

Iraq - Multiple Indicator Cluster Survey 2018

**Central Statistical Organization (CSO), Kurdistan Region Statistics Office (KRSO),
Ministry of Health, United Nations Children's Fund (UNICEF)**

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Overview

Identification

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Version

VERSION DESCRIPTION

- v01: Edited, anonymous datasets for public distribution.

Overview

ABSTRACT

The Government of Iraq, with support from UNICEF finalized and launched a Multiple Indicator Cluster Survey (MICS 6) in 2018. The survey provides statistically sound and internationally comparable data essential for developing evidence-based policies and programmes, and for monitoring progress toward national goals and global commitments. Data and information from MICS6 provides credible and reliable evidence for the Government of Iraq to monitor the National Development Plan and establish baselines and monitor progress towards Sustainable Development Goals (SDGs). It helps the government and its stakeholders to understand disparities and the wider development challenges in the country.

The 2018 Iraq MICS has as its primary objectives:

- To provide high quality data for assessing the situation of children, adolescents, women and households in Iraq;
- To furnish data needed for monitoring progress towards national goals, as a basis for future action;
- To collect disaggregated data for the identification of disparities, to inform policies aimed at social inclusion of the most vulnerable;
- To validate data from other sources and the results of focused interventions;
- To generate data on national and global SDG indicators;
- To generate internationally comparable data for the assessment of the progress made in various areas, and to put additional efforts in those areas that require more attention.

KIND OF DATA

Sample survey data [ssd]

UNITS OF ANALYSIS

- Individuals
- Households

Scope

NOTES

The scope of Iraq MICS 2018 includes:

- HOUSEHOLD: list of household members, education, household characteristics, social transfers, household energy use, water sanitation, handwashing, and salt iodisation

- WOMEN: women's characteristics, mass media and ICT, fertility/birth history, maternal and newborn health, post-natal health checks, contraception, unmet needs, female genital mutilation, attitudes towards domestic violence, victimisation, marriage, adult functioning, HIV/AIDS, maternal mortality, tobacco use, and life satisfaction
- CHILDREN: child's background, child labour, child discipline, child functioning, and parental involvement
- CHILDREN UNDER 5: under-five's background, birth registration, early childhood development, child discipline, child functioning, breastfeeding and dietary intake, immunisation, care of illness, and anthropometry
- WATER QUALITY TESTING: testing for E. Coli and testing for chlorine

Coverage

GEOGRAPHIC COVERAGE

The sample for the Iraq MICS 2018 was designed to provide estimates at the national, regional and governorates level, for urban and rural areas. Specifically the sample for the Iraq MICS 2018 survey includes 2 regions - Kurdistan and South/Central Iraq and 18 governorates - Duhok, Nainawa, Sulaimaniya, Kirkuk, Erbil, Diala, Anbar, Baghdad, Babil, Karbala, Wasit, Salahaddin, Najaf, Qadissiyah, Muthana, Thiqr, Musan, and Basra.

UNIVERSE

The MICS survey considers the households and their members in all urban and rural areas of Iraq as the Universe. Thus, the Universe for Iraq consists of all persons in the country residing in various geographic locations considering all special ethnic or economic groups in the rural and urban areas of Iraq. For the purposes of this survey, Internally Displaced Persons living in United Nations/government notified camps, military installations, and non-residential units such as business establishments were not considered in the scope of the survey.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Central Statistical Organization (CSO)	
Kurdistan Region Statistics Office (KRSO)	
Ministry of Health	
United Nations Children's Fund (UNICEF)	

FUNDING

Name	Abbreviation	Role
United Nation's Children Fund	UNICEF	

OTHER ACKNOWLEDGEMENTS

Name	Affiliation	Role
Ministry of Health	Government of Iraq	quality checks
Ministry of Education	Government of Iraq	quality checks
Ministry of Labour and Social Welfare	Government of Iraq	quality checks
Ministry of Construction, Housing, and Public Municipalities	Government of Iraq	quality checks

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Development Economics Data Group	DECDG	The World Bank	Documentation of the study

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Sampling

Sampling Procedure

SAMPLING FRAME

A multi-stage, stratified cluster sampling approach was used for the selection of the survey sample. The last census in Iraq was carried out in 1998 and the sampling frame was developed during that time. The most recent update of this sampling frame was done in 2009 which was used by Central Statistical Office (CSO) for the selection of the Clusters in Iraq region. On the other hand, the Kurdistan Region Statistical Office (KRSO) has updated the 2009 sampling frame for the 3 main cities of Kurdish region and their periphery and used it to draw the Clusters. The primary sampling units (PSUs) selected at the first stage were the enumeration areas (EAs). A listing of households was conducted in each sample EA, and a sample of households was selected at the second stage.

SAMPLE SIZE AND SAMPLE ALLOCATION

The sample size has been calculated using the prevalence rates of key indicators from the 2011 MICS. For the purpose of identifying the optimal sample size for 2018 MICS, all the factors such as time, cost, domain of estimation, sampling and non-sampling errors were taken into account, as well as the desired level of precision of the key prevalence indicator. The sample size was calculated at the governorate level. It was decided that 2018 MICS will provide the estimates at the governorate level, so the indicative sample size has been calculated using governorate as the domain for the geographic representation. The formula for calculating the sample size is described in Appendix A of report available in related materials.

A number of meetings were held in the CSO to finalize the sample size, and various refinements were studied using the referred formula. As a result of these discussions the MICS Technical Committee reached a consensus on a sample size of 1,080 households for each governorate of Iraq, where each governorate was divided into 90 sample clusters and 12 households were selected per cluster (90 clusters x 12 households = 1,080 households). Baghdad was sub-divided into two administrative areas, therefore 19 total individual domains were used for a total sample size of 20,520 households (19 domains x 1,080 households).

One-third of the sampled households was selected for water quality testing, which means 360 households per governorate or 6,840 (360 X 19) households for the overall survey. The subsample of 4 households for the water quality testing in each cluster are selected using systematic random sampling.

Each Governorate is further stratified into urban and rural areas, and the sample within each governorate is allocated proportionately to the urban and rural strata based on the population. The urban and rural areas within each governorate are the main sampling strata. Within each stratum, a specified number of clusters is selected systematically using probability proportionate to size (PPS) sampling methodology. After the selection of the clusters in each rural and urban stratum, a new listing of households was conducted in each sample cluster. Then a systematic random sample of 12 households per cluster is drawn from the listing for each rural and urban sample cluster.

SELECTION OF ENUMERATION AREAS (CLUSTERS):

Census enumeration areas were selected from each of the sampling strata by using systematic probability proportional to size (pps) sampling procedures, based on the number of households in each enumeration area from the Iraq 2009 sampling frame. The first stage of sampling was thus completed by selecting the required number of sample EAs (specified in Table SD.2) from each of the 19 sampling domains, separately for the urban and rural strata. However, there are a few areas belonging to two governorates that were not accessed due to security reasons. These governorates are Nainawa and Kirkuk. In Nainawa 5 districts were excluded (Ba'aj, Al-Hadar, Telafer, Sinjar and Makhmoor), while only Haweja district in Kirkuk was excluded. The excluded districts represent around 22% of the urban population and 51% of the rural population in Nainawa. The percentage of not accessed area in final sample for Kirkuk represents 5% of the Urban and 42% of the rural population, following the exclusion of Haweja district.

SELECTION OF HOUSEHOLDS:

Lists of households were prepared by the listing teams in the field for each enumeration area. The households were then sequentially numbered from 1 to Mhi (the total number of households in each enumeration area) at the Central Statistical Office, where the selection of 12 households in each enumeration area was carried out using random systematic selection

procedures. The MICS6 spreadsheet template for systematic random selection of households was adapted for this purpose.

The Iraq 2018 MICS also included water quality testing for a subsample of households within each sample cluster. A subsample of 4 of the 12 selected households was selected in each sample cluster using random systematic sampling for conducting water quality testing, for both water in the household and at the source, including a chlorine test. The MICS6 household selection template includes an option to specify the number of households to be selected for the water quality testing, and the spreadsheet automatically selected the corresponding subsample of households.

Response Rate

Of the 20,521 households selected for the sample, 20,318 were found occupied. Of these, 20,214 were successfully interviewed, representing a household response rate of 99.5 percent.

A Water Quality Testing Questionnaire was administered to 6,838 randomly selected households in all sample clusters. Of these, 6,724 were successfully tested for household drinking water quality yielding a response rate of 98.3 percent. Also, 6,687 were successfully tested for source of drinking water quality yielding a response rate of 97.8 percent.

In the interviewed households, 31,060 women (age 15-49 years) were identified. Of these, 30,660 were successfully interviewed, yielding a response rate of 98.7 percent within the interviewed households.

There were 16,689 children under age five listed in the household questionnaires. Questionnaires were completed for 16,623 of these children, which corresponds to a response rate of 99.6 percent within interviewed households.

A sub-sample of children 5-17 years were administered a questionnaire for children of 5-17 years. A total of 15,613 children (5-17 years) were selected, and questionnaires were completed for 15,595 which corresponds to a response rate of 99.9 percent within the interviewed households.

Overall response rates of 98.2 percent, 99.1 percent and 99.4 percent are calculated for the individual interviews of women, under-5s, and children age 5-17 years, respectively.

Weighting

The Iraq 2018 MICS sample is not self-weighting. Essentially, by allocating an equal number of households to each of the domains, different sampling fractions were used in each domain since the number of households in the Census frame varies by domain. For this reason, sample weights were calculated and used in the subsequent analyses of the survey data.

The major component of the weight is the reciprocal of the overall sampling probability employed in selecting the number of sample households in that particular sampling stratum.

Since the number of households in each enumeration area (PSU) from the 2009 sampling frame used for the first stage selection and the updated number of households in the EA from the listing are generally different, individual overall probabilities of selection for households in each sample EA (cluster) were calculated. Details provided in Appendix A5 of the report available in related materials.

A final component in the calculation of sample weights takes into account the level of non-response for the household and individual interviews. The adjustment for household non-response in each stratum is equivalent to the inverse of the response rate for the sample households per stratum (stratum *h*), defined as the proportion of the number of interviewed households in stratum *h* out of the number of selected households found to be occupied during the fieldwork in stratum *h*.

Similarly, adjustment for non-response at the individual level (women and under-5 children) for each stratum is equivalent to the inverse of the response rate for the individual questionnaires in stratum *h*, defined as the proportion of eligible individuals (for example, women age 15-49 years or under-5 children) in the sample households in stratum *h* who were successfully interviewed.

After the completion of fieldwork, response rates were calculated for each sampling stratum. These were used to adjust the sample weights calculated for each cluster.

The non-response adjustment factors for the individual women and under-5 questionnaires were applied to the adjusted

household weights. Numbers of eligible women and under-5 children were obtained from the list of household members in the Household Questionnaire for households where interviews were completed.

In the case of the questionnaire for children ages 5-17 years, in each sample household, one child was randomly selected from all the children in this age group recorded in the list of household members. The household weight for the children age 5-17 years is first adjusted based on the response rate for this questionnaire at the stratum level. Once this adjusted household weight is normalised as described in Appendix A5 of the report available in related materials, it is multiplied by the number of children age 5-17 years recorded in the list of household members. Therefore, the weights for the individual children age 5-17 years vary by sample household. This weighting of the data for the children age 5-17 years old is implemented in the tabulation programs for the corresponding tables.

For the water quality testing (both in household and at source) a subsample of 4 households was selected from the 12 MICS sample households in each sample cluster. Therefore, the basic (unadjusted) household weight would be multiplied by the inverse of this subsampling rate. Since the response rate may be different for the water quality testing for home consumption and at the source, the basic weights for each were adjusted separately for non-response (described in more detail in Appendix A5 of the report available in related materials).

The Iraq 2018 MICS full (raw) weights for the households were calculated by multiplying the inverse of the probabilities of selection by the non-response adjustment factor for each stratum. These weights were then standardised (or normalised), one purpose of which is to make the weighted sum of the interviewed sample units equal to the total sample size at the national level. Normalisation is achieved by dividing the full sample weights (adjusted for nonresponse) by the average of these weights across all households at the national level. This is performed by multiplying the sample weights by a constant factor equal to the unweighted number of households at the national level divided by the weighted total number of households (using the full sample weights adjusted for non-response). A similar standardisation procedure was followed to obtain standardised weights for the individual women, under-5 questionnaires and water quality testing. Adjusted (normalised) household weights varied between lowest weight and highest weight in the 1,710 sample enumeration areas (clusters). The lowest sample weight is 0.00000 then 0.099783 and the highest sample weight is 37.141684.

Sample weights were appended to all data sets and analyses were performed by weighting the data for households, women, under-5s, 5-17-year olds and water quality testing with these sample weights.

Questionnaires

Overview

Five questionnaires were used in the survey: (1) a household questionnaire to collect basic demographic information on all de jure household members (usual residents), the household, and the dwelling; 2) a water quality testing questionnaire administered in 4 households in each cluster of the sample; 3) a questionnaire for individual women administered in each household to all women age 15-49 years; 4) an under-5 questionnaire, administered to mothers (or caretakers) of all children under 5 living in the household; and 5) a questionnaire for children age 5-17 years, administered to the mother (or caretaker) of one randomly selected child age 5-17 years living in the household.

The questionnaires were based on the MICS6 standard questionnaires. From the MICS6 model Arabic version, the questionnaires were customised and translated to two Kurdish dialects and were pre-tested in 3 governorates (Baghdad, Najaf and Basra) in South/Central Iraq region and 3 governorates (Duhok, Erbil & Sulaimaniya) in Kurdistan region of Iraq during Dec 2017/Jan 2018. Based on the results of the pre-test, modifications were made to the wording and translation of the questionnaires.

Data Collection

Data Collection Dates

Start	End	Cycle
2018-03	2018-05	N/A

Data Collection Mode

Face-to-face [f2f]

Data Collection Notes

Training for the South/Central Iraq region fieldwork was conducted by CSO in two batches for 25 days each in February 2018. Training included lectures on interviewing techniques and the contents of the questionnaires, and mock interviews between trainees to gain practice in asking questions. Participants first completed full training on paper questionnaires, followed by training on the CAPI application. The trainees spent two days on a full pilot survey in all governorates followed by meeting to discuss the finding of pilot survey. On the other hand, KRSO conducted the training for the Kurdistan region fieldwork for 25 days during February-March 2018 with a two days pilot in Duhok governorate. The Iraq MICS training agenda was based on the template of global MICS6 training agenda.

Measurers received dedicated training on anthropometric measurements and water quality testing for a total of three days, including two days in field practice in pilot survey.

Field Supervisors attended additional training on the duties of team supervision and responsibilities.

The data were collected by 39 teams; each team consisted of 6 members (interviewers range from 1 to 5 in each team with at least one member for anthropometry and water quality measurement). Fieldwork began in March 2018 and concluded in May 2018. Data was collected using tablet, computers, running Windows 10 operating systems, utilising a Bluetooth application for field operations, enabling transfer of assignments and completed questionnaires between supervisor and interviewer tablets.

Team supervisors were responsible for the daily monitoring of fieldwork. Mandatory re-interviewing was implemented on at least one household per cluster. Daily observations of interviewer skills and performance was conducted. During the fieldwork period, each team was visited multiple times by central supervisors and field visits were arranged for UNICEF MICS Team members.

In addition to the administration of questionnaires, fieldwork teams tested the salt used for cooking in the households for iodine content, observed the place for handwashing, measured the weights and heights of children under 5 years of age, and tested household and source of drinking water for E. coli and Chlorine levels. Details and findings of these observations and measurements are provided in the respective sections of the report available in related materials.

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Supervision

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Data Processing

Data Editing

Data were received at the Central Statistical Organization (CSO) via Internet File Streaming System (IFSS), integrated into the management application on the supervisors' tablets. Whenever logistically possible, synchronisation was daily. The central office communicated application updates to field teams through this system.

During data collection and following the completion of fieldwork, data were edited according to editing process described in details in the Guidelines for Secondary Editing, a customised version of the standard MICS6 documentation.

Data were analysed using the Statistical Package for Social Sciences (SPSS) software, Version 23. Model syntax and tabulation plan developed by UNICEF were customised and used for this purpose.

Data Appraisal

Estimates of Sampling Error

The sample of respondents selected in the IRAQ 2018 Multiple Indicator Cluster Survey 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 based on 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 for 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 MICS 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 MICS data, programs developed in CPro Version 5.0 and SPSS Version 23 Complex Samples module have been used.

Documentation

Reports

Iraq 2018 Multiple Indicator Cluster Survey Findings Report

Title Iraq 2018 Multiple Indicator Cluster Survey Findings Report
Country Iraq
Language English
Filename Iraq 2018 Survey Findings Report_English.pdf

Iraq 2018 Multiple Indicator Cluster Survey Findings Report_Arabic

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