

# Mongolia - Multiple Indicator Cluster Survey 2016, Khuvsgul Province

**National Statistics Office of Mongolia, United Nations Children's Fund**

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# Sampling

## Sampling Procedure

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The sample for the Khuvsgul province CDS was designed to provide estimates for a large number of indicators on the situation of children and women at provincial level, for urban and rural areas, for six regions namely Central, Touristic, Agricultural, Ider, Tes-Ekh and Murun. The regions were identified as the main sampling domains and the sample was selected in two stages. At the first stage the primary sampling units (PSUs) were the baghs in soums in Khuvsgul province.

A total of 2650 households were selected and selection probabilities and corresponding weights vary by PSUs and by the second stage stratum of households with and without children under 5 years of age.

Within each sampling stratum, the sample was selected in two stages. The PSUs within each stratum were selected systematically with probability proportional to size (PPS). After a household listing was carried out in each sample PSU, a systematic sample of households was selected separately for households with and without children, for a total of 25 sample households per PSU. The 2015 official statistics of the household registration was used as a sampling frame.

The sample was stratified by region and is not self-weighting. For reporting all survey results, sample weights are used. As it was mentioned before the lowest administrative units (bagh within soum in the province) were defined as primary sampling units. The survey covered 23 soums and 106 sample baghs; the listing of households was updated during September-October 2016.

During the data collection fieldwork in October-December 2016, we had encountered problems due to seasonal movement of families; transportation means to reach remote families were broken due to heavy snow falls and severe cold. In spite of this, we managed to collect survey data in all of the 106 selected PSUs.

For reporting survey results, sample weights are used. A more detailed description of the ample design can be found in the Final Report (Appendix A) attached as Related Material.

## Response Rate

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Of the 2650 households selected for the sample 2641 households were available. Of these 2626 households were successfully interviewed yielding a response rate of 99.4 percent. A total of 2115 women age 15-49 years were listed within the interviewed households, of which 2039 were successfully interviewed, indicating a response rate of 96.4 percent.

The survey also sampled men age 15-49, but required only a subsample of every second household. 1007 men age 15-49 years were listed in the household questionnaires. Questionnaires were completed for 943 eligible men, which corresponds to a response rate of 93.6 percent within eligible interviewed households.

In addition, 1134 children under 5 were listed in the household questionnaires. Questionnaires were completed for 1129 of these children, which corresponds to a response rate of 99.6 percent within interviewed households.

Overall response rates in Khuvsgul province stands at 93.1 percent of men age 15-49 years, 95.9 percent for women and 99.0 percent calculated for mothers/ caregivers of children under 5.

# Questionnaires

## Overview

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Questionnaire contents and indicators for the survey were identified based on the survey objectives and covering the main indicators of the MICS5 model questionnaire recommended by UNICEF. Moreover, the principle of international comparability and with previous surveys was considered.

Five sets of questionnaires were used in the survey:

1. A household questionnaire which was used to collect basic demographic information on all de jure household members (usual residents), the household, and the dwelling;
2. A questionnaire for individual women administered in each household to all women age 15-49 years;
3. A questionnaire for individual men administered in every second household to all men age 15-49 years;
4. An under-5 questionnaire, administered to mothers (or caretakers) for all children under 5 living in the household; and
5. A questionnaire for evaluating water quality administered in every third household.

In addition to the administration of the questionnaires, fieldwork teams tested the salt used for cooking in the households for iodine content, observed the place for hand washing and measured the weights and heights of children age under 5 years.

The Questionnaire for Child under 5 was administered to mothers or caretakers of all children under 5 years of age living in the households. Normally, the questionnaire was administered to mothers of under-5 children; in cases when the mother was not listed in the household roster, a primary caretaker for the child was identified and interviewed.

Every third household was administered question on drinking-water quality, questioning water source of the household and testing residential water quality.

The questionnaires were pre-tested in July 2016 in 3 baghs of Kherlen and Tsenkhermandal soums of Khentii province and 2 kheseqs of 8th khoroo of Bayangol District, Ulaanbaatar.

# Data Collection

## Data Collection Dates

Start	End	Cycle
2016-10-21	2016-12-10	N/A

## Data Collection Mode

Face-to-face [f2f]

### DATA COLLECTION NOTES

Training for 45 fieldwork personnel was conducted for fifteen days on 10-20 October 2016 by combined forms of lectures and practice sessions.

The training included lectures on interviewing techniques and the contents of the questionnaires. Moreover, it has concentrated on teaching paper and tablet questionnaires and mock interviews between trainees to gain practice in asking questions.

The paper questionnaires testing was carried out in 7th bagh of Murun soum of Khuvsgul province for two days and testing of tablets in 6th bagh for another two days. As module on water quality was included in MICS for the first time, Mr Andrew Shantz consultant of UNICEF has supported training on water quality testing. Finally, all 45 participants were taken tests and the interviewers, editors and supervisors were selected based on their performance in the test.

The data were collected by five teams; each team was comprised of a supervisor, 5 interviewers (2 men assigned as main measurers) and 2 drivers.

The data collection fieldwork was carried out during October 21 to December 10, 2016. Monitoring, assessment and timely clarification of the data entered on the central network during the data collection helped improve the quality of data. In addition, field monitoring visits were done by NSO and UNICEF staff who have been involved in the training process during the data collection processes who observed some interviews and held discussions with the teams to address the issues and inaccuracies and ways for improvement. These contributed to overall quality of the data.

# Data Processing

## Data Editing

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The MICS utilized tablet PCs for data collection. This environmental friendly solution offered many advantages including, sending the data collected from the field immediately to the central office at a click of a button, time saving from data entry (in the case of paper surveys), cost in the long term and ensuring information collected are of high quality.

The data collected by the interviewers from the respondents aggregated at the team supervisors and after required clarification and editing, the data was sent to the central network of the NSO. The data received at the central office were monitored and checked. Where additional clarifications were needed on a particular data, the team supervisors were made to contact the particular household. Followed by entering the survey data to online database using Census and Survey Processing System 5.03 (CSPro 5.03) public domain software. These followed procedures and standard programs developed under the global MICS programme and adapted to the SISS Mongolia 2013 questionnaire were used throughout.

Customization of the generic CDS syntaxes developed for MICS5 for the analysis of the data was done. Data were analyzed using the Statistical Package for Social Sciences Version 21.0 (SPSS) software program and model syntax and tabulation plans were developed by global MICS/UNICEF team.

# Data Appraisal

## Estimates of Sampling Error

The sample of respondents selected in the Khuvsgul province's CDS-2016 is only one of the samples that could have been selected from the same population, using the same design and size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between the estimates from all possible samples. The extent of variability is not known exactly, but can be estimated statistically from the survey data.

The following sampling error measures are presented in this appendix for each of the selected indicators:

- Standard error (se): Standard error is the square root of the variance of the estimate. For survey indicators that are means, proportions or ratios, the Taylor series linearization method is used for the estimation of standard errors. For more complex statistics, such as fertility and mortality rates, the Jackknife repeated replication method is used for standard error estimation.
- Coefficient of variation (se/r) is the ratio of the standard error to the value (r) of the indicator, and is a measure of the relative sampling error.
- Design effect (deff) is the ratio of the actual variance of an indicator, under the sampling method used in the survey, to the variance calculated under the assumption of simple random sampling based on the same sample size. The square root of the design effect (deft) is used to show the efficiency of the sample design in relation to the precision. A deft value of 1.0 indicates that the sample design of the survey is as efficient as a simple random sample for a particular indicator, while a deft value above 1.0 indicates an increase in the standard error due to the use of a more complex sample design.
- Confidence limits are calculated to show the interval which contains the true value of the indicator for the population, with a specified level of confidence. For CDS results 95% confidence intervals are used, which is the standard for this type of survey. The concept of the 95% confidence interval can be understood in this way: if many repeated samples of identical size and design were taken and the confidence interval computed for each sample, then 95% of these intervals would contain the true value of the indicator.

For the calculation of sampling errors from CDS data, programs developed in CSPro Version 5.0, SPSS Version 21 Complex Samples module and CMRJack1 have been used.

Given the use of normalized weights, by comparing the weighted and unweighted counts it is possible to determine whether a particular domain has been undersampled or over-sampled compared to the average sampling rate. If the weighted count is smaller than the unweighted count, this means that the particular domain had been oversampled.

Sampling errors are calculated for indicators of primary interest, for the province level, for urban and rural areas, and for all regions. Three of the selected indicators are based on households, 11 are households members, 41 are based on women, 24 are based on men, and 39 are based on children under 5.





## Related Materials

### Questionnaires

#### Mongolia, Khuvsgul Province - Multiple Indicator Cluster Survey 2016: Questionnaire

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Title Mongolia, Khuvsgul Province - Multiple Indicator Cluster Survey 2016: Questionnaire  
Language English  
Filename Questionnaire.pdf

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### Reports

#### Mongolia, Khuvsgul Province - Multiple Indicator Cluster Survey 2016: Report

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Title Mongolia, Khuvsgul Province - Multiple Indicator Cluster Survey 2016: Report  
Country Mongolia  
Language English  
Filename Mongolia 2016 MICS-CDS (Khuvsgul Province)\_English.pdf

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