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**Information topic**

### **Main results of the UNECE-UNSD survey on the 2010-2011 round of censuses in the UNECE region**

**Note by the UNECE Secretariat**

#### *Summary*

This report provides a general overview of the results of a worldwide survey conducted by the United Nations Statistics Division (UNSD) in June 2009, to collect information on the national data collections for the 2010 World Programme on Population and Housing Censuses. In the UNECE region the survey was conducted in cooperation with the UNECE and Eurostat. The present report was prepared by the UNECE for the Eurostat Working Group on Demography and Censuses (Luxembourg, 19-20 April 2010).

## **I. INTRODUCTION**

1. This report provides a general overview of the results of a worldwide survey conducted by the United Nations Statistical Division (UNSD) in June 2009, to collect information on the national data collections for the 2010 World Programme on Population and Housing Censuses. In the UNECE region the survey was conducted in cooperation with the UNECE and Eurostat. The report is based on information provided by the 50 UNECE member countries who responded to the survey, including all 27 EU member countries<sup>1</sup>.

2. Some of the results presented in this report are compared to those published in the report of the Practices of UNECE countries in the 2000 round of censuses, which was published by the United Nations in 2008.<sup>2</sup>

## **II. CENSUS METHODOLOGY IN 2010-2011 ROUND<sup>3</sup>**

3. Information on the planned census type (based on the main source of data used for the population count) and census date for the 2010-2011 round of censuses is presented in Table 1a for EU countries and in Table 1b for other UNECE member countries.

4. The data for the 27 EU countries (table 1a) show that only 11 countries (41 %) plan to conduct a traditional census in 2011. There are also 11 countries that plan to adopt a combined approach, where data from registers will be used in combination with a full field enumeration, or with the results of an *ad hoc* sample survey, or of existing surveys (i.e. LFS or EU-SILC). Four countries (the Nordic countries plus Austria) will conduct a register-based census, while France has been conducting a rolling census since 2004.

5. As far as UNECE countries that are not member of the EU are concerned (table 2a), the traditional census is still the most common approach, adopted by three quarters of the countries (17 out of 23). Four countries plan to adopt a combined approach (Iceland, Israel, Switzerland and Turkey), and Norway will conduct a register-based census. The United States is conducting in 2010 a traditional enumeration that will be integrated with yearly updates of the individual characteristics, based on the results of a large annual sample survey (the American Community Survey).

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<sup>1</sup> In a few cases, information provided by countries with the June 2009 questionnaire has been replaced in this document with updated information available to the UNECE

<sup>2</sup> “Measuring Population and Housing - Practices of UNECE countries in the 2000 round of censuses” (2008); United Nations publication Sales No. E.07.11.E.15; Available on the internet at: [http://www.unece.org/stats/publications/Publication\\_on\\_2000\\_censuses.pdf](http://www.unece.org/stats/publications/Publication_on_2000_censuses.pdf)

<sup>3</sup> A general description of the census methodological approaches presented in this section is available in Appendix II to the “Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing” (2006); United Nations publication ECE/CES/STAT/NONE/2006/4. Available on the internet at: [http://www.unece.org/stats/publications/CES\\_2010\\_Census\\_Recommendations\\_English.pdf](http://www.unece.org/stats/publications/CES_2010_Census_Recommendations_English.pdf)

**Table 1a. Census type and date for 2010-2011 round – EU countries**

Country	Census Type	Census date
Austria	Register-based	31 October 2011
Belgium	Combined (registers + survey)	1 January 2011
Bulgaria	Traditional	10 March 2011
Cyprus	Traditional	1 October 2011
Czech Republic	Combined (registers + enumeration)	26 March 2011
Denmark	Register-based	1 January 2011
Estonia	Combined (registers + enumeration)	18 September 2011 <sup>4</sup>
Finland	Register-based	31 December 2010
France	Rolling census	1 January 2011
Germany	Combined (registers+enum.+survey)	9 May 2011
Greece	Traditional	16 March 2011
Hungary	Traditional	1 October 2011
Ireland	Traditional	April 2011
Italy	Combined (registers + enumeration)	23 October 2011
Latvia	Combined (registers + enumeration)	1 March 2011
Lithuania	Combined (registers + enumeration)	1 March 2011
Luxembourg	Traditional	1 February 2011
Malta	Traditional	November 2011
Netherlands	Combined (registers + survey data)	1 January 2011
Poland	Combined (registers+enum.+survey)	31 March 2011
Portugal	Traditional	March 2011
Romania	Traditional	March 2011
Slovakia	Traditional	21 May 2011
Slovenia	Combined (registers + survey data)	1 January 2011
Spain	Combined (registers + enumeration)	1 November 2011
Sweden	Register-based	31 December 2011
United Kingdom	Traditional	27 March 2011

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<sup>4</sup> Date to be confirmed.

6. Considering all 50 UNECE countries for which data are available, the traditional census is still the prevailing method, adopted in more than half the countries (28). Register data will be used in 20 countries, either in combination with other sources (in 15 countries) or as the only data source (in 5 countries).

**Table 1b. Census type and date for 2010-2011 round – UNECE countries not EU members**

Country	Census Type	Census date
Albania	Traditional	01 April 2011
Armenia	Traditional	12 October 2011
Azerbaijan	Traditional	13 April 2009
Belarus	Traditional	14 October 2009
Bosnia and Herzegovina	Traditional	31 March 2011
Canada	Traditional	10 May 2011
Croatia	Traditional	31 March 2011
Georgia	Traditional	2012
Iceland	Combined (registers + survey data)	n.a. <sup>5</sup>
Israel	Combined (registers + survey)	27 December 2008
Kazakhstan	Traditional	25 February 2009
Kyrgyzstan	Traditional	24 March 2009
Montenegro	Traditional	31 March 2011
Norway	Register-based	19 November 2011
Republic of Moldova	Traditional	1 April 2012 <sup>5</sup>
Russian Federation	Traditional	14 October 2010
Serbia	Traditional	31 March 2011
Switzerland	Combined (registers + survey)	31 December 2010
Tajikistan	Traditional	1 October 2010
The Former Yugoslav Republic of Macedonia	Traditional	31 March 2011
Turkey	Combined (registers + survey)	2011 <sup>6</sup>
Ukraine	Traditional	2011
United States	Traditional enumeration with yearly updates	1 April 2010

<sup>5</sup> Iceland: date not decided yet.

<sup>6</sup> In line with the EU requirements, Turkey postponed its census from 2010 to 2011.

### III. CENSUS METHODOLOGY: COMPARISON BETWEEN 2000 AND 2010 ROUND

7. In the last decades, a general trend has been observed in the UNECE region on the increasing adoption by countries of non-traditional census methods. This trend can be evaluated by comparing the census type adopted by countries in the 2000 and the 2010 census rounds.

8. The move away from the traditional census is particularly evident among EU countries (see table 2a). In the 2000 round the traditional census was still the prevailing approach, adopted by 18 of the 27 countries currently members of the EU. Seven of these 18 countries are moving away from the traditional census for the next census: five are adopting a combined approach (Czech. Republic, Estonia, Italy, Lithuania, and Poland), Austria will conduct a register-based census and France a rolling census.

**Table 2a. Countries by census type in 2000 and 2010 rounds – EU countries**

	Census type in 2010 round					
		Traditional	Combined	Register-based	Other	TOTAL
<b>Census type in 2000 round</b>	<b>Traditional</b>	11 (Bulgaria Cyprus Greece Hungary Ireland Luxembourg Malta Portugal Romania Slovakia United Kingdom)	5 (Czech. Rep. Estonia Italy Lithuania Poland)	1 (Austria)	1 (France)	18
	<b>Combined</b>	0	5 (Belgium Latvia Netherlands Slovenia Spain)	0	0	5
	<b>Register-based</b>	0	0	2 (Denmark Finland)	0	2
	<b>No census</b>	0	1 (Germany)	1 (Sweden)	0	2
	<b>TOTAL</b>	11	11	4	1	27

Legenda:

Same census type in 2000 and 2010 rounds

Different census type in 2000 and 2010 rounds

9. When UNECE countries outside the EU are considered, the traditional census is clearly the prevailing method, and the changes between the 2000 and the 2010 round are limited (see table 2b). In the 2000 census round, 19 countries conducted a traditional census, and only two adopted a non-traditional approach: Norway conducted a register-based census and Switzerland adopted a combined approach.

10. The large majority of these countries (16 out of 19) will still conduct a traditional census in the 2010 round. They include mostly countries of the CIS and South-East Europe. Israel and Turkey will move from the traditional census to a combined approach making use of registers. The United States, as mentioned above, will conduct a traditional enumeration integrated with yearly updates of the individual characteristics.

**Table 2b. Countries by census type in 2000 and 2010 rounds – UNECE countries not member of the EU**

	Census type in 2010 round					
		Traditional	Combined	Register-based	Other	TOTAL
<b>Census type in 2000 round</b>	<b>Traditional</b>	16 (Albania Armenia Azerbaijan Belarus Canada Croatia Georgia Kazakhstan Kyrgyzstan Montenegro Rep. of Moldova Russian Federation Serbia Tajikistan The fYR of Macedonia Ukraine)	2 (Israel Turkey)	0	1 (United States <sup>7</sup> )	19
	<b>Combined</b>	0	1 (Switzerland)	0	0	1
	<b>Register-based</b>	0	0	1 (Norway)	0	1
	<b>No census</b>	1 (Bosnia and Herz.)	1 (Iceland)	0	0	2
	<b>TOTAL</b>	17	4	1	1	23

Legend:

Same census type in 2000 and 2010 rounds

Different census type in 2000 and 2010 rounds

<sup>7</sup> In 2010, traditional enumeration integrated with results from sample survey (American Community Survey)

11. Considering all 50 UNECE countries for which data are available<sup>8</sup>, 10 of them are moving from a traditional census taken in the 2000 round to a different approach in the 2010 round (see table 2c). In most cases (7 out of 10) these countries are moving to a combined approach based on the use of registers and other sources.

12. As a result, the percentage of countries conducting a traditional census decreased substantially in the UNECE region from around 75% in the 2000 round to 56% in the 2010 round. The traditional census still remains the most common approach in the 2010 round in the UNECE region, but if this trend continues, it can be expected that the majority of UNECE countries will adopt a non-traditional approach in the 2020 round.

**Table 2c. Countries by census type in 2000 and 2010 rounds – UNECE countries**

		Census type in 2010 round				
Census type in 2000 round		Traditional	Combined	Register-based	Other	TOTAL
	Traditional	27	7	1	2	37
	Combined	0	6	0	0	6
	Register-based	0	0	3	0	3
	No census	1	2	1	0	4
	TOTAL	28	15	5	2	50

Legend:

Same census type in 2000 and 2010 rounds

Different census type in 2000 and 2010 rounds

<sup>8</sup> Data are not available for the following six UNECE countries: Andorra, Liechtenstein, Monaco, San Marino, Turkmenistan, and Uzbekistan.

#### IV. ENUMERATION METHODS ADOPTED IN THE 2010-2011 ROUND

13. Various methods of enumeration can be used to collect census data. In the case of register-based censuses, the enumeration is obviously based only on data from registers. For all other census types, various enumeration methods can be adopted, and in fact many countries choose combinations of different enumeration methods.

14. Table 3a presents in detail the enumeration methods adopted by EU countries. The two more traditional enumeration methods – face-to-face interview and self-enumeration using paper questionnaires – are adopted by a similar number of countries (respectively 13 and 12), with five countries adopting both methods. Traditionally, interviews are more frequently conducted in Eastern Europe, while self-enumeration is more common in Western and Central Europe.

**Table 3a. Methods of census enumeration adopted for the 2010 census round – EU countries**

Country	Census type	Enumeration methods:			Registers
		Face to face interview	Self –enumeration (questionnaire)	Self-enumeration (Internet-based)	
Austria	<i>Register-based</i>				x
Belgium	<i>Combined</i>				x
Bulgaria	<i>Traditional</i>	x			
Cyprus	<i>Traditional</i>	x (CAPI)			
Czech Republic	<i>Combined</i>	x	x	x	x
Denmark	<i>Register-based</i>				x
Estonia	<i>Combined</i>	x		x	x
Finland	<i>Register-based</i>				x
France	<i>Rolling</i>		x		
Germany	<i>Combined</i>	x	x	x	x
Greece	<i>Traditional</i>	x			
Hungary	<i>Traditional</i>	x	x	x	
Ireland	<i>Traditional</i>		x		
Italy	<i>Combined</i>		x	x	x
Latvia	<i>Combined</i>	x		x	x
Lithuania	<i>Combined</i>	x		x	x
Luxembourg	<i>Traditional</i>		x		
Malta	<i>Traditional</i>	x	x		
Netherlands	<i>Combined</i>				x
Poland	<i>Combined</i>	x		x	x
Portugal	<i>Traditional</i>	x	x	x	
Romania	<i>Traditional</i>	x			
Slovakia	<i>Traditional</i>		x	x	
Slovenia	<i>Combined</i>				x
Spain	<i>Combined</i>		x	x	x
Sweden	<i>Register-based</i>				x
United Kingdom	<i>Traditional</i>		x	x	



15. The internet/on-line census will be offered as an option to the respondents - in combination with face-to-face interview and/or self-enumeration using questionnaires – in 14 countries, mostly located in the EU (12 countries). This is an important change since in the 2000 round only few countries (five in the whole UNECE region) offered the option of the internet census.

16. With regard to UNECE countries outside the EU, face-to-face interview emerges by far as the most common enumeration method. It is used in 20 out of 23 countries, including many countries in the CIS and South-East Europe where this is traditionally the only enumeration method adopted. The other enumeration methods are used only in a few countries.

**Table 3b. Methods of census enumeration adopted for the 2010 census round – UNECE countries not EU members**

Country	Census type	Enumeration methods:			
		Face to face interview	Self –enumeration (questionnaire)	Self-enumeration (Internet-based)	Registers
Albania	<i>Traditional</i>	x			
Armenia	<i>Traditional</i>	x			
Azerbaijan	<i>Traditional</i>	x			
Belarus	<i>Traditional</i>	x			
Bosnia-Herzegovina	<i>Traditional</i>	x			
Canada	<i>Traditional</i>	x	x	x	
Croatia	<i>Traditional</i>	x			
Georgia	<i>Traditional</i>	x			
Iceland	<i>Combined</i>				x
Israel	<i>Combined</i>	x	x		x
Kazakhstan	<i>Traditional</i>	x			
Kyrgyzstan	<i>Traditional</i>	x			
Montenegro	<i>Traditional</i>	x			
Norway	<i>Register-based</i>				x
Republic of Moldova	<i>Traditional</i>	x			
Russian Federation	<i>Traditional</i>	x			
Serbia	<i>Traditional</i>	x			
Switzerland	<i>Combined</i>		x	x	x
Tajikistan	<i>Traditional</i>	x			
The former Yugoslav Republic of Macedonia	<i>Traditional</i>	x			
Turkey	<i>Combined</i>	x			x
Ukraine	<i>Traditional</i>	x	x		
United States of America	<i>Traditional enumeration with yearly updates</i>	x	x		

### **III. CENSUS COSTS**

17. Countries were asked to provide the estimated total cost of the population census in USD millions. Based on this estimate, the per capita census cost was estimated in nominal USD and in purchasing power parity (PPP) USD. The reason for estimating census costs in PPP is that the results are more suitable for international comparisons, as they take into account the different purchasing power in the different countries. The results are presented in table 4, where countries have been ranked according to per capita PPP (lowest first).

18. The results indicate that the costs of the census are lowest (under or around 1 USD PPP) in some of the countries with register-based or combined census. The costs shown in the table, however, are only the direct costs associated with the population census and do not take into account the cost of creating and maintaining registers which are of course also used for other purposes.

19. The per capita census cost in USD PPP varies widely. For traditional censuses the lowest per capita cost is for Kyrgyzstan with a cost around 3 USD PPP/person. At the other end of the scale is the United States whereas the cost is 49 USD PPP/person. Generally, it would be expected that the per capita cost for the 2010 census would be more than for the 2000 census round because of inflation. This is usually the case. A notable exception is the Czech Republic where the per capita cost has declined from 19.3 to 14.8 USD PPP between the two census periods. This can probably be largely explained by a significant strengthening of the Czech Republic currency against the USD over the last decade.

### **IV. CENSUS EVALUATION**

20. Most countries, including all those using field enumeration, plan to conduct some form of census evaluation. The only countries that have indicated that they will not be doing a census evaluation are Austria, Denmark, Netherlands, Slovenia, Turkey and Finland.

21. The most common census evaluation method is the post enumeration survey (PES). A total of 34 UNECE member countries are planning to conduct a PES, including 16 EU countries (Bulgaria, Cyprus, Czech Republic, Estonia, Germany, Greece, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Sweden, and United Kingdom) and 18 countries outside the EU (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Canada, Croatia, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, Russian Federation, Serbia, Switzerland, Tajikistan, TFYR Macedonia, Ukraine, United States of America).

22. As far as the sample size adopted for the PES is concerned, 20 countries have declared a sample size of 1% or less, while 3 countries (Armenia, Greece and the United States of America) have sample sizes between 2% and 2.5%. A further 8 countries have indicated a sample size for their PES of 10% or greater. With the exception of Mexico, all of these countries are members of the CIS. Mexico is only doing a coverage check, whereas the remaining countries with large sample sizes are doing both coverage and content checks. This information highlights two very different approaches to the size of post enumeration surveys.

**Table 4. UNECE countries by census type and expected costs for the 2010 census round**

Country	Census type	Expected census costs 2010 round			2000 round
		Total cost in million USD	Per capita cost in USD	Per capita in ppp USD	Per capita in ppp USD
Denmark	<i>Register-based</i>	0.3	0.05	0.03	<i>na</i>
Netherlands	<i>Combined</i>	2	0.1	0.1	0.2
Finland	<i>Register-based</i>	1.5	0.3	0.2	0.2
Norway	<i>Register-based</i>	2.5	0.5	0.3	2.8
Slovenia	<i>Combined</i>	1.3	0.6	0.7	6.5
Belgium	<i>Combined</i>	14	1.3	1.0	2.7
Switzerland	<i>Combined</i>	12.1	1.6	1.1	11.1
Austria	<i>Register-based</i>	14	1.7	1.3	<i>na</i>
Kyrgyzstan	<i>Traditional</i>	6.7	1.3	2.9	3.3
Republic of Moldova	<i>Traditional</i>	6.5	1.8	3.2	<i>na</i>
Georgia	<i>Traditional</i>	8.5	1.9	3.2	2.7
Belarus	<i>Traditional</i>	16.4	1.7	3.3	1.7
Iceland	<i>Combined</i>	1.7	5.5	3.8	<i>na</i>
Kazakhstan	<i>Traditional</i>	46	3.0	4.0	2.2
France	<i>Rolling census</i>	360	5.8	4.3	<i>na</i>
Ukraine	<i>Traditional</i>	120	2.6	4.9	<i>na</i>
Russian Federation	<i>Traditional</i>	570	4.0	5.4	3.5
Malta	<i>Traditional</i>	2	4.9	5.6	5.4
Latvia	<i>Combined</i>	13.5	5.9	6.8	4.8
Romania	<i>Traditional</i>	99.9	4.6	7.0	4.0
Portugal	<i>Traditional</i>	74	7.0	7.0	7.1
Lithuania	<i>Combined</i>	20	5.9	7.9	6.7
Croatia	<i>Traditional</i>	30	6.8	8.2	8.4
Serbia	<i>Traditional</i>	44	5.9	10.0	6.8
United Kingdom	<i>Traditional</i>	750	12.3	10.1	6.5
Luxembourg	<i>Traditional</i>	7	14.6	10.3	10.6
Greece	<i>Traditional</i>	130.2	11.6	10.7	6.5
Italy	<i>Combined</i>	822	13.8	11.1	6.5
Cyprus	<i>Traditional</i>	9.4	12.0	11.0	4.9
Slovakia	<i>Traditional</i>	43.3	8.0	11.5	8.1
Bosnia and Herzegovina	<i>Traditional</i>	29.4	7.5	12.8	<i>na</i>
Czech Republic	<i>Combined</i>	130	12.6	14.8	19.3
The fYR of Macedonia	<i>Traditional</i>	14.7	7.2	15.4	<i>na</i>
Ireland	<i>Traditional</i>	105.7	24.3	16.9	12.6
Canada	<i>Traditional</i>	575.1	17.4	20.1	11.1
Israel	<i>Combined</i>	130	18.1	20.7	10.8
Estonia	<i>Combined</i>	28.9	21.5	25.6	16.8
United States	<i>Traditional enum. with yearly updates</i>	14734	48.9	48.9	22.7

## **V. CENSUS PROCESSING**

23. Only 18 countries indicated they will be using manual data entry for data capture: They include 9 EU countries: Bulgaria, France, Germany, Hungary, Luxembourg, Malta, Portugal, Romania, and the United Kingdom. Most of the countries using manual data entry are also using other forms of data capture. The only countries relying solely on manual data entry for data capture are Armenia, Kyrgyzstan, Luxembourg, Malta, Montenegro, and Romania.

24. Optical Mark recognition (OMR) and Optical Character Recognition (OCR) are being used for data capture by 19 and 20 countries respectively with many countries using both methods. In addition, nine countries are using Intelligent Character Recognition (ICR) often in conjunction with other forms of character recognition.

25. Only five countries (Czech Republic, Poland, Portugal, Spain and the United States) indicated they will be making use of Personal digital assistants (PDA) as part of data capture. As mentioned previously, 14 countries will be offering online data collection via the internet.

26. A total of 32 countries indicated they impute missing values in existing data records. Twelve of these 32 countries also impute missing data records (i.e. full set of information on a person)

## **VI. DATA DISSEMINATION**

27. Not surprisingly, nearly all countries will continue to have paper publications for their census results. The web is being used for data dissemination by virtually all countries along with paper publications. Belgium and Italy have indicated they will not have paper publications, but both countries will have both static web pages and interactive online databases. France, with its rolling census only provides static web pages for data dissemination.

28. GIS web-based mapping tools are not being used by all countries as a data dissemination tool but they will be offered by 31 countries as a data dissemination format.

29. In terms of individual requests for data from the census, most countries charge a fee. The countries who indicated that they do not charge individual request fees are Armenia, Austria, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Georgia, Luxembourg, Netherlands, Poland, Republic of Moldova, Russian Federation and Slovakia.

## **VII. CONCLUSIONS**

30. The survey provides interesting summary information about what is occurring in the 2010 census round in the UNECE region. Significant changes are occurring in methods of census taking, driven by cost and quality issues as well as by changes in technology.

31. In the 2010 census round, a substantial number of countries in the region (particularly EU countries) will move to non-traditional approaches to censuses, in most cases making use of data from registers integrated with data from other sources.

32. The internet census will be offered in a large number of countries as an alternative method to the traditional filling of paper questionnaires. Technological improvements and decreasing costs will also result in the increasing use of optical data entry systems and in the dissemination of census results via web through dynamic tables and GIS tools.

33. All these innovations have important implications for the organization of censuses and have to be carefully considered in the phase of census planning. Furthermore, adequate time and resources must be allocated for thorough testing and fine-tuning of the technological systems. By doing this, the risk of having problems in the data processing phase that could affect the census operation and potentially influence the quality of census results can be reduced.

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