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Full enumeration versus sample surveys

Full census or sample survey?

Note by the Interstate Statistical Committee of the Commonwealth Independent States (CIS-STAT)

Summary

This report provides an overview of the practice of member countries of the Commonwealth of Independent States (CIS) with regard to censuses. The findings are based on responses received from nine of the eleven CIS member countries to a questionnaire sent to national statistical services.

1. This document was prepared by Irina Zbarskaya of CIS-STAT.
2. The first conclusions to be drawn from the 2010 round of population censuses show that countries using traditional census-taking methods are increasingly having trouble collecting information.
3. A report on the 2010 World Programme on Population and Housing Censuses contains the following important conclusion: "Census-taking is at a crossroads. With rapidly changing technology, evolving census methodologies, privacy concerns and increasing needs for more timely data, in many countries of the world the approach to census-taking will likely be fundamentally different in the 2020 round of population and housing censuses from the current 2010 World Census Programme."¹ Changing social attitudes are one of the factors calling for a radical review of census-taking approaches.

¹ Prepared by the United States Census Bureau for discussion at the forty-third session of the United

4. The number of countries using traditional census-taking methods is decreasing. For the 2000 round, 35 countries in the ECE region collected information the “traditional” methods.² For the 2010 round, 27 countries have used or intend to use a traditional approach.³

5. The data sources for population size and composition are:

- Population censuses
- Sample surveys
- Population registers
- Departmental administrative databases

“A population census is the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specified time, to all persons in a country or in a well-delimited part of a country.”⁴

For countries of the ECE region, population censuses must adhere to the following five basic principles:⁵

- Individual enumeration
 - Simultaneity
 - Universality
 - Small-area data
 - Defined periodicity
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6. General population censuses in the Commonwealth of Independent States are conducted fully in line with the recommendations of international organizations. A number of CIS countries are working to establish population registers, but for now censuses are carried out using traditional methods, employing individual registration in a one-time activity with a unified methodology, and offering the possibility of extracting results for small territories. Censuses are usually conducted at 10-year intervals. Azerbaijan, Belarus, Kazakhstan and Kyrgyzstan maintained a 10-year interval for the last two rounds. In the remaining CIS countries the intervals have varied slightly.

7. Methodological and organizational principles of census-taking in the CIS member States are fairly similar, owing to their long shared history and the continued use of general approaches to demographic statistics originating in the Soviet period.

8. The 2010 census round had been held by the beginning of 2012 in 7 of the 11 CIS countries (annex 1). More than 70 per cent of the CIS population was covered by the censuses. CIS countries account for approximately 4 per cent of the world’s population.

9. Traditional census-taking is gradually changing in response to the need to ensure that the entire population is covered. In some cases countries (Belarus, Russian Federation,⁶

Nations Statistical Commission (28 February–2 March 2012) (E/CN.3/2012/2).

² *Measuring population and housing: Practices of UNECE countries in the 2000 round of censuses* (United Nations, New York and Geneva, 2008).

³ *Statistics on International Migration: A Practical Guide for Countries of Eastern Europe and Central Asia* (United Nations, Geneva, 2011).

⁴ *Principles and Recommendations for Population and Housing Censuses, Revision 2* (United Nations, New York, 2008).

⁵ *Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing* (United Nations, New York and Geneva, 2006).

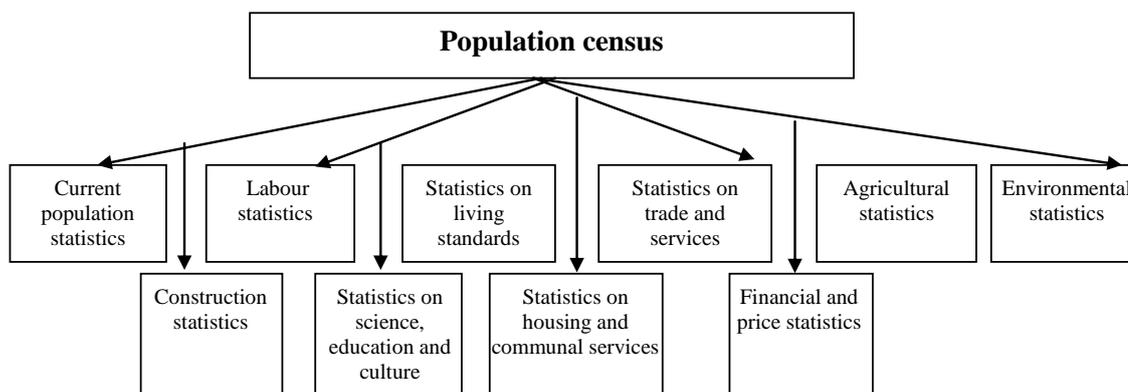
Ukraine) used data from administrative sources; thus, their censuses were complex in nature.

10. General population censuses play a key role in the official statistics systems of the CIS countries.

11. Population censuses are important because:

- They determine the population's size and its distribution in the country's territory
- They are a major (and in some cases the only) source of information on the population's demographic, ethnolinguistic and socio-economic characteristics
- They make it possible to obtain results for the country's smallest territorial units
- They yield information that serves as a basis for demographic and socio-economic development forecasts for the country and its regions
- They provide an aggregate population for conducting sample surveys

12. Census information on the population's size and structure in terms of age and gender serves as a basis for ongoing evaluations during the intercensal period. Virtually all areas of statistics use census data to calculate indicators for the socio-economic and demographic situation, both of a country and of its regions.



13. An analysis of the initial results of the 2010 census round shows that the national statistical services of the CIS countries are having some difficulties preparing and conducting censuses in the following areas:

- Financing (Armenia, Tajikistan, Ukraine)
- Public attitudes (Belarus, Russian Federation)
- Complexity of population surveys (Azerbaijan, Belarus, Kazakhstan, Tajikistan)
- Hiring and training of staff (Azerbaijan, Belarus, Kazakhstan, Russian Federation, Tajikistan)

⁶ In the Russian Federation, in accordance with the federal Population Census Act, information on the sex and age of persons who refused to participate in the census or were absent from their place of residence during the entire census period was obtained from administrative sources. For the federal census of 2010, the number of persons whose sex and age information was obtained from administrative sources increased from 1.5 million (for the 2002 census) to 3.6 million (about 2.5 per cent of the counted population) (See http://www.gks.ru/free_doc/new_site/population/demo/per-itog/rg-14-12.doc for 2010 federal census results).

- Processing of census materials and receiving of tables (Kazakhstan, Kyrgyzstan, Tajikistan)

14. The greatest difficulties are related to financing, since regular funding needs to be available over a period of several years to enable the execution of all the necessary preparatory work as well as that associated with the processing and publication of the results.⁷

15. The difficulty in recruiting staff stems mainly from the discrepancy between the complexity and strenuousness of the work (the need to make repeated visits and master complex material, negative reactions in some countries to participating in the census) and the remuneration.

16. Negative attitudes among the population and the complexity of conducting surveys are background factors hampering census-taking in a number of countries. They stem largely from changing public attitudes to this type of government activity; attempts by particular population groups to politicize statistical work and frame it as infringing human rights, including religious rights; and fears related to privacy issues. (In all CIS countries, census-related issues are governed by law.)

17. In recent years statisticians around the world have paid growing attention to sample population surveys. They truly play a valuable role. Not only are they more cost-effective than population censuses, their main advantage is that they provide more detail. They make it possible to explore in comprehensive detail many issues related to demographic changes and their underlying factors; to explore social and economic phenomena through the prism of the individual, the family and the household; and to gather information that would otherwise simply be impossible to obtain.

18. Traditional census and sample surveys are similar in that they predominantly involve collecting data by surveying respondents. However, they differ in a number of ways.

19. First is the degree to which the population is required to provide information. Participation in censuses is mandatory in all CIS countries except Azerbaijan and the Russian Federation. Sample surveys generally involve no strict obligation to answer questions. It is thus necessary to define the purpose of the survey very clearly and persuade respondents to spend time completing it.

20. A clear advantage of sample surveys is that results can be obtained fairly quickly, whereas the processing and publication of census information require a certain amount of time, even with the use of the latest technology.

21. Lastly, a population census provides a valuable “snapshot” of society at a given time. Over time, the historical value of the results increases, but the value of the information itself gradually decreases (because of rapid changes in society), especially when there are 10-year intervals between censuses. Sample surveys, in particular, when carried out regularly at short intervals, make it possible to obtain a more accurate picture of various aspects of society.

22. In recent years the use of population surveys in CIS countries has grown, as has the range of phenomena and processes examined (annex 2).

⁷ Population censuses are typically the costliest statistical undertakings. For the 2000 round in the CIS countries, the cost per person counted (the total cost of the population census divided by the number of people counted) was US\$ 0.78. The lowest cost (in Tajikistan) was US\$ 0.28, and the highest (in the Russian Federation) was US\$ 1.40. For the 2010 round, in those CIS countries that have already conducted a census, the cost per person averaged US\$ 1.96.

23. The publication in 2009 of a report by the Stiglitz-Sen-Fitoussi Commission on the Measurement of Economic Performance and Social Progress⁸ was followed by heightened interest in the study of welfare and living conditions. The authors of the report concluded that economic growth, which is reflected mainly in indicators such as gross domestic product (GDP), is not always accompanied by an increase in the population's well-being, and that the current system of social indicators does not give a true picture of life in a society.

24. The report's publication has spurred international statistical organizations to step up efforts to update international statistical practice with new approaches and methods for assessing people's well-being and living conditions. It has also helped to improve the system of indicators for evaluating quality of life.

25. To study living conditions, in addition to the official statistical indicators, a series of social indicators, are being developed that characterize these conditions from the standpoint of individuals' appreciation and satisfaction. This approach represents a relatively new area of research and has in recent years become more widespread both in European countries and in some CIS countries whose statistical tools include population surveys based on subjective evaluations of living conditions. In addition, most CIS countries conduct separate thematic and modular household surveys focusing on various aspects of living conditions.

Conclusions

26. In the survey conducted by CIS-STAT, all CIS national statistical services expressed the view that *general population censuses remain a unique source of information on the population, for which there is no alternative in the CIS countries.*

27. Thus, the question "Full census or sample survey?" can be answered as follows: "There is still no replacement for the traditional population census, which plays an important role and has its place in the statistical systems of the CIS countries, and is capable of providing basic information on population size and structure. At the same time, given general trends, the thematic scope and frequency of sample surveys will grow providing varied and in-depth information on all aspects of human life."

28. The approach to conducting general censuses will change. Both the topics surveyed and the technology used to collect and process information will evolve. Enhanced census-taking models will be developed in line with changing attitudes, the goals being to simplify information collection while ensuring that coverage is as complete as possible (for example, by expanding and combining methods of data collection) and to reduce costs.

29. The second half of the twentieth century was characterized by a major expansion of the topics covered in censuses, as well as the use of sampling (and, accordingly, use of two questionnaires – a short and a long version). In the 2010 round, some countries for various reasons did not conduct sample surveys, reducing the number of questions and using a single form (for example, 6 questions in the United States, 25 questions in the Russian Federation).

30. Nevertheless, sample surveys are becoming more prevalent. The current American Community Survey format has been complemented with questions from the long version of the population census questionnaire. In 2011 the Russian Federation began implementing a

⁸ Stiglitz-Sen-Fitoussi Commission on the Measurement of Economic Performance and Social Progress, Report, 2009.

system for statistical observation of socio-demographic issues. The system focuses on two main areas: people's living conditions and lifestyle, and integration into the labour market (annex 3).

31. International practice indicates that population registers are replacing traditional censuses, and a growing number of European countries are moving in this direction. But the establishment of a register is labour-intensive and expensive, requiring an appropriate legislative framework and a range of organizational and technological measures.

Annex 1

Censuses in the Commonwealth of Independent States

	<i>2000 round</i>		<i>2010 round</i>	
	<i>Year conducted</i>	<i>Population (thousands)</i>	<i>Year conducted</i>	<i>Population (thousands)</i>
Armenia	2001	3 213.0	2011	3 285.8 ¹
Azerbaijan	1999	7 953.4	2009	8 922.4
Belarus	1999	10 045.2	2009	9 503.8
Kazakhstan	1999	14 981.3	2009	16 009.6
Kyrgyzstan	1999	4 822.9	2009	5 362.8
Republic of Moldova	2004	3 383.3	2014	
Russian Federation	2002	145 166.7	2010	142 856.5
Tajikistan	2000	6 127.5	2010	7 565.0
Turkmenistan	1995	4 437.6	2012	
Ukraine	2001	48 240.9	2012	
Uzbekistan	-		?	

¹ Preliminary results.

Annex 2

List of thematic and modular household surveys conducted in CIS countries in 2000–2012

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|------------|---|
| Armenia | <ol style="list-style-type: none">1. Health-care module, 2006 (one month)2. Module EQ 5D, 2001, 2004 (year-long) [questionnaire designed to assess the overall quality of life associated with health]3. Survey of time use, 2004 (pilot), 20084. Demographic and health survey, 2000, 2005, 20105. Single survey of households to evaluate the effectiveness of the health-care sector, 20076. Assessment of the provision of iodine in food, 20067. Assessment of immunization coverage of children aged 18–41 months, 20068. Survey of demand for centralized water supply and sanitation services, 20069. Survey of households to gauge public awareness of national-level social welfare, health and education reforms, 200510. Survey of domestic violence against women, 2008 |
| Azerbaijan | <ol style="list-style-type: none">1. Time use2. Conditions for engaging persons with disabilities in socially useful work3. Use of information and communication technologies by households4. Family expenditures on education and health-care services5. Impact of the environment on health6. Quality of services and availability of medicines and equipment in health-care facilities7. Violence against persons8. School attendance9. Household fuel and energy consumption10. Status of water supply11. Living standards of internally displaced persons12. Movements, balances and losses of food commodities in households13. Industrial production by households |

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14. Population demographics and health
15. Child health
16. Public participation in continuing education
- Belarus
1. Time use
 2. Use of education and health-care services, December 2002
 3. Survey of women aged 15–49 years on family planning and HIV/AIDS, July 2000
 4. Multipurpose selective survey of living conditions of children and women aged 15–49 years (MICS-3), 2005
 5. Modular household sample survey of living conditions, 2011
 6. Household sample survey to study employment-related problems (November 2011 – trial sample survey; starting in 2012 – quarterly, on a regular basis)
 7. Sample survey of personal plots of individuals residing permanently in rural areas (monthly, since 1 July 2011)
- Kazakhstan
- Modular surveys*
1. Time use (non-recurring)
 2. Causes and conditions of poverty. Well-being (non-recurring)
 3. Access to health-care services (non-recurring)
 4. Education for all (non-recurring)
 5. Social inclusion (non-recurring)
 6. Quality of life (non-recurring, in the plan for 2012)
 7. Young people in the labour market (non-recurring, in the plan for 2012)
- Separate thematic surveys*
8. Consumer survey (recurring)
 9. Attitudes towards domestic violence
 10. Multicluster survey of women and children
 11. Household spending on travel in Kazakhstan
 12. Household use of information and communication technologies
 13. Socio-statistical survey on crime levels and recording of its results (non-recurring, in the plan for 2012)
- Kyrgyzstan
1. Inflation expectations (since February 2010)
 2. Time budget (every five years)

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- 3. Financing and use of health-care services, 4 rounds: 2001, 2004, 2007, 2010
 - 4. Multiple indicator cluster survey (MICS)
 - 5. Survey of households offering individual homestays to tourists in tourism areas of Issyk-Kul district (in two phases: June, August 2012)
- Republic of Moldova
- 1. Social exclusion (non-recurring)
 - 2. Access to health-care services (once every three years)
 - 3. Access to education (non-recurring)
 - 4. Domestic violence against women, 2010
 - 5. Health of the population, 2005
 - 6. Ageing of the population, 2011
- Russian Federation
- 1. Employment issues survey (since 1999; quarterly through August 2009, thereafter monthly)
 - 2. Household budget survey
 - 3. Consumer expectations survey (recurring)
 - 4. Time use survey (pilot), 2008
 - 5. Survey of housing conditions and the quality and availability of social services (pilot)
 - 6. Influence of behavioural factors on health, 2008
 - 7. Family and fertility, 2009
 - 8. System of surveys on sociodemographic issues in the Russian Federation (annex 3)
- Tajikistan
- 1. Living standards survey (once every two years)
 - 2. Pilot survey on municipal waste in Dushanbe, 2009
 - 3. Pilot survey of activities of privately owned farm households, 2009
 - 4. Infant, child and maternal mortality rates, 2010
 - 5. Small households in urban areas, 2010
 - 6. Impact of migration and remittances on households' well-being and poverty
 - 7. Personal plots in rural areas, 2010
- Ukraine
- 1. Non-recurring modular surveys on: arrears in payment for housing and communal services; arrears in disbursement of salaries, scholarships, assistance, compensation, etc. (conducted until 2004)

2. Non-recurring survey on health care, 2009
 3. Household health module (recurring, yearly)
 4. Availability of durable goods module (recurring, once every two years)
 5. Module on household access to certain products and services (recurring, once every two years)
 6. Module on self-evaluation of household income (recurring, yearly)
 7. Module on household access to the Internet (recurring, yearly)
- Uzbekistan
1. Household health module
 2. Consumer expectations survey
 3. Time use
 4. Multiple indicator cluster survey

Annex 3

System of surveys on sociodemographic issues in the Russian Federation

		<i>Frequency and number of survey respondents</i>
I. Living conditions and lifestyle		
1. Living conditions		2011 – 10,000 households; starting in 2014, once every 2 years – 60,000 households
2. Reproductive planning		2012 – 10,000 households; starting in 2017, once every 5 years – 15,000 households
3. Daily time use		2014 – 10,000 households; starting in 2019, once every 5 years – 45,000 households
4. Behavioural factors affecting health		Starting in 2013, once every 5 years – 15,000 households
5. Diet		Starting in 2013, once every 5 years – 45,000 households
6. Income and participation in social programmes		2012 – 10,000 households; starting in 2014, annually – 45,000 households; starting in 2017, once every 5 years – 160,000 households
7. Quality and availability of services in the areas of education, health and social services and employment promotion		2013 – 10,000 households; starting in 2015, once every 2 years – 48,000 households
II. Labour market integration		
1. Use of migrant labour		Starting in 2014, once every 5 years – 100,000 households
2. Participation in continuing education		Starting in 2015, once every 5 years – 100,000 households
3. Employment of graduates of vocational training establishments		Starting in 2016, once every 5 years – 100,000 households