

# Challenges and possibilities of usage MICS in Belarus

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## Abstract

The history and methodology of MICS in Belarus is considered. Major changes in MICS 2012 are investigated. The main shortcomings of MICS in Belarus are revealed.

*Keywords:* Multiple Indicator Cluster Survey, sample unit, households sample survey, sample size.

## 1 Introduction

MICS covers many countries and it's carried out since the mid-1990, under the auspices of UNICEF.

*MICS 1* was developed in response to the World Summit for Children to measure progress towards an internationally agreed set of mid-decade goals. The first round of MICS was conducted around 1995 in more than 60 countries.

*MICS 2* was conducted in 2000, and it included about 65 surveys.

*MICS 3* covered about 50 countries including Belarus.

Results from *MICS 4* surveys, carried out in 2009-2011, will allow countries to better monitor progress toward national goals and global commitments, including twenty of the Millennium Development Goals (MDGs) as the target year 2015 approaches.

## 2 MICS 3 and MICS 4 in Belarus

*MICS 3 in Belarus.* The object of the study included children aged under five years old and women aged 15-49 years in the total households sample (7000 households (HH), including those with the children under 5 years old – 2870).

*The purpose of the survey* was obtaining statistical data to assess the status of women in reproductive age and children under five years old.

In the construction of the sample the method of random sampling without replacement was used. The sample was based on the lists of HH addresses and the information of medical institutions located in the surveyed settlements, and providing child care.

Survey instruments consisted of three *questionnaires*:

- "Household Questionnaire";
- "Individual Questionnaire For Women Aged 15-49 Years";
- "Questionnaire For Children Under Five Years Old".

Each of them consisted of several modules (sets of questions on a specific topic). Thus, "Household Questionnaire" included the following modules: information about the household, household inventory, education, water and sanitation, household characteristics, child labour; "Individual Questionnaire For Women Aged 15-49 Years" included topics: Information about the woman, infant mortality, maternal and neonatal health, marital status, contraceptive use, HIV / AIDS; "Questionnaire for Children Under Five Years Old" consisted of: early training, breastfeeding, disease treatment and child care, immunization, children's anthropometric data.

**MICS 4 in Belarus.** In March - June 2012 another survey was held in Belarus to assess the status of children and women.

For this survey four *questionnaires* have been designed:

- "Household Questionnaire";
- "Individual Questionnaire For Women Aged 15-49 Years";
- "Individual Questionnaire For Men Aged 15-59 Years";
- "Questionnaire For Children Under Five Years Old".

The module "Reproductive Health" has been included in the questionnaire for women for the first time. However, the range of questions on the given subjects is very limited. Into the questionnaire for women the other modules have been also added: access to media and information and communication technologies, desirability of the last born child, monitoring during the postpartum period, symptoms of diseases, relation to domestic violence, sexual behavior, tobacco and alcohol use, life satisfaction; into the questionnaire for households the following modules has been added: discipline of children, salt iodization.

*The purpose of the survey* is obtaining at the national level, as well as by regions, the data to assess the level of living conditions, health status of women in reproductive age, children under 5 years and men 15-59 years of age.

*Sample unit* is a household.

For a total population a set of private HH of Belarus is accepted. Collective households (1.1% of the total population), students living in residence (1.7%) and homeless (less than 0.1%) are excluded.

When determining the *sample size* the following formula is used:

$$n = \frac{4(r)(1-r)(f)(1.1)}{(0.12r)^2(p)(n_h)}, \quad (1)$$

where  $n$  is a required sample size; 4 is the coefficient, providing 95 percent confidence level;  $r$  – predicted

or expected prevalence (coverage rate) of the indicator; 1.1 – the coefficient that is required to increase the sample size by 10% for non-response compensation;  $f$  – deff;  $0.12r$  – the margin of error acceptable at the 95-percent confidence level, defined as 12% of  $r$  (a relative sampling error for the  $r$ );  $p$  – proportion in the total population, which is based on the parameter  $r$ ;  $n_h$  is the average household size.

When calculating it was assumed that:

- $r$  (hypothetical prevalence of any key indicator) is 50%;
- $f$  is 1.5;
- $p$  (the proportion of children aged 0-4 years in the total population) is 5.2%;
- $n_h$  (average household size) is 2.43.

A result of calculations has shown the required sample size for each territory was 3627 HHs. Thus, the number of HHs in Belarus as a whole is equal to 25,389 HH (i.e.,  $3627 \times 7 = 25,389$ ).

However, considering financial expenditures and the limited time of the survey, it was decided to use the existing in the country sample set that is used for the survey of households' living standards (6000 HH).

However, due to the low average size of household (2.4 by the Census of 2009), a small weight of children under 5 years in the population (5.2%) and the age of 2 years (2, 2%) a limited number of children under five years are represented in the sample. In this regard, an additional subsample of households with children aged 0-4 years was formed.

To calculate *the number of HHs with children under 5 years* the following formula was used:

$$n = \frac{4(r)(1-r)(f)(1.05)}{(0.12r)^2(l)}, \quad (2)$$

where  $n$  is a required quantity of children in the sample; 4 is the coefficient, providing 95 percent confidence level;  $r$  – expected prevalence rate; 1.05 – the coefficient that is required to increase the sample size by 5% for non-response compensation;  $f$  – deff;  $0.12r$  – the margin of error acceptable at the 95-percent confidence level, defined as 12% of  $r$  (a relative sampling error for the  $r$ );  $l$  is the size of target group of children on the average per household with children under the age of five years.

When calculating it was assumed that:

- $r$  is 50%;
- $f$  is 1.5;
- $l$  is 1.13 (based on estimates obtained from the survey of households' living standards).

Three-stage territorial probability stratified sampling has been used; equiprobable selection method has been applied.

To ensure uniform distribution of the sample set, selection has been made separately for the Brest, Vitebsk, Gomel, Grodno and Minsk regions and Minsk-city.

The selection of units has been made in three stages:

- at the first stage the primary sampling units included administrative-territorial items: cities, towns, village councils. To form a representative sample set and to ensure a relative homogeneity of the groups the stratification of the total population has been carried out;
- at the second stage the following units have been taken: in cities and towns – Census plots, in rural areas – a set of settlements within the rural councils. The number of selected clusters in each region is given in Table 1.

Table 1 – The number of clusters selected by regions and Belarus as a whole

	Total	Including		
		«large» cities	«small» cities	rural councils
Republic of Belarus	343	204	86	53
Regions:				
Brest	49	24	15	10
Vitebsk	49	30	11	8
Gomel	56	36	12	8
Grodno	38	15	15	8
Minsk-city	63	63	-	-
Minsk	46	12	21	13
Mogilev	42	24	12	6

- at the third stage the sampling unit was household.

In such a way the survey has covered more than 7800 HH, 2710 of them – households with children under the age of 5 years.

The publication of a preliminary report on the survey is planned for September-October 2012, a final – in December 2012 – January 2013.

### 3 Concluding remarks

The use of three-stage territorial cluster sampling provides rather reliable information across more indicators of MICS, conducted in Belarus.

However, despite the wide range of indicators derived from the MICS, there are several shortcomings of the survey:

- it is carried out not regularly (every five-seven years);

- the module "Reproductive Health" is introduced in the survey for the first time and is only available for women;
- the wealth of information is insufficient for a comprehensive evaluation of reproductive population health.

## References

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