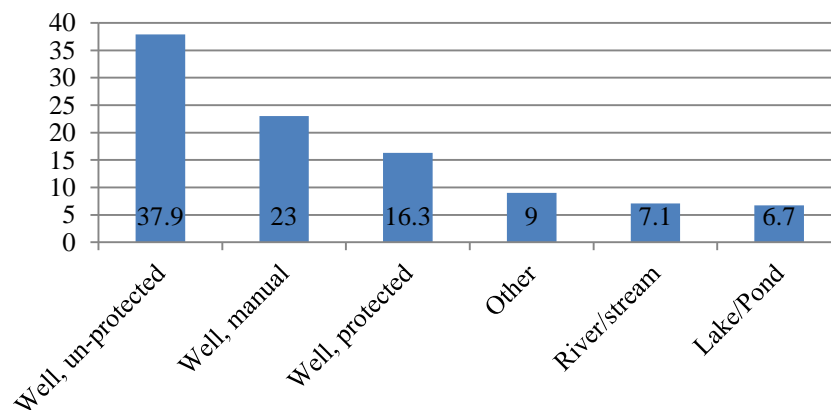
Specifics. The only major work-related use of water was for livestock (42.2 percent of all respondents) and for most 49.3 percent it was “not applicable.”

Figure 29. Work-related Use of Water.



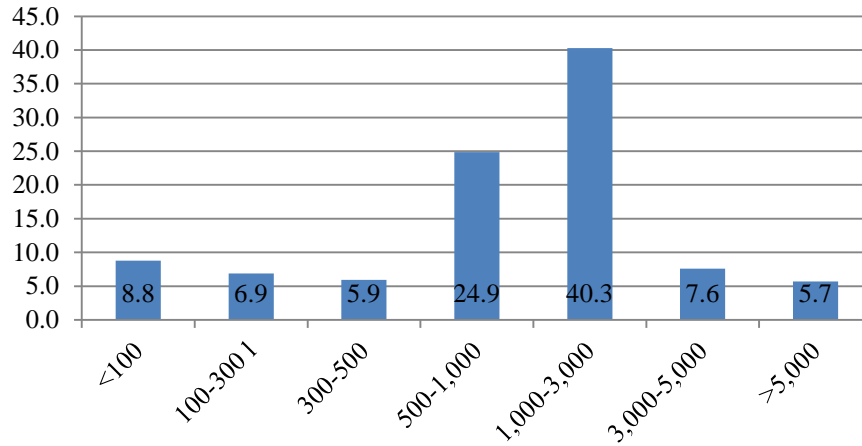
Wells of one sort or another were the primary source of water for work-related purposes for 76.9 percent of respondents, especially un-protected wells (37.9 percent).

Figure 30. Households' Sources of Water for Work-related Purposes.



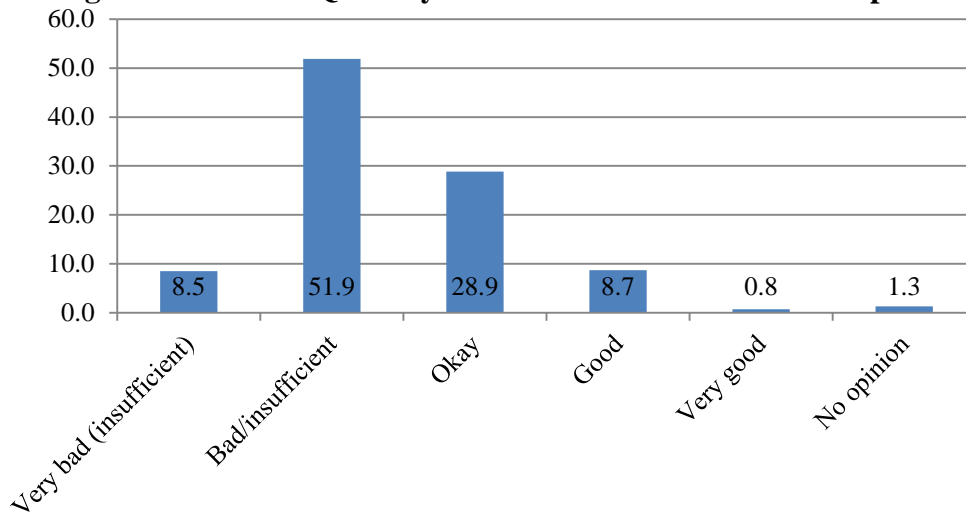
Households' consumption of water for work-related purposes was not so variable. And all but 40.2 percent of respondents provided a figure. Among the 59.8 percent that provided an answer, two thirds (65.2 percent) used between 0.5 and 3.0m³/day

Figure 31. Households' Daily Consumption of Water for Work-related Purposes



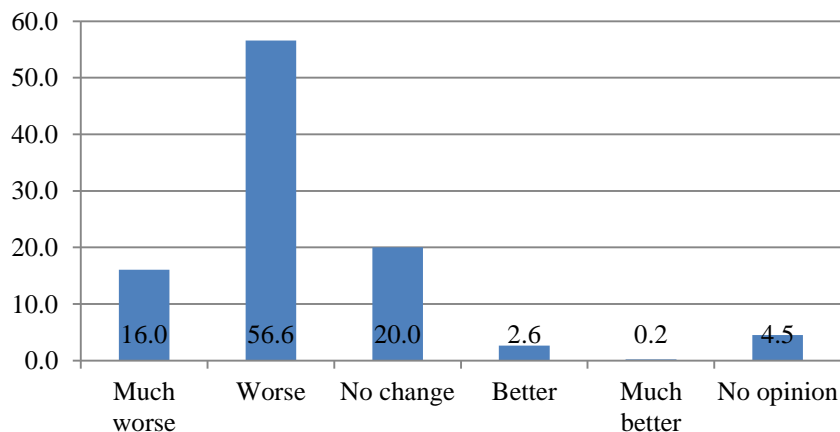
Respondents' opinions on the current status of the quantity of water available for work related purposes was somewhat negative, with most (51.9 percent) stating it was "bad/insufficient"

Figure 32. Present Quantity of Water for Work-related Purposes.



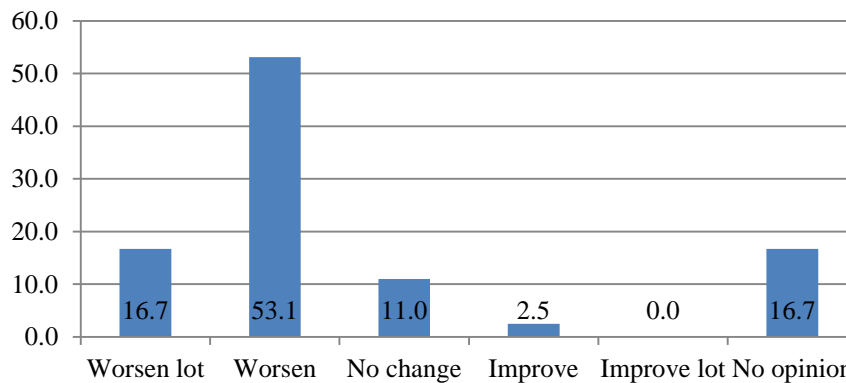
The majority (56.6 percent) of the same respondents thought the quantity of water available for work-related purposes had worsened in the previous five years.

Figure 33. Past Changes in Quantity of Water for Work-related Purposes.



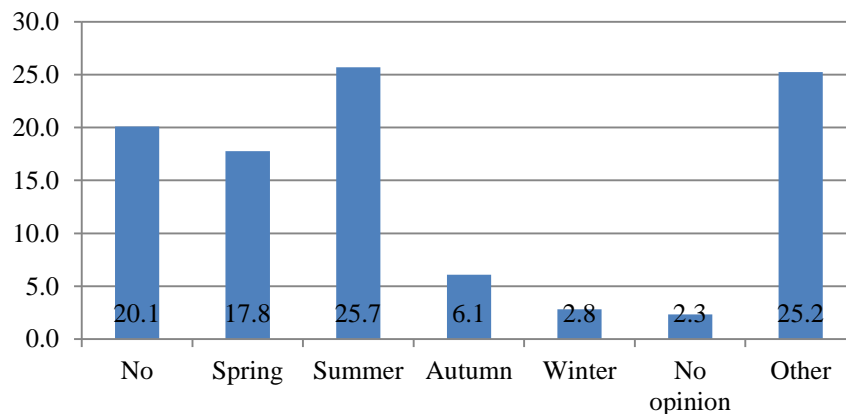
A similar proportion (53.1 percent) also thought it would worsen in the future.

Figure 34. Prospective Changes in Quantity of Water for Work-related Purposes.



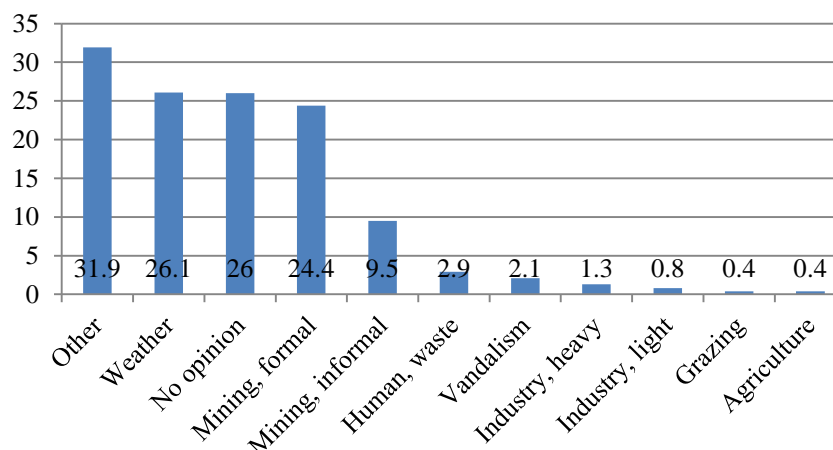
Most (77.6 percent) of respondents were aware of some seasonal problems related to the availability of water for work-related purposes, and (in decreasing order of importance) the seasons were summer, spring, autumn and winter, almost the same pattern as for water for cooking and drinking. 20.1 percent of respondents were unaware of any seasonal problems related to the availability of water for work-related purposes.

Figure 35. Seasonal Variation in the Quantity of Water for Work-related Purposes.



All but 20.6 percent of respondents volunteered (without prompting) at least one suggestion for the factors impacting the quantity of water available for work-related purposes. Mining (formal and informal) and weather were most prominent cited (27.0 and 20.8 percent, respectively). Industry (heavy and light) was only mentioned by 1.7 percent of respondents.

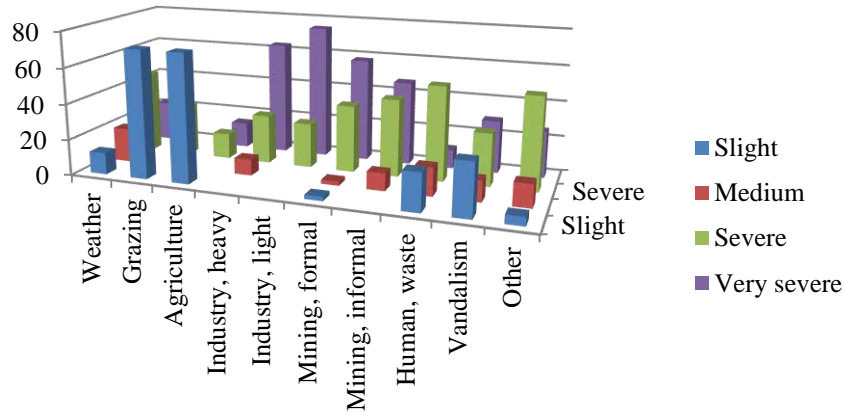
Figure 36. Factors Impacting the Quantity of Water for Work-related Purposes.



In response to a request to rate the factors previously identified, mining (formal and informal)

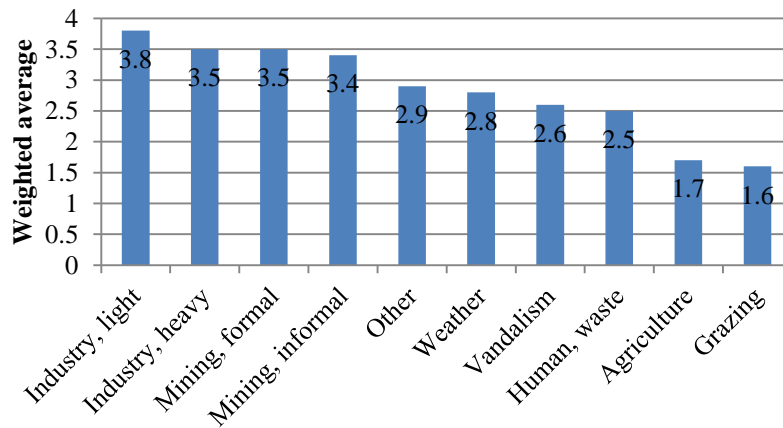
and industry (heavy and light) were all rated as “severe,” or “very severe” by between 90.2 and 100 percent of all respondents.

Figure 37. Rating of Factors Impacting Quantity of Water; Work-related Uses.



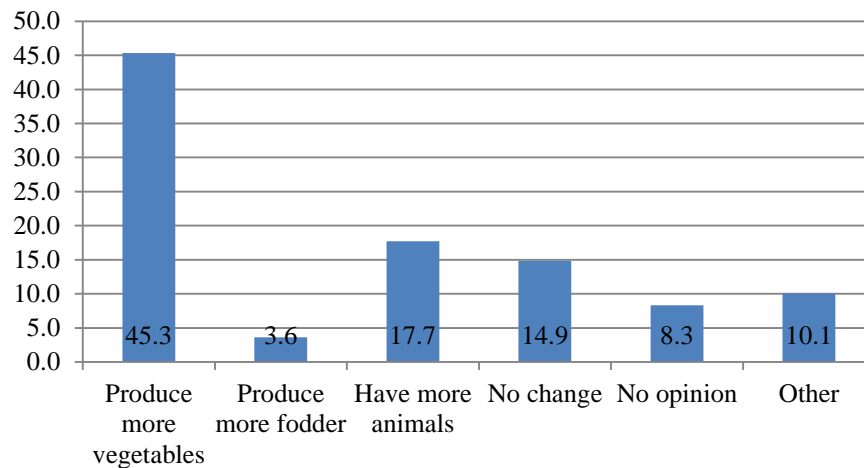
The above figure reveals major contrasts in the rating of particular factors with, for example, “grazing” rated “slight” by most respondents, while mining was rated predominantly “severe” or “very severe.” To facilitate understanding of the overall ratings of all factors, averages for each were determined by assigning a value of 1 to “slight,” 2 to “medium,” 3 to “severe” and 4 to “very severe.” The results show that formal mining is the third highest rated factor, though it is one of four closely rated factors (along with heavy industry, light industry and informal mining).

Figure 38. Average Rating of Factors Impacting Quantity of Water for Work-related Uses.



When asked about how they might take advantage of improved access to water in their area 45.3 percent of respondents mentioned the production of more vegetables. Among the nine suggestions within the 10.1 percent of “others,” 7.4 percentage points related to the planting of trees and bushes.

Figure 39. Uses for Extra Water, If Available



7.2. Conclusions

Answers from the second part of the survey questionnaire provided information about “Access to Water,” in particular, issues related to the quantity and quality of water for cooking and drinking (the subject of the previous section of this Final Report) and the quantity of water for work-related purposes (the subject of this section of the Final Report).

The most common use of water was livestock production, the most common source was wells (of various sorts); and 65.2 percent of households used 0.5 to 3.0m³/day.

Almost half (43.5 percent) of respondents were aware of seasonal (spring and summer) problems in the quantity of water available for work-related purposes. But a high proportion of respondents (20.1 percent) thought there was no seasonal variation.

Respondents were overall negative about the current status of the quantity of water for work-related purposes, as well as past and prospective changes in the quality. Mining (formal and informal) was identified as a major factor impacting the quantity of water for work-related purposes. Though industry (heavy and light) was only mentioned by a small proportion of respondents, it and mining (formal and informal) were all highly rated with regard to “severe” or “very severe” in terms of their impact. For most people (45.3 percent) extra water – were it available – would be used for production of vegetables, but 17.7 percent also wanted more animals.

People’s opinions on the status of the quantity of water available for work-related purposes – past, present and future – were consistently/clearly more negative; in contrast to their opinions about water for cooking/drinking (and other personal purposes). This is presumably because of the larger amounts involved, and the fact that this usage is related to people’s livelihoods and incomes. If people do not have secure access to water for work, it has profound implications for their wellbeing.

Most (76.8 percent) respondents were able to identify what they might do with more water, if it were available: the most popular choice being “vegetables production,” followed by “more animals.” The former would generally be considered desirable since it would contribute to improved nutrition as providing a source of employment. However, the general consensus of opinion (from the results of the Literature Review) would suggest that more animals are likely to have a negative impact. Though “grazing” was identified by very few respondents as a factor influencing the quantity of water for work-related purposes (and its impact rated only “slight” or “medium”) the longstanding increase in livestock numbers throughout Mongolia – including Omnogobi – is widely accepted to have contributed to environmental degradation and increased depletion of water resources.

8. MANAGEMENT OF WATER

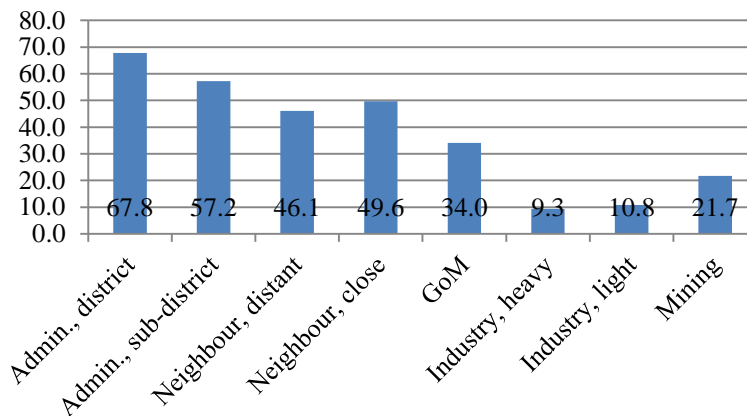
8.1. Associated Individuals and Organisations

General Preview. Three of the 16 questions in Part 3 of the questionnaire (“Water Management”) related to the individuals and organisations associated – by respondents – with water resources and their management in general.

Unlike in the previous two sections (Section 6. Water for Cooking and Drinking, and Section 7 Water for Work-related Purposes, related to Access to Water) local individuals and organisations predominate in respondents’ answers in this section, in particular: “neighbors” and “administration.” And these are also “highly” trusted, but so too are all other individuals and organisations albeit it to a lesser extent. The majority of respondents were unaware of any others’ involvement in water-related activities, but among those that were, local communities and mining enterprises were the best known.

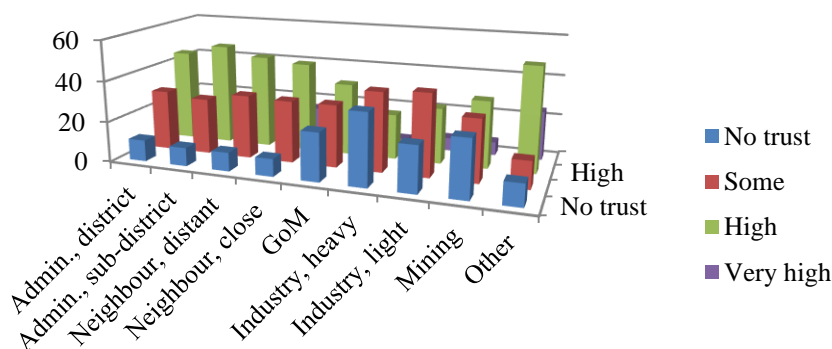
Specifics. Neighbors (close and distant), local administrations (district and sub-district) and the GoM predominated among respondents’ selection of individuals and organisations involved in the management of water resources.

Figure 40. Individuals and Organisations Involved in Management of Water Resources.



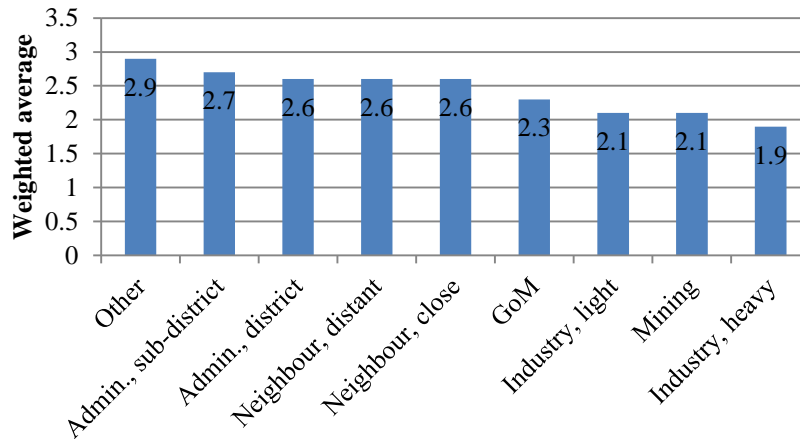
Neighbors and local administration also attracted the highest levels of trust in the management of water resources, but no one individual or organisation got a significant rating of “very high” trust. And, contrary to expectation, industry (heavy and light) and mining also attracted some level of “high” trust, although this was offset by equal (and opposite) levels of “no trust.”

Figure 41. Trust in Those Involved in Management of Water Resources.



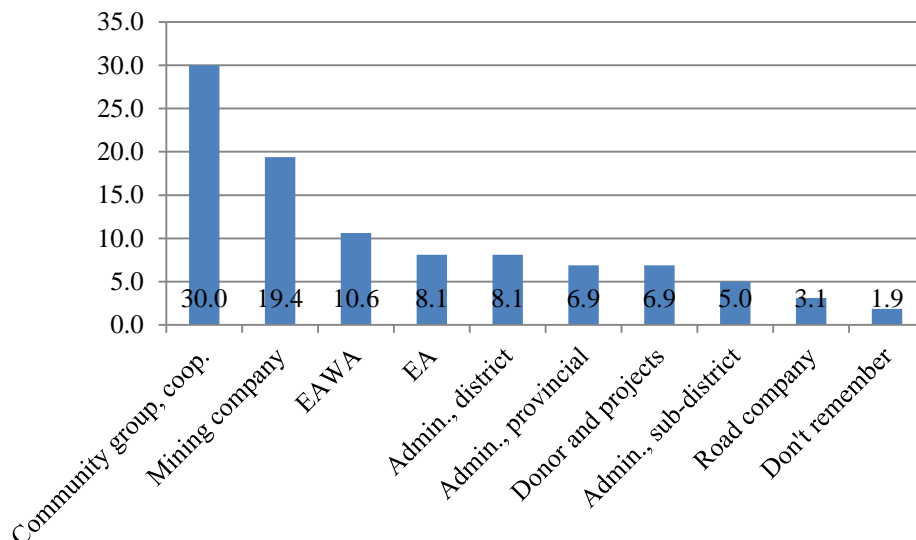
To facilitate understanding of the overall ratings of all factors, averages for each were determined; by assigning a value of 1 to “no trust,” 2 to “some,” 3 to “high” and 4 to “very high.” The results show that mining was one of the least trusted of those organisations involved in the management of water (only “heavy industry” was worse).

Figure 42. Average Rating of Trust in Those Managing Water Resources.



In response to Question 50, 16.7 percent of respondents said they had some knowledge of other groups or organisations involved in activities related to water resources in their area, 68.9 percent said they did not, and 15.5 percent had no opinion. Examples of such groups or organisations are provided below.

Figure 43. Groups/Organisations Involved in Water-related Activities.

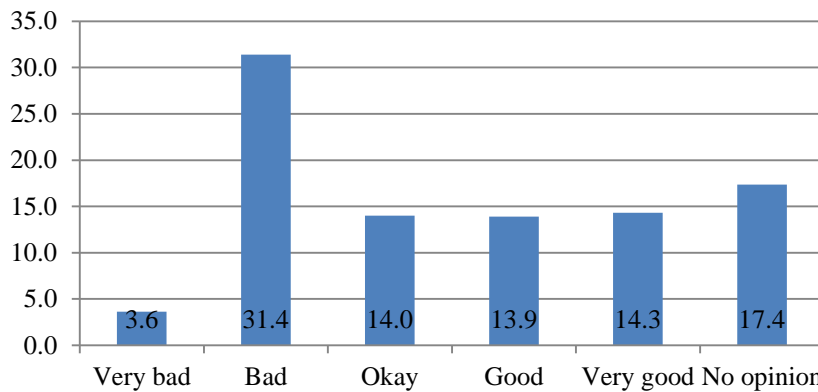


8.2. Disputes

General Preview. Five of the 16 questions in Part 3 of the questionnaire (“Water Management”) related to disputes on water resources. The predominant opinion was that the current situation was “bad,” had “worsened” in the past five years and was expected to “worsen” in the next five years. The most popular choice for those identified as able to settle water-related disputes included a broad range: sub-district administration, neighbors (close and distant) GoM and mining, but led by the local (district) administration. And, if the main source of their water for livestock became unavailable, most respondents replied they would simply “move on.”

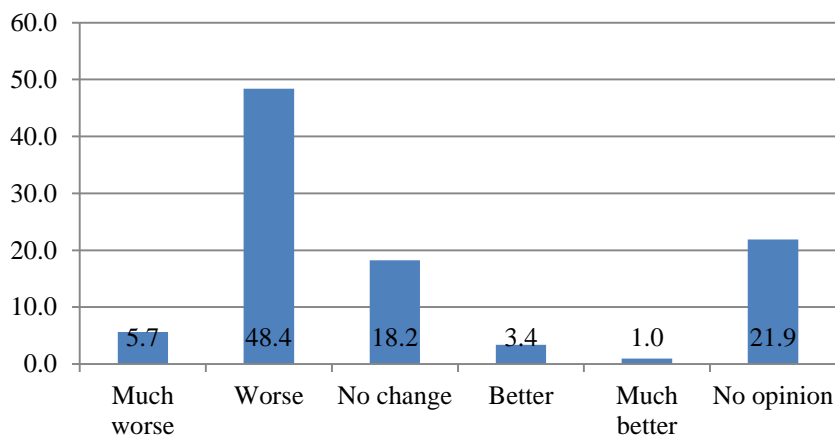
Specifics. There was a wide range of opinions on the current status of water-related disputes in the community, but the predominant view was that it was “bad.”

Figure 44. Current Status of Water-Related Community Disputes.



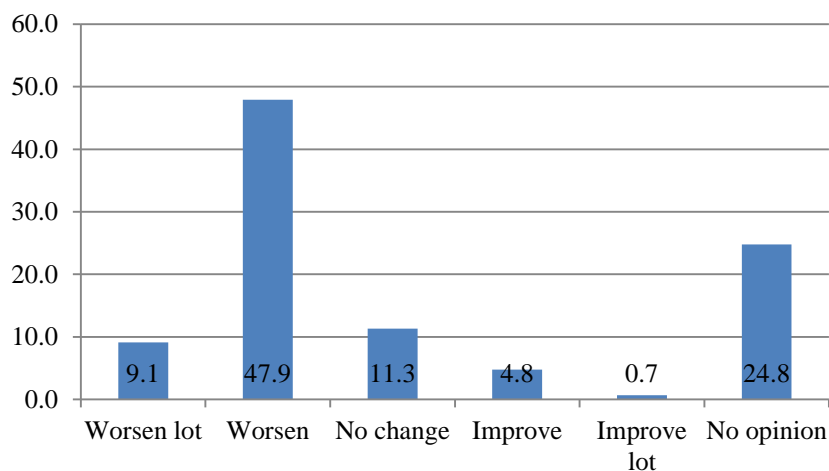
Opinions on the past (five years) changes in the status of water-related disputes were even clearer, with many more respondents sure that it had worsened.

Figure 45. Past Changes in Status of Water-Related Community Disputes.



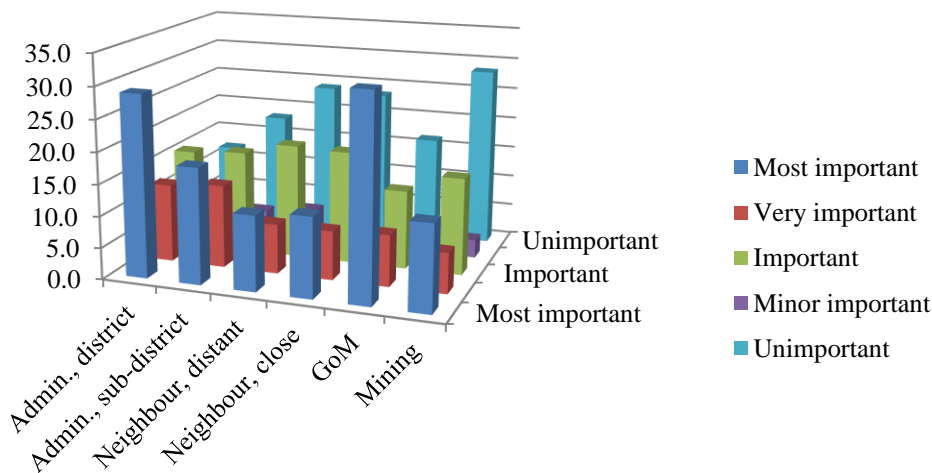
And a similar proportion was of the opinion that the status would worsen in the next five years.

Figure 46. Prospective Change in Status of Water-Related Community Disputes.



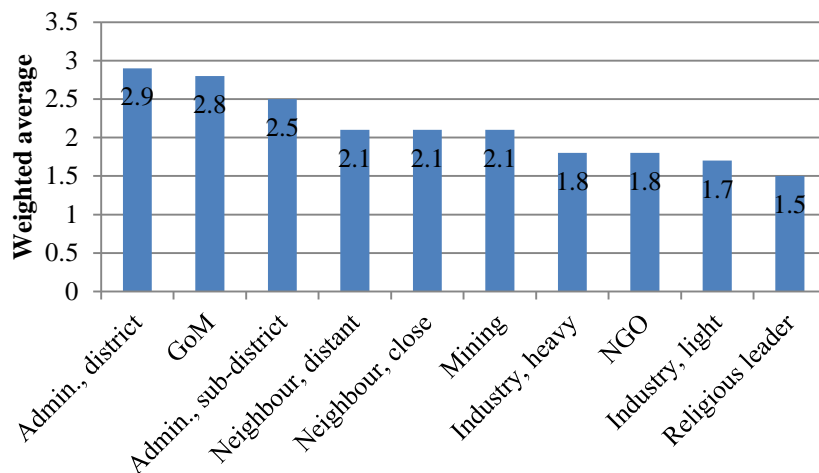
Among those identified as able to settle water-related disputes, religious leaders, NGOs and industry (heavy and light) were not considered significant. For all others, the rating varied somewhat though the district administrations was overall the most important.

Figure 47. Choices for Settling Water-Related Disputes.



To facilitate understanding of the overall ratings of all factors, averages for each were determined; by assigning a value of 1 to “unimportant,” 2 to “minor importance,” 3 to “important,” 4 to “very important” and 5 to “most important.” The results show that mining was intermediate overall and, curiously, exactly the same as neighbors (both close and distant).

Figure 48. Rating; of Those Able to Settle Water-Related Disputes



In response to Question 55 concerning what respondents would do if the main water source for their livestock became unavailable, 44.3 percent said “relocate,” 19.2 percent had no opinion, and 10.0 percent said they would “use some other” source.

8.3. Consultation and Information

General Preview. Seven of the 16 questions in Part 3 of the questionnaire (“Water Management”) related to consultation and information. About two thirds of respondents said they had not been consulted on water-related issues by anyone in the previous year. A similar proportion felt inadequately consulted on water management issues in particular, and water resources in general. Very few respondents were able to explicitly name any of the laws or rules related to water management, and most (92.3 percent) wanted to receive more information; preferably, by television, meetings and radio.

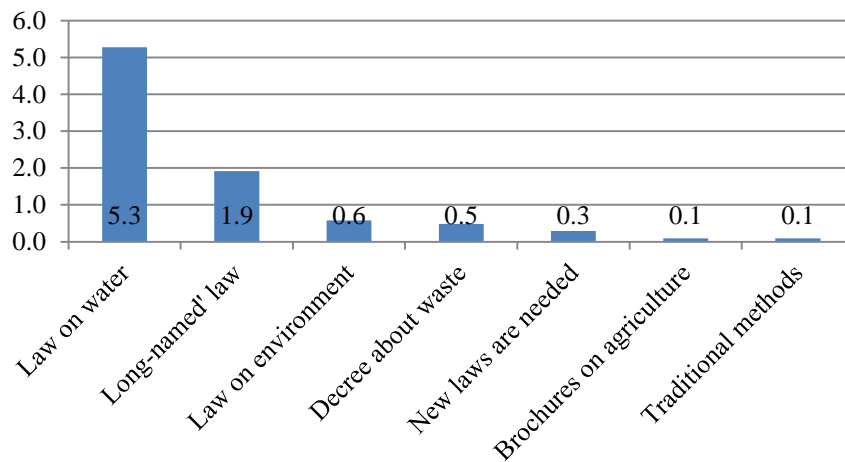
Specifics. When asked about recent consultations of issues of water management, 69.5 percent of all respondents said there had been none, and 5.9 percent had “no opinion.” The only other

significant answers were the district administration (4.6 percent) and mining and public organizations (both 1.2 percent). All other answers were less than 1.0 percent.

When asked if they felt adequately consulted about water management issues, 71.7 percent of respondents replied “no,” 24.9 percent said “yes” and 3.5 percent had “no opinion.”

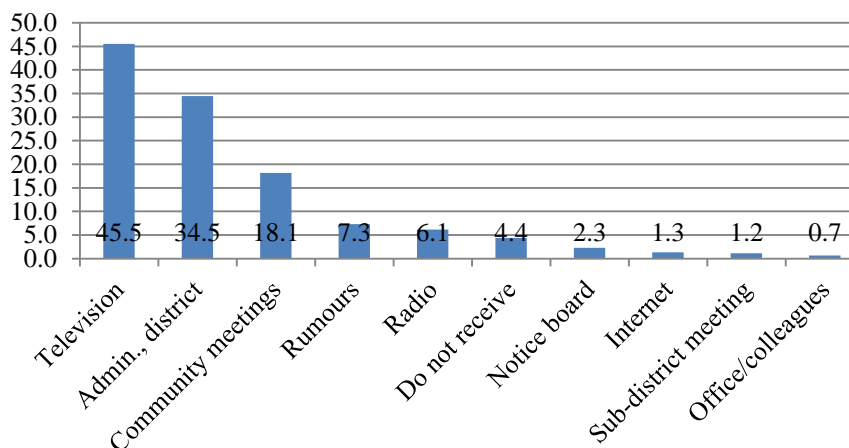
Only 91 respondents (8.7 percent) provided answers to the section on the questionnaire regarding “laws or rules; related to the management of water resource” and provided examples as follows:

Figure 49. Knowledge of Laws or Rules Related to Management of Water Resources



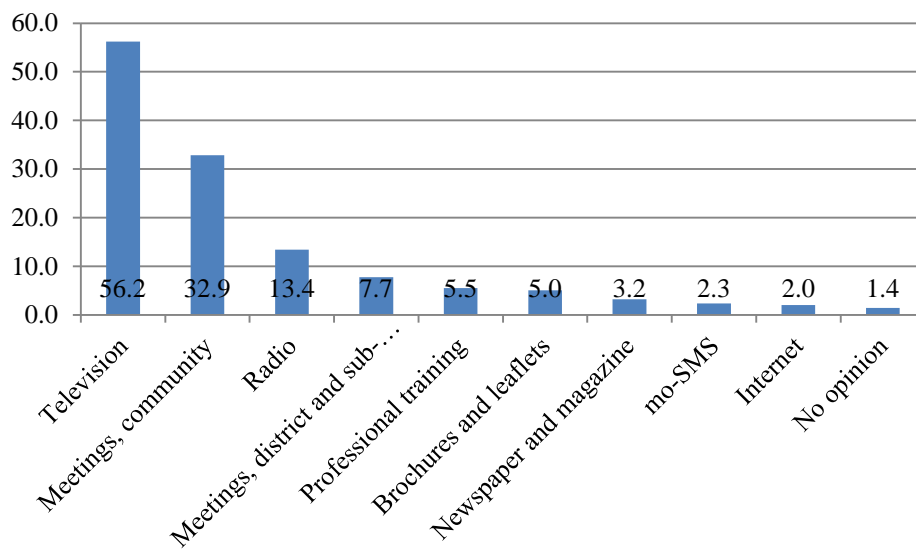
Respondents’ main sources of information were – in order of importance – television and in-person meetings (with the administration and/or community). However, the fourth most popular source was rumors.

Figure 50. Respondents’ Sources of Information.



Not surprisingly, when asked if they felt adequately consulted about water resources, 77.6 percent of all respondents replied “no,” 19.6 percent said “yes” and 2.8 percent had “no opinion.” And 92.3 percent said they would like to receive more information on water resources (while 6.3 percent responded that they would “not” and 1.4 percent had “no opinion”).

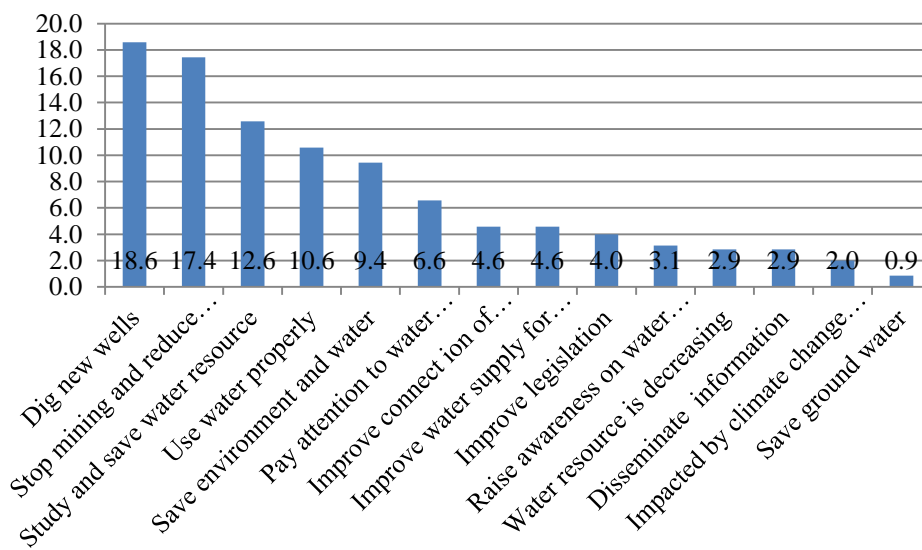
Figure 51. Respondents’ Preferences for Receiving More Information



8.4. Miscellaneous

A third (33.5 percent) of all respondents accepted the invitation to provide a comment at the end of the questionnaire, and most of these consisted of explicit suggestions related directly or indirectly to water. It is interesting to note that the two most popular proposals were the somewhat contentious “dig new wells” (17.1 percent) and “stop mining activities and reduce water exploitation” (16.0 percent).

Figure 52. Respondents’ Concluding Comments



8.5. Conclusions

Answers from the third part of the survey questionnaire provided information about “Water Management.”

The most popular choice of individuals and organisations involved in management of water resources (nominated by one to two thirds of all respondents) were – in descending order of importance – district administration, sub-district administration, close neighbour, distant neighbour and then GoM. These were selected by between 67.8 and 34.0 percent of all respondents respectively, while all others were less than 21.7 percent. The same choices, with the exception of the GoM, attracted almost equally high levels of trust.

There was some range of opinion on the status of water-related disputes – some thinking it was “very good,” but the predominant view was that the current situation was “bad.” There was more consensus on the view that the situation had “worsened” in the past five years and was expected to “worsen” in the next five years. The most popular choice for those identified as able to settle water-related disputes included a broad range consisting of: district and sub-district administration, neighbors (close and distant) GoM and mining, but led by the local (district) administration. The high level (44.5 percent) of respondents prepared to move elsewhere if water were to become unavailable for whatever reason reflects a longstanding, traditional solution for nomadic herders. But when so many other herders are moving because of pressure upon resources (including pastures) there may be limited options for herders in the future.

A majority of respondents (69.5 percent) said they had not been consulted on water-related issues by anyone in the previous year; and 71.7 percent felt inadequately consulted on water management issues in particular, and water resources in general. Very few respondents were able to explicitly name any of the laws or rules related to water management, and most (92.3 percent) wanted to receive more information; preferably, by television, meetings and radio.

At the end of the survey, just a third of respondents accepted invitations to present other (miscellaneous) comments; the two most popular being the somewhat contentious ‘dig new wells’ (17.1 percent) and ‘stop mining activities and reduce water exploitation’ (16.0 percent).

9. CORRELATIONS and OTHER DATA CONNECTIONS

9.1. Cross Tabulations

The results presented in previous sections of this document were based on relatively straightforward analyses of raw data. For example, if 595 of the 1,043 respondents answering Question 1 in the Survey were women, the result of the analysis was “57.0 percent of respondents were female, and 43.0 percent were male” (Sub-section 5.1.). But with the data from all 1,043 respondents’ answers to all 60 questions being available, there is scope to determine correlations between their answers to all of the questions. For example, the proportion of the female respondents that were also head of the household, as opposed to the proportion of males (Question 7). Answers to some particular questions were examined – by cross tabulation in contingency tables – to determine the presence or absence of connections related to the characteristics of the respondents.

From the cross tabulation of respondents’ answers to various questions it was discovered that throughout the province, people living in the provincial center (Dalanzadgad) were less trusting of the local government in the management of water resources, than those living elsewhere. Similarly, people living in mining districts and sub-districts were more trusting of the local administration than those living in the provincial center and non-mining districts and sub-districts. This does not mean, for example, that no one in the provincial centre (Dalanzadgad) trusted the administration but that there was a statistically significant correlation between people living in Dalanzadgad and a lower level of trust in the administration.

From the results of the cross tabulations, there was no significant differences in respondents’ identification of formal mining as a factor affecting the quantity and quality of water for cooking and drinking purposes. However, with respect to water for work-related purposes, rural respondents more likely to identify mining, and those in the provincial centre less likely. Given that the most popular work-related use for water is herding, and most herders are in the rural areas (away from the provincial center), one might expect them to be more sensitive on this topic.

Other correlations that were discovered are provided in Appendix 12.

Sometimes the absence of a correlation can be as important and useful as their presence. Accordingly, it is interesting to note that, for example, there was no statistically significant correlation between the gender (age, education, employment, or household income) of the respondents, and their trust in district administration, (sub-district administration, distant neighbour or close neighbour) in the management of water resources.

The subtle variations in answers (attitudes and perceptions) revealed in the cross tabulations do not alter the overall results and conclusions of the Baseline Survey, but they do present some opportunities for mining enterprises to focus their efforts in any proposed interventions, and perhaps some clues as to how the results of the Survey in Omnogobi might apply nationally.

9.3. Perspectives; Past, Present and Future

Three triplets of questions (22 to 25, 28, 30 and 31, and 38 to 40) related to respondents’ perspective on the past, present and future status of water; with respect to quantity and quality for cooking and drinking, and the quantity for work-related purposes. The results, presented in isolation previously⁶ showed considerable similarities; and scope for examination collectively.

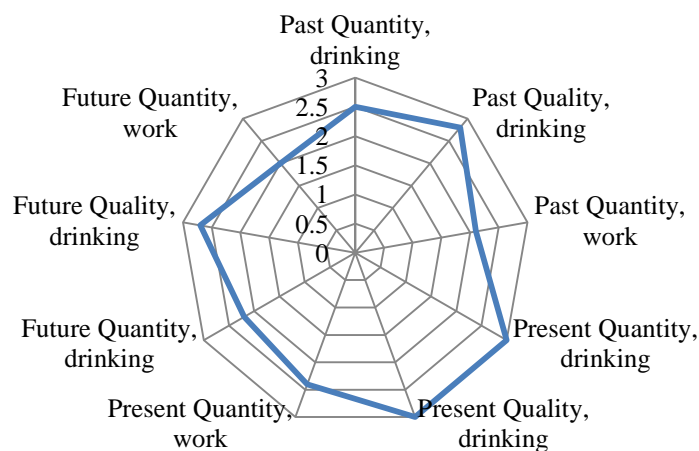
The Survey was about perceptions, which often take years to be adopted and/or adapted. The

⁶ See Figures. 14 to 16, 22 to 24, and 32 to 34 respectively.

survey is likely to be repeated after approximately three or four years, about the same duration as the “past” and “prospective” five years presented to respondents in the questionnaire. Accordingly, the five-year perspective in sets of questions within the 2013 Baseline Survey will eventually be compared and contrasted with the five-year pasts’ in sets of questions in a follow-up survey (in 2016 or 2017).

Accordingly, to facilitate comparison, the qualitative answers in the various questions were converted to numbers. So, for example, “very bad” in the results presented in Figure 1 was converted to 1, “bad” was converted to 2, “okay” was converted to 3, and so on. After deriving an average answer for each (by assigning a number to the original response) the answers to all nine questions were combined and are presented below.

Figure 53. ‘Averaged’ Answers to Questions about Past, Present and Future.



Bearing in mind that the number 3 indicates “neutral,” “okay” or “no change”) and 1 is very negative (5 very positive) it is easy to see that, with respect to all three issues (related to the quantity and quality of water for cooking/drinking, and work-related purposes) respondents were generally negative about what had happened in the past five years, what the present situation was and what was likely to happen in the future.

As and when the three triplets of survey questions (22 to 25, 28, 30 and 31, and 38 to 40) are repeated in the next survey, the results after compounding as above, will provide for a simple determination of any intervening changes. For example, if in 2016/2017 respondents’ perceptions of the ‘past’ (2013-2016/2017) changes in the quantity of water for cooking and drinking have become more positive, the points on the graph will move outwards. And the same will have with other ‘positive’ developments.

9.3. Affectors of Water and its Management

Eight questions in the Baseline Survey were intimately related as pairs - 26/27, 33/34, 42/43 and 45/46 – and as a series. The four pairs of questions related to the following topics:

- quantity of water for cooking and drinking,
- quality of water for cooking and drinking,
- quantity of water for work-related purposes, and
- management of water resources

In each of the four pairs, the first question concerned people’s perceptions of the influential factors involved and the second question concerned people’s evaluation of the impact of such factors. For example, in the first pair (Questions 26 and 27), a majority of 54.9 percent of respondents identified formal mining as the most important factor impacting the quantity of

water for cooking and drinking, and it was rated “severe” or “very severe” by 87.7 percent. As a series, the four pairs of questions provide a collection of people’s perceptions of the quantity and quality of water used for various purposes.

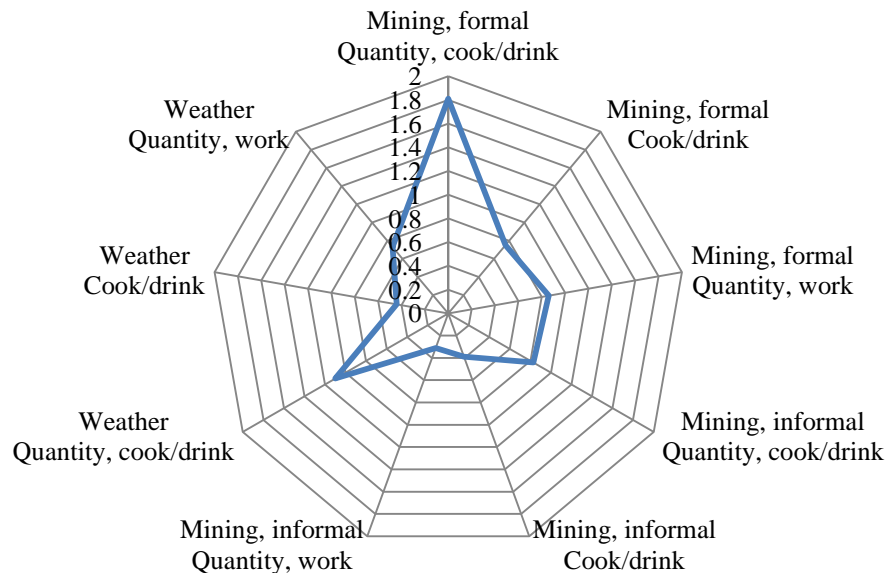
The results of respondents’ answers to these questions were presented individually in previous Sub-sections. But the results can also be considered collectively.

To re-present the results of the three pairs of questions collectively, the ratings of their impact (e.g., “slight,” “medium” “severe,” and “very severe” in Question 27) were converted to numbers (1, 2, 3 and 4) and used to produce an average rating. For example, if all ratings were equally distributed the average would be 2.5 (somewhere between “medium” and “severe.” The same procedure was used with the results of Questions 34 and 43. These derived weighted averages were determined for the three most popular choices of factors (formal mining, weather informal mining) and are presented below in the table and accompanying figure.

Table 5. Major Factors; Weighted Averages.

Question	Topic	Factor	Weighted Average
26/27	Quantity (cooking and drinking)	Weather	1.10
		Mining, formal	1.81
		Mining, informal	0.83
33/34	Quality (cooking and drinking)	Weather	0.44
		Mining, formal	0.75
		Mining, informal	0.39
42/43	Quantity (work-related)	Weather	0.73
		Mining, formal	0.86
		Mining, informal	0.31
45/46	Management	District	0.83
		Sub-district	0.69
		Neighbour, close	0.59

Figure 54. Weighted Averages of Affectors of Water (Quantity, Quality and Management)



In the fourth (and final) pair of questions (45 and 46), respondents were asked to identify who was involved in management of water resources; and how much they were trusted. The overwhelming majority of respondents (90.9 percent) identified just six factors, and the weighted averages (determined as above) were as follows.

Table 6. Weighted Measure of Trust in Management of Water Resources

Item	Percent	Weighted Measure
District	35.0	0.83
Sub-district	29.5	0.69
Neighbour, close	25.6	0.59
Neighbour, distant	23.8	0.56
GoM	18.3	0.49
Mining	11.2	0.31

The above figure shows the mining industry to be particularly prominent as the most important factor influencing the quantity of water for cooking and drinking, with a weighted average of 1.81. The industry is much less prominent in other areas. This suggests that the industry has the most scope for improvement in that area and should therefore treat this as its initial priority. Ideally, the sector should aim to reduce its profile in all areas on the figure by reducing its identification as a major factor, and/or reducing the rating of the same.

With respect to the last pair of questions related to trust, the mining industry is at the bottom of the list and needs to enhance its profile by increasing profile as being involved in the management of water, and/or increasing people's trust in its ability to do so.

The two (above) webs could easily form the basis of a comparator – during the course of any follow-up evaluation – to determine the nature of any changes during the intervening years. Any similar maps produced in the follow-up survey can be superimposed on those in the Baseline Survey to quickly see where changes have occurred.

10. CONCLUSIONS AND RECOMMENDATIONS.

10.1. Conclusions

Analysis of the results from the 2013 Baseline Survey interviews with 1,043 respondents throughout Omnogobi province – including the provincial center, district centers and rural areas - has provided a wealth of information about:

- respondents' characteristics,
- households' characteristics,
- access to (and usage of) water for cooking/drinking, and work-related purpose, and
- management issues; including significant individuals/organisations, disputes, consultation and information.

The results suggest that the respondents in the Survey were broadly typical of the Mongolian population as a whole, but their livelihoods in Omnogobi were relatively impoverished in terms of households' resources of livestock, incomes and possessions. For many of them, their already meagre use of water for cooking/drinking (often less than 20 litre/day) and personal purposes (e.g., bathing, ranging from <10 to >60 litre/day) were said to be "okay" currently. But, most respondents said the quantity available for each had worsened in the past, and the quantity and quality for both were expected to worsen in the future. With respect to water for work-related purposes – where the average usage was between 0.5 and 3.0m³ per day, the respondents' perceptions about availability (past, present or future) were all negative.

Most (82.7 percent) of respondents were living in gers - whether this was in the provincial centre or elsewhere – and most (72.6 percent) with an annual income of less than MNT9.0 million. Most (64.9 percent) got their water for cooking and drinking from wells of various sorts, and 77.2 percent used wells to provide water for work-related purposes. And for many respondents the well was their only source.

Fifty-five percent of respondents identified formal mining as the preeminent factor responsible for the quantity of water available for cooking and drinking, and 22.1 percent likewise for its quality. With respect to the quantity of water for work-related purposes, formal mining was (at 24.4 percent) a close second to the weather (26.2 percent) as the most important influencing factor. When the factors are ranked (in terms of the extent of their impact) formal mining is consistently among the top four (together with informal mining and, heavy and light industry). All of which confirms the poor image of the formal mining industry; with respect to perceptions about its responsibility for deterioration (and/or threats) to the quantity and quality of water available to residents of Omnogobi. And, on the contrary, the formal mining industry is not highly regarded as being 'involved' in the management of water resources, though it does benefit from 'some' degree of trust.

Although the above merely confirms – albeit with some amount of quantification – what was already suspected, the results of the Baseline Survey also provide important qualifications and opportunities. For example, there is a low level of consultation with people (on water-related issues) and a paucity of information available to them; making them perhaps more susceptible to whatever news they receive on the television. There seems to be very little significant information in the quantity of water used (in use, and available for the future) in Omnogobi, and still less on its quality. For example 36.0 percent of respondents relied on taste to determine quality of drinking water, 25.3 percent the colour and 18.5 percent used no measure!

Widespread and popular perceptions, become established over long periods of time, and risk becoming prejudices. They will require some time to modify and/or correct.

10.2. Recommendations.

The 2013 Baseline Survey was expected to provide a benchmark against which developments over the next three years of IFC's 'Mongolia Mining and Water-Sustainable Business Advisory Program' might be monitored and evaluated. More particularly, the results of the Baseline Survey were expected to help inform the industry roundtables, facilitated by IFC, through:

- qualifying the issues of concern to the population, and
- feeding into the mining company's communications strategy and training on participatory water management techniques.

Though the ToR did not require the presentation of recommendations prompted by the results of the Baseline Survey, a couple are considered essential.

With the completion of the Baseline Survey, **it is recommended** that the results are presented to (IFC) and its associates as soon as possible. Details of the likely method of dissemination of the results that were discussed and developed during the course of the Survey with IFC are available separately.

It is beyond the scope of this report to provide details of what the 'development and deployment of ways and means to consult with, and disseminate (share) more information with the people of Omnogobi' might consist of⁷. However, the results of the 2013 Baseline Survey, do provide a number of clues; such, for example:

- targeted brochures and leaflets,
- disambiguation with reference to informal mining, and
- sponsorship of community assets (e.g. prices of livestock products)

Subject to the operation of a well-designed dissemination exercise, modifications in people's perception could become apparent in the next couple of years. Accordingly, **it is recommended** that the follow-up survey should be undertaken in 2016.

10.3. Postscript.

During the completion of Final Report – in February, 2014 – the first recommendation (above) was already underway. For example, an IFC breakfast briefing of senior representatives of the mining sector took place on 18 February. In addition, IRIM staff were invited to present a summary of results of the Baseline Survey to nineteen community and environment specialists during the course of an IFC workshop (19 February, Appendix 13). Ten of the participants had also been present at the Workshop (16 September, 2013) that preceded the start of the Survey.

The results of the Survey were widely welcomed and appreciated by participants of the Workshop, who used the Group Work session to begin elaborating proposals for various dissemination events (public service advertisements, community meetings and so on). During the Groups' presentations, they were advised to ensure that their (companies') plans to improve people's perception of the mining industry provide for real, two-way, engagement to allow people to be participants in, not merely targets of, education and dissemination.

During one of the discussion periods, participants asked about the follow-up survey that was to accompany the Baseline Survey (after a certain period of time). They were informed that this was still subject to confirmation but might occur in 2017. IRIM staff emphasized that in addition to all the information on people's perceptions provided in the Baseline Survey, one very

⁷ A major component of IFC's 'Mongolia Mining and Water-Sustainable Business Advisory Program'.

important output was the provision of benchmarks against which any future development might be measured. For example, if the mining sector introduces initiatives designed to change people's perception over the next few years, the result of the Baseline Survey can be used with those of a follow-up survey to determine the nature of any such changes.

At the end of the Workshop, IRIM staff were also asked about their suggestion/s about improving people's perception of the mining industry, and one such proposal is provided in Appendix 14.

APPENDICES

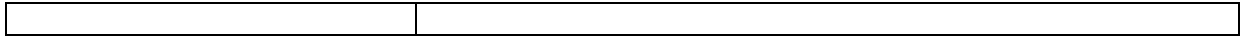
Appendix 1. Glossary.

Item	Explanation
Baseline (survey/study)	Collection of information on a situation before (or at the start of) an intervention; to provide for subsequent evaluation.
Dzud	Catastrophic losses of animals associated with adverse weather.
Evaluation	Examination and determination (assessment) of worth. Assessment of performance. ‘A systematic process used to determine the merit or worth of specific program. Curriculum, or strategy in a specific context’ Guskey, 2000
Household	A domestic unit consisting of the individuals that share accommodation and food.
Impact	The long-term result of an intervention.
Individual	One of the members of a household; or the same as household when there are no other members.
Industry, heavy	Capital intensive, larger-scale processing, especially of materials to be used by other businesses; e.g. production of cement and steel, electricity and (community) heating.
Industry, light	Manufacturing, especially of products for direct sale to the public; e.g. making of leather and felt, dairy processing and so on.
Intervention	A collection of activities (typically within a project or programme or even a policy) designed to accomplish (beneficial) change.
Interview, structured	A quantitative research method.
Livelihood	A person’s means of securing necessities of life
Method	A particular (planned) way to doing something
Methodology	About the method/s of doing something.
Mining, formal	Larger-scale, capital-intensive mining.
Mining, informal	Smaller-scale, labour-intensive mining.
Monitoring	Observation and documentation; of activities in particular, and procedures in general.
Non-governmental organisation	Non-profit entity, independent of the government. A third sector; neither public nor private.

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Organisation, Civil Society	<p>‘An array of NGOs/NPOs that have a presence in public life, expressing the interests and values of their members or others, based on ethical, cultural, political, scientific, religious or philanthropic considerations.’</p> <p>‘The wide array of organizations: community groups, NGOs, labour unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations.’⁸</p>
Outcome	<p>A change caused by (or attributable) to an intervention.</p> <p>The medium-term result of an intervention.</p> <p>‘The development change that UNDP works towards through, among other things, its project, programmes and partnerships’ UNDP 2002.</p>
Perception	The way someone (or something) is thought about or understood
Perspective	A way seeing someone (or something) and influenced by the observer’s perception/s.
Piloting (questionnaire)	Small scale evaluation of a questionnaire, prior to full-scale use. Also referred to as pre-testing.
Pre-testing (questionnaire)	Small scale evaluation of a questionnaire, prior to full-scale use. Also referred to as piloting.
Programme	In intervention, consisting of a collection of projects.
Project	A planned intervention, of limited duration, with clear objective/s.
Sampling, stratified	A statistical method used to examine sub-population/s within a population
Stakeholder	An individual or organisation with an interest (direct or indirect) in an intervention, or who/which affects it or is affected by it.
Survey	Collection of information from individuals and/or organisations.
Survey, baseline	See ‘Baseline Survey’.
Survey, follow-up	Collection of information from individuals and/or organizations (usually after a baseline survey) to provide for evaluation.
Target	<p>A particular value of an indicator.</p> <p>An intended beneficiary of an intervention</p>
Well, protected	A well that housed - walled, fenced, covered or secured in some way – to protect it against unauthorised use, contamination and so on.

⁸ World Bank.



Appendix 2. Bibliography.

Date	Title
Anonymous	Water, Mining & Communities in the South Gobi. 4 pages.
Anonymous, 2011	Stakeholder's perception of Oyu Tolgoi's impact. March. 18 pages.
IFC, 2013	Mongolia Mining and Water Management Project. Sponsor Breakfast Agenda. September. 8 PowerPoint slide presentation
IRIM, 2013a	Population Perception Survey; Mongolian Mining and Water. Technical Proposal. August. 30 pages
IRIM, 2013b⁹	Population Perception Survey; Mongolian Mining and Water. Researcher's Manual. 25 July. 36 pages. (Mongolian).
IRIM, 2013c	Population Perception Survey; Mongolian Mining and Water Data Entry Manual. 10 July. 13 pages. (Mongolian).
IRIM, 2013d	Population Perception Survey; Mongolian Mining and Water. Data Quality Manual. 25 July. 8 pages. (Mongolian).
Ivanhoe Mines Inc., 2007	Oyu Tolgoi Project; Perceptions Study On Water Use In The Khanbogd Soum. 106 pages.
Morra Imas, L. G. and Rist, R. C. 2009.	The Road to Success; Designing and Conduction Development Evaluations. World Bank. 611 pages.

⁹ Supplied to IFC, 5 November.

Questions

Part 1. Respondent and Household Characteristics.

1. Is the respondent male or female?		2. How old were you on your last birthday?	
1. Female	2. Male	Years	

3. What is your level of education?				
1. None	2. Primary	3. Lower secondary	4. Upper secondary	5. Vocational
6. Specialized secondary	7. Undergraduate (bachelor's)	8. Postgraduate (master's)	9. Doctorate and above	

4. What is your current marital status?				
1. Married	2. Single	3. Widowed	4. Separated	5. Divorced

5. What is your ethnicity?				
1. Khalkh	2. Kazakh	3. Durvud	4. Buriad	5. Bayad
6. Dariganga	7. Uriankhai	8. Zakhchin	9. Other, specify	

6. What is your religion?				
1. None	2. Buddhist	3. Christian	4. Muslim	5. Shamanist
6. Other, specify				

7. What is your relationship with the head of the household?				
1. Head	2. Spouse	3. Sibling	4. Child	5. Grandchild
6. Parent	7. In-law, child	8. In-law, parent	9. Other, specify	

8. How many people in your household?
People

9. How big is your flat or ger?	
1. Rooms	2. Panels

10. 1 What is your occupation?
Specify

10.2 What is your employment status?		
1. Employee	2. Employer	3. Own-account worker
4. Member of a user group and cooperative	5. Contributing to family work/business without payment	6. Other, specify

11. Does your household have?				
1. Electricity, mains	2. Radio	3. Television	4. Phone, mobile	5. Phone, landline
6. Motorcycle	7. Cart, animal drawn	8. Car	9. Tractor	10. Fridge
Researchers Note. All cells to be used; with zero/none where appropriate.				

OBSERVATION ONLY. Main material of the floor				
1. Earth/Sand	2. Dung	3. Wood Planks	4. Parquet	5. Vinyl, or Asphalt
6. Cement	7. Carpet/linoleum	8. Other, specify		

OBSERVATION ONLY. Main material of the walls				
1. Straw, with mud	2. Stone, & mud	3. Brick, or blocks	4. Cement	5. Wood planks
6. Felt, one layer	7. Felt, two layer	8. Felt, three layer	9. Other, specify	

OBSERVATION ONLY. Main material of the roof				
1. Wood planks	2. Metal	3. Concrete, Cement Fibre	4. Felt, one layer	5. Felt, two layer
6. Other, specify				

12. What size of agricultural land do members of your household OWN and/or RENT?		
1. Hectares owned	2. Ares ¹⁰ owned	3. Square metres owned
4. Hectares rented	5. Ares rented	6. Square metres rented
Researchers Note. Use one cell in each row; with zero/none where appropriate.		

13. How many animals does your household OWN, and/or care for (belonging to others)?				
1. Cattle owned	2. Horses owned	3. Sheep owned	4. Goats owned	5. Camels owned
6. Cattle, others'	7. Horses, others'	8. Sheep, others'	9. Goats, others'	10. Camels, others'
Researchers Note. Use all cells; with zero/none where appropriate.				

¹⁰ 'Cott' in Mongolian.

14. What is your household's income (MNT/year)?				
1. <3,000,000	2. 3,000,000-5,999,999	3. 6,000,000-8,999,999	4. 9,000,000-12,000,000	5. > 12,000,000
Researcher's Note. If respondent can only answer 'per month', multiply by 12 to provide answer.				

Part 2. Access to Water.

15. What are the most important sources of water (for drinking and cooking) for members of your household?

1. Tap, inside	2. Tap, outside	3. Borehole/Tube well	4. Well, protected	5. Well, un-protected
6. Spring, protected	7. Spring, un-protected	8. Rain/snow	9. Tanker	10. Cart
11. Lake/Pond	12. River/stream	13. Bottles	14. Kiosk ¹¹	15. Other, specify

Researchers Note. If more than one answer applies, indicate ranking in brackets e.g. (1st), (2nd) and (3rd).

16. Do you usually do anything to the water to make it safer for drinking/cooking?

1. Yes		2. No	
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17. What do you usually do to the water to make it safer for drinking/cooking?

1. Boil	2. Add bleach	3. Strain/filter	4. Sunlight
5. Allow to settle	6. Other, specify	7. Nothing	

Researchers Note. If more than one answer applies, indicate ranking in brackets e.g. (1st), (2nd) and (3rd).

18. Do you do anything to protect your source of water for drinking/cooking?

1. Yes, specify	2. No
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19. Who in your household is responsible for collecting water for drinking/cooking?

1. Adult, male	2. Adult, female	3. Child, male
4. Child, female	5. Other, specify	

20. How much time (or how far) does it take to reach a safe source of water for drinking/cooking?

1. Hours	2. Minutes
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21. On average, how much water does your household use per day for drinking/cooking?

1. Litres	2. Not known
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22. On average, how much water does your household use per day for personal purposes (bathing, and so on)?

1. Litres	2. Not known
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23. How is the current (last 12 months) quantity of water for drinking/cooking in your area?

1. Very bad (insufficient)	2. Bad/insufficient	3. Okay	4. Good	5. Very good	6. No opinion
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7. Elaborate

Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

¹¹Where containers are filled with a charge. Mainly relevant to Ulaanbaatar where some pretesting will be done.

24. How has the quantity of water for drinking/cooking in your area changed in the past five years?					
1. Much worse	2. Worse	3. No change	4. Better	5. Much better	6. No opinion
Researchers Note. An answer in ‘no opinion’ (I don’t know) should not be seen as negative or disappointing.					

25. How will the quantity of water for drinking/cooking in your area change in the next five years?					
1. Worsen lot	2. Worsen	3. No change	4. Improve	5. Improve lot	6. No opinion
Researchers Note. An answer in ‘no opinion’ (I don’t know) should not be seen as negative or disappointing.					

26. What factor impacts on the quantity of water for drinking/cooking?			
1. Weather (rain)	2. Grazing	3. Agriculture	4. Industry, heavy
5. Manufacturing, light industry and services	6. Mining (formal)	7. Mining (informal)	8. Human consumption/waste
9. Vandalism	10. Other, specify		
Researchers Note. Do not read.			

27. To what degree do the marked factors impact the quantity of water for drinking/cooking?			
1. Weather (rain)	2. Grazing	3. Agriculture	4. Industry, heavy
5. Manufacturing, light industry and services	6. Mining (formal)	7. Mining (informal)	8. Human consumption/waste
9. Vandalism	10. Other, specify		
Researchers Note. Only cells marked above is rated: 1 =slight, 2= medium, 3= severe 4= very severe.			

28. How is the current (within the last 12 month) quality of water for drinking/cooking in your area?					
1. Very bad (insufficient)	2. Bad/insufficient	3. Okay	4. Good	5. Very good	6. No opinion
7. Elaborate					
Researchers Note. An answer in ‘no opinion’ (I don’t know) should not be seen as negative or disappointing.					

29. How do you determine the quality of the water for drinking/cooking?		
1. Colour	2. Smell	3. Taste
4. Nature of source	5. Manufacturing	6. Other, specify

30. How has the quality of water for drinking/cooking in your area changed in the past five years?					
1. Much worse	2. Worse	3. No change	4. Better	5. Much better	6. No opinion
Researchers Note. An answer in ‘no opinion’ (I don’t know) should not be seen as negative or disappointing.					

31. How will the quality of water for drinking/cooking in your area change in the next five years?					
1. Worsen lot	2. Worsen	3. No change	4. Improve	5. Improve lot	6. No opinion

Researchers Note. An answer in ‘no opinion’ (I don’t know) should not be seen as negative or disappointing.

32. Is the quantity of water for drinking/cooking available most difficult at certain times?

1. No	2. Spring	3. Summer	4. Autumn	5. Winter	6. No opinion
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7. Elaborate

Researchers Note. An answer in ‘no opinion’ (I don’t know) should not be seen as negative or disappointing.

33. What factors impacts on the quality of water for drinking/cooking?

1. Weather (rain)	2. Grazing	3. Agriculture
4. Industry, heavy	5. Manufacturing, light industry and services	6. Mining (formal)
7. Mining (informal)	8. Human consumption/waste	9. Vandalism
10. Other, specify		

Researchers Note. Do not read.

34. To what degree do the marked factors impact on the quality of water for drinking/cooking?

1. Weather (rain)	2. Grazing	3. Agriculture
4. Industry, heavy	5. Manufacturing, light industry and services	6. Mining (formal)
7. Mining (informal)	8. Human consumption/waste	9. Vandalism
10. Other, specify		

Researchers Note. Only cells marked above is rated: 1 =slight, 2= medium, 3= severe 4= very severe.

35. What is your primary work-related (exclusive of water for drinking, cooking and bathing) use of water?

1. Livestock	2. Crops	3. Other, specify	4. Not applicable
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Researchers Note. If not applicable, skip next eight questions and proceed to Question 44.

36. What are the most important sources of water for your primary work-related water use?

1. Tap, inside	2. Tap, outside	3. Borehole/ tube well	4. Well, protected	5. Well, un-protected
6. Spring, protected	7. Spring, un-protected	8. Rain/ snow	9. Tanker	10. Cart
11. Lake/ Pond	12. River/ stream	13. Bottles	14. Well, manual	15. Other, specify

Researchers Note. If more than one answer applies, indicate ranking in brackets e.g. (1st), (2nd) and (3rd).

37. On average, how much water does your household use per day for the primary work-related purpose?

1. Litres	2. Not known
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38. How is the current (last 12 month) quantity of water for the primary work-related purpose in your area?

1. Very bad (insufficient)	2. Bad/insufficient	3. Okay	4. Good	5. Very good	6. No opinion
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7. Elaborate

Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

39. How has the quantity of water for the primary work-related purpose in your area changed in the past five years?

1. Much worse	2. Worse	3. No change	4. Better	5. Much better	6. No opinion
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Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

40. How will the quantity of water for the primary work-related purpose in your area change in the next five years?

1. Worsen lot	2. Worsen	3. No change	4. Improve	5. Improve lot	6. No opinion
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Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

41. Is the quantity of water available for the primary work-related purposes most difficult at certain times?

1. No	2. Spring	3. Summer	4. Autumn	5. Winter	6. No opinion
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7. Elaborate

Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

42. What factors impacts on the quantity of water for the primary work-related purpose?

1. Weather (rain)	2. Grazing	3. Agriculture
4. Industry, heavy	5. Manufacturing, light industry and services	6. Mining (formal)
7. Mining (informal)	8. Human consumption/waste	9. Vandalism
10. Other, specify		

Researchers Note. Do not read.

43. To what degree do the marked factors impact on the quantity of for primary work-related purpose?

1. Weather (rain)	2. Grazing	3. Agriculture
4. Industry, heavy	5. Manufacturing, light industry and services	6. Mining (formal)
7. Mining (informal)	8. Human consumption/waste	9. Vandalism
10. Other, specify		

Researchers Note. Only cells marked above is rated: 1 =slight, 2= medium, 3= severe 4= very severe.

44. If you had improved access to more water in your area, how would you use it?					
1. Produce more vegetables	2. Produce more fodder	3. Have more animals	4. No change	5. No opinion	6. Other, specify
Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing. Answer in 'other' should contain details.					

Part 3. Water Management.

45. Are the following involved in the management of water resources?			
1. Soum	2. Bagh	3. Neighbour, distant ¹²	4. Neighbour, close ¹³ .
5. GoM	6. Industry, heavy	7. Manufacturing, light industry and services	8. Mining
9. Other, specify	10. No opinion		
Researchers Note. All cells to be completed; 0 = no, 1 = yes,			

46. To what degree do you trust the marked (with yes) in the management of water resources?			
1. Soum	2. Bagh	3. Neighbour, distant	4. Neighbour, close
5. GoM	6. Industry, heavy	7. Manufacturing, light industry and services	8. Mining
9. Other, specify	10. No opinion		
Researchers Note. Only cells marked with yes above is rated: 1 =no trust, 2= some , 3 = high, 4= very high			

47. In the past 12 months, which – if any – of the following have consulted you on issues of water management			
1. Khot Ail	2. Suuri	3. Admin, district	4. Admin, sub-district
5. GoM	6. Industry, heavy	7. Manufacturing, light industry and services	8. Mining
9. Other, specify	10. No opinion		

48. Do you feel adequately consulted about water management issues?		
1. Yes	2. No	3. No opinion

49. Please name any laws or rules that apply to the management of water resources?

50. Are any groups or organizations involved in activities related to water resources in the area?		
1. Yes (specify – name, type of work - below)	2. No	3. No opinion

¹² ‘Suuri’ in Mongolian.

¹³ ‘Khot Ail’ in Mongolian.

51. What is the current status (last 12 months) with respect to disputes on water resources within the community in your area?

1. Very bad	2. Bad	3. Okay	4. Good	5. Very good	6. No opinion
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7. Elaborate

Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

52. In the past five years, has the number of disputes over water resources changed compared to previous years?

1. Much worse	2. Worse	3. No change	4. Better	5. Much better	6. No opinion
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Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

53. How do you expect disputes over water resources to change in the next five years?

1. Worsen lot	2. Worsen	3. No change	4. Improve	5. Improve lot	6. No opinion
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Researchers Note. An answer in 'no opinion' (I don't know) should not be seen as negative or disappointing.

54. Who can settle disputes around water resources?

1. Soum	2. Bagh	3. Neighbour, distant	4. Neighbour, close
5. GoM	6. Industry, heavy	7. Manufacturing, light industry and services	8. Mining
9. Religious leader	10. NGO	11. Other, specify	12. No opinion

Researchers Note. Scale of 1 to5 (1 = Most important, 2 = very important, 3 = important, 4 = minor importance, and 5 = unimportant)

55. What happens when a well or other water source for the livestock becomes unavailable?

1. Relocate	2. Use some other's	3. Other, specify	4. No opinion
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56. How do you receive information on community issues?

1. Community meetings	2. Television	3. Radio
4. Admin. (soum)	5. Other, specify	

57. Do you feel adequately informed on water resources?

1. Yes	2. No	3. No opinion
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58. Would you like to receive more information about water resources in your community?

1. Yes	2. No	3. No opinion
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59. How would you like to receive information on water issues?		
1. Community meetings	2. Television	3. Radio
4. Other, specify		

60. Do you have any other comment to make; related to the above questions or your answers?		
1. Yes	2. No	
3. Elaborate		

Appendix 11. Basic Results of Analysis of Survey Questions.¹⁴**Part 1. Respondent and Household Characteristics.**

1. Is the respondent male or female?	57.0 female	43.0 male
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2. How old were you on your last birthday?											
15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
5.8	7.4	14.9	11.5	10.7	11.3	10.1	8.3	5.7	4.9	3.8	5.7

3. What is your level of education?							
None	Primary	Lower secondary	Upper secondary	Vocational	Specialized secondary	Undergraduate (bachelors)	Postgraduate (masters)
2.3	10.9	31.7	30.8	2.9	5.5	14.6	1.3

4. What is your current marital status?				
Married	Single	Widowed	Separated	Divorced
76.3	15.4	6.2	0.7	1.3

5. What is your ethnicity?								
Khalkh	Kazakh	Durvud	Buriad	Bayad	Dariganga	Uriankhai	Zakhchin	Darkhad
99.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2

6. What is your religion?					
None	Buddhist	Christian	Muslim	Shamanist	Other, specify
55.1	40.7	1.2	0.1	3.0	0.0

7. What is your relationship with the head of the household?								
Head	Spouse	Sibling	Child	Grandchild	Parent	In-law, child	In-law, parent	Other, specify
47.8	39.0	1.2	10.8	0.1	0.6	0.2	0.0	0.2

8. How many people in your household?								
1	2	3	4	5	6	7	8	9
5.9	17.5	21.5	27.7	17.3	6.9	2.1	0.7	0.4

9. How big is your flat or ger?												
Rooms						Panels						
1	2	3	4	5	6	1	2	3	4	5	6	8
18.3	48.3	25.0	5.6	1.7	1.1	0.2	1.4	0.9	35.3	60.5	1.5	0.1

10. What is your occupation?

¹⁴ All results (frequencies) percent; unless stated otherwise

Own-account worker	Herder	Unemployed	Retired	Student	Disabled	Local	Local	Private company	Industry	mining company	Military	Construction	Culture	project	Civil society org
10.0	34.3	15.2	12.4	4.2	0.6	1.9	10.1	6.8	0.7	2.2	0.3	0.5	0.5	0.1	0.2

11. Does your household have?

Electricity, mains	Radio	Television	Phone, mobile	Phone, landline	Motorcycle	Cart, animal drawn	Car	Tractor	Fridge
16.9	6.9	25.0	5.2	3.0	11.8	0.7	14.0	0.6	15.9

12. What size of agricultural land do members of your household OWN and/or RENT?

Area (hectare)	<0.07	0.07 to 0.5	0.5 to 2.0	>2.0
Owned	20.1	59.8	10.1	0
Rented	38.8	40.0	10.3	0

13. How many animals does your household OWN, and/or care for (belonging to others)?

Type	Cattle	Horse	Sheep	Goat	Camel	Total
Own	1.5	4.7	31.7	95.5	8.5	142.0
Others	0.3	0.1	1.3	4.0	0.1	5.8

14. What is your household's income (MNT/year)?

<3,000,000	3,000,000-5,999,999	6,000,000-8,999,999	9,000,000-12,000,000	> 12,000,000
23.5	25.3	23.8	11.4	16

Part 2. Access to Water.

15. What are the most important sources of water (for drinking and cooking) for members of your household?

Tap, inside	Tap, outside	Borehole/Tube well	Well, protected	Well, un-protected	Spring, protected	Spring, un-protected	Rain/snow	Tanker	Cart	Lake/Pond	River/stream	Bottles	Kiosk	Other, specify
6.4	0.4	1.4	40.0	20.6	0.8	0.8	0.2	0.5	0.2	0.2	1.3	3.9	21.7	1.8

16. Do you usually do anything to the water to make it safer for drinking/cooking?

Yes 24.2	No 75.8
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17. What do you usually do to the water to make it safer for drinking/cooking?						
Boil	Add bleach	Strain/filter	Sunlight	Allow to settle	Other, specify	Nothing
68.5	1.4	15.6	0.4	1.8	11.9	0.4

18. Do you do anything to protect your source of water for drinking/cooking?	
Yes, specify 22.7	No 77.3

19. Who in your household is responsible for collecting water for drinking/cooking?				
Adult, male	Adult, female	Child, male	Child, female	Other, specify
55.7	18.7	12.9	3.6	9.0

20. How much time (or how far) does it take to reach a safe source of water for drinking/cooking?						
<10 min	10-20 min	20-30 min	30-40 min	40-50 min	50-60 min	>60 min
66.2	20.6	10.8	1.1	0.3	0.7	0.4

21. On average, how much water does your household use per day for drinking/cooking?				
<10 litres	10-20 litre	20-30 litre	30-40 litre	≥4 litres
52.4	34.1	8.3	3.5	1.7

22. On average, how much water does your household use/day for personal purposes (bathing, and so on)?						
<10 litre	10-20 litre	20-30 litre	30-40 litre	40-50 litre	50-60 litre	≥60 litre
24.6	25.8	13.4	12.9	7.9	5.1	10.3

23. How is the current (last 12 months) quantity of water for drinking/cooking in your area?					
Very bad (insufficient)	Bad/insufficient	Okay	Good	Very good	No opinion
3.4	25.9	42.4	25.8	1.2	1.4

24. How has the quantity of water for drinking/cooking in your area changed in the past five years?					
Much worse	Worse	No change	Better	Much better	No opinion
7.4	35.6	36.3	9.7	0.2	10.8

25. How will the quantity of water for drinking/cooking in your area change in the next five years?					
Worsen lot	Worsen	No change	Improve	Improve lot	No opinion
7.8	50.7	14.2	6.3	0.0	21.0

26. What factor impacts on the quantity of water for drinking/cooking?										
Weather (rain)	Grazing	Agriculture	Industry, heavy	Industry, light	Mining (formal)	Mining (informal)	Human consumption/waste	Vandalism	Other, specify	No opinion
23.6	0.4	0.7	1.1	0.8	33.5	15.9	5.0	1.3	10.0	7.8

27. To what degree do the marked factors impact the quantity of water for drinking/cooking?
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Rating	Grazing	Agriculture	Vandalism	Human, waste	Weather	Ind. heavy	Ind. Light	Mining, formal	Mining, informal	Other
Slight	80	52.4	30	17.0	9.6	3.4	4.5	3.0	2.6	6.0
Medium	0	19.0	20	18.2	18.7	10.3	0.0	9.3	9.9	18.8
Severe	20	23.8	36.7	46.6	48.0	41.4	40.9	42.0	52.2	44.3
V' severe	0	4.8	13.3	18.2	23.6	44.8	54.5	45.7	35.4	30.9

28. How is the current (within the last 12 month) quality of water for drinking/cooking in your area?

Very bad (insufficient)	Bad/insufficient	Okay	Good	Very good	No opinion
1.7	29.2	38.8	26.6	0.7	3.0

29. How do you determine the quality of the water for drinking/cooking?

Colour	Smell	Taste	Nature of source	Manufacturing	Other, specify	Do nothing	No opinion
25.3	3.1	36.0	6.3	0.4	9.6	18.5	0.8

30. How has the quality of water for drinking/cooking in your area changed in the past five years?

Much worse	Worse	No change	Better	Much better	No opinion
1.4	16.4	52.7	6.0	0.1	23.3

31. How will the quality of water for drinking/cooking in your area change in the next five years?

Worsen lot	Worsen	No change	Improve	Improve lot	No opinion
2.7	23.4	31.2	9.3	0.2	33.3

32. Is the quantity of water for drinking/cooking available most difficult at certain times?

No	Spring	Summer	Autumn	Winter	No opinion
41.9	15.5	23.3	2.2	4.9	10.2

33. What factors impacts on the quality of water for drinking/cooking?

Weather (rain)	Grazing	Agriculture	Industry, heavy	Industry, light	Mining, formal	Mining, informal	Human consumption/waste	Vandalism	Other, specify
12.6	0.5	0.4	1.6	1.1	17.2	9.1	3.2	2.4	18.1

34. To what degree do the marked factors impact on the quality of water for drinking/cooking?

Rating	Weather	Grazing	Agriculture	Industry, heavy	Industry, light	Mining, formal	Mining, informal	Human, waste	Vandalism	Other
Slight	14.5	69.2	72.7	0.0	0.0	3.4	3.3	16.3	23.1	11.2
Medium	19.7	15.4	18.2	15.4	15.0	6.9	8.1	10.2	20.5	13.4
Severe	45.7	15.4	9.1	34.6	40.0	37.1	42.3	53.1	43.6	44.6

V' severe	20.2	0.0	0.0	50.0	45.0	52.6	46.3	20.4	12.8	30.8
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35. What is your primary work-related (exclusive of drinking, cooking and bathing) use of water?			
Livestock	Crops	Other, specify	Not applicable
42.2	6.3	2.2	49.3

36. What are the most important sources of water for your primary work-related water use?														
Tap, inside	Tap, outside	Borehole/ tube well	Well, protected	Well, un-protected	Spring, protected	Spring, un-protected	Rain/ snow	Tanker	Cart	Lake/ Pond	River/ stream	Bottles	Well, manual	Other, specify
1.2	0.7	0.5	16.3	37.9	2.0	2.5	0.5	0.4	0	6.7	7.1	0	23.0	1.1

37. On average, how much water does your household use per day for the primary work-related purpose?						
<100 litre	100-300	300-500	500-1,000	1,000-3,000	3,000-5,000	≥5,000
8.8	6.9	5.9	24.9	40.3	7.6	5.7

38. How is the current (last 12 month) quantity of water for the primary work-related purpose in your area?					
Very bad (insufficient)	Bad/insufficient	Okay	Good	Very good	No opinion
8.5	51.9	28.9	8.7	0.8	1.3

39. How has the quantity of water for the primary work-related purpose in your area changed in the past five years?					
Much worse	Worse	No change	Better	Much better	No opinion
16.0	56.6	20.0	2.6	0.2	4.5

40. How will the quantity of water for the primary work-related purpose in your area change in the next five years?					
Worsen lot	Worsen	No change	Improve	Improve lot	No opinion
16.7	53.1	11.0	2.5	0	16.7

41. Is the quantity of water available for the primary work-related purposes most difficult at certain times?					
No	Spring	Summer	Autumn	Winter	No opinion
20.1	17.8	25.7	6.1	2.8	2.3

42. What factors impacts on the quantity of water for the primary work-related purpose?											
Weather (rain)	Grazing	Agriculture	Industry, heavy	Industry , light	Mining (formal)	Mining (informal)	Human consumption/ waste	Vandalism	Other, specify	No change	No opinion
20.8	0.3	0.3	1.1	0.6	19.4	7.6	2.3	1.7	8.3	17.0	20.6

43. To what degree do the marked factors impact on the quantity of for primary work-related purpose?											
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Rating	Weather	Grazing	Agriculture	Industry, heavy	Industry, light	Mining, formal	Mining, informal	Human, waste	Vandalism	Other
Slight	12.1	71.4	71.4	0.0	0.0	2.3	0.0	21.1	29.4	4.8
Medium	19.1	0.0	0.0	9.1	0.0	2.3	9.8	15.8	11.8	12.9
Severe	46.1	28.6	14.3	27.3	25.0	37.4	43.1	52.6	29.4	51.6
V' severe	22.7	0.0	14.3	63.6	75.0	58.0	47.1	10.5	29.4	25.8

44. If you had improved access to more water in your area, how would you use it?					
Produce more vegetables	Produce more fodder	Have more animals	No change	No opinion	Other, specify
45.3	3.6	17.7	14.9	8.4	10.0

Part 3. Water Management.

45. Are the following involved in the management of water resources?								
District	Sub-district	Neighbour, distant	Neighbour, close ¹⁵	GoM	Industry, heavy	Industry, light	Mining	Other, specify
22.9	19.3	15.5	16.7	11.5	3.1	3.6	7.3	0

46. To what degree do you trust the marked (with yes) in the management of water resources?									
Rating	Admin., district	Admin., sub-district	Neighbour, distant	Neighbour, close	GoM	Industry, heavy	Industry, light	Mining	Other
No trust	10.5	9.1	9.2	8.6	23.7	35.2	22.6	28.1	10.8
Some	29.6	27.5	31.2	30.5	30.6	38.9	40.3	30.6	13.5
High	45.3	50.2	46.0	44.0	35.5	22.2	27.4	33.1	51.4
V' high	14.3	12.9	12.4	15.8	9.7	3.7	6.5	6.6	24.3
No opinion	0.3	0.3	1.2	1.1			0.5	3.2	0.8

47. In the past 12 months, which – if any – of the following have consulted you on issues of water management										
Khot Ail	Suuri	Admin, district	Admin, sub-district	GoM	Industry, heavy	Industry, light	Mining	Other, specify	No opinion	Not consulted
0.9	0.1	4.6	2.6	1.0	0	0.1	1.2	4.2	5.9	69.5

48. Do you feel adequately consulted about water management issues?

¹⁵'Khot Ail' in Mongolian.

Yes 24.9	No 71.7	No opinion 3.5
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49. Please name any laws or rules that apply to the management of water resources?

Law on water	'Long-named' law	Law on en' ment	Decree about waste	New laws are needed	Brochures on agriculture	Traditional methods	Nothing
5.3	1.9	0.6	0.5	0.3	0.1	0.1	91.3

50. Are any groups or organizations involved in activities related to water resources in the area?

Yes (specify – name, type of work - below) 15.6	No 68.9	No opinion 15.5
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51. What is the current status (last 12 months) with respect to disputes on water resources within the community in your area?

Very bad	Bad	Okay	Good	Very good	No opinion
3.6	31.4	14.0	13.9	14.3	17.4

52. In the past five years, has the number of disputes over water resources changed compared to previous years?

Much worse	Worse	No change	Better	Much better	No opinion
5.7	48.4	18.2	3.4	1.0	21.9

53. How do you expect disputes over water resources to change in the next five years?

Worsen lot	Worsen	No change	Improve	Improve lot	No opinion
9.1	47.9	11.3	4.8	0.7	24.8

54. Who can settle disputes around water resources?

Item	Admin., district	Admin., sub-district	Neighbour, distant	Neighbour, close	GoM	Industry, heavy	Industry, light	Mining	Religious leader	NGO
Most important	28.8	18.3	11.9	12.7	32.0	7.5	6.5	13.6	4.9	7.4
Very important	12.4	13.1	7.9	7.8	8.2	5.0	4.7	6.4	1.9	5.7
Important	15.6	16.2	18.1	17.9	12.5	14.2	14.0	15.4	9.9	16.9
Minor important	3.0	4.0	5.1	5.3	2.7	4.9	5.9	2.9	4.5	4.3
Unimportant	12.1	18.1	24.0	23.4	16.4	34.5	35.0	28.5	44.5	32.0
No opinion	28.1	30.1	33.0	33.0	28.2	33.9	33.9	33.2	34.3	33.8

55. What happens when a well or other water source for the livestock becomes unavailable?

Relocate	Use some other's	Other, specify	No opinion
44.3	10.0	26.5	19.2

56. How do you receive information on community issues?

Community meetings	Television	Radio	Admin. (district)	Other, specify	Don't receive
14.9	37.5	5.1	28.4	10.5	3.6

57. Do you feel adequately informed on water resources?

Yes 19.6	No 77.6	No opinion 2.8
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58. Would you like to receive more information about water resources in your community?		
Yes 92.3	No 6.2	No opinion 1.4

59. How would you like to receive information on water issues?				
Community meetings	Television	Radio	Other, specify	No opinion
25.3	43.3	10.3	19.9	1.1

60. Do you have any other comment to make; related to the above questions or your answers?	
Yes 33.5	No 66.5
Stop mining activities and reduce water exploitation	16.0
Connect households to central water line	4.2
Save environment and water	8.7
Study and save water resource	11.5
Use water properly	9.7
Raise awareness on water issues	2.9
Improve water supply for pasture and agricultural use	4.2
Dig new wells	17.1
Save ground water	0.8
Improve legislation	3.7
Pay attention to water quality and filtering	6.0
Impacted by climate change and desertification	1.8
Water resource is depleting	2.6
Disseminate information	2.6
No comment	8.1

Appendix 12. Results of Some Cross Tabulations.

Item	Question	Difference	N-value
Rural/Urban location; versus trust in district admin.	46	Significant	371
	Province centre less trusting.		
Mining/non-mining district location; versus trust in district admin.	46	Significant	371
	Mining more trusting		
Rural/Urban location; versus trust in sub-district admin.	46	Significant	309
	District centres and rural areas more trusting. Province centre less trusting.		
Mining/non-mining district location; trust in sub-district admin.	46	Significant	309
	Mining more trusting.		
Rural/Urban location; versus trust in distant neighbour	46	Significant	250
	District centres and rural areas more trusting. Province centre less trusting.		
Mining/non-mining district location; versus trust in distant neighbour	46	Significant	250
	Mining more trusting.		
Rural/Urban location; versus trust in close neighbour	46	Significant	266
	District centres and rural areas more trusting		
Mining/non-mining district location; versus trust in close neighbour	46	Significant	266
	Mining more trusting		
Gender, Age, Education, Employment, and Income; versus trust in district admin., sub-district admin., distant neighbour and close neighbour	1, 2, 3, 10, 14 & 46	None	
Location (rural/urban and mining/non-mining district), gender, age, education, employment, and income; versus trust in GOM, heavy industry, light industry, and mining.	46	None	
Rural/urban location; versus incomes	14	Weakly significant.	1042
	Provincial centre households tend to have greater income		
Mining/non-mining district location; versus income	14	None	1042
Education; versus income	3 & 14	Weakly significant.	1042
	People with higher level of education tend to have higher income		
Land owned/rented; versus income	12 & 14	Weakly significant.	1041
	More land, higher income		
Rural/urban location; versus formal mining as a factor affecting quantity and quality of cooking/drinking water.	26 & 33	None	567, 229
Rural/urban location; versus formal mining as a factor affecting	42	Significant	128

quantity of water for work-related purposes.			
	Rural respondents more likely to identify mining, prov. centre less likely.		
Rural/urban location; versus perception quality cooking/drinking water (past, present and future)	30, 28 & 31	Significant	799, 1011, 695
	Urban more positive about quality		
Mining/non-mining; versus perception quality cooking/drinking water (past, present and future)	30, 28 & 31	Significant	799, 1011, 695
	Mining more negative about quality		

Age; versus perception quality cooking/drinking water (past, present and future)	2, 30, 28 & 31	Significant	799, 1011, 695
	Artefact associated with boundary of groups.		
Education; versus perception quality cooking/drinking water (past, present and future)	3, 30, 28 & 31	Significant	799, 1011, 695
	Artefact associated with boundary of groups.		
Gender; versus perception quality cooking/drinking water (past, present and future)	1, 30, 28 & 31	Significant	799, 1011, 695
	Males are more neutral, females are more divided (past) and more negative (present)		
Employment; versus perception quality cooking/drinking water (past, present and future)	10, 30, 28 & 31	Significant	799, 1011, 695
	Artefact associated with boundary of groups.		
Income; versus perception quality cooking/drinking water (past, present and future)	14, 30, 28 & 31	Significant	799, 1011, 695
	Higher income more positive (past), more negative (present)		
Rural/urban location; versus perception quantity cooking/drinking water; present	24, 23 & 25	Significant	929, 1027, 823
	Rural more negative.		
Mining/non-mining district location; versus perception quantity cooking/drinking water (past, present and future)	24, 23 & 25	Significant	929, 1027, 823
	Mining more negative		
Age; versus perception quantity cooking/drinking water (past, present and future)	2, 24, 23 & 25	Significant	929, 1027, 823
	Artefact associated with boundary of groups.		
Education; versus perception quantity cooking/drinking water (past, present and future)	3, 24, 23 & 25	Significant	929, 1027, 823
	Higher educated more positive (past and present) and more negative (future)		
Gender; versus perception quantity cooking/drinking water (past, present and future)	1, 24, 23 & 25	Significant in past	929, 1027, 823

		only	
	Males more negative (past and present)		
Employment; versus perception quantity cooking/drinking water (past, present and future)	10, 24, 23 & 25	Significant	929, 1027, 823
	Artefact associated with boundary of groups.		
Income; perception quantity cooking/drinking water (past, present and future)	14, 24, 23 & 25	None	929, 1027, 823

Appendix 13. Baseline Survey Debriefing; IFC Workshop (19 February).

Background

In February 2014, IRIM staff were invited by IFC to prepare and provide a two-hour programme for inclusion in an IFC workshop to take place in Ulaanbaatar on 19 February.

Prior to the start of the Baseline Survey, IRIM staff were invited to attend a workshop – ‘Water and Mining in the Provinces’ - organised by the IFC on 16 September 2013. The Workshop included 23 environmental and/or community officers from various organisations within the mining sector. The main objective of that Workshop was to receive participants’ inputs to the development of the questionnaire to be used in the Baseline Survey. At end of the September 2013 workshop, participants were promised feedback on the results of the Baseline Survey; which was to become one of the topics of the February 2014 workshop.

Purpose/s

The results of the Baseline Survey are expected to help inform the industry roundtables, facilitated by IFC, through:

- qualifying the issues of concern to the population, and
- feeding into the mining company’s communications strategy and training on participatory water management techniques.

Accordingly, IRIM’s input to the forthcoming workshop was expected to provide participants with a summary (and highlights) of the results of the Baseline Survey, and provide participants with an opportunity to discuss and determine the scope for application of the Survey’s results.

Programme.

The programme for IRIM’s presentation to the Workshop – which took place in the offices of Xanadu Mines - was as follows:

Duration	Item	Presenter
10:45	Introductions; IRIM staff, and the IFC’s ‘Population Perception Survey’.	Tamir.
10:50	Results; Respondents’ and Households’ Characteristic	Tselmeg.
	Results; Access to Water	
11:05	Results; Management	Oyuka.
11:25	Conclusions	Ian.
11:35	Questions	Tamir.
11:50	Group Work	Tamir.
12:10	Groups’ Presentations.	Various
12:30	Questions and Comments	Tamir.
12:40	Summary, and Follow-up Survey	Ian.

12:45	Close	
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Participants.

Other than staff of IRIM and IFC, the participants of the Workshop included the following:

Full name	Title	Company
Battsengel. B*	Water Supply Specialist	Erdeness TT
Battur Ragchaa	Community Relations Officer	Xanadu Mines
Batzaya Davaadorj	Environmental Officer	MAK
Bayarjargal Batsukh*	Environmental Manager	Southgobi Coal
Dima Basan	Community Relations Specialist	Erdeness TT
Enkhtuul Chuluunbaatar	Environmental Officer	Hunnu
Erdenebayar Naran	Environmental Officer: Water	OT
Erdenebileg Pagvaa*		Erdene Resources
Ganjargal Gantumur	Country Analyst	Anglo American
Khurelsukh Ganbold*	Environmental Officer	MAK
Munkhbayar Norovsuren	Monitoring and Evaluation Specialist	OT
Odbayar Bazargochoo*	Water Officer	Southgobi Coal
Puntsagdulam*	CRSR Specialist	MAK
Sarantuya Dashdavaa	Senior Environmental Specialist	MAK
Sarantuya. M*	Environment Superintendent	Bayanairag
Tserennadmid Osorpurev	Superintendent of Land and Cultural Resources	OT
Ulambayar. B	HSE Manager	Xanadu Mines
Ulziibayar Dagdandorj*	Environmental Superintendent	Terra Energy
Uyanzalaa Dorjdamba*	Health and Safety Manager	Gobi Coal

*Not present at September 2013 Workshop.

Presentations

Print-outs of the PowerPoint-based presentations made by IRIM staff were distributed to all participants, and soft copies are available separately.

Proceedings/Results

There were a number of questions and comments. Some were very general – related to the main content of the Survey – and answers were provided, together with confirmation that more details were available in the Final Report (to be supplied to all participants in English and Mongolian). More specific questions related to results within particular districts, and participants were informed that the whole database (including such details) was available to IFC, and could be interrogated to provide the necessary information. Finally, participants asked about the follow-up survey and were informed that this was still subject to confirmation but, in combination with the results of the 2013 Baseline, would eventually

provide a valuable measure of any developments in the intervening period. Developments related, for example, to interventions such as the advertisements and meetings discussed in the Group Work session.

Evaluation

All 19 participants of the Workshop were invited to complete an evaluation form, and nine did. The feedback (copies available separately) was overwhelmingly positive.

Appendix 14. Proposal for Improvement to Perceptions of the Mining Industry.

On a number of occasions – most recently at the February 2014 Workshop (Appendix 13) - IRIM staff have been asked about their suggestions to improve people's perception of the mining industry.

The results of the 2013 Baseline Survey confirmed respondents' (herders, and members of the general public) negative perceptions of the mining sector. But the Survey also confirmed that:

- negative perceptions were not restricted to the mining sector alone,
- the perceptions were based (in part at least) on respondents' limited access to information and consultation, and
- respondents would like to receive more information.

Accordingly, while the results of the Baseline Survey confirmed there was a perception issue, they also confirmed there were number of opportunities to resolve it.

Without knowing what the mining industry's priorities are – and what resources might be available in the short and medium term to address them – it is difficult for IRIM to make an explicit proposal. However, it is possible to make a very general suggestion that might be tailored to particular requirements once other details are confirmed.

Since the 'perception' problem affects all companies in the mining sector it seems reasonable to try to provide an industry-wide approach; especially since this might offer scope to distinguish it (the formal mining sector) from the informal mining sector. Moreover, since purely mining and/or water-related issues alone might not be immediately of interest to the sort of people that gave their perceptions in the Baseline Survey; it is seems better to couple these topics with something that might be of more direct interest.

Based on the above considerations, IRIM staff would suggest that the mining sector explores the scope for sponsoring some television (or radio) programme. The programme could be established fairly quickly and – subject to funding – might be:

- short or long,
- weekly, or monthly,
- repeated, not repeated,
- restricted to Omnogobi alone, or broadcast nationally.

And, of course the programme might be developed over a period of time; beginning with something small and simple, and expanded according to its reception by the target audience.

The ideal choice of programme to be sponsored would be something like a market information service (prices of livestock products, inputs to herding etc) or weather forecasts. In addition to the main topic of the programme, the mining sector could insert short items on topics related to mining, water resources and so on.

To provide for proper (participatory) communication, it is essential the programme provides some scope for audience involvements and feedback. It is also considered that the programme should be established with a view to operating for a minimum of two years.