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**2010 round of censuses – innovations and lessons learned****Population and Housing Census: A review of member countries of the Commonwealth of Independent States<sup>1</sup>****Note by the Interstate Statistical Committee of the Commonwealth of Independent States***Summary*

This paper assesses the legislative, methodological and organizational principles of conducting censuses in the countries of Commonwealth of Independent States. Although all countries of Commonwealth conducted censuses of the 2010 round using traditional method of interviewing and handling questionnaires in paper form, many changes were implemented and some countries started using administrative data sources. The paper describes how technological innovations provoke changes in the way population censuses are carried out and organized in the countries. It also elaborates on the lessons learned during the latest Census round.

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<sup>1</sup> Review of population and housing census is based on responses from nine of the eleven CIS countries in the questionnaire survey of national statistical services.

1. Nationwide population censuses play a key role in the official statistical system of member countries of the Commonwealth of Independent States (CIS). First of all, the significance of the population censuses for the countries of the CIS is determined by the adjustment of population number and its distribution over the territory of a country. For certain indicators, the Census is the main source of information on demographic, ethno-linguistic and socio-economic characteristics of population.
2. Population census results permit the adjustment of many significant indicators of socio-economic development and enable more precise forecasting. Nationwide censuses describe the general population and are the basis for the conduct of population sample surveys on a wide range of themes.
3. The results of national population censuses combined with current statistics allow estimation of the volumes and directions both of general flows of migration in the CIS countries and temporary flows of labor migrants, which is important for defining labor market development perspectives, taking into account the multidirectional trends of demographic processes in the member countries of the CIS.
4. During the survey, all national statistical services of the CIS countries expressed the view that nationwide population censuses retain their unique status, because they have no alternative so far and are the most comprehensive source of information about the population of the CIS countries.
5. Usually, censuses are taken at ten-year intervals (Table 1). As of the beginning of 2012, the population censuses of the 2010 round were conducted in 7 CIS countries. More than 70% of the population of the countries was covered by censuses<sup>2</sup>.

Table 1

**Population censuses in the CIS**

	<i>Round 2000</i>		<i>Round 2010</i>	
	<i>Year</i>	<i>Population, thous. persons</i>	<i>Year</i>	<i>Population, thous. persons</i>
Azerbaijan	1999	7953,4	2009	8922,4
Armenia	2001	3213,0	2011	3285,8 *
Belarus	1999	10045,2	2009	9503,8
Kazakhstan	1999	14981,3	2009	16009,6
Kyrgyzstan	1999	4822,9	2009	5362,8
Moldova	2004	3383,3	2014	
Russian Federation	2002	145166,7	2010	142856,5
Tajikistan	2000	6127,5	2010	7565,0
Turkmenistan	1995	4437,6	2012	
Ukraine	2001	48240,9	2013	
Uzbekistan	-		?	

\* Preliminary results

6. The forming of new political, social and socio-economic conditions in the CIS countries in 1990s made the legislative consolidation of census provisions necessary.
7. At present, all CIS countries have special laws on population censuses or laws on statistics including legal rules relating to the conduct of population censuses.
8. The laws regulate:
  - (a) Census frequency;

<sup>2</sup> Azerbaijan, Belarus, Kazakhstan and Kyrgyzstan conducted two rounds of censuses at ten-year intervals. These intervals slightly vary in the rest of the Commonwealth countries.

- (b) List of collected information;
- (c) The obligation of the population to provide information for the census (mandatory participation of the population in the census is envisaged in all the countries except in Azerbaijan and Russian Federation);
- (d) Interaction of the agency responsible for the census with other state and regional services participating in the census preparation;
- (e) Data confidentiality;
- (f) Census funding.

9. Furthermore, governments take specific decisions on census issues. In addition, for operational management and problem solving, special commissions are established at the State level.

10. A Coordinating Council was established at CIS-STAT for the 2010 round of population censuses for the purposes of maintaining methodological unity, required for the analysis of the situation on the CIS countries, especially in terms of migration.

11. The methodological and organizational principles of conducting censuses in the CIS countries are reasonably similar due to the long common history and the persistence of common approaches in organization of demographic statistics formed in the Soviet Union.

12. During the census preparation, the CIS member countries were guided by recommendations of international organizations regarding population and housing censuses, combined with the goal to maintain continuity with the previous censuses and take into account national traditions.

13. All CIS countries conducted the 2010 round of censuses using the traditional method of interviewing the population. Paper forms were used to collect the census data. In some cases, administrative data sources were used (Belarus and Russian Federation<sup>3</sup>).

14. As part of conducting the census, the majority of the countries collected information on housing or living conditions of the population (Table 2).

Table 2

**Population and housing census**

	<i>2000 round</i>		<i>2010 round</i>	
	<i>Population census</i>	<i>Population and housing census</i>	<i>Population census</i>	<i>Population and housing census</i>
Azerbaijan		+		+
Armenia	+		+	
Belarus		+		+
Kazakhstan		+		+
Kyrgyzstan	+		+	
Moldova	+			+
Russian Federation <sup>4</sup>	+		+	
Tajikistan	+			+
Ukraine	+		+	

<sup>3</sup> In the Russian Federation, in accordance with the law "On All-Russia Population Census", information about sex and age of the respondents who refused to participate in the census or were absent in the places of residence was taken from administrative sources.

<sup>4</sup> Census program includes question on housing conditions of population and basic characteristics of dwellings.

15. In the 2010 round of censuses, all countries increased the duration of the population survey to 10-14 days. During the 2000 round of censuses, similarly to the tradition of the last census carried out during the Soviet period, most of the countries, except for Armenia and Ukraine, conducted censuses over a period of 8 days. Prolongation of the census period facilitates the work of the census personnel to a certain extent, when they need to visit people repeatedly. In addition, increasing the burden on the census takers provides an opportunity to reduce the number of temporary workers involved.

16. During the last censuses of the Soviet period, two population categories were enumerated: present and resident. In preparation for the 2000 round censuses, Azerbaijan, Belarus, Moldova and Russian Federation switched over to one population category, enumerated in the census, namely resident population. This approach was maintained in the current census round. Armenia, Kazakhstan, Kyrgyzstan, Tajikistan and Ukraine continue to apply two population categories (Table 3).

Table 3

**Population categories, accounted for census**

	<i>2000 round</i>		<i>2010 round</i>	
	<i>Resident population</i>	<i>Present population</i>	<i>Resident population</i>	<i>Present population</i>
Azerbaijan	+		+	
Armenia	+	+	+	+
Belarus	+		+	
Kazakhstan	+	+	+	+
Kyrgyzstan	+	+	+	+
Moldova	+		+	
Russian Federation	+		+	
Tajikistan	+	+	+	+
Ukraine	+	+	+	+

17. In the 2010 round of censuses, all countries enumerate population applying the same program, without using a sample method<sup>5</sup>.

18. The preparation of cartography material and control measures after the census is an important area of work which aims to ensure completeness and quality of results. For the CIS countries conducting census using the traditional method, the quality of cartography support largely determines the outcome. The national statistical services of CIS countries, that don't have special cartography units in their infrastructure, work closely with those agencies that possess the necessary maps on the desired scale. Traditional maps of cities and rural areas are used, verified and updated at a preliminary stage. In preparation for the census, Ukraine intends to use geographical information systems (GIS).

19. The following methods are used to control the quality of census materials:

- (a) Selective control visits during the census (Azerbaijan, Armenia, Kazakhstan, Kyrgyzstan, Russian Federation and Tajikistan);
- (b) Post-enumeration independent survey (Belarus);
- (c) Comparison of results with other data sources (all countries);
- (d) Methods of demographic analysis (all countries).

<sup>5</sup> In the previous census round in the Russian Federation, 75% of population was enumerated using the short form of questionnaire (Form K, 11 questions) and 25% of population was enumerated on the long questionnaire form (Form L, 26 questions).

20. Technology innovations provoke changes in the organization of population censuses.

21. Specially developed software was used to manage the census activities in Belarus and Russian Federation, thus providing automatic control and monitoring of:

- (a) Census zoning;
- (b) Population inquiry;
- (c) Personnel recruitment and training;
- (d) Census instruments supplies, pans, bags, computer facilities;
- (e) Census processing and other works.

22. Census processing technology is being improved. Gradually, countries are moving from manual (keyboard) data entry to scanning (optical recognition) of the information recorded in the census questionnaire (Table 4). In the 2000 round of population censuses, most of the states used manual data entry, while Kazakhstan, Russian Federation and Ukraine used scanners. In the 2010 round, the majority of countries used scanners.

Table 4

**Data entry**

	<i>2000 round</i>		<i>2010 round</i>	
	<i>Manual entry</i>	<i>Scanning</i>	<i>Manual entry</i>	<i>Scanning</i>
Azerbaijan	+		+	
Armenia	+		+	
Belarus	+			+
Kazakhstan		+		+
Kyrgyzstan	+		+	
Moldova	+			
Russian Federation		+		+
Tajikistan	+			+
Ukraine		+		+

23. One of the most complex procedures determining the quality of the output data is the coding of variables recorded in the questionnaire (for example, citizenship, nationality, language, economic activity, occupation).

24. In the previous censuses round, all countries (except Azerbaijan) used manual coding of responses in the census questionnaires (Table 5). In the 2010 round, Armenia and Kyrgyzstan used manual coding. Azerbaijan, Belarus and the Russian Federation fully applied computer coding; Kazakhstan, Tajikistan and Ukraine (planning) applied a combined method.

Table 5  
Data coding

	2000 round			2010 round		
	Manual coding	Computer coding	Combined	Manual coding	Computer coding	Combined
Azerbaijan		+			+	
Armenia	+			+		
Belarus	+				+	
Kazakhstan	+					+
Kyrgyzstan	+			+		
Moldova	+					
Russian Federation	+				+	
Tajikistan	+					+
Ukraine	+					+

25. Countries are gradually moving to computer assisted data editing (Azerbaijan, Armenia, Russian Federation), or combined manual and computer editing (Belarus, Kazakhstan, Tajikistan, Ukraine) (Table 6).

Table 6  
Data editing

	2000 round			2010 round		
	Manual editing	Computer editing	Combined	Manual editing	Computer editing	Combined
Azerbaijan		+			+	
Armenia		+			+	
Belarus			+		+	+
Kazakhstan			+			+
Kyrgyzstan	+			+		
Moldova		+				
Russian Federation			+		+	
Tajikistan	+					+
Ukraine	+					+

26. In the preparation for the next census round, all CIS countries intend to improve methodology and technology of data collection and processing (Internet, paperless technology, greater use of GIS technology).

27. The 2000 round of censuses was the first for CIS countries, after the collapse of the Soviet Union, where national statistical services carried out their own censuses. At that time, there was a lack of qualified specialists with relevant experience.

28. In the inter-census period, international organizations conducted many training seminars, discussions and expert group meetings where representatives of the CIS countries were able to gain necessary knowledge and familiarize themselves with the practice of other countries through participation in these events. The UNECE in particular organized three training workshops on censuses for CIS countries in 2006-2007, in addition to the annual expert meetings on censuses that are regularly attended by representatives of the CIS countries. The help of foreign experts was both important and significant; they were invited by certain national statistical services for consultations and development of census tools, census processing program, summary tables and census results analysis. Thus, the CIS countries were sufficiently informed to be able to conduct the 2010 round of the censuses.

29. A number of major census works were outsourced by national statistical services:

- (a) Software development (Belarus, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan, Ukraine);
- (b) Census materials processing (Tajikistan);
- (c) Public awareness campaign (Kazakhstan, Russian Federation, Ukraine);
- (d) Copying of questionnaires and tools (Belarus, Kazakhstan, Kyrgyzstan, Russian Federation, Tajikistan);
- (e) Staff hiring and training (Tajikistan);
- (f) Training program development (the Russian Federation);
- (g) Preparation of publications (Tajikistan).

30. Currently, information campaigns play a key role in explaining the goals and objectives of census taking for the public before and during the census, and its results afterwards. CIS member states use a variety of methods and forms of outreach:

- (a) Scientific conferences and round tables;
- (b) Meetings with journalists;
- (c) Special lessons and lectures in educational institutions;
- (d) TV and radio broadcasting about census;
- (e) Competitions, festivals and quizzes;
- (f) Special web-sites on census theme;
- (g) Placing advertisements in mass media;
- (h) Publishing information about the census on stands, billboards, street banners and posters.

31. Preliminary work informs the public about the dates and methods of census, questions asked and the significance of the census for societal development.

32. The forms of distribution of census results become more diverse and address all categories of users of statistical information. At the same time, more attention is paid to promoting the census results. For that purpose, results are printed in brochures, reported in mass media and posted on official websites of national statistical services.

33. Belarus, Kyrgyzstan, Russian Federation and Ukraine are working on the creation of and providing access to a depersonalized database. This line of work with census data substantially improves the user capabilities and produces results more aligned with the demand from experts.

34. Despite some financial difficulties, CIS member countries have conducted population censuses at the expense of national budgets. Some countries also received assistance from donor countries or international organizations (Armenia, Belarus, Kyrgyzstan and Tajikistan).

35. Estimating the expenditure on the census (when calculated at the currency exchange rate), the weighted average cost of enumerating one person in the 2000 round of censuses amounted to 1.1 US dollars. The cost of enumerating one person in the 2010 round (for those CIS countries that conducted the census) was 3.4 US dollars on average.

36. However, using purchasing power parity of the currencies<sup>6</sup>, it may be noted that the average weighted cost per one enumerated person in the CIS countries in the 2000 round was 4.5 US dollars and went up to 5.3 US dollars in the 2010 round.

37. Analysis by the CIS countries shows that the main, traditionally applied, methodological and organizational principles of census taking remained unchanged, thus ensuring the comparability of population census results, especially of the last two rounds. This is important when analyzing the structural changes in the societies after gaining independence.

38. However, countries indicate serious difficulties in the following domains when preparing and conducting censuses:

(a) Population attitude and complexity of population inquiry (Azerbaijan, Belarus, Kazakhstan, Russian Federation and Tajikistan);

(b) Staff hiring and training (Azerbaijan, Belarus, Kazakhstan, Russian Federation and Tajikistan);

(c) Financing (Armenia, Tajikistan and Ukraine);

(d) Processing of census materials and obtaining tables (Kazakhstan, Kyrgyzstan and Tajikistan).

39. As can be seen, the greatest difficulties are the negative attitude of population and challenges in hiring temporary staff. The difficulty of recruitment results, among other things, from issues related to the complexity of work (necessity of repeated visits to respondents, negative attitudes towards the census staff, complicated knowledge requirements) to level of wages<sup>7</sup>.

40. At the same time, national statistical services are constantly searching for more optimal models of taking censuses to make them better suited to the respondents, simplify the inquiry procedure, while improving completeness of population records (for example, by extending and combining the methods of data collection) as well as to reduce the cost of conducting the census.

41. The technology of census data processing is being improved: a larger number of countries used scanners to enter data; coding and data editing, zoning and census control work are being automated.

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<sup>6</sup> Calculations are based on International Monetary Fund (IMF) data.

<sup>7</sup> With a comparatively low cost of census, the proportion of temporary staff wages by countries in the total budget is 50-60 percent.