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Measuring population and housing in Eastern Europe, Caucasus and Central Asia

Review of practices in the 2010 round of censuses

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PREFACE

This publication reviews the practices followed by countries in Eastern Europe, Caucasus and Central Asia (EECCA) during the 2010 round of population and housing censuses. The aim is to compare the different approaches and practices among these countries and, in general terms, with other UNECE countries in Western Europe and North America, and to assess the compliance with the Conference of European Statisticians (CES) Recommendations for the 2010 Censuses of Population and Housing (referred in the publication also as "CES Recommendations" or "CESR"). The review complements the UNECE publication "Measuring Population and Housing - Practices of UNECE countries in the 2010 round of censuses", and provides a useful tool for users of census data and planners of future censuses.

The material presented in the publication is based on the results of online surveys carried out in 2013 and 2015 by UNECE among its member countries to collect information on practices followed in the 2010 census round, and on the provisional plans for the 2020 round.

The publication is divided into three parts: the first part deals with census methodology, technology, and various operational and organisational aspects of census taking, as well as issues such as coverage, quality, costs, benefits, challenges and successes. The second part reviews the different topics investigated in the census, and the general degree of compliance of the practices followed by countries with the CES Recommendations for the 2010 census round. The third part looks at the lessons learned from the 2010 round of censuses and how these might be taken forward in the planning for the next round.

It is hoped that the publication will, together with the earlier UNECE publication, represent a useful tool for evaluating the 2010 round of censuses in the countries of Eastern Europe, Caucasus and Central Asia, and will provide National Statistical Offices in those countries with guidance and assistance in planning and conducting the censuses of the 2020 round.

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1. INTRODUCTION

In the 2010 census round of population and housing censuses, many countries in the UNECE region as a whole followed the trend, first started in the 1970s, by moving from a wholly 'traditional' approach based on a full field enumeration to alternative approaches to collecting census information in an attempt to reduce costs and improve efficiency. However, in those countries in Eastern Europe, Caucasus and Central Asia that are the focus of this publication, it was universally the case that the 'traditional' census approach conducted through a door to door interview with household was adopted.

However, within the traditional methodological framework there were innovations introduced in the 2010 round, particularly in an attempt to improve the efficiency of collecting information in the field, with a significant number of UNECE countries relying on (a) geographic information systems to plan their census geography, (b) internet data collection, and the use of hand held devices and laptop computer to replace (or at least minimise) the use of traditional paper questionnaires, and (c) automatic data capture and coding technologies to minimise data processing errors.

Part 1 of this publication deals with general aspects of census management. These range from the methodological approach to data collection, to some of the key operational aspects related to the census such as: the legislative framework; communications and publicity; security, confidentiality and disclosure control; and dissemination, documentation, metadata and archiving. Much attention is devoted to the increasing use of technology in all aspects of the census operation, and focus is also given to the inter-related issues of cost, benefits and quality. Finally, some of the main challenges faced in undertaking modern censuses are summarised, but balanced with the main successes achieved in the 2010 round.

A summary of the main findings is given below.

Methodology

The population census plays a central role in the official national statistical system of each country, by providing a reliable estimate of the population, as well as detailed description of the population by sex, age and other demographic, social and economic characteristics, at the national, regional and, most importantly, the smaller territorial levels. When a housing census is conducted together with the population census, information is also provided on the housing arrangements and on their characteristics and amenities.

In the countries under review censuses are usually taken once a decade. As noted above all EECCA countries adopted a traditional approach, but Chapter 2 notes the increasing use, in countries in the rest of the UNECE region, of information taken from registers and administrative data (avoiding the need to collect new data each time) resulting in the potential for census-type statistics to be produced more frequently should there be a need to do so.

2. OVERVIEW OF THE METHODOLOGICAL APPROACHES ADOPTED IN THE 2010 ROUND

This chapter[1] presents a review of the basic methodology adopted for carrying out the census in the 2010 round in countries in Eastern Europe, Caucasus and Central Asia (EECCA) and compares this with the different methodologies adopted by countries in the rest of UNECE region in the 2010 round (covering the period 2005-2014). In making comparisons with the previous (2000) round, information from the 2008 UNECE publication *Measuring Population and housing – Practices of UNECE countries in the 2000 round of censuses* has been used[2]. The countries that are covered in the EECCA region include:

- Armenia
- Azerbaijan
- Belarus
- Georgia
- Kazakhstan
- Kyrgyzstan
- Republic of Moldova
- Russian Federation
- Tajikistan
- Turkmenistan
- Ukraine
- Uzbekistan

Where and when censuses were taken

For over six decades, the United Nations has supported national census-taking worldwide through the decennial World Programme on Population and Housing Censuses. In March 2005, the United Nations Statistical Commission at its thirty-sixth session initiated the 2010 World Programme on Population and Housing Censuses. The United Nations Economic and Social Council approved the programme through the adoption of its resolution 2005/13, which stressed the need for countries to conduct censuses at least once during the period 2005 to 2014.

Table 2.1 shows when censuses in the 2010 round were taken within the EECCA countries. Half of them carried out their census in the two years 2009-2010 while the Republic of Moldova and Georgia delayed their census until 2014. In Ukraine no census was carried out at all as part of the 2010 round (a census was planned in 2014, but was postponed), nor was a full census taken in Uzbekistan where, instead, population figures are estimated on the basis of a ten per cent sample survey carried out in 2011. Indeed, no census has been taken in Uzbekistan since the 1989 census of the former Soviet Union. In comparison, among the 44 countries throughout the rest of the UNECE region, three quarters (34) carried out their census in 2011. This was greatly influenced by the fact that EU legislation prescribed 2011 as the reference year for the census information that is required to be provided to Eurostat by all EU member states.

[1] The material in this chapter has been taken largely from a paper on census methodology prepared for the UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html). The paper was prepared by the UNECE Task Force on Methodology (lead by Eric Schulte Nordholt, Statistics Netherlands) and was based on responses to the UNECE survey on 2010 census practices carried out earlier in that year.

[2] Measuring Population and Housing – Practices of UNECE countries in the 2000 round of censuses, United Nations publication Sales No. E.07.II.E.15, available online at: http://www.unece.org/stats/census.html

Table 2.1
Date of censuses in the EECCA region, 2010 round

Census year	Reference date	Country
2009	25 February 2009	Kazakhstan
	24 March 2009	Kyrgyzstan
	13 April 2009	Azerbaijan
	14 October 2009	Belarus
2010	1 October 2010	Tajikistan
	14 October 2010	Russian Federation
2011	12 October 2011	Armenia
2012	15 December 2012	Turkmenistan
2014	14 May 2014	Republic of Moldova
	5 November 2014	Georgia
No census taken		Ukraine
		Uzbekistan

Despite the increasing move, internationally, towards alternative methods of carrying out censuses, in the 2010 round the traditional approach was still the most commonly adopted throughout the UNECE region as a whole. All of the ten EECCA countries that carried out a census in the 2010 round did so, as did more than half of the rest of the UNECE countries (24 out of 44). For the purposes of simplifying the analyses of the survey responses, the term 'traditional' here encompasses the concept where the census collects information on individual persons and households (and housing units) provided directly by those individual respondents through a full field enumeration, whether by means of a door-step interview of household members, or through a self-completion paper questionnaire, or by providing the information by telephone or online via the internet (that is, encompassing all means of delivery of the census forms and the collection of the returns). The basic census characteristics of all individuals and housing units are normally collected at a specific point in time, but more detailed characteristics can be collected on a sample basis through the use of long and short forms.

Other census methodologies were increasingly adopted in other countries within the UNECE region. Some nine countries used only a range of administrative registers from which their census data were derived – that is they did not collect census information from household questionnaires – and a further 10 countries used a combination of some information derived from registers together with other data collected from some sort of a direct enumeration, carried out either on a 100 per cent or sample basis.

In the EECCA region, however, there were few if any radical variations from the more 'traditional' approach. All ten countries that carried out a census in the 2010 round used only information collected on paper questionnaires completed by the enumerator through a face-to-face door-step interview, and none of EECCA countries reported the use of information from administrative registers (such as address lists) to support the field operation. Elsewhere in the UNECE region, the use of interviewers was proportionately less common; only a half (12 out of the 24 traditional census countries) did so to any extent, and in 10 of the countries the questionnaires were, in the main, self-completed by the respondent.

However, a move away from the 'traditional' approach (the legacy, no doubt, of a long-standing tradition of adhering to the form of census adopted by the former Soviet Union) to the use of alternative data sources seem possible in planning for the 2020 round of censuses in the EECCA region. Chapter 23 discusses some of the relevant issues.

3. TECHNOLOGY, OUTSOURCING AND INNOVATIONS

The 2014 UNECE publication on practices in the 2010 round of population and housing censuses noted that developments in technology were changing the way censuses were being conducted. Such developments included scanning technologies to replace manual data capture, the use of digital maps and geographical information system (GIS) technologies to supersede traditional census cartography, and the use of the internet to provide respondents with an opportunity to submit their census information online. For many of the countries that responded to the UNECE survey in respect of this topic, these technologies were used for the first time in the census in the 2010 round, while for others they represented a consolidation of existing practices.

This chapter reports on several aspects of the technological practices adopted for the management of census operations, mapping, data capture and editing, and data processing. It also summarises the extent to which technological and other operational services were provided by external providers, and the range of innovations adopted by countries in an attempt to improve the efficiency of their census[3].

Use of technology in field operations

About a third of all countries responding to the 2013 UNECE survey (18 out of 51) reported that they provided an internet response option in the collection of census data. However, bearing in mind that such technology was not relevant for those countries adopting a wholly register-based approach to the census, almost half (45 per cent) of those countries that conducted some form of a field operation as part of either a traditional or 'combined' census approach adopted an Internet solution. Moreover, if, the countries in the EECCA region – none of which reported the use of the Internet to collect census data online in the 2010 round – are excluded, this proportion rises to 56 per cent. Almost without exception none of the countries in South Eastern Europe chose to use the Internet in this way.

Nor did any of the EECCA countries report adopting the use of laptops or other mobile communication devices (such as smart phones or SMS texting) to aid their field operations. This compares with the reported use of one or more such devices by more than a third of the countries adopting traditional censuses in the rest of the UNECE region (10). And in looking at the use of geographic information systems (GIS) technology in the field, the survey noted that of the EECCA countries only Georgia reported doing so, compared with almost half of the rest of the traditional census countries (11) in the UNECE region and half of those that adopted a 'combined' census approach (4). (A discussion of the use of GIS more generally for mapping purposes throughout the whole census process is given below.)

While the results of the UNECE survey suggest that countries in the EECCA region have so far barely utilised modern technology in their field operations, in future censuses the situation may well be rather different, and a two-fold increase in the number of countries using such technology throughout the UNECE region overall – particularly GIS - can be anticipated (see Chapter 23).

Using OCR/OMR technology in data processing

Data capture and other data processing activities are the areas where new technologies can play the most significant role in the whole of the census operation. Many countries in the UNECE region had, by the time of the 2000 round, switched from manual data capture processes to automatic systems based on advances in the fields of scanning, imaging, optical character recognition (OCR)

[3] The material in this chapter has been taken largely from reports of the UNECE survey prepared by Janusz Dygaszewicz (Central Statistical Office of Poland) on technology, Marc Hamel (Statistics Canada) on innovation and Ian White (UK Office for National Statistics) on outsourcing, and presented to the Joint UNECE-Eurostat Work Session on Population and Housing Censuses (Geneva, 30 September to 3 October 2013) (http://www.unece.org/stats/documents/2013.10.census1.html)

and optical mark reading (OMR). However, the results from the UNECE survey on the 2010 round suggest that there has been little development since then.

Table 3.1 shows the extent to which OCR and OMR was used in the 2010 round for countries that required data capture processes for information collected through a field operation (the 'traditional' or 'combined' approach censuses). The proportion of countries was 67 per cent (26 out of 39 responding countries), compared with 71 per cent in the 2000 round (29 out of 41). But this is perhaps not surprising as there are more countries now adopting a register-based approach for whom such data capture technology is no longer necessary. However, among the EECCA countries the use of such technology has become more widely adopted. More than half of the countries in the region (six of the 10 responding) reported using (or planning to use) either OCR and/or OMR systems in their data processing in the 2010 round, though the proportion doing so in the rest of the UNECE region (more than two thirds) was a little higher.

Table 3.1
Use of OMR/OCR technology by traditional and combined census countries in data processing*

Technology	All counties		Type of Census				Region			
			Traditional		Combined		EECCA		Rest of UNECE	
	Number	%	Number	%	Number	%	Number	%	Number	%
OMR or OCR used	26	67	21	72	5	50	6	60	20	69
OMR	20	51	16	55	4	40	4	40	16	55
OCR	24	62	20	69	4	40	6	60	18	62
Neither used	13	33	8	28	5	50	4	40	9	31
Total responding countries	**39**	**100**	**29**	**100**	**10**	**100**	**10**	**100**	**29**	**100**

* This table includes the responses from Ukraine based on what was being planned for the 2014 Census at the time of the UNECE survey before that census was cancelled.

The proportion of countries using OMR (just over half) overall was a little lower (4 out of ten) for EECCA countries and correspondingly higher (53 per cent) for countries in the rest of the UNECE region. Use of OCR (whether capturing alpha or numeric characters) was generally more widely adopted: some 62 per cent overall, 60 per cent in the EECCA region, and 67 per cent elsewhere. But 13 countries reported not using such technology in the 2010 round, and as will be seen in Chapter 23, it seems that the decline in the reliance of this technology will continue.

Software applications

The UNECE survey enquired into the use of software applications for various different aspects of the conduct of the census operation, specifically identifying such elements as: the support of the training of, and effective communication with, field staff; the overall managements of data collection, or the maintenance of GIS; the storage or linkage of data collected from different sources; the processing of data; or the building of the main census database. For most purposes, where such software was used, countries in the UNECE region as a whole tended to use their own applications rather than rely on commercial or other software, though in the EECCA region, countries were more dependent on software developed by external contractors (see also the section on Outsourcing below). An analysis of software use, by kind of application, is shown in Table 3.2.

Table 3.2
Use and application of software

Use of software	Countries using software (%)*	Types of software					No use of software
		Own (proprietary)	Open source	Commercial	Outsourced Contractor		
					Developed	Customized	
EECCA countries							
Field organization and communication	2	1	0	0	1	0	7
Field training	2	1	0	0	1	0	7
Building knowledge database	7	2	0	1	4	0	2
Multi-mode data collection	1	1	0	0	0	0	8
Data storage	3	2	0	0	1	0	6
Data processing	6	2	0	0	4	0	3
Record linkage	1	0	0	0	1	0	8
Dissemination	5	1	1	0	3	0	4
Management and accounting	4	3	0	0	1	0	5
Maintaining GIS	3	1	0	0	1	1	6
Other applications	1	1	0	0	0	0	8
Rest of UNECE region*							
Field organization and communication	29 (74%)	13	1	8	6	1	10
Field training	10 (49%)	5	1	6	6	1	20
Building knowledge database	24 (62%)	9	1	9	4	1	15
Multi-mode data collection	28 (72%)	12	0	5	10	1	11
Data storage	31 (79%)	11	1	9	8	2	8
Data processing	36 (92%)	15	0	9	8	4	3
Record linkage	33 (85%)	16	1	9	6	1	6
Dissemination	37 (95%)	14	2	13	8	0	2
Management and accounting	28 (72%)	12	1	10	4	1	11
Maintaining GIS	25 (64%)	4	0	10	4	1	11
Other applications	5 (13%)	1	0	1	2	1	34

* Percentages based on 39 responding countries in the rest of the UNECE region
** Nine responding countries

It is clear that countries in the rest of the UNECE region as a whole tended to use their own proprietary software for all purposes (other than for training and maintenance of GIS) more often any other single source of software. However, software that was either commercially available or was specifically developed for the census by outsourced suppliers was widely utilized particularly for the purposes of building the main census database, maintaining GIS, data processing and the dissemination of outputs, indicating the degree of specialization and expertise that such activities now demands. Indeed for countries within the EECCA region that used such software, the profile of usage shows a proportionately greater dependency on software developed by contractors for these and almost all activities identified in the survey.

It was noted from the results of the survey that among the countries that reported use of their own proprietary software Azerbaijan did so for more applications than any other country in the EECCA region, and that the Russian Federation was predominant among those countries that utilized software that had been developed by outsourced suppliers. However, what Table 3.2 does not show (but which was observed from the results of the survey) is the extent to which Ukraine had planned to use software in its 2014 Census customised to meet its specific requirements. No other EECCA countries reported adopting this solution for any application other than in Belarus for maintaining its geographic information systems.

But what is almost as noteworthy is the proportion of EECCA countries that did not use software of any kind for many of these purposes other than the actual processing of data. However, it is possible there may have been a certain amount of misreporting on this particular issue.

Linked to the enquiry into software application related to the storage of data from different channels, countries undertaking any form of field operation also reported on whether or not they used IT systems to manage and integrate the responses from different sources (such as via enumerators in the field, direct mail and online returns). While 42 per cent of the traditional census countries and six out of the eight countries that carried out combined censuses did so in one form or other, it is not surprising that with little multi-modal data collection none of the EECCA countries reported any such use of IT systems.

GIS technology

Geographic information systems (GIS) – now pretty well established globally – were utilized for the purposes of mapping by more UNECE countries than any other technological tool. Particularly for those countries that carry out a field operation as part of a traditional or combined census, (19 of those that responded to the survey) good cartographic support is essential to enable the fieldwork to be carried out effectively and to ensure universal coverage. As evidenced by the use reported above, there is a strong and growing interest in the use of GIS as a tool to support the process of conducting the census generally, and, in particular, as a tool to enable more user-friendly visualization of statistical results. Indeed, four fifths of the responding countries (25 out of 31) reported that their National Statistical Institutes (NSIs) have either a dedicated GIS unit or cartographic staff, or have access to such a unit. Among the EECCA region six out of the nine countries reported having such a unit.

The survey revealed that cartographic materials were widely used in various stages of the census (Table 3.3). Three quarters of the 31 responding countries in the rest of the UNECE reported the use of paper maps in at least one stage of their census operation, and throughout the EECCA region the proportion was even higher (8 out of 9). Such usage was mainly confined to preparatory stages of the census and the field operation, and only Azerbaijan reported using them in data analysis and dissemination. Nowadays, such maps hardly represent the height of current cartographic technology, but, nevertheless, they continue to be the most widely used form of geographic support for census field work.

Table 3.3
Use of cartographic/geographic data in different stages of census operations, EECCA countries and those countries in the rest of the UNECE region adopting traditional or combined censuses

Type of cartographic/geographic data	Stage of census operation in which it was used	EECCA (9 responding countries)	Rest of UNECE region	
			Number	% (of 31 responding countries)
Sketch maps	Preparatory work	0	6	19
	Fieldwork	1	5	16
	Other purposes	0	1	3
	Not used	8	27	87
Paper maps	Preparatory work	8	11	35
	Fieldwork	7	17	55
	Data Analysis	1	2	6
	Dissemination	1	2	6
	Other purposes	0	3	10
	Not used	1	8	26
Vector data	Preparatory work	0	16	52
	Fieldwork	0	8	26
	Data analysis	1	8	26
	Dissemination	1	8	26
	Other purposes	0	2	6
	Not used	8	9	29
GPS coordinates	Preparatory work	1	8	26
	Fieldwork	0	4	13
	Data analysis	0	4	13
	Dissemination	0	3	10
	Other purposes	0	1	3
	Not used	8	12	39
Digital layer boundaries	Preparatory work	1	16	52
	Field work	0	10	32
	Data analysis	1	12	39
	Dissemination	1	15	48
	Other purposes	0	3	10
	Not used	7	6	19
Ortho photography	Preparatory work	2	14	45
	Field work	0	10	32
	Data analysis	0	5	16
	Dissemination	0	5	16
	Other purposes	0	2	6
	Not used	7	9	29
Digital topographical maps	Preparatory work	2	7	23
	Field work	0	4	13
	Data analysis	0	3	10
	Dissemination	1	3	10
	Other purposes	0	1	3
	Not used	7	16	52
Remote sensing	Data analysis	1	0	0
	Not used	8	22	71

Although ortho-photography, vector data and digital topographical maps were reported as being increasingly used throughout the rest of the UNECE region generally, very few of the EECCA countries used other GIS technology in the 2010 round; only Georgia reported usage of vector data and GPS coordinates, and only Georgia and Moldova used ortho-photography and digital

topographical maps. Only Georgia and Armenia used digital layer boundaries. There was no reported use of remote sensing by any country for any purpose throughout the whole of the UNECE region other than by Georgia for data analysis. As the 2014 UNECE publication observed, this technology is perhaps still too untested to be yet applied to the census operation generally.

Again, though it is not in evidence from the figures shown in Table 3.3, the response to the survey from Ukraine indicated that had it been able to conduct a census in the 2010 round it would have utilized GIS technology to far greater extent than any other EECCA country. It reported the intention to use: vector data, digital layer boundaries and digital topographical maps in four stages of the census; paper maps in three stages of the census operation; and ortho-photography in the preparation stage. However the results of the survey have brought to light that GIS and mapping technologies generally are still under-utilised by many countries across the UNECE region, and particularly in the EECCA region. While their use in the field might be expected to decline in the future as more countries move to alternative ways of collecting data, a greater opportunity surely exists for using mapping tools to expand the range of geographical products and more sophisticated data visualisation of census outputs generally (see Chapter 23).

Preparation of IT infrastructure

As is the case in any element of the census operation, the development of any technological solutions requires sufficient time for planning, testing and the necessary training of staff. A half of all the countries responding to the UNECE survey (24 out of 48) required less than two years for such preparations (see Table 3.4) but among countries in the EECCA this proportion was only a third (only three, Armenia, Kyrgyzstan and Moldova did so) with the majority taking 2-5 years for preparation and planning.

It is worth noting perhaps that once a country has established a register-based statistical system and the processes required for taking a register-based census, the time required for planning and preparation of the IT infrastructure for a census is generally much shorter than for those where some form of field operation is necessary. Thus four out of the six countries with register-based census that reported requiring less than three years for planning were those where their register-based census was well established.

Table 3.4
Length of time for preparation of IT infrastructure

Length of time	Total countries	EECCA region	Rest of UNECE region		
			Traditional	Register-based	Combined
< 1 year	9	1	3	3	3
1 – 2 years	15	2	8	3	2
2 – 3 years	12	4	4	1	3
3 – 5 years	8	2	4	1	1
> 5 years	4	0	1	1	2
All responding countries	**48**	**9**	**20**	**9**	**10**

Outsourcing

The complexity of much of the new software and the infrastructure required for many of the new and emerging technologies go beyond the current technical capabilities of many census agencies. As the 2014 UNECE publication noted, it was clear in the 2010 round that significant components of the census operation needed to be outsourced in many countries. The value of doing so is that external suppliers bring with them considerable technical experience and expertise which would otherwise be unavailable to census takers, and allows NSIs to focus on their main task of carrying out the census rather than developing in-house procedures and skills that are not part of their core competencies.

Furthermore, the 10-year cycle for the traditional census activities, the short processing timetable and extensive data systems required, mean that outsourcing provides the opportunity for efficiencies and value for money.

This is now widely recognised across the UNECE region in which all but one of responding countries (including all the EECCA countries) indicated that they contracted out to external agencies the provision of one or more services or activities for the census operation. Table 3.5 ranks the top 20 activities identified in the survey that were either fully or partially outsourced by the number of responding countries in the UNECE region doing so and compares the extent of such outsourcing in the EECCA region. It should be noted that 9 out of the 11 countries that did not respond to the outsourcing section of the UNECE survey were those countries that carried out a full register-based census, in which the opportunities for effective outsourcing are clearly much reduced. Table 3.5 refers only to countries that carried out a traditional or combined census and outsourced at least one activity.

Table 3.5
Census activities that were either fully or partially outsourced

Activity	Countries that outsourced the activity				
	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Printing of questionnaires	29	81	9	17	3
Printing of other field documents/materials	28	78	8	17	3
Publicity	28	78	6	18	4
Delivery of questionnaires/ field documents	24	67	7	16	1
Primary data capture and coding	21	58	3	14	4
Translation of field materials	19	53	3	13	3
Collection/return of questionnaires	19	53	5	13	1
Mapping enumeration areas	17	47	4	10	3
Questionnaire destruction	17	47	2	13	2
Call centre/telephone help line	12	33	2	7	3
Design/provision of online response system	11	31	0	6	5
Online/web access design	9	25	2	6	1
Data storage	8	22	3	5	0
Recruitment and training of field staff	7	19	0	5	2
Design/provision of quest. tracking system	7	19	0	4	3
Mapping of output/ dissemination areas	7	19	2	4	1
Data editing	7	19	3	4	0
Evaluation	7	19	2	3	2
Imputation	6	17	3	3	0
Data quality assurance	5	14	3	1	1
Total number of countries	**36**	**100**	**9**	**18**	**9**

The printing of questionnaires and other documentation required for a field enumeration, and the publicity campaign were, by far, the most often reported activities to be outsourced among the traditional census countries. All the EECCA countries had the printing of their census questionnaires outsourced, but only a third of the countries with a combined census (where the field operations would not have been not so extensive) did so. While all the traditional census countries in the rest of

the UNECE region reported outsourcing their publicity campaign only two thirds of those in the EECCA region did so. And more than half the EECCA countries outsourced the delivery and collection of the census questionnaires in common with other traditional census countries in the rest of the UNECE region. Activities in which the proportion of EECCA countries that outsourced services was higher than in the UNECE region were data storage, data editing and imputation.

But there was a range of other outsourced activities (not shown in Table 3.5) that less than one in ten countries overall reported, including payment of field staff, tabulation, printing of reports, data archiving, data linkage, the production of digital media, and contract management. In all, the Russian Federation led the field by outsourcing 21 different activities identified in the survey (although they reported that not all services were delivered successfully within the contracted times).

But why did countries outsource? As noted above, the main value of doing so is that external suppliers bring with them considerable technical experience and expertise, which would otherwise be unavailable to census takers. Indeed, throughout the UNECE region overall more than two thirds of countries cited the utilisation of such resources and expertise as the main reason for outsourcing. However, seven out of the nine EECCA countries reported that the prime aim of outsourcing was to reduce operational times scales, whereas proportionately fewer countries in the rest of the UNECE region (16 countries, 59 per cent) cited this as the main reason. Table 3.6 shows that aim to reduce costs, and to improve both data quality coverage/response were also key reasons for outsourcing, though to a lesser extent among EECCA countries than for those in the rest of the UNECE region.

But was the strategy successful? Did outsourcing achieve its aims? Table 3.6 also shows the main gains and benefits achieved by those countries that outsourced their activities. The striking result to note is that even more countries (4 in the EECCA region and 24 elsewhere) reported achieving a gain from the utilization of resources/expertise not otherwise available than had reported this as a key aim. This is clearly shown to be the biggest gain from outsourcing throughout the UNECE region generally. But time saving was also achieved by one more EECCA country than had been anticipated.

Table 3.6
Reasons for, and main gains/benefits achieved from, outsourcing

Reason for outsourcing	Aims			Gains/benefit achieved		
	EECCA	Rest of UNECE		EECCA	Rest of UNECE	
		Number	%		Number	%
Utilize resources/expertise not otherwise available	3	22	81	4	24	89
Save time	7	16	59	8	15	56
Gain knowledge	-	-	-	3	18	67
Reduce costs	4	12	44	5	14	52
Improve data quality	2	9	33	3	9	33
Improve coverage/response	0	4	15	0	4	15
Improve public perception/trust	0	1	4	0	6	22

It is perhaps surprising, however, that few EECCA countries had anticipated making any improvements to either coverage/response or data quality through outsourcing, though a number of other countries had done so. Events provided such pessimism to be justified. None of the EECCA countries in fact reported that outsourcing had made any contribution to such improvements. However, though gaining knowledge (of, for example contract management) was not identified as a specific aim of outsourcing, some 21 countries throughout the UNECE region (including Belarus, the Russian Federation and Tajikistan) reported this as benefit of outsourcing in the 2010 round.

Despite the fact that some 19 countries (including five within the EECCA region) reported that they achieved cost reductions through outsourcing, the cost of outsourcing was also perceived by some countries to be one of the biggest disadvantages – even though other benefits had been gained through doing so (Table 3.7). The effect of outsourcing on the overall management of the census

operation was also seen as detrimental, and again, nine countries (including Kazakhstan, Kyrgyzstan and Moldova) reported this as a disadvantage – though no one country had reported both. Interestingly, although negative public attitudes towards outsourcing was reported as a problem in several countries, no country within the EECCA region had perceived this to be an issue.

Table 3.7 also identifies what the main challenges were when countries considered the overall strategy of outsourcing. Keeping to (an often tight) schedule emerged as the most challenging aspect in the 2010 round, and was identified as such throughout the UNECE region and by two thirds of EECCA countries. Managing the contract(s) with suppliers also proved difficult for almost half the countries overall and by a third of those within the EECCA region, reflecting the advice given in the 2010 Recommendations that outsourcing should only be considered if the census agency "….has sufficient skills to manage the process" and "… the ability to manage complex development projects".

Table 3.7
Main disadvantages and challenges arising from outsourcing

Disadvantages/challenges of outsourcing	EECCA	Rest of UNECE	
		Number	%
Disadvantages			
Costs increased	2	7	26
Time increased	1	2	7
Management control affected	3	6	22
Coverage/response decreased	0	1	4
Data quality decreased	1	2	7
Negative public perception/trust	0	5	19
Challenges			
Keeping to schedule	6	24	89
Contract management	3	17	63
Keeping to budget	3	15	56
Integrating systems	0	13	48
Monitoring data quality	2	10	37
Managing change control	1	10	37
Meeting user needs	1	7	26
Managing negative press and public perceptions	0	6	22

Reflecting the lack of any disadvantages arising from the fact that there were negative public concerns associated with outsourcing census activities, no EECCA country reported having encountered any difficulties in managing negative press and public perceptions.

Taking account of some of the issues described here, Chapter 23 looks at the extent to which EECCA and other countries are likely to outsource activities in the 2020 round of censuses.

Innovations

Innovation has always been an integral part of census taking. The census of population and housing is the largest and one of the most important statistical programmes carried out by most countries. By its nature significant resources are allocated to it to cover all aspects of the statistical process. This creates the opportunity to innovate. Different factors inherent to census taking are also conducive to the introduction of innovations, such as the sheer size and cost of the operation, privacy and confidentiality issues and, of course, technological developments. Thus, the UNECE survey also enquired into the aspects of innovation both in the 2010 round and looking forward to the 2020 round.

Of the 44 countries that responded (excluding Ukraine for the reasons already noted, but including the nine register-based countries) only four (including Armenia) reported that they did not introduce any key innovations in the 2010 round. Methodological innovations were reported in total by 27 countries – more than half the responding countries – the most significant, of course, being the use of registers by the countries that adopted a register-based or combined approach (Table 3.8).

Table 3.8
Range of key innovations in the 2010 round (number of countries)

Innovation	All responding countries		EECCA	Type of census in rest of UNECE region			
	Number	%		All	Traditional	Register-based	Combined
Methodological	27	61	2	25	10	6	9
Use of registers	23	52	0	23	8	6	9
Sampling	9	20	0	9	3	1	5
Rolling estimates	1	2	0	1	1	0	0
Coverage survey	5	11	2	26	12	5	9
Data Collection	28	64	2	26	12	5	9
Internet (online)	16	36	0	16	9	0	7
Hand-held devices	6	14	0	6	2	0	4
Long form/short form	4	9	2	2	1	0	1
Use of administrative data	14	32	0	14	1	5	8
Data processing	20	32	5	15	9	1	5
Scanning	9	20	3	6	5	0	1
Intelligent character recognition	12	27	3	9	7	0	2
Automatic coding	15	34	2	13	8	0	5
Edit/imputation	16	36	2	14	7	1	6
Mapping	24	55	3	21	13	1	7
GIS	21	48	3	18	11	1	6
GPS	6	14	0	6	2	0	4
Dissemination	27	61	4	23	13	4	7
Internet (web data access)	24	55	4	20	10	3	7
Disclosure control	13	30	1	12	6	3	3
All responding countries	**44**	**100**	**9**	**35**	**16**	**9**	**10**

But, as has already been noted, many of the traditional census countries also used administrative data for the first time to either support or monitor the census process – eight did so – and in all, half the responding countries used registers in an innovative way for one or other purpose in the census, though none were in the EECCA region. However, Belarus and Kazakhstan were two of the five countries that reported carrying out a coverage survey for the first time in the 2010 round.

The data collection process is clearly another area where there is potential for significant innovation, and 28 countries (including Azerbaijan and Kazakhstan) introduced one or more innovations into this operation. As has already been discussed, the internet was used by many countries to collect data online; 16 countries did so innovatively in the 2010 round, but none in the EECCA region. Six countries reported using hand-held devices for the first time as a means of recording data in the field, but, again, no EECCA country did so.

However, EECCA countries reported a higher level of innovation in data processing – more than half did so. These included: Belarus and Tajikistan (all four of the processes listed in Table 3.8); The Russian Federation (three of the four); Kazakhstan (scanning and ICR); and Azerbaijan (specific processes not specified). More than half of the responding countries (24 in all) and three of the

EECCA countries (Belarus, Georgia and Moldova) also reported innovations in the use of mapping, particularly GIS. And for dissemination four countries in the EECCA region reported innovative use of the internet for web data access. But only Belarus reported innovative use of disclosure control to protect the confidentiality of census data in the 2010 round.

Chapter 23 describes how the EECCA countries and others reported possible innovations for the next census round.

4. OPERATIONAL FRAMEWORK I: FIELD OPERATIONS, COMMUNICATIONS AND PUBLICITY

Introduction

Traditionally, for most people, the epitome of a census is an enumerator calling on each household and either conducting a door-step interview (as the practice throughout the EECCA region) or delivering a census form for the household members to complete and return. And indeed for the majority of countries this is still the way that the data collection phase of a census is carried out – in the traditional way. As noted in Chapter 2 some 34 countries in the UNECE region carried out a 'traditional census' involving a full field enumeration, and in a further 10 countries that adopted a 'combined' approach the census involved some element of data collection in the field. For such countries the field operation and the supporting communications and publicity activities are key elements of the census operation. This chapter reports only on these elements in respect of those countries that responded to the UNECE survey and compares the practices in the EECCA countries with those in the rest of the UNECE region[4].

Field operations

Out of 49 responding countries (and excluding the Ukraine for the reason already noted in Chapter 3), 40 reported some form of field operations. They include 30 countries with traditional census (including the nine countries in the EECCA region), and 10 countries with a combined methodological approach that employs some elements of data collection in the field. By definition, countries with a wholly register-based census did not conduct any field operations, and so these are excluded from the following analyses. However, the use of registers to support the field operation was not uncommon even in traditional censuses. Indeed some 17 countries throughout the UNECE region as a whole (42 per cent) reported using an address register to support field operations. But none of these were in the EECCA region (Table 4.1).

Almost all countries with field operations employed more than one level of field staff (85 per cent) to carry out the enumeration (such as enumerators, interviewers, supervisors etc). Among the EECCA countries seven out of the nine deployed three levels of field staff compared with just a quarter of countries in the rest of the UNECE region.

The survey showed that 28 countries reported that the overall field operation was managed by a single central statistical office, and that this was the case in all EECCA countries except Tajikistan. However, Table 4.1 also shows that all EECCA countries managed their censuses at the sub-national level through regional or local offices, with the involvement in all but two countries (Moldova and Tajikistan) of regional or local agencies (such as municipalities, communes and local authorities).

[4] The material in this chapter has been taken largely from reports of the UNECE survey prepared by Paolo Valente (UNECE) on field operations, and Ian White (UK Office for National Statistics) on communication s and publicity, and presented to the Joint UNECE-Eurostat Work Session on Population and Housing Censuses in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Table 4.1
Aspects of the field operation in the 2010 round

Field operation	All responding countries		EECCA	Rest of UNECE region		
	Number	%		All censuses	Traditional	Combined
Use of an address register	17	42	0	17	9	8
Deployment of more than one level of field staff	34	85	9	25	18	7
2 levels	3	8	0	3	2	1
3 levels	15	38	7	8	5	3
4+ levels	16	40	2	14	11	5
Overall field operation managed by a central statistical office	28	70	8	20	13	7
Field operations managed Through regional or local offices	26	65	7	19	14	5
All censuses	**40**	**100**	**9**	**31**	**21**	**10**

Questionnaires and other field documentation

Although the 2013 survey showed that across the UNECE region as a whole a variety of types of questionnaire was used in the 2010 round of censuses, and different modes of delivery/collection deployed, the practices in the EECCA counties tended towards more uniformity. As has already been noted in Chapter 2, all nine countries used a similar enumeration methodology in which an enumerator/interviewer completed a single (long) questionnaire through a door-step interview with the householder and/or individual household members. Thus no EECCA country adopted any of the alternative modes of delivery and collection of the questionnaires (such as use of the mail, short form questionnaires, self-completion questionnaires, and online data collection) that became more widespread elsewhere in the 2010 round.

In common with the rest of the UNECE region, all EECCA countries used maps and photographs of enumeration areas, and field manuals and/or instruction books to assist field staff during the enumeration. Also, the use of summary report forms to record (clerically) numbers of enumerated units (such as persons, households, dwellings and buildings) was widespread throughout the region, although responses to the survey indicated that Armenia, Azerbaijan, Kyrgyzstan, and the Russian Federation did not use such forms to collect data on buildings in the field. Nor did Kyrgyzstan use summary forms for households.

Field staff recruitment and training

The pattern of field staff recruitment and training was also very much the same for all EECCA countries as in the rest of the UNECE region. Five out of the nine countries (Armenia, Azerbaijan, Georgia, Kyrgyzstan and the Russian Federation) recruited field staff at the regional or local level rather than the national level – a proportion similar to the 53 per cent of countries throughout the rest of the UNECE region (16 out of 30). Training of field staff, on the other hand, was more often carried out both centrally and regionally; five EECCA countries (Azerbaijan, Belarus, Kazakhstan, Moldova and Tajikistan) adopted this strategy compared with 63 per cent (19 out of 30) elsewhere (Table 4.2).

The length of the training for enumerators/interviewers was, however, a little more varied within the EECCA countries. It was less than a week in Georgia, Kyrgyzstan, Moldova and the Russian Federation, but three weeks or more in Armenia, Azerbaijan, and Kazakhstan. In the rest of the UNECE region the greater number of countries by far allocated less than a week for training (19 out of 30), and no country assigned more than two weeks.

Table 4.2
Field staff recruitment and training

Field staff recruitment and training	All responding countries		EECCA	Rest of UNECE region		
	Number	%		All censuses	Traditional	Combined
Field staff recruitment carried out						
Central only	2	5	0	2	1	1
Regionally (or locally) only	21	52	5	16	12	4
Both centrally and regionally	14	35	4	10	7	3
Field staff training carried out						
Centrally only	2	5	0	2	2	0
Regionally (or locally) only	11	28	4	7	6	1
Both centrally and regionally	24	60	5	19	12	7
Length of field staff training before the enumeration						
< 1 week	23	58	4	19	15	4
1 week	8	20	1	7	5	2
2 weeks	5	12	1	4	2	2
3 weeks	2	5	2	0	0	0
> 3 weeks	1	2	1	0	0	0
All censuses	40	100	9	30	20	10

Pre-enumeration tests and checks, and storage of completed questionnaires

Pre-enumeration census tests, pilots or rehearsals were carried out in all EECCA countries and in all but one country throughout the rest of the UNECE region (Table 4.3). As throughout the rest of the UNECE region generally, the majority of EECCA countries carried out such tests during the period 1-2 years prior to the census; only Georgia reported that it did so three or more years beforehand.

Table 4.3 also shows that pre-enumeration checks of Enumeration Areas were carried out by all but one of the EECCA countries (the Russian Federation was the exception). Most countries used enumerators only to perform such checks, but Belarus, Georgia and Kyrgyzstan relied on field managers or supervisors to do so. Countries elsewhere in the UNECE region tended to share the responsibilities for making pre-enumeration checks among all levels of field staff and sometimes involving others as well. But of the EECCA countries only Azerbaijan adopted this strategy.

Countries used different strategies to store completed questionnaires where they had been collected by enumerators/interviewers in the field and before despatch to the processing site. The most common strategy, adopted by 22 countries overall and by all of the responding EECCA countries (Georgia did not respond to this particular enquiry), was to store them locally in specially provided secure accommodation.

Table 4.3
Pre-enumeration activities and storage of completed questions

Pre-enumeration activities	All responding countries		EECCA	Rest of UNECE region		
	Number	%		All censuses	Traditional	Combined
Pre-enumeration tests, pilots or rehearsals carried out:						
< 1 year before the census	8	20	0	8	6	2
1 year before the census	14	35	4	10	5	5
2 years before the census	19	48	3	16	12	4
3+ years before the census	8	20	1	7	5	2
None carried out	1	2	0	1	1	0
Pre-enumeration checks of enumeration areas carried out:						
By field managers only	11	28	3	8	4	4
By enumerators only	13	32	4	9	6	3
By all levels of field staff and/or others	10	25	1	9	0	0
None carried out	5	12	1	4	2	2
Storage of questionnaires in the field						
By enumerators at home	12	30	0	12	11	1
By census managers at home	5	58	0	6	5	1
Specifically provided secure an accommodation	22	20	8	14	13	1
Immediately despatched to census office	5	12	0	5	5	0
Recorded/stored electronically	2	5	2	0	0	0
Other	3	2	0	3	1	2
All censuses	**40**	**100**	**9**	**30**	**20**	**10**

Post-enumeration surveys

Countries throughout the UNECE region have increasingly recognised the value of conducting post-enumeration surveys to assess both the extent of under-coverage and the accuracy of the responses recorded on the questionnaires. These provide information by which to measure the quality of the census data. A post-enumeration survey (PES) to check coverage was carried out in 24 countries out of 40 (60 per cent), and a similar proportion of EECCA countries (6 out of 9) did so. Similar numbers and proportions of countries (both in EECCA region and elsewhere) also carried out a post-enumeration quality check (usually as part of the same operation).

All of the six EECCA countries that had reported carrying out a post-enumeration survey (Armenia, Belarus, Kazakhstan, Moldova, the Russian Federation and Tajikistan) did so within a period of a month after then census. This compares with only two thirds of the countries in the rest of the UNECE region that did so. The Russian Federation specified that the post-enumeration survey covered 10 per cent of households, and consisted of a check of the completeness and accuracy of the information registered in the forms. This procedure (traditionally followed in other EECCA countries) seems to differ from the methodology recommended for post-enumeration surveys, where normally the sample size is much smaller (1 per cent or less).

Communications

An effective communication strategy together with far reaching publicity and information campaigns play an essential role in ensuring the success of the census. This is especially so for those countries adopting a field enumeration methodology, either wholly or in part, where the general

public is expected to actively participate in the census activities as respondents and, possibly, as temporary employees as part of either the field staff or the data processing operation.

In the planning phases of the census, consultation with a wide range of stakeholders is necessary to ensure that user requirements are met, questionnaire design is effective, the methodology is accepted, working partnerships are forged, and that technical specifications are well understood.

During the operational phase, publicity and information campaigns are usually necessary to inform the public that a census is taking place and also to provide the necessary information to allow and encourage them to participate. Special attention is often given to identifying and targeting hard-to-reach population groups in order to ensure consistent levels of response across the country. In essence, the aim of these is to engage, educate, explain, and encourage, and (if absolutely necessary) enforce participation.

The UNECE survey aimed to collect information on the key stakeholders involved in such communications, the scope and content of the campaigns, and the means and media of delivery. The main focus was on those countries adopting traditional or combined methodologies where effective public information and publicity would be expected to be relatively more important. Attention here is, therefore, given only to those countries.

Of the nine responding EECCA countries only Georgia reported that it did not carry out a strategic communications programme, and, indeed, only three other countries that conducted censuses with a traditional or combined methodology throughout the rest of the UNECE region similarly did not do so (Table 4.4).

Table 4.4
Communications and publicity campaigns

Aspects of communications strategy	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Communication strategy adopted					
No	4		1	3	
Yes	34	100	8	26	100
Aspects on which countries consulted					
User requirements	29	85	6	23	88
Questionnaire design	28	82	8	20	77
Methodology	22	65	4	18	69
Enumeration hard to count and special groups	22	65	1	21	81
Design, content and dissemination of outputs	19	56	5	14	54
Language and community liaison/outreach	16	47	3	14	54
Confidentially and/or statistical disclosure	12	35	3	9	35
Field operations	13	38	2	11	42
User satisfaction/public opinion survey	9	26	5	4	15
Data quality	8	23	2	6	23

Table 4.4 also shows the ten highest ranked aspects of the census on which those countries that adopted communications strategy consulted. All eight responding EECCA countries reported consulting with users on questionnaire design, compared with just over three quarters of countries in the rest of the UNECE region. Associated with this, consultation on user's requirements was also considered a key issue throughout the region, and only two EECCA countries (Kyrgyzstan and Tajikistan) reported that they did not consult specifically on this aspect. A little surprisingly perhaps, two other EECCA countries additionally (Armenia and Belarus) did not consult on the design, content and dissemination of outputs, and the fact that only 58 per cent of the rest of the UNECE countries did

so suggests that this particular issue was not universally given a high priority in the 2010 round. It should be noted, however, that there are likely to be many common elements in the consultation on 'user requirements' and on the 'design, content and dissemination of outputs'.

Interestingly, more than half the EECCA countries reported that they conducted user satisfaction/public opinion surveys compared with fewer than one in five countries throughout the rest of the UNECE region, but no other issue was identified by more than half the EECCA countries as a topic of consultation.

It is perhaps surprising that data quality did not rank highly as a consultation topic in the 2010 round throughout the UNECE region generally, and only two EECCA countries (Kazakhstan and the Russian Federation) reported on this aspect. Moreover, although 80 per cent of the rest of the UNECE countries consulted on enumerating hard-to count and special groups, only the Russian Federation reported doing so within the EECCA region. The Russian Federation in fact undertook the most extensive consultation programme throughout the EECCA region and was the only country to report on all the aspects covered in Table 4.4, although Kazakhstan also consulted widely and reported on eight of them.

Table 4.5 shows those stakeholder groups with whom the responding countries reported consultations. As it could be expected – given the importance of the results of the census in shaping central government policy – all responding countries throughout the UNECE reported government departments and organizations as being among their key stakeholders. Furthermore, all EECCA countries consulted with local government and with academics and/or education service providers.

Table 4.5
Key user groups and stakeholders consulted

User group/stakeholder	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Central government	34	100	8	26	100
Local government	32	94	8	24	92
Academics and/or education service providers	32	94	8	24	92
Ethnic/racial/faith communities	21	62	6	15	58
Press and the media	21	62	7	14	54
Other public service/utility providers	19	56	7	12	54
Disability groups	14	41	1	13	50
Health service providers	13	38	7	6	23
Market researchers	12	35	4	8	31
Business, retailers and other commercial sectors	12	35	4	8	31
Housing and homeless organizations	7	21	1	6	23
Total countries	**34**	**100**	**8**	**26**	**100**

The other key stakeholder groups with whom EECCA countries consulted widely were: the press and media (only Armenia did not); health service and other public service/utility providers (only Kyrgyzstan did not); and ethnic, racial and faith community organizations (only Azerbaijan and Kyrgyzstan did not). But the one stakeholder with which EECCA countries consulted poorly was the disability group with whom only the Russian Federation consulted compared with half of countries in the rest of the UNECE region.

Again, reflecting the extensiveness of their consultation programme, the Russian Federation consulted with all the groups identified in Table 4.5 (though it should be noted here that if Ukraine had been able to carry out its planned census in 2014 it would have consulted equally as widely.)

Publicity

All of the EECCA countries that reported that they carried out a programme of stakeholder engagement also carried out a publicity campaign. In all, 37 UNECE countries that carried some form of field operation reported on the various aspects of the publicity campaign covered in the survey. The responses on the methods, media and location that they used during their campaign are summarised in Table 4.6, ranked by the extent of use throughout the UNECE region as a whole.

Table 4.6
Methods, media and locations used in the publicity campaign

Publicity campaign elements	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Publicity campaign adopted					
No	2		1	2	
Yes	37	100	9	28	100
Media and Methods used					
National press and magazines	37	100	9	28	100
National radio	36	97	9	27	96
National TV	35	95	9	26	93
Regional or local press	35	95	9	25	89
Regional or local radio	34	92	9	25	89
Press conferences	34	92	8	26	93
Regional or local TV	33	89	9	24	86
Leaflets	32	86	7	25	89
Internet and social media	32	86	8	24	86
Posters	31	84	6	25	89
Paid advertising	30	81	7	23	82
Free advertising	27	73	5	22	79
Public meetings and events	26	70	8	18	64
Billboards	25	68	8	17	61
Call centre (telephone helpline)	25	68	4	21	75
School promotions	18	49	8	10	36
Community based media	14	38	2	12	43
Audio tapes, CDs, DVDs	14	38	2	12	43
SMS texting	8	22	3	5	18
Locations used					
Regional and local government offices	30	81	8	22	79
Colleges and universities	22	59	8	14	50
Schools	22	59	6	16	57
Banks, Post offices, police stations and other public use facilities	19	51	5	14	50
Stations, airports and seaports	14	38	7	7	25
Local information help points	14	38	2	12	43
Libraries	13	35	4	9	32
Places of religious worship	10	27	2	8	28
Factories and other workplaces	5	13	2	3	11
Bars, pubs, theatres and other places of entertainment	3	8	1	2	7

The most frequently used locations to publicise the census were, both in EECCA countries and the rest of the UNECE region: local government offices (reported by all EECCA countries except Belarus and by three quarters of countries elsewhere); colleges and universities (all except Kyrgyzstan in the EECCA region and by half to the 36 countries elsewhere) and schools. There was greater use of

transportation locations such as stations, airports and seaports in EECCA countries (all but Armenia and Kyrgyzstan did so) than was the case in the rest of the UNECE region, where only a quarter of countries publicized the census at such sites.

In addition to those listed, several countries cited other types of locations, such as at shopping centres, markets and other commercial premises (Belarus), and on public transport and sports arenas (the Russian Federation). In general, the range of publicity outlets in the 2010 round was far greater than was the case ten years earlier.

Choice of location and the content of the publicity material often reflected the need to attract the attention of particular hard-to-reach groups. Table 4.7 identifies particular target populations at which countries specifically aimed different elements of their publicity campaigns. As is now widely acknowledged, schoolchildren and students (particularly older students living away from home) are notoriously difficult to reach in a census with a traditional field enumeration. It is not surprising then that countries made particular efforts to engage with this group; two thirds of all UNECE countries did so as did all but Belarus of the responding EECCA countries. (It should be noted that Kazakhstan did not respond to the relevant survey question and is thus excluded from the figures in Table 4.7)

Five out of the eight responding EECCA countries made particular efforts to target the census at ethnic/racial/religious minority communities, recent immigrants and young adult males, although throughout the rest of the UNECE region only a third did so for the second and third of these groups.

Table 4.7
Population groups specifically targeted in the publicity campaigns

Targeted population groups	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
School children and students	22	66	7	15	60
Particular ethnic/racial/religious minority groups	19	58	5	14	56
The elderly	16	48	4	12	48
Recent immigrants	14	42	5	9	36
Parents or very young babies	13	39	4	9	36
Young adult males	14	42	5	9	36
Visually impaired, deaf and other disabled	11	33	2	9	36
Other specific groups	9	27	1	8	32
Total countries	**33**	**100**	**8**	**25**	**100**

Countries were also asked to report what were, in general, the main aims of their publicity campaign, and in particular to identify the sequential elements of:

(a) Engagement: to make people aware of the census;

(b) Education: to tell people about the benefits (to them and to the country) of the census;

(c) Explanation: to tell people what to do and when;

(d) Encouragement: to persuade people who had not yet responded to do so;

(e) Enforcement: to remind people about their legal obligation and duty to take part if they persistently refused to do so;

(f) Expression of thanks for taking part; and

(g) Extolment of the value of the data and to encourage people to use the published results.

Table 4.8 shows to what extent these various aims were attempted. It can be clearly seen from this that countries, both in the EECCA region and elsewhere, put more emphasis into meeting those aims that helped manage the field operation part of the enumeration process – to engage the public, to educate them, to explain what they had to do, and to encourage response. All EECCA countries did this as did more than 80 per cent of countries throughout the rest of the UNECE region.

Table 4.8
Aims of the publicity campaigns

Aims	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Engage	33	92	9	24	89
Educate	34	94	8	26	96
Explain	32	89	9	23	85
Encourage	30	83	9	21	78
Enforce	20	56	3	17	63
Express thanks	23	64	7	16	59
Extol	13	36	4	9	33
Total countries	**36**	**100**	**9**	**27**	**100**

Other aims were seen as less important perhaps. Fewer countries, for example, attempted to publicise the enforcement element of participation in the census, either because there might not be any penalties for refusal to do so (as in the case of the Russian Federation), or because initial response was sufficiently high for such a campaign to be unnecessary. Of the EECCA countries only Georgia, Kazakhstan and Kyrgyzstan reported doing so.

And finally, the survey asked countries to report the slogans they used to accompany their publicity campaign. A selection of these for EECCA countries is presented in Table 4.9. Patriotic references to the 'importance' or 'necessity' of the census was a popular theme. (A number of countries whose censuses had not yet taken place had not decided on their slogan at the time of the survey).

Table 4.9
Publicity slogans

Armenia	Let's be counted for Armenia
Azerbaijan	Population census is the nationwide activity which serv citizen of our country
Belarus	Census 2009 it is necessary for me. my family, my coun
Kazakhstan	Everyone is important
Russian Federation	Everyone is important to Russia

5. OPERATIONAL FRAMEWORK II: LEGISLATION, SECURITY, CONFIDENTIALITY AND DISCLOSURE CONTROL

Introduction

In most countries, the preparation and conduct of a census and/or the collection and compilation of statistical data from administrative sources requires a legal basis, regulating issues such as: the allocation of funds for the census operations; the obligation of citizens to provide census information; the relationships between the agency responsible for the census and other public administrations involved in the census operations; the uses and linkage of registers to produce census data or to support field operations; and data security and confidentiality.

The last of these elements is particularly important. The census collects information on each person and household in the country. In its uses it is not concerned with facts about individuals as such. Its purpose is to provide statistics about the community, and groups within the community, as a whole. The public, therefore, has a right to expect, and needs to be assured that, personal information provided in confidence will be respected. The confidentiality requirement, whether enshrined in legislation or not, encompasses the whole census operation, ranging from the security of the completed census questionnaires both in the field and during processing, to the protection of the information contained in the outputs and made publicly available.

This chapter reports on both the legislative framework underpinning the 2010 round censuses in the EECCA region and the practices adopted by countries to ensure the security and confidentiality of the information collected and compares those practices within the rest of the UNECE region[5].

Legislation

In many countries, a specific census act or appropriate regulations are approved before each census, both to authorise the topic content and to deal with the issues mentioned above. In some countries, however, more general statistics legislation includes all the necessary provisions required for the conduct of a population census and/or the production and dissemination of statistical data thereby obviating the need for specific census legislation.

One of the main issues covered in census and statistics acts is data confidentiality. In an increasing number of countries, specific data-protection laws have been approved to regulate this field. In some cases, data-protection laws include all necessary provisions to cover the specific needs of censuses, including for instance the possible use of register data for censuses, or specific measures to be applied to census enumerators. In others cases, specific provisions on data confidentiality have to be included in the census acts, to take into account aspects, which are specific to the census.

Table 5.1 shows that legislation specific to the census was in force in seven out of the ten EECCA countries that responded to the survey. (Here, Ukraine's response has been reported since, although its census planned for 2014 was cancelled, the information relating to its legislation is still relevant.) The proportion of countries with specific census legislation in the rest of the UNECE region was slightly lower (at 62 per cent). The other three EECCA countries (Azerbaijan, Georgia and Kazakhstan) had, instead, more general statistical legislation under which the census was carried out. Regardless of the type of legislation in force, in only three cases (Armenia, Georgia and Ukraine) is that legislation permanent. Countries elsewhere in the EECCA region reported that new or revised legislation has be approved for each particular census. The corresponding proportions of countries in the rest of the UNECE region were more or less equal.

[5] The material in this chapter has been taken largely from reports of the UNECE survey prepared by Ian White (UK Office for National Statistics) on legislation and security and Eric Schulte Nordholt (Statistics Netherlands) on confidentiality and disclosure control, and presented to the Joint UNECE-Eurostat Work Session on Population and Housing Censuses in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Table 5.1
Census legislation in EECCA countries

Country	Type of legislation		Status of legislation		Data protection legislation
	Census	General	Permanent	Unique/ revised	
Armenia	X		X		X
Azerbaijan		X		X	X
Belarus	X			X	X
Georgia		X	X		X
Kazakhstan		X		X	X
Kyrgyzstan	X			X	X
Republic of Moldova	X			X	X
Russian Federation	X			X	X
Tajikistan	X			X	X
Ukraine	X		X		X
EECCA region	7	3	3	7	10
Rest of UNECE region	24	16	18	20	39
Total responding counties	**31**	**19**	**21**	**27**	**49**

Security, confidentiality and disclosure control

In all responding countries throughout the UNECE region, there is legislation of some form in place (be it specific to statistical confidentiality or to data protection more generally) that protects the confidentiality of personal information collected for census purposes (Table 5.1). Moreover, all but one EECCA country (Georgia) reported having a formal policy and/or strategy for ensuring the security and confidentiality of such information – although in seven countries (none of which were in the EECCA region) the details of the policy are not in the public domain.

In about two thirds of the responding countries throughout the rest of UNECE region, anonymised personal census information (or microdata) is made accessible to persons outside the NSI for the purpose of scientific or statistical research while it remains closed to public inspection. This practice is particularly prevalent among those countries that carried out a wholly register-based census. However, within the EECCA region only Georgia and the Russian Federation reported making census data available in this way (and Ukraine was also planning to do so).

Furthermore, most countries take measures to protect the statistical confidentiality of published output from the census. Kazakhstan reported not taking such measures. Post-tabular methods were reported as being more commonly adopted than pre-tabular methods irrespective of census methodology or region, though the majority of countries applied both (Table 5.2).

The table also notes the specific measures that countries reported using. Restricting the number of output categories into which a variable may be classified in any table was adopted more commonly throughout the UNECE region generally. Four out of the six EECCA countries that applied any statistical control, and three quarters of countries in the rest of the UNECE region, did so. Similar proportions applied minimum population and/or household thresholds for outputs for small areas. Only two EECCA countries (the Russian Federation and Tajikistan) reported modifying census data in any way (both used over-imputation while the Russian Federation also used record swapping), compared with a half the countries in the rest of the UNECE region.

Table 5.2
Measures to protect the statistical confidentiality of published output from the census

Measures to protect the statistical confidentiality of published output	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Pre-tabular measures only	8	17	1	7	18
Post-tabular measures only	17	36	0	17	44
Both pre- and post-tabular methods	20	43	5	15	39
No measures taken	2	4	2	0	0
Total countries	**47**	**100**	**8***	**39**	**100**
Disclosure control method					
Restricting the number of output categories into which a variable may be classified	35	78	4	31	79
Applying minimum population and/or household thresholds for outputs for small areas	32	71	4	28	72
Modifying the data in one or more ways	22	49	2	20	51
Cell suppression	18	40	0	18	46
Rounding	9	20	0	9	23
Record swapping	6	13	1	5	13
Over imputation	2	4	2	0	0
Small cell adjustment	2	4	0	2	5
Total countries applying control methods	**45**	**100**	**6**	**39**	**100**

* Kyrgyzstan did not respond

The UNECE survey on this topic concluded by asking countries to report whether or not they had commissioned an independent review or reviews of the measures taken to protect the physical security and/or statistical confidentiality of census information. Four of the EECCA countries (Armenia, Belarus, the Russian Federation and Tajikistan) reported doing so but (in common with a minority of countries in the UNECE region) had not published any details. Azerbaijan, Kazakhstan and Moldova on the other hand reported that they undertook no such reviews, as was the case with 60 per cent of countries in the rest of the UNECE region.

6. OPERATIONAL FRAMEWORK III: DISSEMINATION, DOCUMENTATION, METADATA AND ARCHIVING

Introduction

A census is not complete until the information collected is made available to users in a form and to a timetable that is suited to their needs. In short, it must be fit for purpose. Furthermore, an important component of any country's programme of dissemination is a comprehensive portfolio of supporting documentation and metadata to help explain, clarify, and enhance the value of the statistical outputs, particularly with regards to making comparisons with previous censuses and other data sources.

The UNECE survey therefore investigated the form and other characteristics of the dissemination programme adopted by countries in the 2010 round. The results are presented in this chapter, which also briefly reports on how countries keep and maintain their census records in the long-term[6].

Dissemination

The 2010 CES Recommendations noted that there are several ways of making the results of a census available to the user:

(a) As printed reports containing standard and pre-agreed tabulations, usually at the national, regional or local district area level, that may be obtained from government agencies or directly from booksellers;

(b) As unpublished reports (often referred to as abstracts) comprising standard tables but produced for either smaller geographies or population sub-groups not otherwise included in the published reports – these may often be requested by users who may have to contribute towards a proportion of the marginal costs of their production;

(c) As commissioned output produced from a database, comprising customised cross-tabulations of variables not otherwise available from standard reports or abstracts; and

(d) As micro-data, usually available in restricted format only and supplied under strictly controlled conditions.

However, due to their ever increasing production costs, printed publications may become less the preferred choice for the dissemination of the main census results, though paper still provides a media that does not readily deteriorate and does not require the user to have any particular hardware, software or technical skills. Concurrent release of outputs may, however, be made possible only by distribution through the use of high capacity electronic media.

Table 6.1 shows the various methods of dissemination adopted by EECCA countries and in the rest of the UNECE region in the 2010 census round. The questionnaire asked countries to select one main or primary method and to report on any other methods used in addition. The move from paper copy to web-based access is clearly in evidence throughout the UNECE region as a whole, though two thirds of the EECCA countries still used hard copy as their main means of dissemination (compared with just 10 per cent of countries elsewhere in the UNECE region). Only Georgia and Moldova reported using static web pages as the prime means (compared with 42 per cent of countries in the rest of the UNECE region), and only Belarus used interactive online databases (compared with a third of countries elsewhere).

[6] The material in this chapter has been taken largely from a report of the UNECE survey prepared by Ian White (UK Office for National Statistics), and presented to the Joint UNECE-Eurostat Work Session on Population and Housing Censuses in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Table 6.1
Dissemination methods used

Dissemination methods	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Main method					
Paper/hard/copy publications	9	18	6	3	10
CD-ROM/DVD	0	0	0	0	0
Static web pages	19	39	2	17	42
Interactive online databases	14	29	1	13	32
The EU Census Hub	5	10	0	5	12
GIS web-based mapping tools	1	2	0	1	2
Other methods	0	0	0	0	0
Secondary methods					
Paper/hard/copy publications	32	65	5	27	68
CD-ROM/DVD	25	51	8	17	42
Static web pages	29	59	7	22	55
Interactive online databases	21	43	4	17	42
The EU Census Hub	28	57	0	28	70
GIS web-based mapping tools	18	38	2	16	40
Other methods	6	12	0	6	15
Total countries	**49**	**100**	**9**	**40**	**100**

Table 6.2
Dissemination of microdata

	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Microdata disseminated	30	61	5	26	65
To all users	11	22	3	8	20
To selected users under specific conditions	19	39	2	17	42
Microdata not disseminated	10	20	2	8	20
Not decided	9	18	2	7	18
Total countries	**49**	**100**	**9**	**40**	**100**

Results from the survey clearly indicated, however, that for other, secondary, methods of dissemination, different media suited different output products generally throughout the UNECE region. Among the EECCA countries only Kazakhstan did not report the use of CD-ROMs and DVDs as an alternative means of dissemination, and only Georgia and Moldova failed to use static web pages.

Though the bulk of census outputs is made available to users through one or more of the media identified in Table 6.1, microdata is becoming an increasingly valuable vehicle for the dissemination and manipulation of data not otherwise accessible from aggregated census tabulations. Indeed, some 19 countries throughout the UNECE region (39 per cent) reported that microdata samples are, or would be, available to selected bona fide users (Table 6.2). And almost a quarter of countries (11) reported that such samples – though perhaps less detailed in content – would be available to all users. A similar extent of usage was reported among EECCA countries.

Two EECCA countries (Azerbaijan and Tajikistan) reported no plans to produce microdata, but two others (Kazakhstan and Moldova) were, at the time of the survey, undecided.

To investigate more specific characteristics of the census dissemination programmes, countries were asked to report on the lowest geographic level at which any census data is disseminated. The results are shown in Table 6.3. Areas created specifically for the census operation, particularly among the traditional census taking countries, are often the basis for the smallest output geography, but more

countries in the UNECE region generally adopted the Local Administrative Unit (LAU) 2 level (equivalent to communes) as their lowest level geography (21, or 43 per cent). This was particularly so for EECCA countries, of whom only Armenia and Belarus adopted a higher level of administrative geography.

But a restraining factor in deciding practicality of the lowest level of such geography is the issue of disclosure – the smaller the area, the higher the risk. Many countries in the UNECE region therefore apply minimum population thresholds for the release of census data for their smallest geographic areas. Table 6.3 shows that a third did so. But, reflecting the fact that countries in the EECCA region did not adopt an output geography at a level lower than the equivalent to the local administrative unit (LAU) level 2, only one country – Moldova – applied such a threshold.

Table 6.3
Lowest level of geography for which any census data is disseminated and application of minimum population thresholds

	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Lowest level of geography for which any census data is disseminated					
Census block	5	10	0	5	13
Smallest geographical unit used in census	11	30	0	11	28
1km grid square	1	2	0	1	3
Local administrative unit (LAU) level 2	21	43	7	14	36
Administrative unit larger than LAU2	3	6	2	1	3
Other geographical level	7	15	0	7	18
Application of minimum population thresholds for the release of outputs at lowest level					
Yes	17	35	1	16	41
No	31	66	8	23	59
Total countries	**48**	**100**	**9**	**39**	**100**

Countries were also asked to indicate both (a) the length of time after the census reference date before the first preliminary or provisional results were published, and (b) the length of time before the (expected or achieved) completion of the formal publication programme. The responses threw up some interesting, and perhaps, unexpected results. It might have been expected that respective lengths of time for both (a) and (b) would have been shorter for countries with a register-based census (and thus no field operation) than for countries with a traditional or combined census approach. But this was not the case.

The mean length of time for the eight responding register-based countries for (a) was 13 months compared with 11 months for countries with a combined census, and 8 months for traditional censuses in the rest of the UNECE region. With these figures in mind, EECCA countries performed particularly well with a mean figure of just 5 months calculated from their responses to the survey. This performance was mirrored in the time period for (b), for which the mean length of time for EECCA countries (23 months) was shorter than for countries in the rest of the UNECE region (between 27 and 28 months for all census methodologies).

In conclusion the survey asked countries to report whether or not their dissemination programme would include official reports specifically on the general evaluation of the census operation as a whole, and on the quality of the data (Table 6.4). Just fewer than half the EECCA countries, and one in five throughout the rest of the UNECE region, reported that they had published, or intended to publish, a general evaluation report only, whereas no EECCA country and a third of countries elsewhere in reported with respect to a quality report only. Only two EECCA countries (Kazakhstan and Moldova) reported both, compared with over at third of countries throughout the rest of the UNECE region. The next chapter reports more widely on how countries assessed and measured coverage and quality more specifically.

Table 6.4
Plans to publish general evaluation and data quality reports

Have published report or plan to publish report	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
General evaluation report only	12	24	4	8	20
Quality report only	13	27	0	13	32
Both	16	33	2	14	35
Neither (or not yet decided)	8	16	3	5	12
Total countries	**49**	**100**	**9**	**40**	**100**

Documentation and metadata

An important component of any country's programme of dissemination is a comprehensive portfolio of supporting documentation and metadata to help explain, clarify, and enhance the value of the statistical outputs, particularly with regards to making comparisons with previous censuses and other data sources. The UNECE survey accordingly asked countries to report on the range of documentation and metadata that had been, or will be, produced to support the dissemination of outputs. The results are shown in Table 6.5 ranked by the extent of use.

Most of the 48 responding countries throughout the UNECE region (90 per cent) reported that they had produced, or will have produced, explanatory notes to accompany the statistical tables from the census, as did six (two thirds) of the EECCA countries. Documentation/metadata covering the census questions, methodological reports and definitions of terms and concepts were also produced by the majority of EECCA countries and by around three quarters or more of countries in the rest of the UNECE region.

Table 6.5
Documentation and metadata produced to support the census outputs

Documentation/meta data	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Explanatory noted to tables	43	90	6	37	92
Definitions of terms and concepts used	42	88	5	37	92
Methodological papers/report	41	85	6	35	88
Data visualisation (maps, graphs, charts, etc.)	37	77	5	32	80
The census questions	36	75	7	29	72
Levels of imputation	27	55	0	27	68
Of each which Overall levels	25	52	0	25	62
For each topic	22	46	0	22	55
For each area	5	10	0	5	12
For each level of geography	4	8	0	4	10
Levels of response	26	54	4	22	55
Changes to definitions etc. since previous census	26	54	3	23	58
Data dictionary/glossary of terms	21	44	0	21	52
User guides	17	35	1	16	40
Comparisons with other data sources	15	31	1	15	38
Commentary on the results	13	27	0	13	32
Coverage adjustments	13	27	1	12	30
Confidence intervals	9	18	0	9	22
None of the above	1	2	0	1	2
Total countries	**48**	**100**	**8**	**40**	**100**

What is perhaps surprising from the results shown in Table 6.5 is the lack of any reporting on levels of imputation in any of the responding EECCA countries despite the extent of imputation that was carried out within the region (see Chapter 7). This is in contrast with the two thirds of countries elsewhere in the UNECE region who had produced such metadata. Commentary on the results of the census and the reporting of confidence levels were also totally lacking among the EECCA countries, compared with a third of countries in the rest of the UNECE region. (But there is more analysis of the measures taken to report specifically on quality in Chapter 7.)

While Belarus reported the production of a wide range of documentation or metadata covering 12 of the items identified in Table 6.5, at the other end of the scale Armenia and Azerbaijan only reported on five such items. (At the time of the survey Kazakhstan had not decided on the range of metadata it would produce and has therefore been excluded from the analysis.)

In preparing explanatory documentation and metadata it is important to consult those users of census data whom the information is designed to help. However, only half of responding countries throughout the UNECE region reported that they did so. But not surprisingly, perhaps, among the traditional census countries, where metadata tends to be more extensive, more than half (61 per cent), consulted with users, and among the EECCA countries such consultation was even more widely conducted and only Azerbaijan and Kygyzstan reported that they did not do so.

In planning their output from the census, almost all responding countries (45 out of 48) and all those in the EECCA region adopted national and or international standards and guidelines on the preparation of metadata. Such use of international guidelines in this way reflected the countries' reference to international recommendations in the planning and preparation of their censuses. As shown in Table 6.6, 43 out of the 49 countries that responded used the 2010 CES Recommendations in this way. Only Kyrgyzstan of the countries in the EECCA region reported that it did not do so.

A similarly widespread use was made, among the EECCA countries of the United Nation's key reference documentation. Only Azerbaijan reported that it did not refer to either the 2nd Revision of the UN's Principles and Recommendations on Population and Housing Censuses, or to the UN's Handbook on Census Management.

Table 6.6
Recommendations and other international documentation referred to

Recommendations and documentation	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
CES Recommendations 2010 round	43	88	8	35	88
Other UNECE/Eurostat documentation	29	59	2	27	68
UN Principles and Recommendation (2nd Revision)	31	63	8	23	58
UN Handbook on Census Management	21	43	8	13	32
Other UN documentation	2	4	0	2	5
Total countries	**49**	**100**	**9**	**40**	**100**

Archiving

Finally, the survey enquired about the archiving policy and how long countries kept either the individual census records (or any images of them), or, in the case of register-based censuses, any linked data based on unit records. All EECCA countries reported that they kept such records only for a limited period of time before destroying them.

Six countries (including Ukraine) maintain a policy of keeping their census records for a period of 1-5 years before destroying them, while two countries (Belarus and Kyrgyzstan) hold on to them for up to 10 years before doing so. Only the Russian Federation keep their records only for as long as is necessary for data processing to be completed. No EECCA country retains their census records as a long-term archive for subsequent socio-historical research purposes as is done in a number of countries in the rest of the UNECE region.

7. COSTS, BENEFITS, QUALITY AND COVERAGE

Managing and monitoring census costs

Introduction

Population censuses are, in most countries, the largest statistical operation undertaken in the context of the official statistical system. They are also – at least as far as traditional census taking is concerned, and particularly in the EECCA region – the most expensive one, and since census expenses are usually concentrated during a short period of time, census costs may appear to be greater than if they were spread evenly over a decennial period.

One of the main reasons for the high cost of traditional censuses is that they require information from everyone in a country and so they are labour-intensive, particularly in the collection stage, during which large numbers of temporary employees are hired for relatively short periods of time, varying from several days or weeks to a few months. And there continues to be a growing need for better and more intensive census publicity to increase the chances of a successful census, and this has brought an added and growing item to census costs.

Managing census costs is an important aspect of the organization of any census. This emerged clearly in the 2000 census round, when countries developed a variety of approaches to reduce census costs – or at least to avoid their increase – and was for the 2010 census round even more a key issue at a time of global economic constraint. Consequently the UNECE survey paid particular attention to learning about the level and profile of national census costs, investigating what effect innovations have had on both cost and benefits, and how the investment put into the census has benefited users. This section presents the results of the survey[7].

But a word of warning here. The analysis of data on census costs should be considered with particular caution. The comparison of census costs across different countries is affected by many factors. One of them is the complexity of comparing costs across currencies and different points in time (the reported censuses across the EECCA region, for example, were conducted over a timeframe of over five and a half years from February 2009 to November 2014). In another case it may be that enumerators already employed in some other capacity by the state, are used in the census field operation but not charged directly to the census. A further important factor arises from the difficulties of categorizing census expenses across countries in a standard way to allow meaningful comparisons.

The main goal of the present analysis is to describe only the broad experiences of the reporting countries using relatively simple standardization techniques. Moreover while some comparisons are made between censuses with and without a field operation, the main focus is to compare the costs of censuses in the EECCA region with those of countries in the rest of the UNECE region that carried out a traditional census.

Measures of census costs

Two different measures to compare census costs on a *per capita* basis across the different UNECE countries are used. For each country, the costs have been calculated as close as possible to the census year for that country (though, as noted above, they refer to a period of expenditure spread over different lengths of time for different countries). While the results are presented on a *per capita* basis to allow better comparison, this also can be misleading. This is because there are many census costs (such as computing and infrastructure costs) that are not totally dependent on population size.

[7] The material in this chapter has been taken largely from the paper prepared by the UNECE Task Force on Costs and Benefits, led by Alistair Calder (of the UK's Office for National Statistics) and which was presented at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, in Geneva from 30 September to 3 October 2013
(http://www.unece.org/stats/documents/2013.10.census1.html)

The first measure is the simple conversion of the reported *per capita* costs in local currency, into a common currency (US dollars) calculated at the year of the census. This measure does not reflect the differences in purchasing power across countries. However, as some firms that provide outsourced services to NSIs may be internationally based, and some components of the census equipment such as computers are produced and sold in the international market, it may be considered relevant for some purposes.

The second measure is the conversion of the *per capita* costs in the census year into 'purchasing power parity' (PPP) units in US dollars (USD). This measure provides a more internationally comparable estimate of costs. It is based on the purchasing power in the different countries standardized into one common measuring unit. Table 7.1 shows, for those responding traditional census countries, the two cost measures, together with the total costs as reported by the countries, ranked by PPP cost. These costs can be compared with those UNECE countries with different census methodologies set out in the corresponding table in the 2014 publication.

Total census costs across countries

Some 42 out of the 50 countries taking part in the survey provided information on the total costs of their census, including 7 EECCA countries (Georgia and Kazakhstan did not provide detail for their costs). Table 7.1 shows that Azerbaijan reported the lowest cost both in terms of *per capita* and PPP, and that seven countries out of the eight lowest ranked were in the EECCA region, suggesting that the censuses in the region provided good value for money.

Table 7.1
Different measures of census cost, UNECE countries with traditional census

Country	EECCA	Census Cost (in 2011 US dollars)		
		Total Cost	Per capita	Per capita (PPP)
Azerbaijan	X	9,428,371	1.03	1.45
Kyrgyzstan	X	6,100,000	1.12	2.40
Armenia	X	5,126,000	1.57	2.78
Tajikistan	X	10,084,000	1.31	3.09
Belarus	X	14,489,003	1.53	3.63
Republic of Moldova	X	7,655,902	2.15	3.69
Bulgaria		13,443,758	1.83	3.79
Russian Federation	X	544,800,000	3.81	4.79
France		405,066,815	6.22	5.16
Romania		62,716,391	2.93	5.28
Malta		2,053,167	4.93	6.33
Croatia		21'000'000	4.77	6.55
Portugal		65,732,758	6.23	7.06
Luxembourg		5,567,929	10.74	8.33
Greece		95,440,015	8.45	8.50
Serbia		34,131,389	4.70	8.85
Slovakia		40,747,494	7.55	10.21
Montenegro		3,458,416	5.57	10.51
Hungary		75,755,615	7.60	11.70
UK		807,349,666	12.87	11.82
Italy		840,842,149	13.85	12.49
Albania		19,487,751	6.10	13.42
Bosnia and Herzegovina		29,231,626	7.61	14.33
Canada		658,235,748	19.09	15.34
Ireland		83,357,494	18.21	15.64
United States		12,520,538,000	40.17	40.17

However, in order to compare the cost for each type of census more generally, Table 7.2 presents the median values of the indicators presented in Table 7.1 for each census type (median values have been used here rather than means, as median values are less influenced by extreme values).

Table 7.2
Median costs of the 2010 round of censuses by type of census (in US dollars)

	Census Cost (in 2011 US dollars)		
	Total Cost (millions)	Per Capita	Per capita (PPP)
All responding countries	16.6	4.32	5.80
EECCA	*10.1*	*1.53*	*3.09*
Rest of UNECE – Traditional census	*10.2*	*7.55*	*10.21*
Rest of UNECE - Register-based census	*1.9*	*0.24*	*0.18*
Rest of UNECE – Combined census	*18.7*	*3.94*	*6.01*

As expected, for all indicators of census costs, the median values of the register-based censuses are by far lower than those for the traditional or combined censuses, though it should be noted perhaps that the lower costs reported for register-based censuses reflect only the marginal cost of the production of census statistics – not the full cost of building and maintaining the registers (which might be shared between applications). However, when comparing cost values of the EECCA countries with traditional censuses throughout the rest of the region, Table 7.2 notes that while the total costs for EECCA countries range from $ 5.1 million (Armenia) to $ 544 million (Russian Federation) the median value of $ 10.1 million is more or less same as the median for the rest of the UNECE region ($ 10.2 million) in which the total cost of the US census far exceeds (by more than ten times) the cost of any other census.

The other two costs measures are significantly lower for EECCA countries than for other UNECE countries with traditional census.

Elements of census costs

But what was the money spent on? The UNECE survey asked countries to estimate the proportion of their total costs that were allocated to a number of specific key census activities, and to identify other activities of major expenditure. However, only three quarters of the countries taking part in the survey (39) responded, suggesting that in many cases even an estimation of the spread of census costs was not readily available. The broad census activities identified in the survey are listed in Table 7.3, which shows the minimum, maximum and mean proportions for the six EECCA countries and 19 traditional census countries throughout the rest of the UNECE region that provided information.

Among these countries, the activity demanding the biggest proportion of census costs remains, as expected, the field enumeration. For EECCA countries the average spend took half the census budget (and as much as two thirds in Moldova); this proportion was only just little more for the rest of the UNECE region (though in Greece it was to have been as much as 85 per cent). But the proportion of costs assigned to data processing was significantly less in EECCA countries (just 9.3 per cent of the total spend) than elsewhere in the UNECE region (15.0 per cent). Though here again in one EECCA country in particular – Tajikistan – this proportion was over a quarter of the total spend.

Table 7.3
Percentages of total cost spent on different census activities

Census activity/operational area	Minimum	Non-zero minimum	Maximum	Mean
	%	%	%	%
EECCA countries (6 responding countries)				
Rehearsal/pilots/tests	1	1	18	4.5
Development of online questionnaires	0	1	1	0.2
Printing	4	4	17	9.0
Mappings and other GIS support services	0	1	21	7.8
Publicity and Promotion	0	2	3	2.0
Field operation	40	40	67	50.3
Data processing	2	2	27	9.3
Dissemination and documentation	1	1	10	3.5
Project management and administrative support services	0	1	16	4.6
All other costs	0	2	20	8.2
Other UNECE countries with traditional census (19 responding countries)				
Rehearsal/pilots/tests	0	1	15	2.3
Development of online questionnaires	0	1	12	2.3
Printing	1	1	19	4.4
Mappings and other GIS support services	0	1	20	5.1
Publicity and Promotion	0	1	7	2.7
Field operation	28	28	85	53.6
Data processing	5	5	30	15.0
Dissemination and documentation	0	1	16	4.1
Project management and administrative support services	0	1	13	3.8
All other costs	0	1	20	6.8

The effect of innovation on costs and benefits

As noted in Chapter 3 many countries in the UNECE region had made innovations in the design and execution of their censuses in the 2010 round. The survey showed that in most cases these resulted in a reduction in overall cost. Among the responding countries, the greatest number of reports of cost savings, came from the integration of data from registers (not surprisingly in those countries adopting a combined approach) and from improvements in statistical methodology (particularly among countries with traditional censuses). Outsourcing also reduced cost in some cases. However, none of the EECCA countries provided information in the survey on the impact on costs and benefits of any of the key innovations identified in Table 3.9, so this present publication is not able to make comparisons between the effects of innovation in EECCA countries and the rest of the UNECE region.

EECCA countries were, however, more responsive in the survey when it came to identifying the main users who would benefit from the census. From the wide range of different types of user, countries were asked to identify the four most important. No guidance or criteria to determine how such users should be selected were offered, preferring to leave that to the opinion of the countries themselves.

The types of user identified were fairly consistent within countries across the UNECE region as a whole. Table 7.4 shows that all EECCA countries regarded users in central government departments and local government authorities as among the most important. What is surprising perhaps that as many as six countries in the rest of the UNECE region did not do so. All EECCA countries except

Armenia and the Russian Federation also included their own NSI as a key user of the census, as did three quarters of the rest of the UNECE region. Academics and education service providers, and the general public were also recognised as being important users – the latter in more than half the EECCA countries. But only Armenia and Tajikistan among the EECCA countries reported international organisations as a key group of users.

But there is no implication here that other uses are not important – their lower scores being the result of the fact that countries were asked to select only four user groups. Indeed, the fact that among countries in the rest of the UNECE region as many as six (8 per cent) identified the press, and four (8 per cent) included business and commercial users, shows what a wide complex range of users benefit from the census. The fact that no EECCA countries and only five per cent of countries elsewhere identified health service providers and other users collectively in their top four, and that no countries specifically included users among, for example, public utility service providers, community groups, religious organisations and charities, should not be taken to mean that the census does not also benefit such communities and the work they do. Indeed, Table 7.4 goes on to show what the main benefits of the census are to a wide range of census users generally. In providing information on specific benefits, countries were not restricted by the survey to identifying just four categories but could identify up to eight.

The execution of policy and the provision of local services dominates, with all but two EECCA countries and four fifths of the rest of the UNECE region identifying usage of the census as a key benefit. Such usage covers a wide range of service provision of which top of the list is housing. Two thirds of countries both the in EECCA region and elsewhere reported this as a key benefit. National resource allocation also benefits widely from the census. Again all but two EECCA countries reported this as a key benefit as did almost four fifths of countries in the rest of the UNECE region.

But a whole range of other benefits arising from the use of census data are apparent. The importance of such data in academic research is highlighted (by two thirds of EECCA countries and three quarters of the rest of the UNECE region), as it provides a benchmark for other statistics such as population estimates and projections, and the calculation of demographic and economic activity rates.

Table 7.4
Main users that benefit from the census and the resulting benefits

Main users and Benefits	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Main users					
Central government departments/organisations	42	88	9	33	85
Local government authorities/organisations	42	88	9	33	85
Own NSI	35	73	7	28	72
Academics and education service providers	20	42	4	16	41
General Public	17	35	5	12	31
International organisations	16	33	2	14	36
Press and the media	6	12	0	6	15
Business, marketing, retailers and other commercial sectors	4	8	0	4	10
Health service providers	2	4	0	2	5
Main benefits					
Local policy and services:	40	83	7	33	85
Housing	33	69	6	27	69
Education	25	52	2	23	59
Social Services	24	50	4	20	51
Employment	23	48	3	20	51
Transport	16	33	2	14	36
Health	15	31	4	11	28
Utilities (water, gas, electricity providers, etc.)	13	27	1	12	31
Community services	12	25	1	11	28
Industry	3	6	1	2	5
Police and fire services	2	4	1	1	3
Other services	6	12	2	4	10
National allocation of resources to regional and local areas	38	79	7	31	79
Benchmarking:	36	75	7	29	74
Population estimates/projections and birth/death rates	31	65	6	25	64
Migration rates	24	50	5	21	54
Employment/ unemployment rates	19	40	6	13	33
Academic and scientific research	35	73	6	29	74
Informing the democratic process/electoral boundaries	13	27	3	10	26
International monitoring	12	25	1	11	28
Retail and other market research purposes	11	23	4	7	18
Equalities monitoring	9	19	1	8	21
Total countries	**48**	**100**	**9**	**39**	**100**

Assuring data quality and measuring coverage

Introduction

The product of any census of population and housing is data, and therefore confidence in the quality of that data is critical. Thus a quality assurance programme must be an element in the overall

census programme and should touch on all activities during planning, the development period, operations like data collection and processing through to evaluation and dissemination of results. The 2010 CES Recommendations noted in paragraph 71 that:

> "*Because of the size and complexity of census operations, it is likely that errors of one kind or another may arise at any stage of the census. These errors, whether in planning, development or in operations, can easily lead to serious coverage or content errors, cost overruns or major delays in completing the census. If not anticipated and controlled during design and implementation they can introduce non-sampling error to the point of rendering results useless. To minimize and control errors at various stages of a census, it is good practice to devote a part of the overall census budget to quality assurance and control programmes*."

During the discussions on the census at the Conference of European Statisticians plenary session in Paris in June 2012, concerns were raised about the impact that different approaches to census taking could be having on the comparability of population statistics across countries in the UNECE region. In particular the CES discussion focused on the potential differences that might occur between countries that undertake a field-based enumeration and those with a register-based approach.

The CES called for the establishment of a Task Force on Coverage and Quality to consider how the 2010 recommendations should be developed for the 2020 census round to help address these concerns. Accordingly, and because of its importance to the success of the census, the measurement of quality and coverage was the focus of part of the UNECE survey. This section reports particularly on the elements of measuring the accuracy of the data collected in the census by each country[8].

Defining data quality

It is generally accepted that, with particular relevance to the census, there are six dimensions of data quality. These are set out at paragraph 76 of the CES Recommendations, namely:

(a) The *relevance* of statistical information reflects the degree to which it meets the needs of users. The challenge for a census programme is to balance conflicting user requirements so as to go as far as possible in satisfying the most important needs within resource constraints. This dimension of quality is particularly important in census content development and in dissemination.

(b) The *accuracy* of statistical information is the degree to which the data correctly describes the phenomena it was designed to measure. It is usually characterized in terms of error in statistical estimates and is traditionally broken down into bias and variance. In a census context, variance only applies in situations where a longer, more detailed, questionnaire is used for a sample of persons or households, or where only a sample of records is processed. Accuracy can also be described in terms of major sources of error (for example coverage, sampling, non-response, response, data capture, coding).

(c) *Timeliness* refers to the delay between the time reference point (usually census day) to which the information pertains and the date on which the information becomes available. Often for a census there are several release dates to be considered in a dissemination schedule. Typically there is a trade-off against *accuracy*. T*imeliness* can also affect *relevance*.

(d) The *accessibility* of statistical information refers to the ease with which it can be obtained. This includes the ease with which the existence of information can be ascertained, as well as the suitability of the form or medium through which the information can be accessed. Even though censuses are conducted primarily to meet

[8] This section is mainly based on a paper prepared by the Task Force on Coverage and Quality, led by Peter Benton (of the UK's Office for National Statistics), and which was discussed at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013.

the needs of central government, the data obtained are of great value to many secondary users including local administrations, private organizations and the public at large.

(e) The *interpretability* of statistical information reflects the availability of supplementary information and metadata necessary to interpret and use it [this dimension is associated with the similar dimension of *comparability* with previous censuses and other data sources]. This information usually covers the underlying concepts, definitions, variables and classifications used, the methodology of data collection and processing, and indications of the accuracy of the information.

(f) *Coherence* reflects the degree to which the census information can be successfully brought together with other statistical information within a broad analytic framework and over time. The use of standard concepts, definitions and classifications – possibly agreed at the international level – promotes coherence. The degree of quality on *coherence* can be assessed via a programme of certification and validation of the census information as compared to corresponding information from surveys and administrative sources.

The UNECE survey asked each country to report on those dimension for which management processes were established and whether or not the findings were (or were to be) published. Some 47 countries responded but two EECCA countries (Kyrgyzstan, and Tajikistan) did not. Thus these two countries together with the responses from Ukraine have not been included in the analyses set out in the following tables. Moreover it should also be noted that the Republic of Moldova (where the census had not taken place at the time of the survey) reported that the concept of quality assurance was still in development at the time of the survey, so it was too early for Moldova to respond to some of the survey questions.

Table 7.5 shows the number of countries that managed each dimension noting whether or not they have published any findings. More countries managed accuracy (all except Denmark) than any other dimension – all six responding EEECA countries did so – whereas relevance was the quality dimension that, throughout the UNECE region generally was managed by the least number of countries. However, for the EECCA countries, four reported that they managed relevance but only three reported managing coherence.

It was generally the cases that whatever the dimension, EEECCA countries tended not to publish the results (even for the key dimensions of accuracy and timeliness) whereas throughout the rest of the UNECE region there was a fairly even split between those countries that published the relevant information and those that did not.

Table 7.5
Managing quality dimensions

Quality Dimension	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Relevance					
Managed	37	82	4	33	85
Published	16	36	0	16	41
Not Published	21	47	4	17	44
Not managed/no information provided	8	18	2	6	15
Accuracy					
Managed	44	98	6	38	97
Published	22	49	0	22	56
Not Published	22	49	6	16	41
Not managed/no information provided	1	2	0	1	3

Table 7.5
Managing quality dimensions *(continued)*

Quality Dimension	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Timeliness					
Managed	39	86	4	35	90
Published	18	40	0	18	46
Not Published	21	47	4	17	44
Not managed/no information provided	6	13	2	4	10
Accessibility					
Managed	41	91	5	36	92
Published	27	60	2	25	64
Not Published	14	31	3	11	28
Not managed/no information provided	4	9	1	3	8
Comparability					
Managed	41	91	5	36	92
Published	27	60	2	25	64
Not Published	14	31	3	11	28
Not managed/no information provided	4	9	1	3	8
Coherence					
Managed	40	89	3	37	95
Published	23	51	1	22	56
Not Published	17	38	2	15	39
Not managed/no information provided	5	11	3	2	5
Total countries	**45**	**100**	**6**	**39**	**100**

Measuring accuracy

The key issue discussed at the 2012 CES plenary session referred to above was that of the *accuracy* of population statistics. Accordingly this became the focus of the quality section of the UNECE survey. In particular, countries were asked to report on those statistical methods used to measure accuracy of the census statistics and whether they were used to measure under-coverage, over-coverage, and/or variance.

Some 46 countries provided some sort of responses to this enquiry, including all but Kyrgyzstan within the EECCA region. Table 7.6 breaks down the overall response rate into the various methods used to measure accuracy, comparing the EECCA countries with the rest of the UNECE region, and shows whether or not these methods were used in the measurement of under-coverage over-coverage, and/or variance.

Demographic analysis was the method used by the greatest number of countries (all the EECCA countries did so and two thirds in the rest of the UNECE region). Five EECCA countries used this for the measurement of under-coverage, and four for over-coverage (similar to the proportions throughout the rest of the UNECE region); and all but Georgia used it to measure variance, compared with just one third of countries elsewhere.

Coverage surveys were used, in one way or another by more than half the EECCA countries to measure accuracy, though only Moldova reported the use of an independent post-enumeration check to do so. It is perhaps surprising to see that for the 2010 round of census less than half the countries generally use a post-enumeration coverage survey to measure accuracy. But these proportions are more influenced by the fact that there is less of a need for countries with a register-based census to do so. Among those countries carrying out some form of field operation, more than a half reported that they do undertake post-enumeration check.

Table 7.6
Methods used to measure accuracy

Methods used to measure accuracy	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Demographic analysis					
Method used	34	74	8	26	68
To measure under-coverage	25	54	5	20	53
To measure over-coverage	23	50	4	19	50
To measure variance	19	41	7	12	32
Measure not used/not reported	12	26	0	12	32
Comparison with existing surveys					
Method used	31	67	4	27	71
To measure under-coverage	16	35	1	15	39
To measure over-coverage	13	28	1	12	32
To measure variance	19	41	4	15	39
Measure not used/not reported	15	33	4	11	29
Comparison with record administrative data					
Method used	24	52	3	21	55
To measure under-coverage	18	39	1	17	45
To measure over-coverage	17	37	1	16	42
To measure variance	7	15	2	5	13
Measure not used/not reported	22	48	5	17	45
Comparison with aggregated administrative datasets					
Method used	22	48	3	19	50
To measure under-coverage	17	37	1	16	42
To measure over-coverage	17	37	1	16	42
To measure variance	9	20	3	6	16
Measure not used/not reported	24	52	5	19	50
Independent post-enumeration-coverage survey					
Method used	18	39	1	17	45
To measure under-coverage	18	39	1	17	45
To measure over-coverage	17	37	1	16	42
To measure variance	9	20	1	8	21
Measure not used/not reported	28	61	7	21	55
Analysis of questionnaire return rates					
Method used	12	26	1	11	29
To measure under-coverage	11	24	1	10	26
To measure over-coverage	9	20	1	8	21
To measure variance	5	11	1	4	11
Measure not used/not reported	34	74	7	27	71
Other form of coverage survey					
Method used	10	22	5	5	13
To measure under-coverage	8	17	4	4	11
To measure over-coverage	6	13	3	3	8
To measure variance	2	4	2	0	0
Measure not used/not reported	36	78	3	33	87
Other methods					
Other method used	6	13	0	6	16
To measure under-coverage	5	11	0	5	13
To measure over-coverage	4	9	0	4	11
To measure variance	2	4	0	2	5
Measure not used/not reported	40	87	8	32	84
Total countries	**46**	**100**	**8**	**38**	**100**

The survey went on to ask if countries set and published targets for the accuracy of their census statistics. Three quarters of all those that measured accuracy reported that they did not set targets, and of the EECCA countries only the Russian Federation did so, though these were not published. And in response to a somewhat less objective enquiry, over three quarters of countries (30) reported that the methods they used to measure accuracy were either 'effective' (23, including Belarus, Russian Federation and Tajikistan) or 'very effective' (7, but not including any EECCA countries). Some eight countries overall (including another three from the EECCA region) reported their methods only to be 'partially effective'.

Making adjustments to the census figures

The UNECE survey included a number of questions to enquire into the extent to which countries made adjustments to the recorded census counts to take account of missing values, errors and inconsistencies in the data collected and for under- and over-coverage.

The majority of UNECE countries (40, equivalent to 89 per cent of all those that responded) applied editing procedures to enable them to adjust for errors and inconsistencies (Table 7.7). Two thirds of EECCA countries did so, and of these all of them used imputation to estimate figures for missing or erroneous values (compared with over 90 per cent for countries throughout the rest of the UNECE region).

Of the three EECCA countries that did not provide a response to this enquiry, Georgia and Moldova reported that it had been too soon, at the time of the survey, to decide whether or not to adjust census figures, and how.

Table 7.7
Methods for adjusting census figures

Methods used to adjust figures	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Methods for adjusting figures not applied	5	-	0	5	-
Methods applied	40	100	6	34	100
Imputation	37	92	6	31	91
Weighting	7	18	0	7	21
Other methods	7	18	0	7	21
No response	4	-	3	1	-

8. CHALLENGES AND SUCCESSES

Introduction

In the 2010 census round – as in previous censuses – many changes were introduced by many countries to reflect, among other things, the need to reduce costs and improve efficiency and quality, and to take advantage of developing technologies and methodologies. Such changes may, or may not, bring with them success but all present challenges. This chapter notes some of the key difficulties faced by countries in the 2010 round as reported in the UNECE survey, but also shows the other side of the coin by commenting on some of the successes[9].

Challenges

The survey asked countries to assess and rank some 28 different challenges or obstacles in conducting their census. For each challenge, respondents were asked to indicate one of four levels of difficulty from 'most challenging' to 'not a challenge', or to indicate if a challenge was not applicable for whatever reason (for example, where a particular activity or process was not relevant to the census methodology adopted by the country – such as improving/maintaining participation rates or response rates in the case of a wholly register-based census). No criteria were provided to define the scale, so responses were, to some extent, subjective. Only Georgia did not respond – although some countries did not respond to particular individual challenges. Ukraine's response has not been included in the analysis. Table 8.1 shows the results for each aspect of the census ranked by the total number of countries reporting it as presenting a challenge (out of a total of 49 countries).

Quality-related issues were the ones that seem to have presented the most widespread difficulties across the region. More than 40 countries in all, and more than half the EECCA countries, reported at least some level of difficulty in implementing quality control and/or assurance checks, and improving or maintaining data quality and data processing operations. It can be noted from Table 8.1, however, that only in seven or fewer cases were such issues ranked as the most challenging, with the majority of countries rating them only as a 'medium' or least difficult challenge. All but one of the EECCA countries also reported difficulties in obtaining financial resources and mapping (only Belarus did not), and in improving data collection (for which Kyrgyzstan was the exception). But all EECCA countries reported problems in obtaining sufficient staff resources and expertise, though this was not widely regarded as a major difficulty, and only the Russian Federation specifically reported the recruitment of sufficient numbers of field staff as one of the more difficult challenges.

One might expect to see keeping to both the planned timetable and budget as two of the most frequently reported challenges. And, indeed the first of these was reported as being a most difficult or medium challenge by two thirds of countries throughout the UNECE, and was reported by 11 of these as being the most difficult. But only a half of EECCA countries reported these as being a challenge, and only Armenia rated budgetary control as being the most difficult.

[9] The material in this chapter has been taken largely from a paper on field operations, legislation and lessons learned from the 2010 census round prepared by the UNECE Steering Group on Censuses and presented at the Meeting on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html). The original text on challenges and successes was drafted by Arona Pistiner (US Census Bureau).

Table 8.1
Challenges faced in the 2010 round of censuses

Challenge/region	Countries reporting as a challenge				No challenge	Not applicable or no response
	Total	Level of challenge				
		Most difficult	Medium challenge	Least difficult		
Implementing quality control/assurance checks						
UNECE region	43	6	15	22	4	2
EECCA countries	5	0	1	4	1	2
Rest of UNECE region	38	6	14	18	3	0
Improving/maintaining data quality						
UNECE region	42	7	24	11	4	3
EECCA countries	8	2	4	2	0	0
Rest of UNECE region	34	5	20	9	4	3
Improving data processing/tabulation						
UNECE region	42	6	15	21	6	1
EECCA countries	7	2	3	2	1	0
Rest of UNECE region	35	4	12	19	5	1
Keeping to the planned timetable						
UNECE region	38	11	22	5	8	3
EECCA countries	4	0	3	1	1	3
Rest of UNECE region	34	11	19	4	7	0
Obtaining financial resources						
UNECE region	37	9	18	10	9	3
EECCA countries	7	2	4	1	1	0
Rest of UNECE region	30	7	14	9	8	3
Public privacy concerns						
UNECE region	37	5	13	19	10	2
EECCA countries	4	0	2	2	4	0
Rest of UNECE region	30	7	14	9	8	3
Process re-engineering						
UNECE region	36	9	14	13	7	6
EECCA countries	5	1	2	2	1	2
Rest of UNECE region	31	8	13	11	6	4
Data dissemination						
UNECE region	35	4	15	16	12	2
EECCA countries	4	0	2	2	3	1
Rest of UNECE region	31	4	13	14	9	1
Insufficient staff resources/expertise						
UNECE region	34	3	19	12	11	4
EECCA countries	5	1	4	0	2	1
Rest of UNECE region	29	2	15	12	9	3
Improvising/maintaining response rates						
UNECE region	34	3	19	12	11	4
EECCA countries	5	1	4	0	2	1
Rest of UNECE region	29	2	15	12	9	3
Improving data collection						
UNECE region	34	3	19	12	11	4
EECCA countries	5	1	4	0	2	1
Rest of UNECE region	29	2	15	12	9	3
Keeping to budget						
UNECE region	34	3	19	12	11	4
EECCA countries	5	1	4	0	2	1
Rest of UNECE region	29	2	15	12	9	3
Improving/maintaining participation rates						
UNECE region	33	9	14	10	6	10
EECCA countries	6	3	1	2	2	0
Rest of UNECE region	27	6	13	8	4	10

(continues on next page)

Table 8.1
Challenges faced in the 2010 round of censuses *(continued)*

Challenge/region	Countries reporting as a challenge				No challenge	Not applicable or no response
	Total	Level of challenge				
		Most difficult	Medium challenge	Least difficult		
Public confidentiality concerns						
UNECE region	33	4	13	16	13	3
EECCA countries	3	0	1	2	4	1
Rest of UNECE region	30	4	12	14	9	2
Contact management						
UNECE region	32	3	15	14	8	9
EECCA countries	4	0	2	2	3	1
Rest of UNECE region	28	3	13	12	5	8
Project management						
UNECE region	32	2	21	9	13	4
EECCA countries	4	0	3	1	3	1
Rest of UNECE region	28	2	17	8	10	4
Balancing user needs against respondent burden						
UNECE region	32	2	13	17	7	10
EECCA countries	6	1	1	4	1	1
Rest of UNECE region	28	5	12	13	6	9
Identifying residential addresses						
UNECE region	31	8	12	11	9	9
EECCA countries	6	2	2	2	1	1
Rest of UNECE region	25	6	10	9	8	8
Negative public perception/attitude						
UNECE region	30	8	13	9	14	5
EECCA countries	5	1	4	0	3	0
Rest of UNECE region	25	7	9	9	11	5
Stakeholder/user acceptance						
UNECE region	30	0	18	12	14	5
EECCA countries	5	0	2	3	2	1
Rest of UNECE region	25	0	16	11	12	4
Mapping						
UNECE region	29	7	13	9	6	14
EECCA countries	7	3	3	1	1	0
Rest of UNECE region	22	4	10	8	5	14
Recruitment of sufficient numbers of field staff						
UNECE region	29	4	11	14	10	10
EECCA countries	5	1	3	1	3	0
Rest of UNECE region	24	5	8	13	7	10
Managing regional/local infrastructures						
UNECE region	28	2	15	11	5	16
EECCA countries	7	0	4	3	0	1
Rest of UNECE region	21	2	11	8	5	15
Improving/maintaining coverage rates						
UNECE region	27	4	14	9	10	12
EECCA countries	1	0	1	0	4	3
Rest of UNECE region	26	4	13	9	7	9
Stakeholder privacy and confidentiality concerns						
UNECE region	24	2	7	15	18	7
EECCA countries	2	0	1	1	3	3
Rest of UNECE region	22	2	6	14	15	4

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Table 8.1
Challenges faced in the 2010 round of censuses *(continued)*

Challenge/region	Countries reporting as a challenge				No challenge	Not applicable or no response
	Total	Level of challenge				
		Most difficult	Medium challenge	Least difficult		
Geography (terrain)						
UNECE region	21	1	10	11	11	16
EECCA countries	5	0	4	1	1	2
Rest of UNECE region	16	1	6	10	10	14
Central/local government support						
UNECE region	22	6	10	12	22	5
EECCA countries	3	0	1	2	5	0
Rest of UNECE region	19	6	9	10	17	5
Overcoming cultural barriers						
UNECE region	18	0	9	9	14	17
EECCA countries	2	0	2	0	1	5
Rest of UNECE region	16	0	7	9	13	12

Of those other issues that represented overall challenges to more than half the EECCA countries:

- improving/maintaining participation rates,
- improving/maintaining response rates,
- balancing user needs against respondent burden,
- negative public perceptions and attitudes.
- stakeholder/user acceptance,
- managing regional/local infrastructures,
- process re-engineering/infrastructure, and
- geographical terrain,

only in a handful of cases were such challenges rated as the most difficult.

Improving/maintaining participation rates and mapping were the challenges reported by the largest EECCA countries as being the most difficult: Kazakhstan, Moldova and the Russian Federation in the case of the former; and Azerbaijan, Kazakhstan and the Russian Federation in the case of the latter. And more challenges were reported as being the 'most difficult' by the Russian Federation (11 in all) than by any other EECCA country, closely followed by Kazakhstan (with 9 challenges).

Criteria for a successful census

In undertaking a census each country will set their own success criteria based on past census experience, new challenges, and the improvements they wish, or are required, to make. It is possible to define a successful census as being one that meets a pre-defined number of the success criteria. The UNECE survey enquired into those several criteria that countries had identified as being relevant for measuring success. All countries responded with the exception, again, of Georgia. The results are shown in Table 8.2 ranked by the number of countries throughout the UNECE region reporting each criterion.

More countries throughout the UNECE region overall (31, 63 per cent) identified gaining 'user and stakeholder support' as being key to achieving success than any other single criterion specifically identified in the survey questionnaire. This was followed by 'public support' (30 countries), and 'improved outputs' (29). Each of these success criteria was achieved by more than half the EECCA countries, as were the criteria relating to achieving 'cost savings', 'improved coverage rates', 'staff expertise', the 'use of software', 'increased public trust', and the 'good management of financial resources'. However achieving 'government support' for the census was most commonly cited as a criterion for a successful census among EECCA countries – all except Belarus reported this, although only 39 per cent of countries in the rest of the UNECE region did so.

It is perhaps surprising, given that importance of meeting user needs (both in terms of content and delivery of the results of the census) has been previously stressed, that countries did not rate 'user acceptability' higher than was the case. Only two EECCA countries (Azerbaijan and Belarus) reported this as one of the success criteria, and less than a half of countries in the rest of the UNECE region did so.

Table 8.2
Criteria for defining a successful census

Success criteria	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
User and stakeholder support	31	63	5	26	63
Public support	30	61	6	24	59
Improved outputs	29	59	5	24	59
Improved participation/response rate	27	55	3	24	59
Staff expertise	26	53	6	20	49
Use of software	26	53	6	20	49
Improved coverage rates	26	53	5	21	51
Cost saving	26	53	5	21	51
Increased public trust	24	50	5	19	46
Government support	23	47	7	16	39
Time savings	23	47	4	19	46
User acceptability	21	43	2	19	46
Developed infrastructure	19	39	3	16	39
Use of hardware	17	35	3	14	34
Good management of financial resources	14	29	5	9	22
Use/increased use of Project Management methods/tools	13	27	4	9	22
Use/increased use of Process Improvement methods/tools	12	24	2	10	24
Justified business case	4	8	1	3	7
Total countries	**49**	**100**	**8**	**41**	**100**

But just how successful were the censuses of the 2010 round in the UNECE region? With the key success criteria in mind, countries were also asked to report (again on a purely subjective basis) on those aspects of their census operation that they considered to be successful. This time 46 countries responded, but Georgia and Moldova (whose census had not taken place at the time of the survey) and Kazakhstan did not do so. The results for the top ten successes ranked by the number of countries reporting the success are shown in Table 8.3.

Some 33 countries across the region (more than two thirds) reported as a success that they had kept within budget, and only Kyrgyzstan of the responding EECCA countries did not do so. All but two EECCA countries (Armenia and Azerbaijan) reported both improved census technologies and improved methodologies as successes in the 2010 round, as did all but Armenia and Tajikistan similarly report meeting deadlines as a success. Moreover, only Kyrgyzstan and Tajikistan did not report improving or maintaining data quality as a success. Each of these criteria were also acknowledged as successes by two thirds of countries in the rest of the UNECE region.

The Russian Federation reported more successes (nine out of the ten) than any other EECCA country, and were only topped elsewhere in the UNECE region by Ireland (among the traditional census countries) and Latvia (among the combined censuses) who reported all ten as successes in the 2010 round.

Table 8.3
Successes in the 2010 round of censuses

Successes achieved	All responding countries		EECCA	Rest of UNECE region	
	Number	%		Number	%
Kept within budget	33	72	5	28	70
Improved/maintained data quality	33	72	4	29	72
Met deadlines	32	70	4	28	70
Improved census methodologies	31	67	4	27	68
Improved census technologies	30	65	4	26	65
Improved data dissemination	26	57	3	23	58
Improved/maintained participation/response rates	23	50	2	21	52
Improved logistics and coordination	22	48	2	20	50
Overcoming public resistance	13	28	1	12	30
Implementing Project Management and methods/tools	11	24	1	10	25
Total countries	**46**	**100**	**6**	**40**	**100**

PART 2 CENSUS TOPICS

9. INTRODUCTION

Part 2 of this publication reviews the practices in the EECCA countries and the rest of the UNECE region in relation to the census topics included in the 2010 census round, as determined by the responses to the UNECE survey. Not only is the extent to which each topic was included in the census assessed, but the survey also enquired into how well countries conformed to the concepts and definitions recommended by the CES for the 2010 round, and whether or not the suggested classifications for each topic (where appropriate) were adopted.

The review is mainly based on answers provided by 50 countries to the online questionnaire. (Ukraine took part the survey but, because the census there was cancelled, its responses have not been included in any of the analyses in this part of the publication.) In some cases, however, where responses to the survey were ambiguous or clearly erroneous, reference was made to the countries' census questionnaires, where these were available, or responses were acquired through follow-up enquires.

Topics for which data was to be collected

The CES Recommendations included a list of the characteristics to be collected in censuses, related to persons, groups of persons (households or family nuclei), living quarters or buildings containing dwellings. These characteristics were divided into 'core' and 'non-core' topics. Core topics were those for which the information is of fundamental interest and value to countries. These were recommended to be included in the 2010 round of population and housing censuses (unless the relevant data were available from other sources). The topics designated as being 'non-core' were those for which information, though important and often valuable in combination with one or more core topics, were not considered as being essential for the purpose of the census, and which countries were given more latitude as to whether or not information on them should be collected.

The list of core and non-core topics included some topic that were referred to as 'derived' topics. These were those for which information could be obtained indirectly or inferred from the data collected on other census topics or combinations of other topics, and therefore were not required to be collected specifically. Examples of such topics that could be deduced in this way include: *household status* and *family status* (derived from the information collected on sex, age, marital status and relationship); *socio-economic group* (derived from the information on occupation and employment status); and *urban/rural status* (derived from the total population living in a locality, which is itself a derived topic).

The list of topics (core, non-core and derived topics) from the 2010 CES Recommendations is presented in Table 9.1.

Table 9.1
Topics for the 2010 Population and Housing Censuses, from the CES Recommendations

CORE TOPICS	NON-CORE TOPICS
Population to be enumerated	
Place of usual residence	
Total population (derived)	
Geographic characteristics	
Locality (derived)	*Urban and rural areas (derived)*
Location of place of work	Location of school, college or university
	Mode of transport to work
	Mode of transport to school, college or university
	Distance travelled to work and time taken
	Distance travelled to school, college or university and time taken
Demographic characteristics	
Sex	De facto marital status
Age	Total number of children born alive
Legal marital status	Date(s) of legal marriage(s) of ever married women: (i) first marriage and (ii) current marriage
	Date(s) of the beginning of the consensual union(s) of women having ever been in consensual union: (i) first consensual union and (ii) current consensual union
Economic characteristics	
Current activity status	Usual activity status
Occupation	Providers of unpaid services, volunteers
Industry (branch of economic activity)	Type of sector (institutional unit)
Status in employment	Informal employment
	Type of place of work
	Time usually worked
	Time related underemployment
	Duration of unemployment
	Number of persons working in the local unit of the establishment
	Main source of livelihood
	Income
	Socio economic groups (derived)
Educational characteristics	
Educational attainment	Educational qualifications
	Field of study
	School attendance
	Literacy
	Computer literacy
International and internal migration	
Country/place of birth	Country of previous usual residence abroad
Country of citizenship	Total duration of residence in the country
Ever resided abroad and year of arrival in the country	Place of usual residence five years prior to the census
Previous place of usual residence and date of arrival in the current place	Reason for migration
	Country of birth of parents
	Citizenship acquisition
	Persons with foreign/national background (derived)
	Population groups relevant to international migration (derived)
	Population with refugee background (derived)
	Internally Displaced Persons (IDPs) (derived)

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CORE TOPICS	NON-CORE TOPICS
Ethno-cultural characteristics	
	Ethnicity
	Language
	Religion
Disability	
	Disability status
Household and family characteristics	
Relationships between household members	*Same-sex partnerships (derived)*
Household status (derived)	*Extended family status (derived)*
Family status (derived)	*Type of reconstituted family (derived)*
Type of family nucleus (derived)	*Type of extended family (derived)*
Size of family nucleus (derived)	*Generational composition of private households (derived)*
Type of private household (derived)	Single or shared occupancy
Size of private household (derived)	Rent
Tenure status of households	Durable consumer goods possessed by the household
	Number of cars available for the use of the household
	Availability of car parking
	Telephone and internet connection
Agriculture	
	Own-account agricultural production (household level)
	Characteristics of all agricultural jobs during the last year (individual level)
Living quarters, dwellings and housing arrangements	
Housing arrangements	Availability and characteristics of secondary, seasonal and vacant dwellings
Type of living quarters	Occupancy by number of private households
Location of living quarters	Type of rooms
Occupancy status of conventional dwellings	Hot water
Type of ownership	Type of sewage disposal system
Number of occupants	Kitchen
Useful floor space and/or number of rooms of housing units	Cooking facilities
Density standard (derived)	Main type of energy used for heating
Water supply system	Electricity
Toilet facilities	Piped gas
Bathing facilities	Air-conditioning
Type of heating	Position of dwelling in the building
Dwellings by type of building	Accessibility to dwelling
Dwellings by period of construction	Lift
	Dwellings by number of floors in the building
	Dwellings by materials of which specific parts of the building are constructed
	Dwellings by state of repair of the building

Organization and contents of the following chapters

The following chapters note in detail the extent to which EECCA countries and those in the rest of the UNECE region complied with the CES Recommendations. Each chapter is devoted to a particular topic or a set of closely related characteristics, and follows closely the order in which these topics are set out in the CESR.

In summary, it can be reported here that in the clear majority of cases countries complied with the recommendations not only on the inclusion of topics in the census but in the adoption of the concepts, definitions and classifications. The percentage of countries that included each of the core topics in their census (as reported in the UNECE survey) is shown in Table 9.2 ranked by overall level of compliance throughout the UNECE region. In some cases the 'compliance' with the CES Recommendations as shown in the table was only partial, and these are discussed in more detail in the following chapters. The derived topics are shown in the table in italics.

It should be emphasised that the level of compliance for each topic refers only to the inclusion of that topic in the census; the degree to which countries complied with, or otherwise adapted, the definitions/classification(s) recommended for each particular topic is discussed in the relevant chapter. It should also be noted that not all the recommended topics referred to in Table 9.1 are reported in Table 9.2. Some topics (such as the core topics of 'size of household', 'size of family nucleus' and 'number of occupants') were not investigated in the UNECE survey, and thus the extent to which countries complied with the CESR was not determined. Moreover, although neither of the core topics 'place of usual residence' nor 'location of living quarters' were covered in the survey, the requirement to collect this information (the topics essentially provide, in practice, the same information) is so fundamental to the census that their coverage has been assumed to be 100 per cent for all countries, and has been reported as such in the table.

The levels of compliance are shown as either a fraction (in the case of EECCA countries) or a percentage (for countries in the rest of the UNECE region) of the countries that responded to the survey. The extent of compliance with the CESR for EECCA countries was overall, as can be seen in Table 9.2, similar to that for the rest of the UNECE region though a number of unexpected differences emerged from the survey. Thus while high levels of compliance were experienced throughout the UNECE as a whole for many of the core topics (down to 'number of rooms' at least) differences start to emerge for some of the remaining topics. For example, while almost all the responding EECCA countries reported adopting the CES Recommendations to include 'bathing facilities', 'water supply system' and 'previous place of usual residence' the proportion of countries doing so in the rest of the UNECE region was somewhat less – only three quarters did so for 'water supply system'. However, in contrast, less than half the EECCA countries collected information on whether persons 'ever resided abroad' compared with 85 per cent of countries in the rest of the UNECE region that did so.

There were, generally, as might be expected, lower levels of compliance with the non-core topics throughout the UNECE region, but EECCA countries scored significantly higher for such topics as 'language', 'children born alive', 'ethnicity', 'main source of livelihood' and 'availability of piped gas' which almost all the ECCAA countries included in their censuses, compared with proportions for the rest of the UNECE region ranging from less than three quarters to just over a third.

But there were several non-core topics on which no EECCA country reported collecting any information in the 2010 round at all – some 22 such topics in total, compared with only one topic on which no information was collected elsewhere in the UNECE region.

More detailed analyses of the extent of compliance with the CES Recommendations for each topic are given throughout the following chapters of Part 2 of this publication.

Table 9.2
Level of compliance with CES Recommendations: inclusion of topics* by status - Core topics

Topic/status	Level of compliance with CESR**		
	All responding countries (%)	EECCA	Rest of UNECE region (%)
Core topics			
Place of usual residence ***	100	9 out of 9	100
Location of living quarters ***	100	9 out of 9	100
Sex	100	9 out of 9	100
Age	100	9 out of 9	100
Occupation	98	7 out of 8	100
Industry	98	6 out of 7	100
Educational attainment	98	9 out of 9	98
Country of birth	98	8 out of 9	100
Country of citizenship	98	9 out of 9	98
Relationship within household	98	8 out of 9	100
Employment status	96	9 out of 9	95
Type of household	96	8 out of 8	95
Type of ownership	96	7 out of 8	98
Period of construction (of building)	96	7 out of 8	98
Tenure status (of household)	94	8 out of 8	93
Type of heating	94	8 out of 8	93
Density standard (derived from either floor space or number of rooms)	94	7 out of 9	98
Current activity status	92	9 out of 9	90
Legal (de jure) marital status	92	7 out of 9	95
Location of workplace	92	7 out of 9	95
Housing arrangement	92	8 out of 8	90
Type of living quarters	92	8 out of 8	90
Number of rooms	92	8 out of 8	90
Type of family nucleus	86	6 out of 8	88
Family status	86	4 out of 8	93
Occupancy status	88	4 out of 8	96
Bathing facilities	88	8 out of 8	85
Type of building	88	5 out of 8	93
Household status	84	5 out of 8	8888
Useful floor space	84	7 out of 8	83
Toilet facilities	84	7 out of 8	83
Locality	81	6 out of 8	89
Water supply system	80	8 out of 8	76
Previous place of usual residence (reduced mode)	80	8 out of 9	78
Previous place of usual residence (extensive mode)	76	8 out of 9	73
Ever resided abroad	78	4 out of 9	85
Date of arrival from previous usual residence	64	7 out of 9	61

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Table 9.2
Level of compliance with CES Recommendations: inclusion of topics* by status – Non-core topics

Topic/status	Level of compliance with CESR**		
	All responding countries (%)	EECCA	Rest of UNECE region (%)
Non-Core topics			
Urban/rural status	92	9 out of 9	90
Characteristics of unoccupied dwellings	92	5 out of 8	98
De facto marital status	90	8 out of 9	90
Children born alive	72	9 out of 9	58
Language	70	9 out of 9	63
School attendance	69	6 out of 8	68
Country of previous usual residence	64	6 out of 9	54
Ethnicity	62	8 out of 9	56
Main type of energy for heating	59	3 out of 6	63
Religion	56	4 out of 9	58
Kitchen (availability)	53	3 out of 7	56
Hot water (availability)	53	7 out of 8	44
Disability status	50	4 out of 9	51
Literacy	48	6 out of 8	42
Mode of transport to work	47	0 out of 7	55
Location of place of education	47	0 out of 7	55
Single or shared occupancy	46	4 out of 7	46
Number of floors in building	45	2 out of 7	49
Type of sewage disposal system	45	6 out of 7	39
Telephone/Internet connection (availability)	45	7 out of 8	37
Main source of livelihood	43	8 out of 8	32
Possession of durable consumer goods	43	7 out of 8	34
Field of study	40	2 out of 7	42
Electricity (availability)	39	6 out of 8	32
Piped gas (availability)	39	7 out of 8	29
Construction materials	37	5 out of 8	68
Reason for migration	36	5 out of 9	32
Education qualifications	34	3 out of 7	32
Mode of transport to place of education	33	0 out of 8	40
Country of birth of parent(s)	32	1 out of 9	37
Rent paid	31	2 out of 8	32
Position of dwelling in building	31	0 out of 7	37
Time usually worked	29	0 out of 7	34
Time taken to travel to work	29	0 out of 8	72
Car availability	29	0 out of 8	34
Type of place of work	28	0 out of 7	32
Socio-economic group	27	1 out of 7	29
Time taken to travel to place of education	25	0 out of 8	30
Date of current marriage	24	1 out of 9	27
Presence of working lift	24	1 out of 7	27
Air-conditioning (availability)	22	0 out of 7	27

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Table 9.2
Level of compliance with CES Recommendations: inclusion of topics* by status – Non-core topics *(continued)*

Topic/status	Level of compliance with CESR**		
	All responding countries (%)	EECCA	Rest of UNECE region (%)
Five-year migration	20	1 out of 9	22
Total duration of residence in country	20	1 out of 9	22
Own-account agricultural production (household)	20	3 out of 9	17
Computer literacy	19	2 out of 8	18
Duration of unemployment	19	0 out of 7	22
Car parking (availability)	18	0 out of 8	22
Type of rooms	16	1 out of 8	17
Size of workforce at workplace	15	0 out of 7	18
Distance travelled to work	15	0 out of 7	18
Date of first marriage	14	1 out of 9	15
Citizenship acquisition	14	0 out of 9	17
State of repair of building	14	0 out of 7	17
Distance travelled to place of education	13	0 out of 7	15
Type of sector (industrial unit)	13	0 out of 7	15
Date of start of current consensual union	12	1 out of 9	12
Income	12	0 out of 8	15
Cooking facilities	12	0 out of 7	15
Usual activity status	10	1 out of 9	10
Accessibility to dwelling	8	0 out of 7	10
Own-account agricultural production (individual)	8	0 out of 9	10
Unpaid/voluntary work	6	2 out of 7	2
Informal employment status	4	0 out of 7	5
Date first consensual union	2	1 out of 9	0
Time-related unemployment	2	0 out of 7	5
Total countries responding	**50**	**9**	**41**

* Only those topics covered by the UNECE survey are included
** Percentage or proportion of countries including the topic in the census, of those that responded to the survey
*** Coverage of this topic was not included by the survey but assumed to be 100 per cent

10. DEFINING THE POPULATION BASE

As noted in the 2014 publication of UNECE, the definition of 'the population' is not only central to the census operation, but it is at the very heart of the institutional and socio-economic setting of a country. Defining the rules according to which a person is part or not of the population of a country has indeed far reaching consequences, first-hand examples being the allocation of parliamentary seats or the attribution of funds depending on the population size. The definition of the population is therefore a fundamental component of the statistical information of a country – if not its most fundamental – and the population census is the primary framework in which such choice is made.

Chapter 10 of the 2014 publication reviewed in some detail the definitions of the '*usually resident population*' and '*total population*' adopted by countries in the 2010 round, the practices regarding special population groups, and some coverage (under and over-count) problems associated with the enumeration.

It is not the intention therefore for this present publication to repeat all the detail. It will be sufficient here just to recall the main population issues dealt with in the CES Recommendations and to report on the extent to which the EECCA countries complied with these recommendations in comparison with those countries in the rest of the UNECE region[10]. There is some overlap with the issues discussed in Chapter 11 on the geographic characteristics of the population – in particular with respect to the place of usual residence – and in Chapter 16 on migration characteristics.

Defining population concepts

The population concept recommended by the CESR is based on the place of usual residence. The definition of '*place of usual residence*' is thus one of the most important and critical issues in a census since this definition, and the way it is applied during the census, directly influences the census results in terms of the total usually-resident population, at both the national level and at lower territorial levels. Broadly, the CESR defined the place of usual residence as '*the place where a person spends or intends to spend most of his/her daily night-rest over a continuous period of 12 months'*.

However, the definition of 'population' is as complex as it is fundamental, and the complexity of this definition has increased in the recent years, because of the increasing number of persons who have multiple residences and the increased mobility of the population. More and more people move between different places for different reasons and with various frequencies (daily, weekly, or yearly as is the case for seasonal workers), and migration – including both legal and undocumented migration – is a phenomenon of increasing importance in most countries. For persons that may have more than one place of residence, the decision about what should be considered their place of usual residence is often not easy.

While it may be safely assumed that there is a large awareness about the importance of the usual residence concept, it is also true that its implementation is not always straightforward, and for this reason full clarification was provided in the CESR.

First of all, a distinction should be made between the concept of enumerated population on the one hand (where the 'enumeration' is understood to be the act of counting/listing/naming each unit in turn, or as the process of collecting information about units, as implicit in the definition of census, as set out in paragraph 19 of the CESR), and, on the other, the population used for statistical purposes in aggregated outputs. In this chapter, the latter meaning is used and is referred to as the '*population count*' or '*population base*', while the former may be referred to as the '*enumeration base*'.

[10] The material in this chapter has been taken largely from a paper prepared by Giampaolo Lanzieri (Eurostat) and discussed at the Meeting on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

In the context of a population census, a country is free to enumerate (in the sense of collecting statistical data on) any person in its territory, as well as to define population counts which meet national needs. For the latter task, the country may filter the total list of enumerated units according to defined principle(s) in order to select the persons to be counted in the aggregation process. For international comparison purposes, however, the population definition must be harmonised across countries.

In order to identify the population counts adopted in the country, the UNECE survey questionnaire defined a set of criteria to determine whether or not a person should be included in the population count, all relating to the specific census reference moment (usually midnight of the census reference date). These are:

(a) the presence in the territory of the country at the census reference date;

(b) having lived in the territory of the country for a given period;

(c) the intention of living in the territory of the country for a given period;

(d) the legal rights of a person to settle in the country (by citizenship, residence or visa permit, or any other legal system); and/or

(e) the fact of being listed in a register (such as a population register).

The criteria listed above are independent from each other. For example, a person may be present in a country, but not living there during the census reference moment; or can be present/resident without having any legal right to stay in the country; or can be included in a population register even if not present at the time of the census and has not lived in the country for longer than the defined period of time.

The concept of 'usual residence' is identified by three conditions:

(a) the person has lived, or intends to live, in the country at the time of the census;

(b) the duration of stay is at least one year;

(c) the stay is without interruptions (continuous period of time),

where the concept of a "continuous period of time" takes account of the usual exceptions of short-term absences for such purposes as holidays, foreign business trips, etc.

Another popular concept of population (often referred to as the 'present population', or the '*de facto* population') corresponds simply to the application of the first criterion of the five listed above (presence in the territory of the country at the census reference date).

A further concept can be based on the fourth criterion (legal right of stay). This is sometimes referred to by its Latin etymology, the '*de jure* population', although this term is also used to indicate the usually resident population, leading to some confusion. This population would be composed of all persons that, at the census reference time, either hold the national citizenship, or are granted a residence permit or a visa (a more restrictive interpretation would limit the population to the national citizens). It should be noted that such concept would not necessarily require the presence or even the residence of the person in the country, unless it is combined with the relevant principles set above.

Compliance with the CES Recommendations

The 'usual residence' was the concept of reference for the population count in the 2010 census round. All of the EECCA countries adopted this concept (although Kyrgyzstan reported it only as its secondary base) as well as some two thirds of countries in the rest of the UNECE region. Thus, only one out of five countries throughout the UNECE region has not defined their population counts based to some degree on the 'usual residence' concept.

Table 10.1
Compliance with the CESR definition of 'usual residence'

Compliance	All responding countries		EECCA	Types of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Fully compliant	33	66	9	24	59	17	1	6
Compliant with EU law	14	28	0	14	34	2	8	4
Other definition	3	6	0	3	7	3	0	0
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

Multiple population counts are used in several countries. Some 19 countries (including Armenia, Belarus, Kyrgyzstan, and Tajikistan) used two population counts, and five countries (including the Russian Federation) even three. However, the 'usually resident' population is regarded as the most relevant count by 35 countries including eight of the nine in the EECCA region (Kyrgyzstan reported the population present count as its primary base), with the second most commonly adopted count being the 'registered' population (by seven countries).

Of the 50 countries that reported that they produced a national population count based on the concept of usual residence, two thirds (including all those in the EECCA region) were fully compliant with the CES Recommendations, and a further quarter (mainly comprising those countries adopting a register-based census) were compliant with the concept of usual residence expanded to cover legal or registered residence in accordance with EU census legislation (Table 10.1). The three exceptions were Italy and the non-European countries Canada and the United States.

Geographical allocation of usually resident persons within a country

For all but two countries the same criteria that are adopted to determine the country of usual residence are also used to allocate a person to a place of usual residence within the country (Israel and the United Kingdom reported applying other criteria for the definition of 'usual residence' for the geographical distribution of the total population at the sub-national level). However, the complexity of the concept of usual residence can raise doubts about the geographical allocation of specific groups of persons, and therefore particular care is required for a proper identification of their place of usual residence.

Table 10.2 shows the number of countries where specific criteria were adopted for certain population groups ranked by the total number of countries reporting them. The most problematic category was 'students', particularly those in tertiary education and studying within the country, in respect of whom all the responding EECCA countries applied specific criteria, as did 70 per cent of other UNECE countries.

But students, generally, present problems in the census, and more than half the countries adopted special criteria even for those in primary and secondary education whose term-time address is not the family home – within the EECCA region Azerbaijan, Belarus, Georgia and Moldova did so. Students in tertiary education who study abroad but who return home regularly, at weekends for example, present less of a problem, but even for them, the same four EECCA countries adopted special rules, as did just less than half the countries in the rest of the UNECE region.

Other particular groups for which it is often difficult to allocate the place of usual residence include: the homeless/roofless and nomadic populations for whom special criteria were adopted by all but the Russian Federation among the responding EECCA countries and by two fifths of the rest of the UNECE region; persons who work away from home during the week but who return to the family home at weekends, for whom special criteria were adopted by five of the EECCA countries (Armenia, Azerbaijan, Belarus, Georgia and Moldova) and more than half elsewhere; and those persons who live

regularly for part of the year at more than one residence, for whom the same five EECCA countries adopted special rules.

From the figures given in Table 10.2 it is evident that many countries adopted special rules to apply to many of the population groups identified in order to determine their place of usual residence. Among the countries in the EECCA region, Moldova adopted the most, ten in all, with refugees being the only group not specifically covered. Indeed, throughout the rest of the UNECE region only three countries reported adopting special criteria on all groups (Albania, Italy and Lithuania). At the other end of the scale, however, the Russian Federation reported adopting special criteria on only two groups – 'Students in tertiary education who study away from home within the country' and 'Persons working for international organisations'.

Table 10.2
Specific criteria for determining the place of usual residence of selected population groups

Population group	All responding countries		EECCA	Type of census in rest of UNECE region				
				All types		Traditional	Register-based	Combined
	Number	%		Number	%			
Students in tertiary education who study away from home within the country	35	74	7	28	70	19	3	6
Persons who work away from home during the week	28	60	5	23	58	17	1	5
Students in primary and secondary education who study away from home	27	57	4	23	58	17	1	5
Children who alternative between parents in different households	24	51	2	22	55	16	2	4
Inmates in institutions	23	49	4	19	48	12	3	4
Persons who live regularly in more than one residence during the year	23	49	4	19	48	12	3	4
Homeless and nomads	22	47	6	16	40	9	4	3
Students in tertiary education who study abroad but return home at weekends	22	47	4	18	45	14	1	3
Persons in military service	19	40	4	15	38	11	1	3
Persons working for international organisations (excluding diplomatic and military personnel)	12	26	4	8	20	5	1	2
Refugees and asylum seekers	11	23	3	8	20	4	3	1
No specific criteria/not applicable	10	21	0	10	25	2	4	4
Total countries	**47**	**100**	**7**	**40**	**100**	**22**	**8**	**10**

Inclusion/exclusion of selected population groups

Another important, indeed fundamental, issue in determining the usually resident population is the inclusion/exclusion of specific sub-population categories. Table 10.3 identifies various population groups for which there is often some uncertainty as to whether or not they should be included in the

usually resident population. The CESR recommends, for example, that students in tertiary education studying abroad, foreign military, naval and diplomatic personnel, and short-term international immigrants, for example, should be *excluded*. All the other 11 categories listed in the table should be *included*, provided that the qualifying conditions of duration of residence are met. The groups are listed in the table in ranked order by the number of countries that reported *including* them in their usually resident population.

Table 10.3
Selected population groups included in the usually resident population

Population group	All responding countries		EECCA	Type of census in rest of UNECE region				
				All types		Traditional	Register-based	Combined
	Number	%		Number	%			
Homeless and roofless persons	47	94	9	38	93	22	9	7
Civilian residents who cross a national frontier daily to work	43	86	8	35	85	18	8	9
Students in tertiary education who study abroad but return home at weekends*	40	80	8	32	78	19	7	6
Holders of temporary residence permits (and their families) staying for more than 12 months	40	80	5	35	85	20	7	8
Military, naval and diplomatic personnel (and their families) living outside the country	37	74	9	28	68	16	6	6
Persons living in remote areas	34	68	7	27	66	18	6	3
Merchant seaman and fisherman at sea at the time of the census	33	66	4	29	71	15	7	7
Persons granted refugee status or similar types of protection	32	64	4	28	68	17	7	4
Foreign persons working for international organisations (excluding diplomatic and military personnel)	30	60	3	27	66	10	4	6
Asylum seekers	29	58	3	26	63	19	3	4
Nomads and other travelling people	24	48	4	20	49	14	4	2
Illegal, Irregular or undocumented migrants	19	38	1	18	44	15	0	3
Short-term international migrants*	8	16	1	17	41	14	2	1
Foreign military, naval and diplomatic personnel (and their families)*	8	16	1	7	17	4	2	1
No specific criteria/not applicable	7	14	1	6	15	4	0	2
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

* Groups recommended to be excluded from the usually resident population

It should be noted that no one category has been included by all countries throughout the UNECE region (though two groups, 'Homeless and roofless persons' and 'Military, naval and diplomatic personnel living outside the country' were included by all EECCA countries). Conversely, no one category has been excluded by all countries. This may be seen as a problem of coverage rather than of breach of the usual residence concept, although the inclusion of certain categories of persons may actually depend on the adoption of that concept. For example, illegal migrants would not, by definition, be part of the legally resident population, and therefore their exclusion would not be a problem if the population concept of reference was based on the legal right of stay. However, if the adopted criterion is, instead, 'usual residence' then they should indeed be part of the usually resident population if they meet the conditions of duration of residence.

The category closest to universal inclusion is that of homeless persons. Despite the difficulties in collecting information about them, homeless persons (meaning, here, the 'roofless' – often referred to in some countries as 'persons sleeping rough' – as opposed to the 'rootless', colloquially referred to as 'sofa-surfers', or people who have no home address of their own but regularly sleep overnight with family or friends) were included in all but three countries, and, as noted above, all the EECCA countries counted such people as part of the usually resident population. Despite this almost universal coverage, it should be noted (as was reported by the United Kingdom and quoted in the 2014 publication) that:

> *"Measuring the count of homeless (that is 'roofless') persons proved difficult, and in practical terms no real attempt was made to do so. Estimates were made on the basis of those persons using day centres on census day. However, persons with no permanent place of usual residence who were recorded at an address on census night (that is the 'rootless') were regarded as being usually resident at that address".*

The next most commonly included categories are those persons who regularly cross a border for work or study reasons. Only Armenia among the EECCA countries did not include cross-border workers, nor did those other countries in the rest of the UNECE that are island states (Cyprus, Iceland and Malta), for whom this population group is obviously less relevant.

One of the categories whose inclusion should be quite unambiguous is 'holders of residence permits staying for at least one year'. However four of the EECCA countries (Azerbaijan, Kazakhstan, Kyrgyzstan and Tajikistan) along with 15 per cent of countries in the rest of the UNECE region, reported that they did not include such person in the usually resident population. But the proper treatment of 'national military and diplomatic personnel located outside the country' is less obvious, and this is reflected by the fact that a third of countries in the rest of the UNECE region excluded them from the usually resident population, though it should be noted that all the EECCA countries included them as recommended.

Some uncertainty about the interpretation of the CES Recommendations also seems to apply to asylum seekers and refugees. While CESR paragraph 175 clarifies that they should be considered as being no different to any other person (thus subject to the same criterion of duration of time continuously spent in the country), in all but three of the EECCA countries and over a third of the rest of the UNECE region asylum seekers are nevertheless excluded from the usually resident population. The situation with persons who have been granted refugee status was only marginally better. Four EECCA countries (Armenia, Azerbaijan, Georgia and the Russian Federation) included them, as did just over two thirds elsewhere. In the case of asylum seekers the previous CES Recommendations (for the 2000 round) had advised excluding them. Confusion about CES Recommendations implementation may also be the reason of the exclusion in six of the EECCA countries and a third of those elsewhere of 'foreign persons working for international organisations' who, unlike 'foreign diplomats and military forces', should actually be included in the total population count.

As for nomads and other travelling people, the low share of countries including them in the usually resident population (only Azerbaijan, Georgia, the Russian Federation and Tajikistan in the EECCA region did so) may simply reflect the operational difficulties typical of this difficult-to-reach population group. The methodology chosen for the census does not seem to be relevant, given that almost the same percentage of countries (about half) did not include them, regardless of whether their

census was registers-based or traditional. The situation is even worse for another difficult-to-reach group, the illegal migrants, who, according to CESR paragraph 174 should be included, but who are excluded in a large majority of countries – all but Georgia within the EECCA region and over half the countries elsewhere did so.

In summary, no country either in the EECCA region or elsewhere fully followed the CES Recommendations regarding the inclusion/exclusion from the usually resident population of the listed groups. Georgia was the only EECCA country to include all 11 of the groups as recommended (as did five other countries in the rest of the UNECE region) but then went on to include two of the groups that should have been excluded. No other EECCA country reported including as many groups. Kyrgyzstan performed least well by reporting on only three categories that should have been included, but then included two others that should have been excluded according to the recommendations.

Population bases other than usually resident population

Finally, additional population bases (such as persons by workplace, students, visitors, day-time population, persons in households, persons in institutions etc.) have been used in some countries for the presentation of statistical outputs, but not in the majority of cases. Indeed, of the several possible alternative population bases suggested in the UNECE survey, only Azerbaijan and Moldova among the EECCA countries reported using only one (students) along with nine other countries in the rest of UNECE region.

Despite the fact that employed persons at their place of work was the most commonly adopted alternative population base (29 per cent of countries in total reported producing output based on this population) no EECCA country did so.

Furthermore, several other counting bases may be used for census tabulations. The survey question suggested a number of possibilities such as household, families, dwellings, and buildings) Table 10.4 shows that a majority of countries have used at least one additional base for counting purposes including all eight of the responding EECCA countries (Georgia reported that, at the time of the survey, it was too soon to decide on such bases).

All eight of the EECCA countries together with almost three quarters of the rest of the UNECE region used the household as the base for some tabulations, but dwellings was the unit used by most countries overall. All the responding EECCA countries except Kazakhstan as well as 80 per cent of the other UNECE countries did so. Kyrgyzstan and Moldova reported that they produced some outputs on each of four bases identified in the survey.

Table 10.4
Additional counting bases for statistical outputs

Additional bases	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Households	37	74	8	29	71	18	7	4
Families	29	58	5	24	59	13	7	4
Dwellings	40	80	7	33	80	20	8	5
Buildings	20	40	3	17	41	10	2	5
Other bases	3	6	0	3	7	3	0	0
Too soon to decide	1	2	1	0	0	0	0	0

11. GEOGRAPHIC CHARACTERISTICS

Introduction

One of the distinguishing features of censuses of population and housing is the extent to which a comprehensive classification of geographic characteristics can be undertaken. Once the population basis has been determined (see Chapter 10), it is then possible to examine how this population is geographically distributed. The UNECE Survey thus included a number of questions to enquire into the extent to which the geographic characteristics of each country's population were covered in the respective census. This chapter presents an analysis of these results[11].

There were three geographically-related core topics in the CES Recommendations (CESR): 'place of usual residence', 'locality', and 'location of place of work'. This first of these has already been dealt with extensively in the previous chapter. Here, the results of the responses to the survey with respect to the other two will be examined.

The chapter also refers to a number of non-core topics that require an underlying geographic base. The non-core topic 'urban and rural areas' is derived from the classification of 'locality', while the remaining topics can, together with 'location of place of work', be collectively considered as 'commuting' topics.

Comparability between countries

The main reason for establishing the CES Recommendations on population and housing censuses is to facilitate international comparison of census results. In this respect, geographic characteristics are among the more difficult topics. When it comes to geography, the UNECE countries, and EECCA countries in particular, are indeed very different in size and population distribution. Regional divisions and subdivisions, even if formally on the same level, may vary substantially in size between countries. As a consequence, definitions and classifications for geographic characteristics should not be too specific. For some topics the CES Recommendations refer just to the use of the "smallest possible civil division". For the topic 'locality', in particular, three different definitions of population clusters are given. Therefore, even when countries apply definitions and classifications in compliance with the CES Recommendations, the statistics produced may not, in fact, be directly comparable between countries.

Locality (derived core topic)

The definition of 'locality' in the CESR (paragraphs 181–182) is: *"For census purposes, a locality is defined as a distinct population cluster, that is, the area defined by population living in neighbouring or contiguous buildings. Such buildings may either:*

(a) Form a continuous built up area with a clearly recognizable street formation; or

(b) Though not part of such a built up area, comprise a group of buildings to which a locally recognized place name is uniquely attached; or

(c) *Though not coming within either of the above two requirements constitute a group of buildings, none of which is separated from its nearest neighbour by more than 200 metres.*"

Of the 48 countries that responded (Kyrgyzstan did not do so), only nine reported that they were not able to produce data on the locality of usual residence as defined by (a), (b) or (c) above (Table 11.1). None of these were countries with register-based censuses, suggesting perhaps that it is

[11] The material in this chapter has been taken largely from a paper prepared by Harald Utne (Statistics Norway) and discussed at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

generally the case that data taken from registers are geographically well-defined. Of the nine, two were in the EECCA region (Georgia and Kazakhstan).

More countries (a third of those across the UNECE region generally) adopted the CES definition (c), but among the three EECCA countries that followed the CES Recommendations each adopted a different definition.

Of the 39 countries that reported producing data on locality of usual residence, including the six EECCA countries, all were able to classify the population by *size of locality* according to the CES Recommendations classification in which the highest category was a million or more residents and the lowest was less than 200.

Table 11.1
Definition of 'locality' in the 2010 round

Locality	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
No data collected	9	19	2	7	17	5	0	2
Data collected	39	81	6	33	82	17	9	7
Data collected based on CES definition	29	60	3	26	65	13	9	4
Based on CES definition (a)	6	12	1	5	12	4	1	0
Based on CES definition (b)	10	21	1	9	22	5	1	3
Based on CES definition (c)	13	27	1	12	30	4	7	1
Data collected based on another definition	8	17	2	6	15	3	0	3
Definition not specified	2	4	1	1	2	1	0	1
Total countries	48	100	8	40	100	22	9	9

Urban and rural areas (derived non-core topic)

The CES Recommendations notes (in paragraph 189) that:

"*For national purposes, as well as for international comparability, the most appropriate unit for distinguishing urban and rural areas is the locality [as* defined *above]. However, it is left to countries to decide whether to use the locality or the smallest civil division as the unit of classification.*"

Urban areas were then defined by CESR as localities with a population of 2,000 or more inhabitants, and rural areas as localities with a population of less than 2,000 and other sparsely populated areas.

The great majority of countries (46 out of 50) reported that they produced data for areas classified as either 'urban' or 'rural', (all those in the EECCA region did so), though some countries defined their 'urban areas' using other concepts such as administrative boundaries, built-up areas, areas for which certain services are provided, or functional areas.

Among countries that do produce data on urban and rural areas, 21 (43 per cent of all UNECE countries) use the locality as the basis of the classification (Table 11.2). This classification is more prevalent among countries conducting register-based censuses, with 7 out of 8 that did so, compared with just 12 out of 31 countries with traditional censuses. Within the EECCA area only Tajikistan

reported using localities for this purpose, with the majority of countries (five) using the smallest administrative unit. The remaining three EECCA countries reported adopting an alternative classification, but one based nevertheless on administrative or territorial divisions.

Table 11.2
Provision of data on urban and rural areas

Urban and rural areas	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
No data collected	4	8	0	4	10	1	1	2
Data collected	45	92	9	36	90	21	8	7
Data collected based on CES recommendation	35	71	6	29	72	17	8	5
Classification by locality	21	43	1	20	50	11	7	2
Classification by smallest administrative unit	14	29	5	9	22	6	1	2
Other classification	7	14	3	4	10	1	0	3
Classification not specified	3	6	0	3	8	3	0	0
Total countries	**49**	**100**	**9**	**40**	**100**	**22**	**9**	**9**

In total, 15 out of 47 responding countries used a population threshold to distinguish urban and rural areas, but no EECCA country did so (Table 11.3). Instead they each reported that urban and rural areas were defined by national legislation, as did 40 per cent of countries elsewhere in the UNECE region.

Reflecting the fact that the classification of areas into urban and rural categories is not a core topic in the CES Recommendations, it is not surprising perhaps that there is little possibility for any degree of comparability in their definition across the UNECE region.

Table 11.3
Criteria used to distinguish urban and rural areas

Criterion used	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Population size	15	33	0	15	43	6	6	3
Population density	2	4	0	2	6	2	0	0
Legal act	23	50	9	14	40	10	0	4
Other criteria	6	13	0	6	17	3	2	8

Location of place of work (core topic)

The location of place of work is defined in the CESR (in paragraph 196) as: "*The precise location in which a 'currently employed' persons performs his/her job and where a 'usually employed' person currently performs or last performed the job. The location should be coded to the smallest possible civil division.*"

Most countries (92 per cent) collected data on location of place of work. But two EECCA countries (Armenia and Georgia) and two others (the Czech Republic and Iceland) reported that they did not do so (Table 11.4).

Just less than half the countries throughout the region (48 per cent of all responding countries, but 51 per cent of those that collected information on workplace including three of the seven EECCA countries that did so) applied a definition based on the actual place in which the employed person performed his/her job during census week (Definition (a) in Table 11.4) Among these countries, 13 used this definition only, including two within the EECCA region (Azerbaijan and Tajikistan). But this definition was less often adopted in countries conducting register-based censuses (only 2 out of 9) than in countries with traditional or combined censuses.

This is the definition that relates most closely to the CES Recommendation, but the survey revealed that slightly more countries (52 per cent overall and 57 per cent of those collecting the information, including four of the EECCA countries), applied a definition based on the address of the local unit at which the employed person was working during census week (Definition (b) in the table). But fewer countries generally used only this definition (10) and only Kazakhstan in the EECCA region did so.

Some 18 countries (including Belarus and the Russian Federation) applied a definition based on the headquarters to which the employed persons usually report (for mobile workers) (Definition (c) in the table. But this definition only refers to that small proportion of the labour force whose workplace is not fixed and was therefore only adopted in combination with one or more of the other definitions. Indeed a number countries (19 in all including Belarus, Kyrgyzstan and the Russian Federation) reported that they adopted more than one definition.

Table 11.4
Definition of location of place of work

Location of place of work	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
No data collected	4	8	2	2	5	1	1	0
Data collected	46	92	7	39	95	25	8	10
Definition of workplace applied								
Definition (a)	24	48	3	21	51	15	2	5
Definition (b)	26	52	4	22	54	9	7	6
Definition (c)	18	36	2	16	39	10	4	3
Other definition	4	8	1	3	7	0	1	2
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

* Countries were able to report the use of more than one definition.

Moldova reported the use of some other definition of workplace, but their comment in the survey suggests that they may have misunderstood the question, and that they did in fact apply one or other of the definitions (a), (b) or (c).

For some groups of employed persons it may be difficult to define the location of place of work, and in such cases particular criteria were applied by four fifths of all the 46 countries that collected information on workplace, including 4 out of the 7 EECCA countries (Table 11.5). Persons with no fixed place of work was the group most frequently reported (by more than half of the countries, including Belarus and the Russian Federation). Similarly, persons with more than one workplace or more than one job require special rules in order to determine a single place of work for census purposes – and, respectively, 20 countries (including Azerbaijan, Belarus and Kazakhstan) and 19 countries (including Azerbaijan and Belarus) reported that they did so.

Some countries identified workers such as sailors, fishermen, offshore workers and persons with unknown employers as presenting particular difficulties. In some countries, mobile workers and persons with no fixed place of work are considered to work from/at home.

For people working abroad only the country of workplace is generally collected, since the area of workplace is not a particularly relevant item of geographic information. Three EECCA countries (Azerbaijan, Belarus and the Russian Federation) reported (along with 17 other countries in the rest of UNECE) that they applied particular criteria for assigning place of work for such people.

Table 11.5
Specific groups of employed persons for whom there were particular criteria for assigning place of work

Employed persons	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
No criteria applied	7	15	3	4	9	3	1	0
Criteria applied for persons:	39	85	4	35	81	18	7	10
With no fixed workplace	20	43	3	17	40	10	1	6
With more than one workplace	19	41	2	17	40	10	4	3
Working at home	16	35	2	14	33	11	1	2
Working abroad	20	43	3	17	40	10	4	3
Other specific groups	4	9	0	4	9	2	1	1
Total countries	**46**	**100**	**7**	**43**	**100**	**25**	**8**	**10**

As noted above, according to the CES Recommendations, data on place of work should be coded to the smallest possible civil division. Data may be collected directly at this level or collected at a lower level geography with the possibility then to code it to smallest administrative division.

Precise address (or coordinates) is the lowest geographical level possible for data collection and this, of course, provides for the most flexible data. Some 15 countries (a third of countries throughout the UNECE region that collected information on workplace) collected the data at this level (Table 11.6). While this is the most common level for countries with a register-based census it is used by only 5 countries adopting a traditional approach, and only by Belarus among the EECCA countries.

Table 11.6
Lowest geographical level for data collected on place of work

Lowest geographical level	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Precise address or coordinate	15	33	1	14	33	4	6	4
Census block	2	4	1	1	2	1	0	0
1 km^2 square	1	2	0	1	2	1	0	0
Local Administrative Unit level (commune)	15	33	1	14	33	8	1	5
Higher level administrative unit	5	11	2	3	7	3	0	0
Other geographic level	8	18	1	7	16	5	1	1
Total countries	**45**	**100**	**7**	**43**	**100**	**25**	**8**	**10**

The Local Administrative Unit level 2 was more commonly used as the lowest geographic level for data collection in traditional censuses throughout the UNECE region generally, but only Moldova among the EECCA countries reported using such a level. Census blocks (usually defined as areas bounded on all sides by streets, roads, railway tracks, streams, etc.) were reported as the lowest level only by Azerbaijan and Kyrgyzstan throughout the whole of the UNECE region, and only one country in total reported using 1 km^2 grids.

Location of place of education (non-core topic)

By collecting information on this topic in their census, countries can extend the scope of their data on commuting patterns to cover pupils and students in addition to the coverage of the employed provided by place of work. The CESR does not, however, offer a precise definition for this topic, but suggests only that, for comparability with location of workplace, data should be coded to the smallest possible civil division (paragraphs 198).

Less than half the UNECE countries (just 22) included this non-core topic in their census. None were in EECCA region.

Mode of transport and distance travelled to work and/or pace of education (non-core topics)

These non-core topics in the CESR relate to the daily journey made (paragraphs 199 and 201), and, again, are recommended in order to expand the information collected on commuting patterns. However, as with location of place of education no information was collected in any of the censuses within the EECCA region.

12. DEMOGRAPHIC CHARACTERISTICS

This chapter reviews the practices in the 2010 census round regarding the demographic characteristics of persons (sex, age and marital status – including both legal and de facto marital status), and the characteristics relating to marriage and fertility of women[12].

Age and sex (core topics)

Age and sex are the two census topics for which the recommended definitions are the most clear, since it is the basic prerequisite for any census – however conducted – to record these characteristics for each person.

With regard to age, the CES Recommendations required the collection of information on date of birth, which allows the data to be tabulated in two ways – by year of birth and/or by completed years of age. In the UN Principles and Recommendations two methods were presented for collecting information on age; the date of birth – recommended as the method that produces the most precise and unambiguous information and also provides a means of estimating age at different reference periods throughout a year – and a direct question on age at the person's last birthday. The second method yields less accurate responses and was therefore recommended to be used only when people cannot provide a specific date of birth.

Fifty countries replied to the survey with respect to age. Of these, 39 used the date of birth and derived the age at the time of the census; these included Armenia, Kazakhstan and Kyrgyzstan. The other six EECCA countries, together with five others within the rest of the UNECE region, collected information on both date of birth and age.

No EECCA country reported that there had been any serious issue raised about the collection of data on sex (that is on males and females only) although there was increasing interest in some countries in the rest of the UNECE about the inclusion of transgender/transsexual or undetermined sex categories.

Legal marital status (core topic)

The CES Recommendations included two distinct topics for marital status: legal (core topic) and de facto marital status (non-core topic).

Legal marital status is defined by the CESR (in paragraph 209) as: *"The (legal) conjugal status of each individual in relation to the marriage laws (or customs) of the country (that is, the de jure status).*

Moreover, the CESR recommended (in paragraph 210) that: *"Information on the legal marital status of each* person *should be collected at least for persons aged 15 and over. However, since the minimum legal age (or the customary age) for marriage varies between countries and since the population may also include young persons who have been married in other countries with lower minimum ages, some countries may find it useful to collect the data for persons under 15 as well."*

The following classification of the population by marital status was recommended:

(1.0) Single (that is, never married)
(2.0) Married
(3.0) Widowed and not remarried
(4.0) Divorced and not remarried

[12] The material in this chapter has been taken largely from a paper prepared by Howard Hogan (US Census Bureau) and presented at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

The CESR also recommended (in paragraph 212) that those persons living in consensual unions be classified in accordance with their de jure (legal) status regardless of their de facto status, and provided an option (in paragraph 213) for additional status categories with respect to registered partnerships or same-sex marriages where such can exist lawfully, as well as for a separate category for 'legally separated' where national legislation includes provisions for this status in addition to 'married' or 'divorced.'

Out of the 50 countries that responded to the survey, 47 collected data on legal marital status. Of the three that did not, two were in the EECCA region (Georgia and Kazakhstan). Though the United States also reported that it did not ask a question on 'marital status' in its decennial censuses it does so in its American Community Survey – though guidance to the respondent on how to answer is only available in the associated help items and the question is usually interpreted by respondent to mean 'legal status'.

In eight countries in the rest of the UNECE region, there were additional categories for persons in registered partnerships that distinguished those currently in such partnerships and those whose legal partnership had terminated due to death or legal dissolution. Some countries included categories for legally separated persons. Six EECCA countries (Armenia, Azerbaijan, Belarus, Kyrgyzstan, the Russian Federation and Tajikistan) used a classification that mixed legal and de facto marital status (see Table 12.1).

Most countries were thus able to provide data on legal marital status complying with the CES Recommendations, though the inclusion of registered partnerships in the marital status classification in several countries does affect the comparability to some degree with other countries.

Two EECCA countries (Moldova and the Russian Federation) together with two other countries in the rest of the UNECE region recorded legal marital status only for persons aged 16 and above, while proportionately more countries (5 in the EECCA region and 12 elsewhere) did so for persons aged 15 and above. But the greatest number of countries (26, all in the rest of the UNECE region) imposed no age limit on the information collected.

Table 12.1
EECCA countries that used a classification of legal marital status different from the recommended classification

Country	Notes
Armenia	Mixed classification with de facto marital status: never married, married (registered), married (not registered), marriage carried out only with church canonical ritual, widowed, divorced (registered), separated (not registered).
Azerbaijan	Persons who indicated married were asked whether their marriage is registered.
Belarus	Mixed classification with de facto marital status: never married, married, in common-law marriage, widow(er), officially divorced.
Kyrgyzstan	Mixed classification with de facto marital status: never married, in a registered marriage, in an unregistered marriage, widow(er) (regardless of whether the marriage with the deceased partner was registered or not), divorced, separated (either from an unregistered or registered marriage and in the latter case, not legally divorced).
Russian Federation	Persons in a marriage were asked additional questions: registered marriage. In addition to officially divorced (divorce registered) additional information were given as: separated (those who are in official marriage broke up and divorce is not officially registered, and those who were not in wedlock and divorced).
Tajikistan	Mixed classification with de facto marital status: never married, in a registered marriage, in an unregistered marriage, widow(er), divorced, separated.

De facto marital status (non-core topic)

De facto marital status is defined by the CESR (in paragraph 217) as the marital status of each individual in terms of his or her actual living arrangements within the household enumerated. Implicitly this is irrespective of the person's legal status. The suggested, and very basic, classification is:

(1.0) Person living in a consensual union
(2.0) Person not living in consensual union

with the specification that "two persons are taken to be partners in a consensual union when they have usual residence in the same household, are not married to each other, and have a marriage-like relationship to each other" (CESR paragraphs 218-219).

De facto marital status was a non-core topic in the recommendations for 2010 round of censuses that was of most interest for countries that have experienced increases in the number of persons living in consensual unions. Information on de facto marital status is most often derived from information collected on topics related to household and family characteristics of persons, characteristics of family nuclei and characteristics of private households, based on the relationship to the reference person question or the full household relationship matrix in countries where the matrix is used.

All but five UNECE countries either collected or derived information on de facto marital status. Of the five that did not only Tajikistan was in the EECCA region.

The most common approach, generally, to the measurement of de facto marital status was through information collected on the relationship within the household. For this purpose some 20 countries (including Azerbaijan, Kazakhstan and the Russian Federation) used the relationship either to a single specific household reference person or to all other household members (Table 12.2). Thus the proportions using this method were more or less the same for both EECCA counties and those in the rest of the UNECE region, whereas more than half the EECCA countries collected information directly from a specific question on de facto status, compared with less than a quarter of countries elsewhere.

Table 12.2
Countries that collected data on de facto marital status, by means of doing so and compliance with the CES Recommendations

De facto material status	All responding countries		EECCA	Type of census in rest of UNECE				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
No data collected	5	10	1	4	10	2	0	2
Data collected	45	90	8	37	90	20	9	8
By means of*								
Specific question	14	28	5	9	22	9	0	0
General question on marital status	11	22	6	5	12	4	0	1
Relationship to reference person	20	40	3	17	41	9	2	6
Other method	6	12	0	6	15	1	5	0
Classification compliant with recommendations	34	68	8	26	63	12	7	7
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

* Countries were able to report the use of more than one method.

However, more EECCA countries (six in all) chose to collect information on de facto marital status from a more general question on marital status – though three of these (Azerbaijan, Kyrgyzstan and the Russian Federation) reported that they used both methods. Indeed, half the EECCA countries that collected information on de facto status did so using more than one of the methods reported in Table 12.2, as did several other countries elsewhere in the UNECE region.

All the EECCA countries that reported that they collected information on de facto marital status also reported that they used a classification that was compliant with the CES Recommendations compared with just over two thirds of countries (26 in all) in the rest of the UNECE region.

Marriage and fertility topics (non-core)

Associated with the data collected in the census on marital status, but considered as non-core topics in the CESR, is information relating to the timing and duration of marriage and the fertility history of women. This information is often collected in countries where there is no universal system of vital registration and where, as a consequence, the census provides the only comprehensive source of information about fertility and population growth.

The CESR recommended that the 'total number of children born alive' – if included in the census – should be asked of all women (CESR paragraph 222) and should include all children born alive during the women's lifetime (including those born in previous marriages) up to the census date, but should not include stillbirths (paragraph 223).

Of the 50 countries that answered this survey question, just over two thirds (34) reported that they collected information on the total number of live-born children. All the EECCA countries did so (Table 12.3). Notwithstanding the CESR recommendation above, the majority of countries (59 per cent overall) collected this information only from women aged 15 or over. Again, all the EECCA countries did so, although Tajikistan's response that it collected the information from "all women older than 15" was a little ambiguous, and the Russian Federation commented that it only collected information on women in households.

Table 12.3
Age of women on whom countries collected fertility-related information

Age of women	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
No data collected	16	32	0	16	39	7	6	3
Data collected	34	68	9	25	61	15	3	7
Age of women								
16 and over	1	2	0	1	2	0	0	1
16 - 49	1	2	0	1	2	0	0	1
15 and over	20	40	9	11	27	6	1	4
12 and over	1	2	0	1	2	1	0	0
11 and over	1	2	0	1	2	1	0	0
10 and over	2	4	0	2	5	2	0	0
All ages	7	14	0	7	17	5	2	0
Age not stated	1	2	0	1	2	0	0	1
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

Only seven countries in the UNECE region collected fertility information on women of all ages as recommended. However, 33 of the 34 countries that collected information on live-born children complied with the CESR in that they related these to all such children ever born to a woman over her lifetime. Only Belarus limited the information collected to children born in the current marriage who were alive on census day.

Eleven out of the 34 countries (including Azerbaijan, Georgia, Kazakhstan and the Russian Federation within the EECCA region) reported that they collected data related to the ages, or dates of birth, of a woman's children, although Russia (together with Lithuania) reported that such information only referred to the first born child.

Only three countries (including Tajikistan) reported collecting information on the age at death or date of death of ever live-born children. In the case of Tajikistan the information on date of death was collected only for the children aged up to 5 years who had died in the year before the census.

With the purpose of extending the knowledge that can be derived from data on number of live-born children, it was suggested by the CES Recommendations that information could be collected relating to the duration of marriage of ever-married women, stressing that, if relevant, both first marriage and current marriage dates should be recorded. And reflecting the increase in consensual unions, the collection of comparable data on the duration of such unions was also recommended. In the event however, only 15 countries attempted to collect one or more items of this information in the 2010 round of censuses. Among the EECCA countries only Azerbaijan collected information on date of current marriage (or consensual union), and only Kazakhstan did so for date of first marriage (or consensual union).

13. ECONOMIC CHARACTERISTICS

Introduction

As was noted in the 2010 CES Recommendations, statistics on the economic characteristics of persons are needed from population censuses for many reasons. Information on the number and characteristics of the employed, unemployed and economically inactive persons are needed in detail at the same reference point of time that other demographic and social items are being measured so that a comprehensive picture of the socio-economic situation is available. Such statistics might be obtained from other sources such as household-based labour force surveys or administrative records, but these other sources have certain limitations. Data obtained from labour force surveys are subject to sampling error and, therefore, rarely provide reliable estimates for small areas, or for detailed groups of industries and occupations. Administrative records may not necessarily have the same quality of occupational and industry coding, nor the same comprehensiveness in population coverage.

Other personal, household and dwelling characteristics that are included in the range of census topics (such as education, income level, literacy, type of dwelling, etc.) are strongly related to economic activity of the household members. It is, therefore, desirable to collect or link information on the economic characteristics of household members in the census so that cross-relationships between these data items can be examined.

This chapter reports, in turn, on four distinct aspects of measuring the economic characteristics of the population. Information on activity status determines whether or not a person is employed or unemployed, or is economically inactive for whatever reason. For those persons that are employed information is then collected on several further characteristics, in particular on employments status, in order to distinguish employers from employees (and other categories), on occupation referring to the type of work done in a specific reference period prior to the census date, and the industry in which the person is employed during that same reference period. Each of these four topics was classified as core in the CESR.

The chapter also reports on the extent to which countries collected information on a number of other, non-core, topics that were also recommended for inclusion in the census[13].

Economic activity status

Information collected in the census on activity status is aimed at classifying the population into those that are economically active or inactive. The economically active population was defined in the CESR (in paragraph 28) as comprising: *" ...all persons who provide the supply of labour, as employed or as unemployed, for the production of goods and services"*. Reflecting the universal importance of this topic, all censuses in the UNECE region in the 2010 round, regardless of their methodological approach, collected information on economic activity.

But 'economic activity status' is not a simple concept. The CESR allowed two possible alternative approaches to be adopted: *current* activity status, which was the core topic, and *usual* activity status, designated as non-core.

'Current activity status' was defined by CESR (in paragraph 237) as: *"...the current relationship* of *a person to economic activity, based on a brief reference period such as one week or one day"*, whereas 'usual activity status' was defined (in paragraph 251) as *"... the usual relationship of a person to economic activity based on a long reference period such as a year"*.

[13] The material in this chapter has been taken largely from a report prepared by the UNECE Task Force on Economic Characteristics led by Jari Nieminen (Statistics Finland) and discussed at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

The use of the current activity concept (more closely aligned to the country's 'labour force') was considered more appropriate for countries where the economic activity of people is not strongly influenced by seasonal or other factors causing variations over the year. This was the definition recommended as the core topic, and use of a time-reference period of one week rather than one day was preferred, either as a recent fixed calendar week, or the last complete calendar week or the last seven days prior to the census. However, use of either concept was not exclusive and thus countries were able to report on collecting information on both if there was a requirement to do so.

But the clear majority of responding countries (46), regardless of the type of census, used the concept of currently active population in the 2010 round. These included all nine of the EECCA countries, and of these all but one adopted a reference period of one week, as did two thirds of the countries throughout the rest of the UNECE region (Table 13.1). The one exception was Kyrgyzstan where some other (but unstated) reference period was adopted. In fact Kyrgyzstan was one of the only two UNECE countries that reported collecting information using both concepts of activity status (Sweden was the other).

Table 13.1
Concept of activity status, and reference period adopted

Concept of activity status and reference period adopted	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Current activity status	**46**	**92**	**9**	**37**	**90**	**19**	**9**	**9**
Reference period of 1 day	6	12	0	6	15	3	1	2
Reference period of 1 week	36	72	8	28	68	15	6	7
Other reference period	4	8	1	3	7	1	2	0
Usual activity status	**5**	**10**	**1**	**4**	**10**	**2**	**1**	**1**
Reference period of 1 year	4	8	1	3	7	1	1	1
Other reference period	1	2	0	1	2	1	0	0
Other concept of activity status	3	4	1	2	5	2	0	0
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

Problematic cases

It was recognised that regardless of which concept of 'activity status' was used, it was sometimes difficult to know whether to include particular sub groups of the population as economically active or inactive. The UNECE survey thus identified a number of specific groups which are known to be particularly problematic, and asked countries to report whether or not they were counted as economically active (as they all should have been). The results are presented in Table 13.2.

The CESR recommended (in paragraph 245) that 'contributing family workers' should be considered to be economically active on the same basis as other self-employed persons, irrespective of the number of hours worked during the reference period. All eight of the EECCA that responded to the survey question (Kazakhstan did not) complied with the recommendation, although six countries elsewhere reported that such workers were not considered to be economically active.

The 'never employed', that is, those unemployed persons (those who are without work and currently available for work) and who had never previously worked, were reported as economically inactive in four countries, but none of these were in the EECCA region.

Table 13.2
Activity status assigned to particular problematic cases

Problematic cases assigned as economically active	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Contributing (unpaid) family workers								
Yes	42	48	8	34	83	18	6	8
No/No response	8	16	1	7	17	4	3	2
Never employed								
Yes	44	88	8	36	88	21	8	7
No/No response	6	12	1	5	12	1	1	3
Armed forces								
Yes	44	88	7	37	90	21	8	8
No/No response	6	12	2	4	10	1	1	2
Domestic workers								
Yes	48	96	8	40	98	21	9	10
No/No response	2	4	1	1	2	1	0	0
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

Only the Russian Federation of the EECCA countries reported that 'members of the Armed Forces were not counted as part of the economically active population. However, Russia qualified its response by adding that although economic activity information was not collected for the persons living on military camps, persons in military service who were enumerated at their own households were considered as economically active.

'Part-time workers' even though they may spend most time in non-gainful activities, were considered economically active in almost all countries throughout the UNECE region, and by all EECCA countries. 'Domestic servants' were similarly reported as being economically active throughout the EECCA region.

Recommended classification

The classification recommended by CESR for assigning persons their activity status (either current or usual) was:

(1.0) Economically active
- (1.1) Employed
- (1.2) Unemployed, of which
  - (1.2.1) Previously in employment
  - (1.2.2) Never worked before

(2.0) Not economically active
- (2.1) Persons below the minimum age limit
- (2.2) Students
- (2.3) Pension or capital income recipients
- (2.4) Homemakers and others
  - (2.4.1) Homemakers (optional)
  - (2.4.2) Others

Though levels of compliance with the collection of information on activity status were generally high across the UNECE region, only two thirds of countries (34) reported that they were able to comply with recommended classification. The majority of countries that were not able to do so

were those where the information on activity status was taken from administrative registers. In the EECCA region only Kyrgyzstan reported that it did not apply the CESR classification.

Age limits

The CESR recommended (in paragraph 232) that information on activity status should be collected for each person at or above a minimum age set in accordance with the conditions in each country, but that the minimum school-leaving age should not automatically be taken as the lower age limit. Most countries reported that they complied, more or less, with this recommendation, with 42 countries using 15 years as the minimum age limit. Eight of the EECCA countries did so, with only Kyrgyzstan adopting a lower age qualification (12 years).

The situation as regards the imposition of an upper age limit for the collection of economic activity information was less consistent. For this the CESR noted that: *"…. use of a maximum age limit for measurement of the economically active population is not recommended, as many people continue to be engaged in economic activities beyond their normal retirement age and because the numbers* involved *are likely to increase as a result of factors associated with the "ageing" of the population"*. However, the Recommendations went on to suggest that countries might wish to balance the cost of collecting and processing information relating to the economic activity of elderly persons (those aged 75 years or more) and the additional response burden imposed on them against the significance and reliability of the information provided.

Most commonly, three quarters of UNECE countries (37) reported no upper age limit for collection of information on activity status. Two thirds of EECCA countries similarly applied no such limit. But, additionally, seven countries throughout the UNECE region, including Tajikistan, did not respond to the survey question, and it might be assumed that there was no limit in these countries either. Two of the three countries that reported an explicit maximum age limit were Armenia (75 years), and the Russian Federation (72 years).

Exceptional population sub-groups

Notwithstanding the CESR recommendation that economic activity status should be recorded for all persons that were qualified by age, ten countries reported that there were some population sub-groups on which the information on activity status was not collected. The Russian Federation, for example (together with Germany) reported that information was not collected on the population living in collective households/institutions such as prisons or nursing homes. Russia also specifically reported that it did not collect the information relating to the homeless (but they were probably not alone in that).

Foreign nationals working in the offices of foreign states or international organizations were excluded in Kyrgyzstan, and Tajikistan did not collect the information on temporary residents.

Definition of 'employed' and 'unemployed'

Notwithstanding the extent to which countries were able to comply with the CESR classification of activity status, the essential element underlying the classification itself was the level of international agreement on the definition of what constitutes employment and unemployment. The CESR (in paragraph 239) defined 'employed' persons as comprising: *"…. all persons above the minimum age specified for measurement of the economically active population who during the short reference period of preferably one week:*

(a) performed some work for pay or profit, in cash or in kind, or

(b) were temporarily absent from a job in which they had already worked and to which they maintained a formal attachment, or from a self-employment activity such as a farm, a business enterprise or a service undertaking".

In this context 'work' was defined as "engagement in economic activities" as previously defined. The CESR went on to clarify that employees who were temporarily not at work in the reference period should be considered as being in paid employment provided they had a 'formal job attachment'. Such temporary absences might be because of:

(a) illness or injury;
(b) holiday or vacation:
(c) strike or lock-out;
(d) educational or training leave;
(e) maternity or parental leave;
(f) reduction in economic activity;
(g) temporary disorganisation or suspension of work due to such reasons as bad weather, mechanical or electrical breakdown, or shortage of raw materials or fuels; or
(h) other temporary absence with or without leave,

and that the 'formal job attachment' should be determined on the basis of one or more of the following criteria:

- a continued receipt of wage or salary;
- an assurance of return to work following the end of the contingency, or an agreement as to the date of return; or
- the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs.

The CESR also advised that self-employed persons (excluding contributing family workers) should be considered as 'employed' and 'with an enterprise, but not at work' if their absence from work was temporary but their enterprise meanwhile continued to exist.

Only 9 of the 50 countries that responded to the survey question reported that they were not able to fully apply the recommended definition to identify 'employed' persons. All the EECCA countries reported that they were able to do so.

On the other hand, 'unemployed' persons were defined by the CESR (in paragraph 247) as comprising: *"... all persons above the minimum age specified for measurement of the economically active population who during the reference period were:*

(a) 'without work', that is were not in wage employment or self-employment as previously defined;

(b) 'currently available for work', that is were available for wage employment or self-employment during the reference period; and

(c) 'seeking work', that is had taken specific steps in a specified recent period to seek wage employment or self-employment".

Only six countries throughout the UNECE region reported that they deviated from the recommended definition; all the EECCA countries complied.

Employment status (core topic)

As defined in the CESR (in paragraph 279) the concept of 'status in employment' referred to: "….*the type of* explicit *or implicit contract of employment with other persons or organizations, which the person has in his/her job*", and the following classification of the economically active population (using the International Classification by Status of Employment – ICSE-93) was recommended:

(1.0) Employees, among whom it may be possible to distinguish 'employees with stable contracts' (including 'regular employees')
(2.0) Employers
(3.0) Own-account workers
(4.0) Contributing family workers
(5.0) Members of producers' co-operatives

(6.0) Persons not classifiable by status

Information on employment status was collected in all the EECCA countries; indeed 48 countries throughout the UNECE region generally did so. Only the United States and Canada did not.

Two thirds of countries that collected the information used the CESR definition, including six of the EECCA countries (Table 13.3). However, throughout the UNECE region, only 28 countries (58 per cent) used the recommended employment status classification (ICSE-93), including Armenia, Georgia, Moldova and the Russian Federation, while 19 others (including Azerbaijan, Belarus, Kyrgyzstan and Tajikistan) reported using variation of it or some other classification. Of these, further five countries – but none in the EECCA region – reported that although they had not provided data based on ICSE-93 in the 2010 round they could do so.

Table 13.3
Compliance with recommendations on employment status

Recommendation	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Topic included in the census								
No	2		0	2		2	0	0
Yes	48	100	9	39	100	20	9	10
Definition compliant with CESR								
Yes	32	67	6	26	67	16	4	6
No/No response	16	33	3	13	13	4	5	4
Classification compliant with ISCE-93								
Yes	28	58	4	24	62	14	5	5
No/No response	20	42	5	15	38	6	4	5
of whom could provide data on ISCE-93								
Yes	47	94	0	5	95	2	1	2
No/No response	3	6	5	10	5	4	3	3

Occupation (core topic)

The CESR defined 'occupation' (in paragraph 270) as: *".....the type of work done in a job, where 'type of work' is described by the main tasks and duties of the work*", and recommended that, for the purposes of international comparisons, countries should prepare tabulations in accordance with the latest revision of the International Standard Classification of Occupations (ISCO) available at that time (2005). This was the revision that had been adopted by the Governing Body of the International Labour Organisation (ILO) in 1988 (ISCO-88[14]).

The results of the UNECE survey showed that information on occupations was collected in 48 countries (Table 13.4). Only the Russian Federation did not do so (but Kyrgyzstan did not respond to this section of the survey). Only 2 of the 48 countries reported that the definition used did not comply fully with the CES Recommendations. All the responding EECCA countries were fully compliant.

Some 24 countries throughout the UNECE region reported using the ISCO-08 classification (adopted in 2008) for coding occupation, while ISCO-88 was used in 13 countries, including six EECCA countries (Kazakhstan did not respond). Ten countries used other nationally-based classifications which were based on, or at least compatible with, ISCO-08 or ISCO-88.

[14] International Standard Classification of Occupations, ISCO-88, approved by the ILO Governing Body in 1988 (http://www.ilo.org/public/english/bureau/stat/isco/isco88/index.htm)

Table 13.4
Compliance with recommendations on occupation and industry

Recommendation	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Occupation								
Topic included in the census								
No	1		1	0		0	0	0
Yes	48	100	7	41	100	22	9	10
Definition compliant with CESR								
Yes	46	96	7	39	95	21	8	10
No	2	4	0	2	5	1	1	0
Classification compliant with								
ISCO-08	24	50	0	24	59	13	6	5
ISCO-88	13	27	6**	7	17	3	2	2
Other classification	10	21	0	10	24	6	1	3
Industry								
Topic included in the census								
No	1		1	0		0	0	0
Yes	47	100	6+	34	83	20	7	7
Definition compliant with CESR								
Yes	40	85	6+	34	83	20	7	7
No	7	33	0	7	17	2	2	3
Classification compliant with								
ISIC Rev 4	17	36	0	17	41	12	3	2
ISIC Rev 3.1	4	9	3	1	2	0	0	1
Other	22	47	1	22	54	9	6	7
No response	4	9	2	1	2	1	0	0

* Kyrgyzstan did not respond
** Kazakhstan did not respond
+ Georgia did not respond

Industry (core topic)

The CESR referred to 'Industry' (in paragraph 274) as: *"... the kind of production or activity of the establishment or similar unit in which the job of the economically active person was located*", and recommended for the purposes of international comparability, that countries compile the industrial characteristics of economically active persons according to the latest revision of the International Standard Industrial Classification of All Economic Activities (ISIC) available at the time of the census. At the time that the CES Recommendations were approved, the third edition of ISIC[15], adopted by the United Nations Statistical Commission at its twenty-fifth session in 1989, was the

[15] International Standard Industrial Classification of All Economic Activities, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990.

latest revision available, although this was being revised. However, countries belonging to the European Economic Area were, instead, recommended to refer to NACE Rev.1[16].

As with occupation, the collection of information on industry in the 2010 round was almost universal (47 countries); of the EECCA countries only the Russian Federation (again) did not do so though (this time) Georgia did not respond to the survey question (Table 13.4). The definition used for industry was fully compliant with the CES Recommendations throughout 85 per cent of UNECE region, and in all the responding EECCA countries.

The recommended classification (ISIC Revision 4) was used by two fifths of countries in the rest of the UNECE region but by none of the EECCA countries. Instead, Armenia, Belarus and Moldova (along with Israel) reported using the Revision 3.1. But a greater proportion of countries throughout the UNECE (almost a half) reported using an alternative classification different from ISIC, which for 14 countries was the European Classification of Economic Activities (NACE) revision 2. Azerbaijan was the only EECCA country that reported the use of an alternative classification; but it is unclear what classification was used by either Kazakhstan or Tajikistan as neither specifically responded to the survey question.

Non-core and other economic-related topics

The 2010 CESR suggested a number of other economic-related topics that countries might wish to consider including in their census on a non-core basis. While many countries did include one or more of these (listed in Table 13.5) there was no single topic that was included by more than half all countries in the region, and only one topic – 'main source of livelihood – on which data was collected by more than two of the EECCA countries. Indeed, information on this topic was collected by 21 countries throughout the UNECE region as a whole and by all except Kyrgyzstan with the EECCA region. However, none of the EECCA countries collected specific information on income.

The only other topics on which information was collected, or derived, by at least one EECCA country in the 2010 round were 'providers of unpaid services' (by Azerbaijan and Moldova) and 'socio-economic groups' (by Armenia).

Table 13.5
Information collected on other, non-core, economic topics

Topic	Number of countries collecting information		
	All countries	EECCA	Rest of UNECE region
Main source of livelihood	21	8	13
Time usually worked	14	0	14
Type of place of work	13	0	13
Socio-economic group	13	1	12
Duration of unemployment	9	0	9
Number of employees at workplace	7	0	7
Income	6	0	6
Type of sector (institutional unit)	6	0	6
Providers of unpaid services	3	2	1
Informal employment	2	0	2
Time-related underemployment	1	0	1

[16] NACE Rev.1, Statistical Classification of Economic Activities in the European Community, Eurostat, Luxembourg 1996.

14. EDUCATIONAL CHARACTERISTICS

Introduction

This chapter briefly reviews the practices regarding the collection of educational characteristics in the last census round, based on the responses from 50 countries to the UNECE survey[17].

Educational attainment (core topic)

As noted in paragraph 331 of the CESR the core topic of 'educational attainment' referred essentially to *"…. the highest level successfully completed in the educational system of the country where the education was received*."

The CESR also recommended that all education which is relevant to the completion of a level should be taken into account even if this was provided outside of a formal school or university. Furthermore it was recommended that such information should be collected for all persons aged 10 years or over, but that in order to permit international comparisons, outputs should at least distinguish persons aged less than 15 years from those aged 15 years or over.

The use of the latest available version of the International Standard Classification of Education (ISCED-97[18]) was recommended for the classification of highest level of attainment, thus distinguishing:

(a) Level 1 Primary (first stage of basic education)
(b) Level 2 Lower secondary (second stage of basic education)
(c) Level 3 Upper secondary education
(d) Level 4 Post-secondary, non-tertiary education
(e) Level 5 First stage of tertiary education
(f) Level 6 Second stage of tertiary education

The level of compliance with the CES Recommendation on educational attainment was among the most consistent of all topics across all UNECE countries (apart from basic demographic variables of 'sex' and 'age' and the reporting of place of usual residence). All countries in the EECCA region and elsewhere either collected information on the topic or, as in the sole case of the UK, were able to derive it from other information collected.

The level of compliance with the CESR definition was almost as good. With the exception of Armenia, Kyrgyzstan and Tajikistan (who did not specifically indicate their compliance in their response to the survey), only Finland and the UK reported that they did not fully adopt the CESR definition of the topic. But despite this, only two countries – Kazakhstan and Tajikistan – did not report that they were able to provide data according to the recommended ISCED classification

However, overall compliance with the CES Recommendation that data on educational attainment should be collected for all persons aged 10 was far less universal; only 23 of the responding countries (less than half overall) were able to do so, though it should be noted that all EECCA countries except Tajikistan reported that they were compliant. And all these EECCA countries similarly reported the recognition of a minimum age of at least 15 years for the purposes of producing outputs for international comparisons as recommended.

[17] The material in this chapter has been taken largely from a report prepared by the UNECE Task Force on Educational Characteristics led by Jari Nieminen (Statistics Finland) and discussed at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

[18] International Standard Classification of Education ISCED 1997, UNESCO (http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm)

Non-core educational topics

The CES Recommendations identified a number of other (non-core) education-related topics that could be considered for inclusion in international censuses. The numbers of countries that included such topics in the 2010 round are shown in Table 14.1. The topics cover:

School attendance, defined in paragraph 348 of the CESR as: "…. *regular attendance at any accredited educational institution or programme, public or private, for organized learning at any level of education*". Information was collected by two thirds of all UNECE countries and by a similar proportion of countries in the EECCA region, among whom only Belarus and Tajikistan reported not doing so.

Literacy, defined in paragraph 353 of the CESR as: "… *the ability both to read and to write*". Although included in less than a half of the countries in the rest of the UNECE region, only Georgia and Tajikistan among the EECCA countries reported that they did not collect information on this topic.

Field of study, defined by ISCED in paragraph 342 of the CESR to mean: "... *the subject matter taught in an education programme*". Only Azerbaijan and Georgia among the EECCA countries reported that they included this topic in their censuses. Elsewhere in the UNECE region, some 17 other countries (almost twice as many by proportion) also did so.

Educational qualifications, defined in paragraph 340 of the CESR as: "…. *the degrees, diplomas, certificates, etc. which have been conferred on a person by educational authorities, special examining bodies or professional bodies in his/her home country or abroad on the successful completion of a course of full time, part time or private study*". A third of the EECCA countries (Azerbaijan, Georgia and the Russian Federation) collected this information, a similar proportion to the rest of the UNECE region.

Computer literacy, defined in paragraph 358 of the CESR as: "… *the ability to use basic computer applications to accomplish everyday tasks, particularly the ability to use word processing, spreadsheet, e-mail and web-browsing applications*". Only Belarus and Kazakhstan among the EECCA countries reported that they included this topic in their censuses. An even smaller proportion of countries elsewhere in the UNECE region (just seven countries) also did so.

Of the five non-core topics suggested in the 2010 CESR Azerbaijan collected information on greatest number (four), while Georgia, Kazakhstan and the Russian Federation included only three in their censuses. Tajikistan recorded none.

Table 14.1
Information collected on the non-core educational topics

Topic	Number of countries collecting information		
	All countries	EECCA	Rest of UNECE region
School attendance	33	6	27
Literacy	23	6	17
Field of study	19	2	17
Educational qualifications	16	3	13
Computer literacy	9	2	7

15. DISABILITY STATUS

Introduction

A census can provide valuable information on disability in a country, although the sensitivity of this topic makes the collection of this type of information in a census relatively complex, and may affect the quality of the results. For countries that do not have regular special population-based disability surveys or disability modules in on-going surveys, the census may be the only source of information on the frequency and distribution of disability in the population at national, regional and local levels. Countries that have a registration system providing regular data on persons with the most severe types of impairments, may use the census to complement these data with information related to the broader concept of disability based on the International Classification of Functioning Disability and Health (ICF)[19]. Furthermore, census data can be utilized for planning programs and services (prevention and rehabilitation), monitoring disability trends in the country, evaluation of national programs and services concerning the equalization of opportunities, and for international comparison of the disability prevalence in countries.

This chapter presents the main results of the UNECE survey with regard to the collection of data on disability in the 2010 census round in the EECCA and other UNECE countries[20]. As in other chapters in this publication, Ukraine's response to the survey has not been included in the analysis.

Definition of disability status (non-core topic)

According to the CES Recommendations, disability status characterises the population into those with or without a disability. Persons with disabilities were defined by the CESR (paragraph 446) as those persons: *"....who are at greater risk than the general population for experiencing restrictions in performing specific tasks or participating in role activities. This group would include persons who experience* limitations *in basic activity functioning, such as walking or hearing, even if such limitations were ameliorated by the use of assistive devices, a supportive environment or plentiful resources. Such persons may not experience limitations in the specifically measured tasks, such as bathing or dressing, or participation activities, such as working or going to church, because the necessary adaptations have been made at the person or environmental levels. These persons would still, however, be considered to be at greater risk for restrictions in activities and/or participation than the general population because of the presence of limitations in basic activity functioning and because the absence of the current level of accommodation would jeopardise their current levels of participation".*

The CES Recommended that at least four of the six domains recognised by the Washington Group on Disability Statistics (WG) as being essential in determining disability should be identified. These are:

i. Walking;
ii. Seeing;
iii. Hearing; and
iv. Cognition

and are often referred to as the Washington Group Short Set of questions on Disability (WG Short Set). But the CESR also suggested that if countries wished they could consider self-care and communication as two additional domains. It is generally the case, however, that the full set of WG

[19] International Classification of Functioning, Disability and Health (ICF), Geneva, World Health Organization, 2001.

[20] The material in this chapter has been taken largely from the paper prepared by Paolo Valence (UNECE) at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

questions is not practicable in a census context where questionnaires are often designed for self-completion and where there is intensive competition with a wide range of other core and non-core topics for space on the questionnaire.

Compliance with the CES Recommendations

Information on disability was collected in the census by half of the UNECE countries, 25 out of the 50 responding countries overall, and by four out of the nine countries in the EECCA region. The following analyses therefore only consider the responses from those 25 countries that did so (see Table 15.1).

These countries were asked whether or not they used the WG Short Set, which is based on a series of questions on the degree of difficulty that the respondents may have doing those activities covered by the four key domains identified above. For example the recommended question and response categories for the 'seeing' domain is: *"Do you have difficulty seeing, even if wearing glasses?*

(a) No – no difficulty.
(b) Yes – some difficulty.
(c) Yes – a lot of difficulty.
(d) Cannot do at all."

About half of the countries that collected information on disability used the WG Short Set (12 countries), as recommended, and in almost all cases with no significant changes (Table 15.1). However, only Moldova among the EECCA countries did so. All other countries used their own national classifications. Armenia asked, for example "*Is there a person in the household with a disability status defined by the State competent authorities*" with responses categories for 'Yes' (and recording the 'person number') or 'No', while the question on the Kazakhstan questionnaire asked "*Do you have difficulties in walking, with hearing, vision and speaking?*" with the response categories 'Yes, sometimes' or 'Yes, often', or 'No'.

The large majority of countries (20 out of the 25 responding countries, and all of the EECCA countries) collected information on disability for all members of the household, with no minimum age threshold, or other limits applied.

Table 15.1
Compliance with recommendations on disability

Recommendation	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Topic included in the census								
No	25		5	20		6	8	6
Yes	25	100	4	21	100	16	1	4
WG short set used								
Yes with no changes	11	44	1	10	47	9	0	1
Yes with some changes	1	4	0	1	5	0	0	1
No	13	52	3	10	47	7	1	2
Coverage within household								
All persons	20	80	4	16	76	14	0	2
Minimum age threshold	4	16	0	4	19	2	0	2
No response	1	4	0	1	5	0	1	0

Difficulties in collecting disability data

There has been a general perception, historically, among some countries that collecting reliable data on disability in a census context is difficult. For example, the United Kingdom, despite a long tradition of asking a question about mental disability throughout the second half of 19th century eventually abandoned the idea after the 1911 Census because it was accepted at that time that such a question was too sensitive and the resulting data too inaccurate. As the Chief Statistical Superintendent at the General Register Office, William Ogle, reported in commenting on the accuracy of the 1881 Census figures: *"It is against human nature to expect a mother to admit her young child to be an idiot, however she may fear this to be true. Openly to acknowledge the fact is to abandon all hope."*

But have things improved since then?

A little over half of the countries that collected data on disability reported some difficulties in doing so (14 out of 25 countries). Poor understanding of the questions on disability on the part of the respondent was reported as the most common difficulty, including Kazakhstan, but difficulties experienced by NSIs in interpreting the responses to such questions were also reported, again including Kazakhstan. Of the other three EECCA countries that collected data, Armenia reported no such difficulties at all, but Moldova and the Russian Federation commented that they were not, at the time of the survey, in a position to assess whether or not difficulties had been experienced.

Notwithstanding the difficulties reported in the survey, overall the countries that attempted to collect information on disability seem to be more satisfied with the quality of the responses than not. However, at the time of the survey no assessment of the quality of the data collected had been made by Armenia, Moldova and the Russian Federation. Only Kazakhstan – with its unique question on difficulties in walking, hearing, vision and speaking – rated the resulting data as being of 'poor' quality.

16. MIGRATION

Introduction

Migration in general, and international migration in particular, plays an important role in shaping the demographic and socio-economic profiles of most, if not all, countries in the UNECE region. In many countries the population census is not only a primary statistical source, but it also has a pivotal function for the range of definitions and classifications it produces. It was therefore important that common definitions and concepts should have been adopted in the last census round in order to provide consistent and comparable migration information, and especially for the identification of migrants stocks.

This chapter looks at the way that countries in the UNECE region, and EECCA countries in particular, used the census to identify two different aspects relevant for the measurement of migration:

(a) the measurement of stocks of *international* migrants and other groups relevant to international migration, with information on timing and geographical patterns of their international migration flows; and

(b) the measurement of stocks of *internal* migrants, with information on timing and geographical patterns of their internal migration flows.

In relation to the immigrant stocks the CESR included two core topics that allowed the identification of those born abroad (through information collected on 'Country/place of birth') and those with foreign citizenship. And to aid the measurement of international migration flows the core topic of 'Ever resided abroad and year of arrival in the country' and the non-core topics of 'Country of previous usual residence abroad' and 'Total duration of residence in the country' were also recommended. Additional (non-core) topics would allow the identification of additional groups that may or may not belong to the immigrant stock.

Internal migration stocks and information about timing and geographical patterns of internal movements were primarily collected using the core topic 'Previous place of usual residence and date of arrival in the current place of residence' and the non-core topic 'Place of usual residence five years prior to the census'.

One additional recommended non-core topic that could provide relevant information about both international and internal migration was the 'Reason for migration'.

This chapter reviews the extent to which the CESR for each of these topics in turn were adopted by EECCA countries and those in the rest of the UNECE region in the 2010 round.[21]

International migration

Definition of an international migrant

Put simply, a migrant to any specified area is someone who is living in the area having previously changed his/her place of usual residence from outside that area. Using this basic concept, the CESR defined (in paragraph 365) an international migrant as:

"*....any person who changes his or her country of usual residence*"

where the concept of 'usual residence' is as set out in Chapter 10. The term 'ever-international migrants' is used synonymously, and the stock of such people in any country will include all foreign-born individuals plus those native-born persons who have ever (usually) resided abroad.

[21] The material in this chapter has been taken largely from a paper prepared by the UNECE Task Force on Migration and Ethno-Cultural Characteristics, led by Jane Badets (Statistics Canada) and presented at the at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Country of birth (core topic)

Numbers of the stock of foreign-born residents (who by definition must all be migrants) is derived in the census using information on country of birth. All countries that responded to the UNECE survey except Tajikistan collected information on this core topic. However, the CESR allowed place of birth to be collected according to either the country in which the geographical unit in which the birth took place was located or to the country in which the mother was resident at the time of the birth (paragraph 373). Of the 49 countries that did collect this information, just under a half adopted the first criterion only, including five of the EECCA countries. The remaining three EECCA countries (Belarus, Kazakhstan and the Russian Federation) along with more than a third of the rest of the UNECE region adopted the second criterion only. Some 7 countries reported that they adopted both, but none within the EECCA region did so (Table 16.1).

Table 16.1
Information collected on country of birth

Information collected	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Information not collected	1		1	0		0	0	0
Information collected	**49**	**100**	**8**	**41**	**100**	**22**	**9**	**10**
Country of actual birth only	24	49	5	19	46	9	4	6
Country of residence of mother only	18	36	3	15	37	7	5	3
Both	7	14	0	7	17	6	0	1
National boundaries as at census	38	78	4	34	83	21	5	8
National boundaries as at birth	9	18	2	7	17	1	4	2
Other definition	2	4	2	0	0	0	0	0
Information coded								
As recommended by UNSD	32	65	5	27	66	17	5	5
Other classification	17	35	3	14	34	5	4	5

The CESR also recommended (in paragraph 374) that for the purposes of international comparability, as well as for internal use, information on country of birth should be collected on the basis of international boundaries existing at the time of the census. Most countries (including half the EECCA countries) complied with this recommendation (Table 16.1). However, nine countries (including Belarus and Kazakhstan) reported that they collected information on the national boundaries at the time of birth, suggesting that data on persons born in countries where there have been subsequent changes of national borders may not necessarily be comparable. Additionally, two EECCA countries (Azerbaijan and Kyrgyzstan) reported some other definition for determining boundaries.

Table 16.1 also shows that two thirds of all responding countries (including five within the EECCA region) coded country of birth information based on the three-digit alphabetical codes according to the recommended classification issued by the United Nations Statistical Division.

Country of citizenship (core topic)

All EECCA countries collected information on country of citizenship in the 2010 round (as they had done in the 2000 census round) (Table 16.2). Only one country in the UNECE region did not, and of the 49 countries that collected the information all but three adhered to the concept of 'citizenship' defined in paragraph 375 of the CESR as: "... *the particular legal bond between an individual and his/her State, acquired by birth or naturalization, whether by declaration, option, marriage or other means according to the national legislation*". The Russian Federation was one of these three, commenting in its response to the survey that in accordance with the Russian Federal Law 'citizenship' is defined as "the sustainable and legal relationship of the person with the Russian Federation, expressed by their rights and obligations". But this difference is very subtle.

The CES Recommendation (in paragraph 377) that information on dual or multiple citizenship should be collected where it is relevant was adopted to a varying extent by 31 countries (63 per cent), including five within the EECCA region (Table 16.2). However, of these only 18 in total (including Armenia, Georgia and Moldova) collected this information from all respondents. Both the Russian Federation and Tajikistan (together with seven other countries throughout the rest of the UNECE region) instead referred information on dual/multiple citizenship only to national citizens.

All countries except Kyrgyzstan and five others in the rest of the UNECE region reported using the same classification for coding country of citizenship as they did for country of birth.

To supplement the information collected on country of citizenship the CESR suggested that countries with a significant number of naturalized persons might want to collect information (on a non-core basis) on the 'acquisition of citizenship' by identifying if this was by, for example, birth, marriage, naturalization or other means according to the national legislation. Only seven countries reported that they collected such information, but none within the EECCA region did so.

Table 16.2
Information collected on citizenship

Information collected	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All types		Traditional	Register-based	Combined
	Number	%		Number	%			
Information not collected	1		0	1		0	0	1
Information collected	**49**	**100**	**9**	**40**	**100**	**22**	**9**	**9**
Concept of citizenship as defined	46	94	8	38	95	20	9	9
Other concept adopted	3	6	1	2	5	2	0	0
Multiple citizenship collected								
For all respondents	21	43	3	18	45	13	1	4
For national citizens only	9	18	2	7	18	6	0	1
For foreign citizens only	1	2	0	1	2	0	1	0
Not collected	18	37	4	14	35	3	7	4
National boundaries:								
as at census	38	78	4	34	83	21	5	8
as at birth	9	18	2	7	17	1	4	2
Other definition	2	4	2	0	0	0	0	0
Information coded:								
Same classifications as for country of birth	43	65	8	35	66	20	6	9
Other classification	6	35	1	5	34	2	3	1

Ever resided abroad and year of arrival in the country (core topics)

Not all migrants are identified from information collected on country of birth or country of citizenship. Native-born residents may also be international migrants if they have ever lived abroad. The CESR therefore introduced these two related core topics for the 2010 round in order to cover all persons who have ever resided outside the country of usual residence.

More than three quarters of countries (39) reported collecting information relating to whether or not residents had ever resided abroad (or immigrated) but only Belarus, Georgia, Kazakhstan and Moldova among the EECCA countries did so. Of the 39, all but one also reported that they collected information on the year of arrival (Table 16.3).

Table 16.3
Information collected on ever resided abroad, year (and month) of arrival, total duration of residence, and country of previous usual residence abroad

Information collected	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Ever resided abroad								
Information not collected	11		5	6		3	2	1
Information collected	**39**	**100**	**4**	**35**	**100**	**19**	**7**	**9**
Year of arrival	38	97	4	34	97	19	7	8
Most recent arrival	36	92	4	32	91	18	7	7
Year only	22	56	1	21	60	11	5	5
Year and month	14	36	3	11	31	7	2	2
No response	1	3	0	1	3	0	0	1
First arrival	3	8	0	3	9	1	2	0
Year only	3	8	0	3	9	1	2	0
Year and month	0	0	0	0	0	0	0	0
Total duration of residence	10	20*	1	9	22*	5	3	1
Country of previous residence	32	64*	6	26	54*	17	3	6

* Percentages calculated from a base of all responding countries (50 and 41 respectively)

The CES recommended (in paragraph 380) that the year (and month if possible) of the most recent arrival should be collected to provide a measure of duration of residence. The Recommendations argued that it is preferable to measure duration using the time of arrival, rather than the number of years elapsed since arrival in the country, because it is likely to yield more accurate information. Furthermore the year of most recent arrival to the country was recommended rather than the year of first arrival since it provides unequivocal information, and can also provide useful information on recent immigration flows.

The year only of most recent arrival was collected by 22 countries, including Georgia, while Belarus, Kazakhstan and Moldova, but only 11 others in the rest of the UNECE region, collected details of both year and month.

Only three countries – none of which were in the EECCA region – collected information on date of first arrival in the country.

Total duration of residence in the country, and country of previous usual residence abroad (non-core topics)

To provide information on *duration of residence* for those multiple or circular migrants who have established a residence in the country more than once, the CES also recommended that countries should collect information on total duration of residence in the country, being defined (in para 383) as: "…. *the total number of years that the ever-international migrant has resided in the country, taking into account all periods of residence including the last one*".

Information on this non-core topic was, however, collected by only a fifth of the countries in total and only by Georgia within the EECCA region (Table 16.3). Information on *country of previous usual residence abroad* provides a key characteristic of international migration flow. Even though it was recommended by CES for inclusion only as a non-core topic as many as two thirds of all countries (including six of the nine in the EECCA region) collected this information (Table 16.3).

The UNECE survey also enquired specifically of countries that were formerly members of a federation or union whether they treated movements between countries while they were still part of the federation or union as international or internal. Of the 20 countries (including all those within EECCA region) to whom the circumstances were considered to be relevant, 17 (including all EECCA countries but Tajikistan) reported that they regarded such movements for the purposes of the census as international migrations.

Reason for migration (non-core topic)

Bearing in mind that the CESR proposed that reason for migration be included only as a non-core topic, some 19 countries adopted the recommendation and included the topic in the census though, because of the general lack of relevant administrative data, none of the countries carrying out a register-based census were able to do so (Table 16.4).

The CESR suggested (in paragraph 391) that this topic should refer to only the *main* reason that drove the respondent to undertake the most recent international and/or internal move and that only *one* such reason should be recorded. However, the UNECE survey focused only on the reasons for international migrations, but in recognising that countries that collected such information were likely to have migrants entering the country for a variety of reasons, accordingly asked countries to report all such reasons. Indeed, nine countries reported on five or more of the reasons identified in the table (plus some others); Belarus for example reported on seven reasons.

Table 16.4
Main reasons for international migration

Main reasons	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Information n not collected	32		4	28		13	9	6
Information collected	**18**	**100**	**5**	**13**	**100**	**9**	**0**	**4**
Employment	17	94	4	13	100	9	0	4
Education	17	95	4	13	100	9	0	4
To join family members	13	72	3	10	77	9	0	1
Refugee (forced migration)	9	50	3	6	46	6	0	0
Asylum	4	22	1	3	23	3	0	0
Return after emigration	4	22	2	2	15	2	0	0
Health/medical	3	16	1	2	15	0	0	2
Other	14	75	4	10	77	7	0	3

All 50 countries responded to the survey question but only 18 reported that they collected the information; but these included more than half (five of the nine) of the EECCA countries. Employment and education factors were the key drivers for international migration; four of the five EECCA countries (Azerbaijan, Belarus, Kyrgyzstan and Moldova) reported both, as did all the countries in the rest of the UNECE region that collected the information. The reason "to join family members" was also significant in 13 countries (including three in the EECCA region, while six countries (including Armenia and Kyrgyzstan) additionally reported other family or marriage-related reasons. Armenia, Azerbaijan and Belarus were among the nine countries to report forced migration (in relation to refugees) as a significant factor, while four countries (including Azerbaijan and Belarus) specifically reported return migration as a key reason.

Internal migration

The CESR defined (in paragraphs 371-372) what is meant, generally, for census purposes, by the term 'internal migrant', being:

> "*… a person who is usually resident in a particular geographical area and who has previously been resident in another geographical area in the country*".

and recommended the level of national geography at which information on internal migration should be collected. The CESR went on to explain that in operational terms for the purposes of measuring internal migration the geographical area is identified as the smallest civil division. 'Internal migrants' were, therefore, more specifically defined as:

> "*… those persons who are usually resident in a civil division within the country at the time of the census and who have previously been resident in another civil division within the country, where the civil division is identified at the smallest civil level*".

In order to provide relevant information on internal migration, a detailed classification was recommended that should distinguish local, intra-regional or inter-regional moves. However, the CESR suggested that movements *within* the smallest civil division should be considered as 'residential mobility', rather than internal migrations as total population counts would be unaffected by such moves.

Persons who are international immigrants – who, regardless of country of birth or citizenship, have at some point in their lives been usually resident in another country – may, of course, also be counted as internal migrants if, in addition to their international move, they subsequently moved internally and they were resident elsewhere in the country prior to the census.

Place of previous usual residence and the date of arrival in the current place of usual residence (core topic)

The principle means measuring internal migration in the census is by collecting information on both the place of previous usual residence and the date of arrival in the current place of usual residence. This was assigned as a single core topic in the CESR. However, recognising the different possible approaches that countries could adopt in collecting the relevant information, the CESR recommended that, in practical terms, one of two modes could be employed:

(a) **the 'extensive mode'**, effected by using information on year and month of arrival in the current place of usual residence plus the previous place of usual residence; or

(b) **the 'reduced mode'** effected by ascertaining place of usual residence one year prior to the census.

If adopting the 'extensive mode' the CES recommended that the date of arrival should be the calendar year and month when the person most recently established residence in the current place of usual residence, but that in order to reduce the burden on respondents the month of arrival could be asked only of those who arrived in the calendar year before the census. From the joint use of the two items of information it is possible to analyse patterns and timing of internal migration. As noted above, the previous place of usual residence would generally be defined in terms of the smallest civil division, but if this was outside the country identifying just the country of residence would be sufficient.

The 'reduced mode' is primarily intended to allow patterns of recent migration to be studied, but otherwise the classification relating to the place of usual residence one year prior to the census remains the same as for place of previous usual residence. However, for countries adopting the reduced mode the CESR went on to propose that information on 'Place of usual residence five years prior to the census' could also be collected (as a non-core topic). This extension of the time interval allows the capture of a much larger number of moves but at the cost of an increased uncertainty about the exact timing of the migration.

How well did countries, particularly those in the EECCA region, collect this key information in the 2010 round? Table 16.5 shows what information relating to either the extensive or reduced mode was collected. Looking at the first three rows it can be noted that 38 countries reported collecting information on place of previous usual residence (all the EECCA countries except Tajikistan did so) and that 32 countries collected information on year of arrival, (Kyrgyzstan and Tajikistan did not), but not all of these countries collected both. Within the EECCA region seven out of the eight countries did so, as did 21 of the 30 countries elsewhere. Thus only 28 countries were able to use the extensive mode for measuring internal migration.

Table 16.5
Information on previous usual residence and date of arrival using extensive or reduced mode

Information collected	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Extensive mode								
Information collected on place of usual residence	38	76	8	30	73	18	4	8
Arrival date year only	17	34	4	13	32	6	1	6
Arrival date year and month	15*	30*	3	12*	29*	7	4*	1
No arrival date of collected	7	14	1	6	15	5	0	1
Reduced mode:								
Information collected on place of usual residence	40	80	8	32	78	16	8	8
1 year before census	33	66	4	29	71	16	8	7
5 years before census	10	20	1	9	22	5	1	3
10 years before census	5	10	1	4	10	3	0	1
Some other period prior to census	6	12	2	4	10	1	1	2
Information not collected	10	20	1	9	22	6	1	2
All countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

* Arrival date collected but no place of previous usual residence reported for Belgium and Sweden

Things were somewhat better, however, when it came to the reduced mode, for which two thirds of the countries (33 out of 50) collected data specifically on the place of usual residence one year prior to the census as recommended by the CES. Azerbaijan, Kyrgyzstan, the Russian Federation and Tajikistan each adopted this recommendation. In addition, 11 countries (including Belarus) collected the information with respect to a period of five years before the census while five others (including Georgia) collected the information relating to a period of ten years (generally referring to the date of the previous census).

Level of geography used for measuring internal migration

As noted above, in order to provide relevant information on internal migration, the CES recommended that countries should distinguish local, intra-regional or inter-regional moves. Accordingly, the UNECE survey asked countries to report whether or not they identified moves both within and between the country's major and minor civil divisions in any period of time prior to the census (the reduced mode). The results are shown in Table 16.6(a). Most of the countries that collected information on previous place of usual residence were able to record whether the person was living in the same or another civil division. However, together with seven other countries throughout

the rest of the UNECE region, neither Kyrgyzstan, Moldova nor Tajikistan reported on this information, so the base of the table is 40 countries.

Internal migrations within and between minor civil divisions were recognized by a majority of countries. In the UNECE region as a whole 28 countries reported collecting information on moves within the same minor civil division, and 30 collected moves between minor divisions, with all but one country collecting information on the name of the area of origin thus allowing an analysis of migration flows to be made possible. Within the EECCA region five of the six responding countries were able to do this (the Russian Federation being the exception).

Table 16.6(a)
Number of countries collecting information on geographic level of internal migration (reduced mode)

Information collected on whether the person had previously been living in	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Same dwellings as at census	19	48	3	16	47	9	5	2
Same minor civil division	28	70	4	24	71	12	6	6
Another minor civil division	30	75	5	25	74	14	6	5
Name of division asked	29	73	5	24	71	13	6	5
Name of division not asked	1	2	0	1	3	1	0	0
Same major civil division	17	42	4	13	38	6	6	1
Another minor civil division	24	60	5	19	56	10	6	3
Name of division asked	22	55	5	17	50	10	4	3
Name of division not asked	2	5	0	5	6	0	2	0
Another country	34	85	6	28	82	14	8	6
Name of country asked	30	75	6	24	71	14	4	6
Name of country not asked	4	10	0	4	12	0	4	0
Other responses	5	12	0	5	15	3	1	1

Generally it was the case that fewer countries reported collecting information on movements between the higher level geography of major civil divisions despite the CESR recommendation to collect information on regional migration. At this level only 24 counties throughout the UNECE region as a whole (60 per cent) collected information which identified the previous place of residence being in another major civil division, but again, five of the EECCA countries did so (though not all the same five as before), all whom recorded the name of the area of origin.

Information was also collected in the survey on the level of geography used for measuring internal migration in those 38 countries using the extensive mode of data collection. The equivalent results are shown in Table 16.6(b).

Two countries did not report on this in the UNECE survey and thus the base of this table is 36. The pattern of geography at the level of the major and minor civil division is shown to be very similar. However, it should be noted that the distinction between the two modes of measuring internal

migration was, perhaps, not made sufficiently clear in the survey questions, resulting in some possible duplication of response in some cases due to lack of understanding of the underlying concepts.

Table 16.6(b)
Number of countries collecting information on geographic level of internal migration (extensive mode)

Information collected on whether the person was previously living in	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Another dwelling in same minor civil division	10	28	1	9	30	6	1	2
Another minor civil division	24	67	2	22	73	14	3	4
Name of division asked	23	64	2	21	70	17	3	4
Name of division not asked	1	3	0	1	3	1	0	0
Same major civil division	11	31	2	9	30	7	2	0
Another minor civil division	23	64	5	18	60	12	3	3
Name of division asked	23	64	5	18	60	12	3	3
Name of division not asked	0	0	0	0	0	0	0	0
Another country	30	83	4	26	87	17	3	6
Name of country asked	30	83	4	26	87	17	3	6
Name of country not asked	0	0	0	0	0	0	0	0
Other responses	5	14	1	4	13	2	1	1
All countries	**36**	**100**	**6**	**30**	**100**	**19**	**4**	**7**

Other migration topics covered by the UNECE survey

The CES Recommendations covered a number of other non-core topics that aimed to supplement the information collected in the census through the recommended core topics. One of them was 'country of birth of parents' which was recommended by CESR for countries with a significant number of immigrants. Such information could, for example, provide information on the ethnic background of second generation immigrant populations in countries where no data on ethnic group is available. The recommendation was that information relating to both parents should be collected and in the case of adopted children reference should be made to the legal parents. However, only 14 countries reported collecting this information relating to both parents in the 2010 round, and of these Azerbaijan was the only one in the EECCA region. Additionally two countries in the rest of the UNECE collected information on one or other of the parents.

17. ETHNO-CULTURAL CHARACTERISTICS

Introduction

This chapter presents a review of the national practices in the EECCA region with regard to the collection of ethno-cultural characteristics in the censuses of the 2010 round, comparing these with other countries in the UNECE region[22].

Data on ethno-cultural characteristics of the population are of increasing relevance to countries of the UNECE region in the context of migration, integration and equality policies. The 2010 CESR suggested that countries with a culturally diverse population may wish to collect information on the ethnic identity of the population, on religious communities and denominations, and on mother tongue and the knowledge and practice of languages. These are all characteristics which allow people the flexibility to express their identity in the way that they choose. Some countries may also wish to collect information on the ethno-cultural characteristics of parents and grand-parents (ancestry) in order to gain a deeper understanding of the origins of the population and of integration processes.

However, ethno-cultural characteristics have generally a subjective dimension as there is often no common understanding, nationally and internationally, as to what 'characteristic' or 'concept' is actually being measured in a particular census. Moreover, different countries may adopt different concepts. The characteristics can also often be politically sensitive and may apply to very small, yet identifiable, population sub-groups. The free and open declaration of the respondents is therefore of essential importance. Members of certain minority groups may be particularly vulnerable to discrimination on the grounds of ethnic group or religion. Consequently the 2010 CESR indicated that special care is required in census procedures and outputs relating to ethnic group and religion, in order to demonstrate to respondents that appropriate data protection and disclosure control measures are in place.

For these reasons, together with the fact that the collection of information on topics such as ethnicity and religion is prohibited by law in some UNECE countries, the 2010 CESR proposed that all the topics covered in this chapter should be non-core. In some cases it was suggested that countries should seek to collect such data on a voluntary basis if this is permitted by national legislation.

Ethnicity and religion

Responses to census questions on ethnicity (and, to some degree, religion) are subjective in that persons must be free to respond in any way that they choose, including the option not to indicate any specific response category. That, added to the fact that information collected must inevitably vary from country to country across the UNECE region, means that the topic was included in the 2010 CES Recommendations as non-core. It was expected, therefore, that, as was the case in the 2000 round, a smaller proportion of countries would include such questions in their recent censuses compared with those of many other topics. And this, indeed, was the case.

Less than two thirds of all UNECE countries (31 out of 50, 62 per cent) reported that they collected information on ethnicity in their census, but only Kyrgyzstan within the EECCA region did not do so (Table 17.1). (Interestingly, none of the nine countries with wholly register-based census reported that they were able to collect any information on ethnicity reflecting the general lack of such information held in administrative databases.)

[22] The material in this chapter has been taken largely from a paper prepared by the UNECE Task Force on Migration and Ethno-Cultural Characteristics, led by Jane Badets (Statistics Canada), drafted by Ian White (Office for National Statistics, UK) and presented at the at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Table 17.1
Information collected on ethnicity

Information collected on ethnicity	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Information not collected	19		1	18		6	9	3
Information collected	**31**	**100**	**8**	**23**	**100**	**16**	**0**	**7**
Concept agreed with CESR	24	77	7	17	74	13	-	4
Different concept	7	23	1	6	26	3	-	3
Information collected separately from nationality or citizenship	23	74	5	18	78	15	-	3
No distinction made	8	26	3	5	22	1	-	3
Information on ethnicity only	12	39	0	12	52	11	-	1
Information on nationality only	6	19	3	3	13	1	-	2
Combination of both	13	42	5	8	35	4	-	4

The concept of ethnicity as defined by the 2010 Recommendations (in paragraph 419) refers to population groups that share such common characteristics as 'historical or territorial origins' or 'culture' or 'language' or 'religion' or 'specific customs and/or way of life'. This encompasses a wide spectrum of characteristics, and the survey revealed that of those countries that collected such data, all but one of the EECCA countries and three quarters of those in the rest of the UNECE region, reported that the concept that they adopted fell within the UNECE definition. In addition, however, of the eight countries that reported otherwise, four adopted concepts which could be broadly interpreted as falling within the UNECE definition; Armenia was one of the exceptions.

Information on ethnicity was generally collected separately from that on nationality or citizenship – as recommended by the CES – in the majority of countries (23), including five of the eight within the EECCA region. Some 13 countries (including five within the EECCA region, though not the same five, reported that they collected information on ethnicity using a combination of the concepts of ethnic or cultural group and nationality (and/or citizenship). Some 12 countries used only the concept of ethnic or cultural group (however that was defined) – but no EECCA country did so – while three EECCA countries, and three others, used only the concept of nationality.

The survey similarly enquired into the definitional concept to which the information on 'religion or faith' referred. The CESR suggested (in paragraph 437) that religion: "*…is generally regarded as a set of* beliefs *and practices, usually involving acknowledgment if a divine or higher being, power or principle, by which people order the conduct of their lives both practically and in a moral sense*".

Fewer countries throughout the UNECE region collected information on religion. Only 27 were able to do so overall compared with the 31 that included ethnicity, and less than half of the EECCA countries did so. None of the register-based countries, except Finland, were able to collect information on religion in the census suggesting that, as with ethnicity, administrative records do not provide an adequate source of such data in most cases.

Some 17 of the 28 countries that collected information on religion (61 per cent) did so with reference to an 'identification with a particular religion or religious community, and a further third referred to 'religious belief' (Table 17.2). But within the EECCA region only Kazakhstan and Moldova reported identification with the first of these categories, and only Georgia with the second.

Table 17.2
Nature of religious identification

Nature of religious identification	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Information not collected	22		5	17		6	8	3
Information collected	**28**	**100**	**4**	**24**	**100**	**16**	**1**	**7**
Identification with a particular religion, religious community or denomination	17	61	2	15	63	12	0	3
Religious belief	10	36	1	9	38	6	0	3
Formal membership of a church or religious community	4	14	0	4	17	1	1	2
Religion in which the person was brought up	4	14	1	3	12	1	0	0
Religious attendance	1	4	0	1	4	1	0	0
Other type of affiliation	3	11	0	3	12	2	0	1

In four countries (but none in the EECCA region) the information collected in the census related to a 'formal membership' of a church or religious community, and in Armenia (as in three other countries) a question was asked about the religion in which a person was brought up.

Religion clearly remains a topic on which is difficult to collect information on an internationally consistent basis. This is made doubly difficult by differences in the type of questions that are used in traditional censuses. Countries were asked what formats of questions were used to collect information on ethnicity and religion. The responses are shown in Table 17.3.

The most widely adopted approach throughout the UNECE region for both ethnicity and religion (used by 17 countries for both topics – but not the same countries for both), was the combined approach where pre-defined categories were identified for the most commonly anticipated responses but where there was also the facility to record write-in responses. Georgia and Kazakhstan adopted this approach for both topics, while Belarus did so only for ethnicity and Moldova did so only for religion. Most of the countries that did not do so went with a completely open-ended write-in question, allowing respondents to describe freely their ethnicity or religion. Azerbaijan, Moldova the Russian Federation and Tajikistan adopted this approach for ethnicity together with seven countries in the rest of the UNECE region, but no EECCA countries used this approach for collecting information on religion.

Perhaps not surprisingly, most countries that adopted one type of question for ethnicity also adopted the same type for religion; some 20 countries throughout the UNECE region did so but, as noted above, only Georgia and Kazakhstan among the EECCA countries adopted this strategy.

Those countries that included pre-defined categories for the ethnicity question were also asked to report the number of such categories from which the respondent was able to select a response. The median was 5, with values ranging from 1 to 189 (in Poland). It should be considered that the advent of online returns allowed the opportunity for some countries to provide a drop-down menu of a large number of possible options from which the respondent could simply select a response (as was the case in Poland). Among the four countries within the EECCA region for which this was a relevant inquiry the number of response options ranged from 2 in Tajikistan to 15 in Armenia).

Table 17.3
Type of questions used to collect information on ethnicity and religion

Type of question	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Ethnicity								
Information collected	**31**	**100**	**8**	**23**	**100**	**16**	**0**	**7**
Open-ended with no pre-defined responses (write-in)	11	35	4	7	30	7	-	0
Both pre-defined and write-in responses	17	55	3	14	61	8	-	6
Pre-defined responses only	2	6	1	1	4	0	-	1
Other format	1*	3	0	1*	4	1*	-	0
Voluntary	25	81	7	18	78	14	-	4
Mandatory	6	19	1	5	22	2	-	3
Religion								
Information collected	**28**	**100**	**4**	**24**	**100**	**16**	**1**	**7**
Open-ended with no pre-defined responses (write-in)	6	21	0	6	25	6	0	0
Both pre-defined and write-in responses	17	61	3	14	58	9	0	5
Pre-defined responses only	3	11	1	2	8	1	0	1
Other format	2	7	0	2	8	0	1	1
Voluntary	24	86	4	20	83	15	0	5
Mandatory	4	14	0	4	17	1	1	2

* Includes a no response (Cyprus)

Although the 2010 CESR suggested that respondents should be free to indicate more than one ethnic affiliation, or a combination of such affiliations, only nine countries reported that this option was provided in their census. In none of the EECCA countries was this an option. However, the recommendation that countries should include questions on ethnicity and religion on a voluntary basis (or at least allow the respondent not to have to declare an ethnicity or religion) was followed by the majority of countries. All but Tajikistan in the EECCA region did so for the questions on ethnicity, along with over three quarters of the rest of the UNECE countries. And for the collection of information on religion, the provision of information was almost universally voluntary, with all four EECCA countries adopting this strategy (Table 17.3).

Language (non-core topic)

The 2010 CESR noted that multi-lingual countries and countries with significant immigrant populations may wish to collect data on languages that are currently written or spoken. Recognising that different information may be required depending on users' needs, the CESR recommended that one or more subtly different modes of question should be used:

(a) *Mother tongue*, which may be defined as the first language spoken in childhood at home;

(b) *Main language*, defined as the language which the person commands best;

(c) *Language most often spoken* at home and/or at work; and

(d) *Knowledge of languages*, defined as the ability to speak and/or write one or more languages.

Data on (a) and (b) are relevant to understanding the processes of language change and to determine language regions and language groups, while data on (c) and (d) are relevant to understanding language practices and knowledge of languages, including official languages and languages learned at school.

The CESR recommended that at least two questions be asked about language – one referring to topics (a), (b), or (c) and the other to topic (d).Though increasingly regarded as an important census topic, the CESR nevertheless retained its non-core status. However, reflecting its importance throughout the UNECE region, the survey revealed that more countries collected information on language (35 out of 50 countries, almost three quarters) than did so for either ethnic group or religion. All the EECCA countries did so (Table 17.4).

The most commonly adopted mode of question used to collect information was 'mother tongue'; all the EECCA countries included this in their census along with nearly two thirds of countries in the rest of the UNECE region. Information on language(s) spoken most often at home was collected by over half of the countries (20), and by two thirds of those in the EECCA region. In addition, two thirds of EECCA countries (but not the same countries) collected information on knowledge of/ability in languages. Only five countries (Canada, Hungary, Ireland, the Russian Federation and the United Kingdom) reported collecting information on sign language.

Table 17.4 clearly shows that some countries collected information on languages using more than one mode of question. Indeed, 21 countries, including each EECCA country, did so. Kazakhstan for example reported on no fewer than five of the categories shown in the table, while Azerbaijan and the Russian Federation did so for four of them, and Belarus, Georgia and Kyrgyzstan for three. This no doubt reflects the multi-ethnic, multi-linguistic character of the communities living in many of the EECCA countries.

Table 17.4
Information collected on language(s)

Information collected	All responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Information not collected	15		0	15		4	8	3
Information collected	**35**	**100**	**9**	**25**	**100**	**18**	**1**	**7**
Mother tongue	23	66	9	14	54	10	1	3
Main language	11	31	3	8	31	5	0	3
Language(s) most often spoken:								
at home	20	57	6	14	54	9	0	5
at work	3	9	0	3	18	2	0	1
Knowledge of/ability in one or more other languages	14	40	6	8	31	6	0	2
Knowledge of/ability in official language	6	17	3	3	18	2	0	1
Use of sign language	4	11	1	3	18	3	0	0

18. HOUSEHOLD AND FAMILY CHARACTERISTICS

The UNECE Recommendations for the 2000 round of censuses recognised major changes in the structure of households and families compared to the 1990 recommendations. One important change was that references to consensual unions were included systematically in the new 2000 recommendations. Other important revisions concerned *de jure*/*de facto* place of residence, the distinction between private and institutional households, the concept of child, and the concept of reconstituted family.

The significant changes in living arrangements and the emergence of new household types reported in many countries in the UNECE region seen in the previous decade have continued since the 2000 round. Trends have included, for instance, a later start of family life, increased cohabitation, larger numbers of one person households and lone-parent families as a result of divorce, more reconstituted families, and increased proportions of people living in more than one household.

The 2010 CES Recommendations noted that household and family composition can be examined from several different points of view. In considering topics related to households it is important that countries are aware of the different concepts relating to households and families. Some of the key issues (but by no means all) were specifically investigated in the UNECE survey, and this chapter reviews the practices in the 2010 census round regarding the adoption of a number of these concepts, definitions and classifications associated with the structure and characteristics of households (both private and institutional) and families[23].

Concepts and definitions of terms

Private and institutional households

The CES Recommendations offers two different concepts for defining **private households**. The so-called **housekeeping** concept defines (in paragraph 479) a household as being either:

> *"…. a one-person household, that is a person who lives alone in a separate housing unit or who occupies, as a lodger, a separate room (or rooms) of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multi-person household as defined below; or a multi-person household, that is a group of two or more persons who combine to occupy the whole or part of a housing unit and to provide themselves with food and possibly other essentials for living. Members of the group may pool their incomes to a greater or lesser extent."*

Countries adopting this concept do not assume that the number of private households is equal to the number of housing units and thus the incidence of households living in 'shared' dwellings is possible.

However, some countries are unable to collect data based on the concept of the 'common housekeeping' of household members, in particular where they have to rely on register-based information. Many of these countries use the **household-dwelling** concept which considers all persons living in a housing unit to be members of the same household, such that there is just one and one only household per occupied housing unit.

The results of the UNECE survey showed that 35 of the responding countries (70 per cent) reported that they used the 'housekeeping' concept; these included all nine of the EECCA countries (Table 18.1).

[23] The material in this chapter has been taken largely from a paper prepared by Howard Hogan (US Census Bureau) and presented at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Table 18.1
Compliance with the CES Recommendations on household and family concepts and definitions

Household/family concepts and definition	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Concept of private household								
Collected information	50	100	9	41	100	22	9	10
Housekeeping concept	35	70	9	26	63	20	1	5
Household dwelling concept	15	30	0	15	37	2	8	5
Definition of an 'institutional household'								
Collected information	49	98	8	41	100	22	9	10
Housekeeping concept	44	88	8	36	88	20	8	8
Household dwelling concept	5	10	0	5	12	2	1	2
Definition of a 'child'								
Collected information	50	100	9	41	100	22	9	10
Housekeeping concept	46	92	9	37	90	20	9	8
Household dwelling concept	4	8	0	4	10	2	0	2
Definition of a 'couple'								
Collected information	49	98	8	41	100	22	9	10
Housekeeping concept	24	77	7	38	93	21	8	9
Household dwelling concept	7	23	1	3	6	1	1	1
Definition of a 'nuclear family'								
Collected information	50	100	9	41	100	22	9	10
Housekeeping concept	46	92	7	39	95	20	9	10
Household dwelling concept	4	8	2	2	5	2	0	0
Three-generation households								
Collected information	37	74	6	31	76	17	5	9
Housekeeping concept	34	68	5	29	71	17	5	7
Household dwelling concept	3	6	1	31	76	17	5	9
Reconstituted households								
Collected information	27	54	3	24	59	14	5	5
Housekeeping concept	24	77	2	22	54	12	5	5
Household dwelling concept	3	23	1	2	5	1	0	0
Definition of a 'extended family'								
Collected information	33	66	4	29	71	17	4	8
Housekeeping concept	30	60	4	26	63	15	4	7
Household dwelling concept	3	6	0	3	7	2	0	1
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

The CESR went on define to (in paragraph 484) an **institutional household** as comprising:

"*… persons whose need for shelter and subsistence were being provided by an institution*."

Most countries (88 per cent) broadly adopted this definition; and, again, all of the responding EECCA countries did so (Table 18.1). (Kyrgyzstan did not respond.) Moreover, all countries – whatever the concept of institutional household was adopted – clearly distinguished the population living in such households from those living in private households as defined above.

In some countries, people live in specialized housing estates in which the occupants live in a semi-independent arrangements but where various care services are provided in a centralized manner. Though not shown in the table above, in 13 countries (but none in the EECCA region) the population living in this kind of housing estate was classified as living in a private household, whereas in 16 countries, including five of the eight responding EECCA countries) the population was classified as living in an institutional household. In another 13 countries no such housing was reported as was the case in Moldova and Tajikistan. Six countries sometimes classify the population either as institutional or as living in private households depending on various criteria. For example, in Belarus, if meals were provided by Social Protection then the population was considered institutional, but where people pay for the services themselves, they were considered as living in a private household.

In 13 countries, information on 'other' types of households was reported. Seven countries (but none within the EECCA region) included the 'homeless' population in this extracurricular group, while other population groups that were also treated separately included sailors and others living in boats or mobile/temporary living quarters (note that a more detailed review of the concept of 'homelessness' is reported in Chapter 19). Four countries, including Azerbaijan, Belarus and the Russian Federation reported that the population which was temporarily absent (for up to one year) were separately identified, though they should normally be treated, as recommended in Chapter 10, as being members of conventional households.

More than half the countries reported conducting a pre-census living quarters validation check for the purpose of, among other things, identifying the nature of the collective living quarters or the potential presence of private households living within institutions. Such an exercise was commonly the practice in countries carrying out a traditional census, and particularly so within the EECCA region in which all countries except Kyrgyzstan and Tajikistan reported doing so.

Child

The CESR gave (in paragraph 495) the definition of a 'child' as being: "*a blood, step- or adopted son or daughter (regardless of age or marital status) who has usual residence in a household of at least one of the parents, and who has no partner or own child(ren) in the same household. Grandsons and granddaughters who have usual residence in the household of at least one grandparent while there are no parents present may also be included*".

The CESR went on to note that a foster child was not considered to be a child within this definition, nor was any (grand)son or (grand)daughter who lived with a spouse, with a registered partner, with a consensual partner, or with one or more own children.

All but four countries, and including all the EECCA countries that responded to the survey, reported adopting this definition fully (Table 18.1).

Couple

The CES Recommendations defined the concept of a 'couple' (in paragraph 496) to include: *"… married* couples*, registered couples, and couples who live in a consensual union. Two persons are understood to be partners in a consensual union when they have usual residence in the same household, are not married to each other, and report to have a marriage-like relationship to each other".*

All but three countries (and again all the EECCA countries that responded) reported adopting this definition fully. Kyrgyzstan did not respond on this issue (Table 18.1).

The nuclear family

The CESR defined (in paragraph 493) a family nucleus as: "… *two or more persons who live in the same household and who are related as husband and wife, as cohabiting partners, as a married (or registered) same-sex couple, or as parent and child. Thus a family comprises a couple without children, or a couple with one or more children, or a lone parent with one or more children*".

The family concept as defined above limits relationships between children and adults to direct (first-degree) relationships, that is between parents and children. In some countries, numbers of 'skip generation' households, that is households consisting of grandparent(s) and one or more grandchild(ren), but where no parent of those grandchildren is present, are considerable. Therefore, countries may include such skip generation households in their family definition. The CESR went on to note that 'family nuclei' are usually identified at the processing stage on the basis of marital status, sex, age, and relationship to the reference member of the household. In the case of multi-family households, however, these data are often not sufficient to provide a reliable basis for allocating persons to particular family nuclei. It is left to countries to decide whether family nuclei in these households should be distinguished by asking the respondent to list the members of each family nucleus in consecutive order, or in some other way.

Four countries, including Azerbaijan and the Russian Federation, reported in the survey that they used a different definition of a 'family' than the nuclear concept recommended by CESR (Table 18.1). But a closer examination of their more detailed responses suggests that in each case the concepts are broadly compatible; for example Azerbaijan defined a family as: "*A group of two or more persons living in the same household and in the registered marriage, partnership or bonds of kinship parent and child*".

Three-generation household

The CES Recommendations defined the concept of a 'three-generation household' (in paragraph 496) to consist of: *"... two or more separate family nuclei or one family nucleus and (an)other family member(s), containing at least three generations and where the youngest two generations always constitute one family nucleus*".

The results of the survey showed that data on three-generation households as fully defined can be produced in 34 out of the 48 countries that responded. Georgia and Kyrgyzstan were the two countries that did not respond, but all the other EECCA countries reported that they could provide such information that would (more or less) conform to the CESR definition (Table 18.1).

Reconstituted family

The CES Recommendations defined the concept of a 'reconstituted family' (in paragraph 498) as being: *"... a family consisting of a married or cohabiting couple or a married (or registered) same-sex couple,* with *one or more children, where at least one child is a non-common child, that is the child of only one member of the couple".*

A little more than half of the countries (27) reported that data on reconstituted families could be produced from their census, but five of the EECCA countries could not (Table 18.1). Only Azerbaijan, Kyrgyzstan and Moldova were among those countries that could do so, but of these only Kyrgyzstan and Moldova were among the majority of countries that fully complied with CESR definition. On this occasion Georgia was the one country able to respond.

Extended family

The CESR suggested (in paragraph 501) that some countries may wish to derive information on 'extended families', data which can have certain advantages not only for studying the economic relationships of families as spending units, but also in classifying families from a demographic point of view. The CESR suggested that an 'extended family' be defined as: "… *a group of two or more persons who live together in the same household and who do not constitute a family nucleus but are related to each other (to a specified degree) through blood, marriage or adoption*".

Thirty-four countries out of the 47 that responded (Georgia and Kyrgyzstan did not) reported that extended families could be identified from their census data (Table 18.1). These included four of the EECCA countries – Armenia, Azerbaijan, Kazakhstan and Moldova.

Collecting information on relationship within the household (core topic)

The household and family status of persons within private households is primarily based on the information collected on the (core) topic of *relationship* between household members. The 2010 CESR noted (in paragraph 506) that in previous censuses, the selection of the one reference person in the household to whom all other household members report or designate their relationship was the recommended method for mapping household structures. When the household's reference person is chosen carefully, this method gives accurate information for most household and family types. In certain cases, however, such as in multiple family households, this method will not always give the precise information that is required. Therefore, a more elaborative method – the household relationship matrix approach – has been developed by some countries. This household relationship matrix allows for the collection of the relationships between *all* household members.

Some countries have good experience with the household relationship matrix method in their censuses. But other countries have noted problems with this approach, due to its complicated character. Therefore, the CESR recommended that countries consider the relationship matrix only as one possible method for mapping household structures.

The majority of countries (29 – almost two thirds) used only information collected on the relationship to a single person – the household reference person (HRP) – to derive household relationship (Table 18.2). Moreover, this was the method used uniquely by all the EECCA countries that responded to the survey (Georgia did not respond). Only 12 countries relied only on the more complex 'matrix' approach (but no EECCA country did so) and several others including the Russian Federation used the relationship to a single person but also collected information on the person's parents if they were living in the same household.

Table 18.2
Method used to collect information on relationship within the household

Method used	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Household relationship matrix	12	24	0	12	29	4	4	4
Relationship to the reference person	31	61	8	23	56	15	3	5
Both methods	2	4	0	2	5	1	0	1
Other methods	4	10	0	4	10	2	2	0
Total countries	**49**	**100**	**8**	**41**	**100**	**22**	**9**	**10**

Although the CES Recommendations recommended that information on the relationship to the HRP should be collected, it was left to countries to choose among several different criteria to determine who the reference person should be. The 2010 CESR noted (in paragraph 513) that "… *the selection of the one reference person in a household to whom all other persons in the household report, or* designate*, their relationship requires careful consideration. In the past the person considered to be the 'head' of the household was generally used as the reference person, but this concept is no longer considered appropriate in many countries of the region. It has also sometimes been proposed that the person designated as the reference person should be the oldest person in the household or the one who contributes the most income*."

However, the CESR went on to recognise that given that the primary purpose of such identification was to determine family status and to assign individuals into families, both of these approaches have weaknesses. The automatic selection of the oldest person, for example, may be undesirable because in multi-generational households the broadest range of explicit kin relationships can be reported where the reference person is selected from the middle generation. Similarly, the selection of the person with the highest income may be a person who will not solicit the broadest range of explicit kin relationships.

The CESR noted that there was some evidence though to suggest that the following criteria for selection of the reference person would yield the most fruitful range of explicit kin relationships:

(a) Either the husband or the wife of a married couple living in the household (preferably from the middle generation in a multi-generational household);

(b) Either partner of a consensual union couple living in the household where there is no married couple present;

(c) The parent, where one parent lives with his or her sons or daughters of any age; or

(d) Where none of the above conditions apply, any adult member of the household may be selected.

The UNECE survey asked those countries that reported that they collected information on the relationship to the HRP to indicate how the HRP was selected from one of the following criteria:

(a) The reference person was freely chosen by respondents, among the adults living in the household;

(b) The reference person was the member considered as being the household head by all the other members;

(c) The reference person was the member who contributed the most income;

(d) The reference person was the one resulting from the Population or other administrative Register;

(e) The reference person was identified according to criteria, such as age and family relationships, chosen to facilitate the family determination; or

(f) Some other (specified) criteria.

Of those 33 countries that collected information on the relationship to an HRP, (31 uniquely and 2 using two methods) Table 18.3 shows that 10 reported that the HRP was freely chosen by the household members among themselves. Four of the eight responding EECCA countries (Armenia, Belarus, Kazakhstan and the Russian Federation) cited this as the prime determining criterion.

Some nine countries (including Azerbaijan, Kyrgyzstan and Moldova) identified the household member who was considered to be the 'household head' by the other household members as the reference person.

Table 18.3
Criteria adopted to determine reference person

Criteria adopted	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Person freely chosen by other adult household member	10	30	4	6	24	4	0	2
Person considered to be the head by the other household members	9	27	3	6	24	5	0	1
Person who contribute most income	2	6	0	2	8	2	0	0
Defined as such by population or other administrative register	4	12	0	4	16	1	3	0
Defined by age or other family relationships	3	9	0	3	12	2	0	1
Other criteria	1	3	0	1	4	1	0	0
No response	4	12	1	3	12	1	0	2
Total countries	**33**	**100**	**8**	**25**	**100**	**16**	**3**	**6**

In order to facilitate identification of family nuclei and households, the CESR recommended (in paragraph 515) using the following classification of relationship to the HRP. The classification was recommended at the one-digit level and optional at the two-digit level:

(1.0) Reference person
(2.0) Reference person's spouse
  (2.1) Husband or wife
  (2.2) Same-sex registered partner
(3.0) Reference person's partner in consensual union (cohabiting partner)
  (3.1) Opposite-sex cohabiting partner
  (3.2) Same-sex cohabiting partner
(4.0) Child of reference person and/or of husband/wife/cohabiting partner
  (4.1) Child of reference person only
  (4.2) Child of reference person's husband/wife/cohabiting partner
  (4.3) Child of both
(5.0) Husband/wife or cohabiting partner of child of reference person
(6.0) Father or mother of reference person, of spouse, or of cohabiting partner of reference person
(7.0) Other relative of reference person, of spouse, or of cohabiting partner of reference person
(8.0) Non-relative of reference person of the household
  (8.1) Foster child
  (8.2) Boarder
  (8.3) Domestic servant
  (8.4) Other

All the responding countries that uniquely used the relationship to the household reference person method (31 including the 7 within the EECCA region) recognised the HRP in the classification (1.0) (Table 18.4). The other categories in the classification that were almost universally recognised were: the HRP's spouse (2.0) by 30 countries (again including the 7 within the EECCA region); and the HRP's child(ren) (4.0) and parent of the HRP (6.0) recognised by 29 countries overall and, within the EECCA region by 5 and 7 countries respectively.

Table 18.4
Compliance with the CES Recommendation on the classification of relationship to the Household Reference Person

CESR classification	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
(1.0) HRP	31	100	7	24	100	16	3	5
(2.0) HRP's spouse	30	97	7	23	96	16	3	4
(2.1) Husband or wife	29	94	7	22	92	15	3	4
(2.2) Same sex registered partners	7	23	0	7	29	5	1	1
(3.0) HRP's cohabiting partner	26	84	3	23	96	16	3	4
(3.1) Opposite-sex partner	21	68	3	18	75	14	2	2
(3.2) Same-sex partner	12	39	1	11	46	10	0	1
(4.0) Child of HRP and/or of husband/wife/cohabiting partner	29	94	5	24	100	16	3	5
(4.1) Child of HRP only	17	55	3	14	58	10	2	2
(4.2) Child of HRP's husband/ wife/cohabiting partner	16	52	4	12	50	9	1	2
(4.3) Child of both	16	52	2	14	58	11	1	2
(5.0) Husband/wife/ cohabitating partner of child	23	74	6	17	71	11	2	4
(6.0) Parent of HRP or of HRP's spouse or cohabitating partner	29	94	7	22	92	14	3	5
(7.0) Other relative of HRP or of HRP's spouse/ cohabitating partner	28	90	6	22	92	15	3	4
(8.0) Non-relative of HRP	26	84	6	20	83	14	2	4
(8.1) Foster child	6	19	2	4	17	4	0	0
(8.2) Boarder	5	16	1	4	17	4	0	0
(8.3) Domestic servant	5	16	0	5	21	3	0	2
(8.4) Other	10	32	3	7	29	5	1	1
Total countries	**31**	**100**	**7**	**24**	**100**	**16**	**3**	**5**

The other categories were identified with lesser degrees of frequency. Thus 28 countries (6 within the EECCA region) reported that they recognised other relatives of the HRP or of the HRP's spouse or cohabiting partner (7.0), while 26 countries recognised both the HRP's partner in a consensual union (3.0) (but only Belarus, Moldova and the Russian Federation within the EECCA region did so), and the non-relative of the HRP (8.0) of which 6 of the EECCA countries recognised. Six EECCA countries (but not the same) also recognised the spouse or cohabiting partner of child of the HRP (5.0) along with 17 other countries throughout the rest of the UNECE region.

Not surprisingly the optional (two-digit) categories were far less likely to be identified in the census data than the recommended one-digit categories, particularly where they relate to same-sex relationships; only seven countries throughout the UNECE region (and none of the EECCA countries) for example, collected information on same-sex registered partner (2.2). Similarly no EECCA country reported that it separately identified domestic servants in the classification, and indeed only five countries throughout the whole of the UNECE region did so.

It is clear from Table 18.4 that no country collects sufficient information for every relationship in the recommended classification to be produced from the census. However, among those countries in the EECCA region Azerbaijan and Belarus recognised the greatest number (13 out of the 19 recommended) and Moldova recognised 12. Kazakhstan performed least well in recognising only seven.

Household status (derived core topic)

The CESR recommended (in paragraph 520) that information should be derived for all persons on their status or position in the household and, for persons in private households, whether they are living alone, in a nuclear family household or living with others. The following three-level classification of household status was recommended (at the three digit level):

(1.0) Person in a private household
- (1.1) Person in a nuclear family household
  - (1.1.1) Husband
  - (1.1.2) Wife
  - (1.1.3) Male partner in a consensual union
  - (1.1.4) Female partner in a consensual union
  - (1.1.5) Lone father
  - (1.1.6) Lone mother
  - (1.1.7) Child under 25 years of age
  - (1.1.8) Son/daughter aged 25 or older
  - (1.1.9) Other persons not member of the nuclear family, but in a nuclear family household
- (1.2) Person in other private households
  - (1.2.1) Living alone
  - (1.2.2) Living with relatives
  - (1.2.3) Living with non-relatives

(2.0) Person not in a private household
- (2.1) Person in institutional household
- (2.2) Primary homeless person
- (2.3) Other

Some 41 of 49 responding countries (84 per cent) reported that they classified household members by their status within the household. Among this number were five of the eight responding EECCA countries (Armenia, Azerbaijan, Kyrgyzstan, Moldova and Tajikistan). Additionally, the Russian Federation reported that it could classify household members in this way if required to do so by users but provided no specific information in the survey as to the categories it would recognise. Georgia did not respond.

The numbers of EECCA and other UNECE countries identifying each category within the recommended classification are given in Table 18.5, which shows that coverage for most categories was generally good throughout the UNECE, but that there were a few problematic categories. Although all responding EECCA countries recognised 'husband' and 'wife' as separate categories (1.1.2 and 1.1.3) as well as 'lone father' and 'lone mother' (1.1.5 and 1.1.6) and children aged under and over 25 (1.1.7 and 1.1.8) only three countries recognised male and female partners (1.1.3 and 1.1.4) and other non-family members (1.1.9). Coverage of these categories was proportionately much higher throughout the rest of the UNECE region.

However, though identifying the primary homeless proved to be the most difficult for many countries – less than two thirds of countries in the rest of the UNECE region identified them – and particularly so for those taking register-based census, only Armenia of the responding EECCA countries could not do so, possibly reflecting the greater importance attached to identifying this particular sub-group of the population in the region.

Table 18.5
Compliance with the CES Recommendation on classification of household status

CESR household status classification	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Did not derive the information	8		3	5		2	1	2
Derived the information	**41**	**100**	**5**	**36**	**100**	**20**	**8**	**8**
(1.0) Person in private household	39	95	3	36	100	20	8	8
(1.1) Person in a nuclear family household	39	95	3	36	100	20	8	8
(1.1.1) Husband	38	93	5	33	92	19	7	7
(1.1.2) Wife	38	93	5	33	92	19	7	7
(1.1.3) Male partner	35	85	3	32	89	19	7	6
(1.1.4) Female partner	35	85	3	32	89	19	7	6
(1.1.5) Lone father	39	95	5	34	94	20	7	7
(1.1.6) Lone mother	39	95	5	34	94	20	7	7
(1.1.7) Child aged under 25	39	95	5	34	94	19	7	8
(1.1.8) Child aged 25 or over	39	95	5	34	94	19	7	8
(1.1.9) Other persons not member of nuclear family but in a nuclear family household	34	83	3	31	86	18	6	7
(1.2) Person in other private household	37	90	2	35	97	19	8	8
(1.2.1) Living alone	38	93	4	34	94	19	7	8
(1.2.2) Living with relatives	31	76	3	28	78	17	4	7
(1.2.3) Living with non-relatives	30	73	2	28	78	17	4	7
(2.0) Person not in a private household	37	90	2	35	97	19	8	8
(2.1) Person in institutional household	39	95	4	35	97	19	8	8
(2.2) Primary homeless person	27	66	4	23	64	16	3	4
(2.3) Other person	12	29	1	11	31	6	2	3

Azerbaijan again scored the highest on the number of recommended categories recognised in its classification (17 out of the 19), while Armenia performed least well (with only 10 recognised.)

A word of clarification, at this point, might be helpful. Some of the scores for the EECCA countries (though accurately reported from the responses given in the survey) are anomalous. For example, although only three countries reported that they recognised the one-digit category (1.0) 'Person in a private household' and the two-digit category (1.1) 'Person in a nuclear family', all five responding countries reported, as noted above, that they identified the three-digit categories (1.1.1), (1.1.2), (1.1.5) and (1.1.6). Similarly for the two countries that reported the one-digit category (2.0) 'Person not in a private household' compared with the four countries that reported on (2.1) 'Person in an institutional household' and (2.2) 'the primary homeless'. No attempt has been made here, however, to revise the actual survey responses.

Type of (private) household (derived core topic)

18.1 The CESR recommended (in paragraph 548) that private households should be classified into the following types:

- (1.0) Non-family households
  - (1.1) One-person households
  - (1.2) Multi-person households
- (2.0) One-family households
  - (2.1) Husband-wife couples without resident children
    - (2.1.1) Without other persons
    - (2.1.2) With other persons
  - (2.2) Husband-wife couples with at least one resident child under 25
    - (2.2.1) Without other persons
    - (2.2.2) With other persons
  - (2.3) Husband-wife couples, youngest resident son/daughter 25 or older
    - (2.3.1) Without other persons
    - (2.3.2) With other persons
  - (2.4) Cohabiting couples without resident children
    - (2.4.1) Without other persons
    - (2.4.2) With other persons
  - (2.5) Cohabiting couples with at least one resident child under 25
    - (2.5.1) Without other persons
    - (2.5.2) With other persons
  - (2.6) Cohabiting couples, youngest resident son/daughter 25 or older
    - (2.6.1) Without other persons
    - (2.6.2) With other persons
  - (2.7) Lone fathers with at least one resident child under 25
    - (2.7.1) Without other persons
    - (2.7.2) With other persons
  - (2.8) Lone fathers, youngest resident son/daughter 25 or older
    - (2.8.1) Without other persons
    - (2.8.2) With other persons
  - (2.9) Lone mothers with at least one resident child under 25
    - (2.9.1) Without other persons
    - (2.9.2) With other persons
  - (2.10) Lone mothers, youngest resident son/daughter 25 or older
    - (2.10.1) Without other persons
    - (2.10.2) With other persons
- (3.0) Two or more-family households

Depending on national legislation and data needs, the CESR also suggested that countries might include registered (marital) same-sex couples in categories (2.1)-(2.3).

Compliance generally with the recommendations was high. All but two of the responding countries reported that they classified private households by their compositional type (again, Georgia did not respond). But the figures in Table 18.6 do not include Belarus, who, though it reported that it could derive the classification, did not respond to any of the recommended categories in the survey. Thus they are included only in the total figure of 8 for the EECCA region but in none of the subsequent rows in the table.

Table 18.6
Compliance with the CES Recommendation on classification of type of household

CESR household type classification	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Did not derive information	2		0	2		1	0	1
Derived the information	**47**	**100**	**8**	**39**	**100**	**21**	**9**	**9**
Classification code								
(1.0)	46	98	7	39	100	21	9	9
(1.1)	46	98	7	39	100	21	9	9
(1.2)	45	96	6	39	100	21	9	9
(2.0)	46	98	7	39	100	21	9	9
(2.1)	43	91	5	38	97	20	9	9
(2.1.1)	37	79	5	32	82	18	7	7
(2.1.2)	34	72	4	30	77	18	6	6
(2.2)	42	89	6	36	92	20	8	8
(2.2.1)	35	74	5	30	77	18	6	6
(2.2.2)	35	74	5	30	77	18	6	6
(2.3)	40	85	4	36	92	20	8	8
(2.3.1)	34	72	4	30	77	18	6	6
(2.3.2)	33	70	3	30	77	18	6	6
(2.4)	40	85	4	36	92	20	8	8
(2.4.1)	34	72	4	30	77	18	6	6
(2.4.2)	34	72	4	30	77	18	6	6
(2.5)	38	81	4	34	87	20	7	7
(2.5.1)	32	68	4	28	64	18	5	5
(2.5.2)	32	68	4	28	72	18	5	5
(2.6)	36	77	2	34	87	20	7	7
(2.6.1)	30	64	2	28	72	18	5	5
(2.6.2)	30	64	2	28	72	18	5	5
(2.7)	42	89	6	36	92	20	8	8
(2.7.1)	36	77	5	31	79	19	6	6
(2.7.2)	35	74	4	31	79	19	6	6
(2.8)	40	85	5	35	90	19	8	8
(2.8.1)	36	77	4	32	82	18	8	6
(2.8.2)	33	68	3	30	77	18	6	6
(2.9)	42	89	6	36	92	20	8	8
(2.9.1)	36	77	5	31	79	19	6	6
(2.9.2)	35	74	4	31	79	19	6	6
(2.10)	40	85	5	35	90	19	6	6
(2.10.1)	34	72	4	30	77	18	6	6
(2.10.2)	33	70	3	30	77	18	6	6
(3.0)	42	89	7	35	90	19	8	8

However, despite the generally high levels of compliance, not all the responding EECCA countries were able to recognise all the recommended categories in their detailed classifications, particularly at the two- and three-digit level. This was also the case generally throughout the UNECE region. The figures in Table 18.6 pick out the types of households that are more problematic. The identification of cohabiting couples, particularly where the youngest child is aged 25 or older (categories (2.6), (2.6.1) and (2.6.2)) is the least well recorded across the UNECE region as a whole, and only two EECCA countries – Armenia and Kazakhstan – identified these groups. In fact, both these countries complied to the fullest extent with the CES Recommendation on this issue, and both reported that they could identify all 35 categories listed in the classification.

Family status (derived core topic)

As was the case for household status, the CESR similarly recommended (in paragraph 525) that information should also be derived for all persons on their family status in terms of being either a partner (in the broadest sense), a lone parent, or a child. The following classification was recommended, being optional at the third digit level:

(1.0) Partner
- (1.1) Husband in a married couple
- (1.2) Wife in a married couple
- (1.3) Male partner in a consensual union
- (1.4) Female partner in a consensual union

(2.0) Lone parent
- (2.1) Lone father
- (2.2) Lone mother

(3.0) Child
- (3.1) Child aged under 25
  - (3.1.1) Child of both partners
  - (3.1.2) Child of male partner only
  - (3.1.3) Child of female partner only
  - (3.1.4) Child of lone father
  - (3.1.5) Child of lone mother
- (3.2.) Son/daughter aged 25 or over
  - (3.2.1) Son/daughter of both partners
  - (3.2.2) Son/daughter of male partner only
  - (3.2.3) Son/daughter of female partner only
  - (3.2.4) Son/daughter of lone father
  - (3.2.5) Son/daughter of lone mother

Most countries (42) reported that they were able to classify household members according to their family status. But within the EECCA region Belarus, Kazakhstan, the Russian Federation, and Tajikistan (as well as three other countries in the rest of the UNECE region) reported that they were not. And once again there was no response from Georgia on this topic. Thus only Armenia, Azerbaijan, Kyrgyzstan and Moldova of the EECCA countries reported that they adopted the CES Recommendation to any degree in this case. Comparison with countries elsewhere in the UNECE region must therefore be somewhat limited.

Table 18.7 shows that all four of these EECCA countries reported that they were able to identify whether family members were either the husband or wife in a married couple (1.1) and (1.2), however Azerbaijan could not classify male or female partners in consensual unions (1.3) and (1.4). The responses from the survey also indicated that Azerbaijan was also the only EECCA country that did not collect information to enable it to identify lone parents (2.0)-(2.2), though somewhat anomalously it reported that it did classify the children of lone parent (3.1.4) and (3.1.5).

Kyrgyzstan was the only EECCA country that was able to distinguish between children aged under or over 25. Indeed, Kyrgyzstan was the only country in the region that was fully compliant with the CES Recommendation in that it reported that it recognised each category in the recommended classification – even at the optional three digit level. As many as nine countries with traditional censuses throughout the rest of the UNECE region were also fully compliant in this way.

Table 18.7
Compliance with the CES Recommendation on classification of family status

CESR family status classification	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Did not classify family	7		4	3		2	0	1
Classified family status	**42**	**100**	**4**	**38**	**100**	**20**	**9**	**9**
(1.0) Partner	42	100	4	38	100	20	9	9
(1.1) Husband in a married couple	39	93	4	35	100	19	8	8
(1.2) Wife in a married couple	39	93	4	35	100	19	8	8
(1.3) Male partner in a consensual union	37	93	4	35	92	19	8	8
(1.4) Female partner in a consensual union	37	88	3	34	89	19	8	7
(2.0) Lone parent	41	98	2	38	100	20	9	9
(2.1) Lone father	39	93	3	36	95	20	8	8
(2.2) Lone mother	39	93	3	36	95	18	9	9
(3.0) Child	40	95	4	36	95	18	8	9
(3.1) Child aged under 25	39	93	4	35	92	18	9	9
(3.1.1) Child of both parents	25	60	2	23	61	14	3	6
(3.1.2) Child of male partner only	19	45	2	17	45	8	3	6
(3.1.3) Child of female partner only	19	45	2	17	45	8	3	6
(3.1.4) Child of lone father	32	76	2	30	79	15	7	8
(3.1.5) Child of lone mother	32	76	2	30	79	15	7	8
(3.2) Son/ daughter aged 25 or over	36	86	3	33	87	17	7	9
(3.2.1) Son/ daughter of both parents	24	57	1	23	61	14	3	6
(3.2.2) Son/ daughter pf male partner only	18	43	1	17	45	8	3	6
(3.2.3) Son/ daughter of female partner only	18	43	1	17	45	8	3	6
(3.2.4) Son/ daughter o lone father	32	76	1	31	92	16	7	8
(3.2.5) Son/ daughter of lone mother	32	76	1	31	92	16	7	8

Type of family nucleus (derived core topic)

As was the case for households, the CESR recommended (in paragraph 534) that 'family nuclei' (as defined above) should be classified into the following types:

(1.0) Husband-wife family, not reconstituted family
- (1.1) Without resident children
- (1.2) With at least one resident child under 25
- (1.3) Youngest resident son/daughter 25 or older

(2.0) Cohabiting couple, not reconstituted family
- (2.1) Without resident children
- (2.2) With at least one resident child under 25
- (2.3) Youngest resident son/daughter 25 or older

(3.0) Lone father
- (3.1) With at least one resident child under 25
- (3.2) Youngest resident son/daughter 25 or older

(4.0) Lone mother
- (4.1) With at least one resident child under 25
- (4.2) Youngest resident son/daughter 25 or older

(5.0) Reconstituted family
- (5.1) With at least one resident child under 25
- (5.2) Youngest resident son/daughter 25 or older

with the proviso that the category (5.0) relating to reconstituted families is optional. The extent to which countries recognised each of the recommended categories is shown in Table 18.8.

EECCA countries were, at first glance, seemingly more compliant when it came to adopting the CES Recommendation to classify type of family nucleus than was the case for family status. Only Kyrgyzstan and Tajikistan (together with five other countries in the rest of the UNECE region) reported that they did not classify families in this way (but once again Georgia did not respond to this section of the survey).

However, on closer examination of the responses to the survey there was much less compliance with the specific recommended categories listed above. Only Kazakhstan was able to report that it identified all the non-optional categories. Armenia, for example, reported that it recognised only the one- and two-digit categories relating to lone parents families, and the Russian Federation identified only these at the one-digit level and no others. Meanwhile, though Azerbaijan, Belarus and Kyrgyzstan reported that they classified families in some way, none reported recognising any of the recommended categories at all. Moldova scored somewhere between the two extremes in recognising 11 of the 17 categories.

In comparison, at least 61 per cent of countries throughout the rest of the UNECE region adopted each one of the categories in the recommended classification, and if the optional categories (5.0), (5.1) and (5.2) are discounted this minimum proportion rises to 83 per cent.

Table 18.8
Compliance with the CES Recommendation on classification of type of family nucleus

CESR type of family nucleus classification	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Did not classify family nucleus	7		2	5		3	0	2
Classified family nucleus	**42**	**100**	**6**	**36**	**100**	**19**	**9**	**8**
(1.0) Husband and wife family	35	83	2	33	92	19	6	8
(1.1) Without resident children	34	81	2	32	89	18	6	8
(1.2) With at least one resident child aged under 25	32	76	2	30	83	17	6	7
(1.3) Youngest resident son/ daughter aged 25 or older	31	73	1	30	83	17	6	7
(2.0) Cohabitating couple	33	79	2	31	86	18	6	7
(2.1) Without resident children	33	79	2	31	86	18	6	7
(2.2) With at least one resident child aged under 25	33	79	2	31	86	18	6	7
(2.3) Youngest resident son/ daughter aged 25 or older	31	73	1	30	83	18	6	6
(3.0) Lone father	39	93	4	35	97	18	9	8
(3.1) With at least one resident child aged under 25	36	86	3	33	92	17	9	7
(3.2) Youngest resident son/ daughter	35	83	2	33	92	17	9	7
(4.0) Lone mother	39	93	4	35	97	18	9	8
(4.1) With at least one resident child aged under 25	36	86	3	33	92	17	9	7
(4.2) Youngest resident son/ daughter aged 25 or older	35	83	2	33	92	17	9	7
(5.0) Reconstituted family	23	55	0	23	63	14	4	5
(5.1) With at least one resident child aged under 25	22	52	0	22	61	13	4	5
(5.2) Youngest resident son/ daughter aged 25 or older	22	52	0	22	61	13	4	5

Tenure status of household's accommodation (core topic)

The CESR defined (in paragraph 556) the tenure status as: "…. *the arrangement under which a private* household *occupies all or part of a housing unit*".

All the countries in the EECCA region collected information on this core topic, indeed only three UNECE countries did not do so. Georgia did not respond to the survey question.

The classification recommended by CESR (paragraph 557) and optional at the two-digit level was:

(1.0) Households of which a member is the owner of the housing unit
(2.0) Households of which a member is a tenant of all or part of the housing unit
  (2.1) Households of which a member is a main tenant of all or part of the housing unit
  (2.2) Households of which a member is a sub tenant of an owner occupier or main tenant
(3.0) Households occupying all or part of a housing unit under some other form of tenure

It can be seen from Table 18.9 that there was a high degree of compliance with the CES Recommendation, both within the EECCA region and elsewhere. Seven of the eight responding EECCA countries identified accommodation where the householder was the owner (1.0), and six countries could identify categories (2.0) and (3.0) in common with more than 80 percent of countries in the rest of the UNECE region.

But it should be noted here that the figures in Table 18.9 are a little deceptive in that in some cases national classifications adopted alternative or additional categories to those recommended (in order to meet particular national data requirements) that still enabled census data to be produced on a broadly compatible basis. Thus for example, the Russian Federation reported that it collected information on tenure status only for single family houses and that consequently it did not report compliance with any of the CESR categories.

It should also be noted that 'tenure status' here is considered to be different from the concept of 'type of ownership' of the dwelling that is dealt with separately in Chapter 19 (although, in practice, in many countries information on both topics is obtained from the same question or data source).

Table 18.9
Information collected on of tenure status of the household's accommodation

Type of tenure of accommodation	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Did not classify tenure	3		0	3		1	1	1
Classified tenure	**46**	**100**	**8**	**38**	**100**	**21**	**8**	**9**
Household member is the owner of the housing unit	43	93	7	36	95	20	8	8
Household member is a tenant of all or part of the housing unit	40	87	6	34	89	18	8	8
Households occupying all or part of a housing unit under some other form of tenure	37	80	6	31	82	18	7	6
Some other type of 'tenure' adopted	5	73	0	5	13	2	1	2

Other (non-core) topics associated with households

The CESR suggested a number of other household-related non-core topics that might be included in a country's census. The UNECE survey enquired into the extent to which countries attempted to collect information on each. Table 18.10 ranks the most commonly reported topics throughout the UNECE region as a whole.

Most commonly collected within the EECCA region (by seven of the eight responding countries) were the availability of internet connection and the availability of a fixed telephone – though not the same seven countries reported both. Internet connection was also reported by more than a third of the countries in the rest of the UNECE region.

Six EECCA countries collected information on whether the household's accommodation was single or shared occupancy (as did 15 other countries) and on the possession of a personal computer (as did a third of the rest of the UNECE region).

Azerbaijan reported on more of these non-core topics (six of the ten) than did any other EECCA country, while Kazakhstan only felt the need to report on two (fixed telephone and rent paid).

Table 18.10
Other household-related topics on which information was collected in the census

Topic	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Availability of internet connection	22	45	7	15	37	10	2	3
Single or shared occupancy	21	43	6	15	37	12	1	2
Possession of personal computer	20	41	6	14	34	12	1	1
Amount of rent paid	15	31	2	13	32	8	2	3
Availability if fixed telephone	15	31	7	8	20	6	1	1
Number of cars available for use	14	29	0	14	34	10	3	1
Possession of television	11	22	5	6	15	4	1	1
Availability of car parking	9	18	0	9	22	7	1	1
Availability of mobile telephone	7	14	1	6	15	4	1	1
Possession of other consumable goods	6	12	0	6	15	4	1	1
Other topics	11	22	2	9	22	4	3	2
All countries	**49**	**100**	**8**	**41**	**100**	**22**	**9**	**10**

In addition to these, various countries reported on the collection of information on a number of household facilities or amenities or other related topics not specifically referred to in the CESR. The Russian Federation, for example, reported on the availability of wired radio, while Moldova collected information on the ownership of other properties and the type of dwelling.

19. HOUSING

Introduction

All countries in the UNECE region that conducted a population census in the 2010 round and responded to the UNECE survey also collected information on housing. A few countries (for example Tajikistan) collected only very limited information on housing, while most countries collected detailed information on a number of housing topics selected from among those presented in the 2010 CES Recommendations.

This chapter compares how EECCA countries and those in the rest of the UNECE region conducted their housing census in the 2010 round, and which of the recommended housing topics were considered by the different countries[24].

How the housing census was taken – methodological approaches

Most countries collected housing census data by adopting the same broad methodology used to collect population census data. There were a few exceptions, but all the nine EECCA countries covered in this publication (Ukraine is excluded because of the reasons noted earlier) carried out their housing census using a traditional household interview-based approach.

The focus of collecting information on housing in the census is mainly on measuring the relationship between the population (for which the conventional unit is the 'household') and the characteristics of their living quarters. But some information on the characteristics of the dwelling and/or the building containing the dwellings – irrespective of the households that live there – is also collected. The 2010 CESR identified a number of key housing topics of both kinds as core (such as type of ownership, number of rooms and occupancy status) or non-core (such as multi-occupancy, type of energy used, and position of dwelling in the building).

Compliance with the concepts

In order to assess the international comparability of housing censuses there needs to be a common understanding and agreement of what concepts are used to measure housing characteristics. The 2010 CESR introduced and defined, for example, some key terms such as 'living quarters', 'housing unit', 'building', 'dwelling' and 'room'. The UNECE survey aimed to find out if such concepts and definitions were adopted and, if not, what the reasons were for countries not doing so. The first two questions of the housing section of the survey dealt with this matter.

Among the nine EECCA countries participating in the survey Kyrgyzstan was the only one that did not respond to the question concerning the compliance of concepts with the CES Recommendations. Indeed, it was the only country throughout the whole of the UNECE region not to do so. However, not all the other countries provided information for all concepts and, as a result, 6 per cent of responses were missing. Table 19.1 ranks the concepts by the number of countries throughout the UNECE region that were fully compliant.

In the following paragraphs attention is given to the EECCA countries which did or did not use the concepts of the CES Recommendations, or adapted the definitions, or even used other concepts, in comparison with the practices adopted throughout the rest of the UNECE region.

[24] The material in this chapter has been taken largely from a report of the survey results prepared by the UNECE Task Force on Housing Characteristics led by Adelheid Bauer (Statistics Austria) and discussed at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Table 19.1
Compliance with the housing concepts and definitions as defined in the CES Recommendations

Compliance with housing concept/definition	Total responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Housing unit	**48**	**98**	**7**	**41**	**100**	**22**	**9**	**10**
Fully compliant	44	90	6	38	93	22	7	9
Partially compliant	1	2	0	1	2	0	1	0
Some other concept used	1	2	0	1	2	0	1	0
Concept not used in census	2	4	1	1	2	0	0	1
Living quarters	**48**	**98**	**8**	**40**	**98**	**21**	**9**	**10**
Fully compliant	42	86	7	35	85	21	6	8
Partially compliant	3	6	1	2	5	0	2	0
Some other concept used	1	2	0	1	2	0	1	0
Concept not used in census	2	4	0	2	5	0	0	2
Conventional dwelling	**47**	**96**	**6**	**41**	**100**	**21**	**9**	**10**
Fully compliant	42	86	5	37	90	21	9	7
Partially compliant	1	2	0	1	2	0	0	0
Some other concept used	0	0	0	0	0	0	0	2
Concept not used in census	4	8	1	3	7	0	0	0
Occupied conventional dwelling	**46**	**94**	**6**	**40**	**98**	**20**	**9**	**10**
Fully compliant	42	86	4	38	93	20	9	9
Partially compliant	2	4	1	1	2	1	0	0
Some other concept used	0	0	0	0	0	0	0	0
Concept not used in census	2	4	1	1	7	0	0	1
Useful floor space	**48**	**98**	**8**	**40**	**98**	**21**	**9**	**10**
Fully compliant	39	80	7	32	78	15	9	8
Partially compliant	5	10	1	4	10	4	0	0
Some other concept used	0	0	0	0	0	0	0	0
Concept not used in census	4	8	0	4	10	2	0	2
Collective living quarters	**46**	**94**	**6**	**40**	**98**	**21**	**9**	**10**
Fully compliant	40	82	5	35	85	20	7	8
Partially compliant	2	4	1	1	2	0	1	0
Some other concept used	1	1	0	1	2	0	0	1
Concept not used in census	3	6	0	3	7	1	1	1
Room	**49**	**100**	**8**	**41**	**100**	**22**	**9**	**10**
Fully compliant	38	78	8	30	73	19	4	7
Partially compliant	8	16	0	8	20	3	2	3
Some other concept used	0	0	0	0	0	0	0	0
Concept not used in census	3	6	0	3	7	0	3	0
Other housing units	**46**	**94**	**6**	**40**	**98**	**22**	**8**	**10**
Fully compliant	35	71	5	30	73	19	4	7
Partially compliant	4	8	0	4	10	2	1	1
Some other concept used	0	0	0	0	0	0	0	0
Concept not used in census	7	14	1	6	15	1	3	2
Building	**47**	**96**	**6**	**41**	**100**	**22**	**9**	**10**
Fully compliant	38	76	2	36	88	19	7	10
Partially compliant	2	4	1	1	2	1	0	0
Some other concept used	0	0	0	0	0	0	0	0
Concept not used in census	7	14	3	4	10	2	2	0

* Kyrgyzstan did not respond

Living quarters

The CESR defined 'Living quarters' (in paragraph 592) as: "….*those housing types which are the usual residences of one or more persons*". The concept was qualified by the definitions of the main categories into which living quarters are divided:

(1.0) Occupied conventional dwellings

(2.0) Other housing units – a hut, cabin, shack, caravan, houseboat, barn, mill, cave or other shelter used for human habitation at the time of the census

(3.0) Collective living quarters – a hotel, institution, camp, etc.

This recommended definition of living quarters differed from the one given in the previous Recommendations for the 2000 Censuses of Population and Housing in the ECE region, in which vacant conventional dwellings were also counted as part of living quarters.

Level of compliance with the CES Recommendations for this concept was very high both within the EECCA region and elsewhere. Seven out of the eight responding EECCA countries reported that they fully adopted the concept (as did 85 per cent of the rest of the UNECE region) and only Armenia was partially compliant.

Housing units

The general definition of a 'housing unit' given in paragraph 595 of the CESR was:

"*… a separate and independent place of abode intended for habitation by a single household, or one not intended for habitation but used as a usual residence by a household at the time of the census*."

The CESR went on to note that this included 'occupied conventional dwellings' and 'other housing units' (as defined below), and recommended that, for the purpose of international comparability, information should be collected and presented separately for occupied conventional dwellings. Furthermore, countries were encouraged also to collect information on other housing units (where possible) and again present this separately.

While this concept was almost universally adopted by countries throughout the rest of the UNECE region (and by all those carrying out a traditional census), only six of the EECCA countries reported fully adopting the recommendation. Belarus reported that it did not recognise the concept in its census, and Tajikistan did not respond to this particular definition.

Conventional (and occupied conventional) dwellings

'Conventional dwellings' were defined by the CESR (in paragraph 596) as being:

" *…. structurally separate and independent premises, which are designed for permanent human habitation at a fixed location and are not used wholly for non-residential purposes at the time of the census."*

The Recommendations went on to develop the concept by further defining a conventional dwelling (in paragraph 598) as:

"... a room or suite of rooms and its accessories (for example lobbies, corridors) in a permanent building or structurally separated part thereof which, by the way it has been built, rebuilt or converted, is designed for habitation by a single household all the year round, such as a house or apartment. It need not necessarily have a bathroom or toilet available for the exclusive use of its occupants".

Furthermore the CESR noted that 'conventional dwellings' can be further classified as being: occupied; or of secondary or seasonal use; or as vacant. A conventional dwelling is classified as an 'occupied conventional dwelling' if it is a usual residence of one or more persons.

The definition of 'conventional dwellings' was reported as being fully implemented by five of the EECCA countries. Again, Belarus did not recognise the concept, while this time both Kazakhstan and Tajikistan failed to respond to the survey question. Elsewhere in the UNECE region the concept was almost universally adopted in full compliance with the recommendation.

Not surprisingly the pattern of compliance for 'occupied conventional dwellings' was generally the same across the UNECE region, but whereas Armenia reported full compliance for conventional dwellings it only partially complied with the recommendation for those dwellings that were occupied.

Incidentally, with respect to the count of dwellings, the UNECE survey also specifically enquired separately if countries covered those occupied only by persons not classified as usually resident there. Though not shown in Table 19.1, four of the EECCA countries (Armenia, Azerbaijan, Georgia and Moldova) reported that they did so, along with two thirds of the rest of the UNECE region; the others did not. However, a review of the responses to the survey led to the conclusion that this survey question may have been interpreted differently by some respondents. Some countries may have taken this to refer to persons not usually resident at the particular dwelling, while others referred to persons who were not usual residents of the country.

'Other' housing units

Some housing units do not come fully within the category of a conventional dwelling either because they are mobile, semi-permanent or improvised, or are not specifically designed for human habitation, but they may be nevertheless used at the time of the census as the usual residence of one or more persons who are members of one or more private households. All these are grouped under the term 'other housing units'. Certain census topics will not apply to them. A detailed description of the types of habitation that are included was given in paragraph 603 of the CESR.

As was the case for conventional dwellings, Belarus reported that it did not use the concept in the census round nor did six other countries in the rest of the UNECE region. Again, there was no response from either Kazakhstan or Tajikistan but five of the EECCA countries reported adopting the CES Recommended concept.

Collective living quarters

The housing category 'collective living quarters' comprises those premises which are designed for habitation by large groups of individuals or several households and which are used as the usual residence of at least one person at the time of the census. This category covers (a) hotels, rooming houses and other lodging houses; (b) institutions; and (c) camps. Also this category differs from conventional dwellings in the range of census topics which apply to it. A detailed description of the types of accommodation that are included was given in paragraph 606 of the CESR.

The pattern of the reporting of compliance with the concept of 'collective living quarters' among EECCA countries was similar to that of other type of housing unit, but here the Russian Federation reported that it only partially adopted the CES Recommendation, while five others did so in full, together with all but five in the rest of the UNECE region.

Buildings

The 'building' is an important enumeration unit in the census since information on type of building and period of construction is required to describe the general characteristics of conventional dwellings within the building and for formulating housing programmes. For this purpose a 'building' was defined by the CESR (in paragraph 698) as:

"*…any independent structure containing one or more dwellings, rooms or other spaces, covered by a roof and enclosed within external walls or dividing walls which extend from the foundations to the roof, whether designed for residential or for agricultural, commercial, industrial or cultural purposes or for the provision of services. Thus a building may be a detached house, apartment building, factory, shop, warehouse, garage, barn, etc.*"

However, the concept of a 'building' as a statistical unit was not used in the census by Azerbaijan, Belarus, and the Russian Federation among the EECCA countries, with only Georgia and Moldova being fully compliant with the CES Recommendation, and Armenia being partially compliant. In comparison, elsewhere in the UNECE region some 88 per cent of countries fully adopted the recommended definition.

Useful floor space and/or Rooms

The CESR recommended two ways to measure the size of household's living accommodation: by using either useful (or more accurately, useable) floor space measured in square metres, or the number of rooms.

The concept of neither 'floor space' nor 'rooms' is simple, resulting in the questions on this topic in traditional censuses or surveys often being the least well answered.

'Useful floor space' was defined in the CESR (in paragraph 645) as either:

"*… the floor space measured inside the outer walls excluding non-habitable cellars and attics and, in multi-dwelling buildings, all common spaces*"

or "*…the total floor space of rooms falling under the concept of a room*"

and where a 'room' was defined as:

"... a space in a housing unit enclosed by walls reaching from the floor to the ceiling or roof covering, at least to a height of 2 metres above the ground, of a size large enough to hold a bed for an adult (4 square metres at least) and at least 2 metres high over the major area of the ceiling. Thus, normal bedrooms, dining rooms, living rooms, habitable cellars and attics, servants' rooms, kitchens and other separate spaces used or intended for habitation all count as rooms if they correspond to the definition above. A kitchenette (that is, a kitchen of less than 4 square metres), verandas, utility rooms (for example boiler rooms, laundry rooms) and lobbies do not count as rooms; nor do bathrooms and toilets (even if they are more than 4 square metres). Rooms without windows, for example cellars below ground – however large – should not generally be counted, unless they are functionally used for domestic purposes – which might include large lobbies with writing tables or internal bedrooms with no windows for example".

Some 39 countries across the UNECE region adopted the concept of 'useful floor space' (80 per cent) and 38 countries (78 per cent) adopted the concept of a 'room' as each was defined. Of the eight responding EECCA countries only Armenia was not fully compliant with the 'floor space' definition and all adopted the 'rooms' concept for measuring the size of the household's accommodation. Indeed, the definition of a 'room' was the only housing concept that all the EECCA fully adopted.

Homelessness

This issue of how to count persons who are 'homeless' in a census is not straightforward, and is arguably more a matter associated with defining a population base or household composition structure than it is a characteristic of housing, since, by definition, many such persons (described, more generally, as the 'primary homeless') will have no housing characteristics attributed to them. The CESR defined (in paragraph 608) a homeless person as someone:

"*…who, because of the lack of housing, has no other option than to sleep:*

(a) rough or in buildings which were not designed for human habitation;

(b) in emergency centres, or night shelters;

(c) in emergency accommodation in hotels, guest houses or bed and breakfast;

(d) in hospitals due to a lack of decent shelter; or

(e) *in accommodation temporarily provided by friends or relatives because of the lack of a permanent place to stay*."

'Homelessness' was dealt with more fully in the recommendations for household and family characteristics (See Chapter 18), where the following groups were identified:

(1.0) Primary homelessness (or 'rooflessness'). This category includes persons living in the streets without a shelter that would fall within the scope of living quarters ; and

(2.0) Secondary homelessness (or 'rootlessness'). This category may include persons with no place of usual residence who move frequently between various types of accommodations (including dwellings, shelters, institutions for the homeless, or other living quarters). This category also includes persons living in private dwelling but report that they have no usual address.

With regard to any housing and population censuses both these categories (primary homeless and secondary homeless) should only include persons who are not usual residents in any living quarter category. This means that such persons are not occupants in conventional dwellings, in other housing units or in collective living quarters in such a way that these living arrangements constitute their usual residence. The majority of these persons can be considered homeless.

Very often attempts are made only to identify the primary homeless in the census since the secondary homeless are often regarded as being resident at the accommodation where they are present on census day (if they have no other usual residence). Only 13 of the countries that responded implemented the concept of 'secondary homelessness' as defined in the CESR, and only one of these was in the EECCA region (Georgia). Belarus, along with six other countries, reported that it adopted some other definition that was not compliant with the CESR, but Armenia, Azerbaijan, Moldova and the Russian Federation (together with half the rest of the UNECE region) did not use the concept at all.

However, the concept of 'primary homelessness' was fully implemented by five of the seven responding EECCA countries and by 56 per cent of countries elsewhere.

Inclusion of core housing topics in the census

A key aim of the UNECE survey was to evaluate to what extent information on the core housing topics was collected in the 2010 census round. Table 19.2 presents the numbers of countries that included the various topics in their census (out of the 49 countries responding to these questions in the survey), comparing those within the EECCA region with those elsewhere by the broad categories of methodological approach.

The level of inclusion of the core topics was high both for countries within the EECCA region and elsewhere. Whether or not they fully complied with the CES Recommendations on concepts and definitions, all responding EECCA countries reported collecting information on housing arrangements, type of living quarters, number of rooms, and bathing facilities; and all but one EECCA country similarly reported for type of ownership, useable floor space, toilet facilities, and period of construction – the exception in each case being, respectively, the Russian Federation, Armenia, Belarus, and Azerbaijan. More than 80 per cent of countries throughout the rest of the UNECE region reported collecting information on all of these topics, with the exception of type of water supply, for which only three quarters of countries did so – the lowest level of compliance for any of the core topics among UNECE countries generally.

Table 19.2
Inclusion of core housing topics in the census

Compliance with housing concept/definition	Total responding countries*		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Housing arrangements								
Included	45	92	8	37	90	22	8	7
Not Included	4	8	0	4	10	0	1	3
Type of living quarters								
Included	45	92	8	37	90	21	8	8
Not Included	3	6	0	3	7	0	1	2
Occupancy status								
Included	43	88	4	39	96	22	9	8
Not Included	6	12	4	2	4	0	0	2
Type of ownership								
Included	47	96	7	40	98	21	9	10
Not Included	2	4	1	1	2	1	0	0
Useful floor space								
Included	41	84	7	34	83	17	9	8
Not Included	8	16	1	7	17	5	0	2
Number of rooms								
Included	45	92	8	37	90	22	6	9
Not Included	4	8	0	4	10	0	3	1
Water supply system								
Included	39	80	8	31	76	17	8	6
Not Included	10	20	0	10	24	5	1	4
Toilet facilities								
Included	41	84	7	34	83	19	8	7
Not Included	8	16	1	7	17	3	1	3
Bathing facilities								
Included	43	88	8	35	85	19	9	7
Not Included	6	12	0	6	15	3	0	3
Type of heating								
Included	46	94	8	38	93	20	9	9
Not Included	3	6	0	3	7	2	0	1
Type of building								
Included	43	88	5	38	93	22	9	7
Not Included	6	12	3	3	7	0	0	3
Period of construction								
Included	47	96	7	40	98	21	9	10
Not Included	2	4	1	1	2	1	0	0
All countries	**49***	**100**	**8***	**41**	**100**	**22**	**9**	**10**

* Kyrgyzstan did not respond

The lowest level of compliance among EECCA countries was for occupancy status. Only Azerbaijan, Belarus, Kazakhstan, and Moldova reported collecting information on this core topic, while type of building fared only a little better with five countries (Armenia, Georgia, Kazakhstan, Moldova and the Russian Federation) collecting this information. Other UNECE countries performed much better on these two particular topics, reporting 96 per cent and 93 per cent coverage respectively.

But apart from these two topics, EECCA countries generally covered the core housing topics very well; Moldova collected information on all 12 and Georgia did so for 11 of them (occupancy status being the exception). No EECCA country covered fewer than 10.

Classifications used for core topics

The survey also enquired if the classifications used for each of the 12 core topics were those recommended by the CES Recommendations (and at which digit-level of compliance). The recommended classifications, and the level of compliance for those countries that collected the relevant information are reported here in the order set out in the 2010 CESR.

Housing arrangements

This variable refers to people or households living in different type of accommodation defined (in paragraph 617) as:

"*… the type of housing where a person is a usual resident at the time of the census*".

This covers all persons who are usual residents in households in different types of living quarters, or who do not have a usual residence and stay temporarily in living quarters, or are roofless persons sleeping rough or in emergency shelters when the census was taken. The concept of 'housing arrangement' was introduced as a core topic in the 2010 round to ensure that the whole population is classified according to all the units counted in the housing censuses including the consideration of those who are roofless.

The recommended 1-digit classification was:

(1.0) Occupants (that is persons with a usual residence) living in a conventional dwelling

(2.0) Occupants (that is persons with a usual residence) living in another housing unit – hut, cabin, shack, caravan, houseboat, or a barn, mill, cave or other shelter used for human habitation at the time of the census

(3.0) Occupants (that is persons with a usual residence) living in a collective living quarter – a hotel, institution, camp, etc.

(4.0) Persons who are not usual residents in any living quarter category, such as homeless or other people moving between temporary accommodations.

All but the Russian Federation and Tajikistan among the EECCA countries reported that they adopted the CESR classification as did two thirds of countries throughout the rest of the UNECE region (Table 19.3a). In the survey the Russian Federation actually reported that a classification for housing arrangements was not applicable (implying that the topic was not included in the census) but this was inconsistent with its earlier response that information on the topic was collected. It has been assumed therefore that some other classification was used. Tajikistan did not respond to the survey question.

The relatively high proportion of other countries using other classifications (a third) results from the requirement for EU member states to adopt the (slightly different) classification prescribed by EU legislation.

Table 19.3a
Compliance with recommended housing classifications: housing arrangements

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR	30	67	6	24	65	17	1	6
Used other classification	13	29	1	12	32	4	7	1
No response	2	4	1	1	2	1	0	0
All countries collecting the information	**45**	**100**	**8**	**37**	**100**	**22**	**8**	**7**

Type of living quarters:

Using the concept and definition described above, the CESR recommended (in paragraph 623) the following classification:

(1.0) Occupied conventional dwellings
(2.0) Other housing units
  (2.1) Mobile units
  (2.2) Semi-permanent units
  (2.3) Other units designed for habitation
  (2.4) Other units not designed for habitation
(3.0) Collective living quarters
  (3.1) Hotels, rooming houses and other lodging houses
  (3.2) Institutions
  (3.3) Camps

This was optional at the two-digit level, and with the qualification that all conventional dwellings and other housing units must be in use by at least one person as their usual residence at the time of the census in order to be counted as part of living quarters.

Only Azerbaijan of the EECCA countries reported using the CESR classification at both the 1-digit level and the optional 2-digit level (along with five other UNECE countries), although four others (Armenia, Georgia, Kazakhstan and Moldova) were compliant at the 1-digit level only (together with two thirds of the rest of the UNECE region) (Table 19.3b). Belarus reported using some other classification, and it was assumed, again, that the Russian Federation did likewise (as did eight of the countries in the rest of the UNECE region – seven of whom adopting the required EU classification). Tajikistan again did not respond.

Table 19.3b
Compliance with recommended housing classifications: type of living quarters

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	28	56	5	24	65	15	2	7
at both 1- and 2-digit level	6	13	1	5	14	4	0	1
Used other classification	10	22	2	8	22	2	6	0
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**45**	**100**	**8**	**37**	**100**	**21**	**8**	**8**

Occupancy status (of convention dwellings)

19.1 This refers to "… *whether or not a conventional dwelling is occupied by a usual resident at the time of the census*."

19.2 For those dwellings not occupied (that is, vacant or in secondary use), the CESR recommended that the reason for not being occupied should also be classified. The classification (recommended in paragraph 628) was:

(1.0) Occupied conventional dwellings with one or more usual residents
(2.0) Conventional dwelling with no usual residents at time of census
  (2.1) Dwellings reserved for seasonal or secondary use
  (2.2) Vacant dwellings
    (2.2.1) Vacant for sale
    (2.2.2) Vacant for rent
    (2.2.3) Vacant for demolition
    (2.2.4) Other vacant or not known
(3.0) Conventional dwellings with residents not included in census (foreign nationals, etc.)

This was optional at the three-digit level and with the additional suggestion that categories (2.2.1) and (2.2.2) might be subdivided to show the length of time the dwelling has remained unoccupied – as an indication of the situation in the housing market in the area concerned. The CESR went on to recommend that dwellings that are used during the working week only by persons who are resident in another dwelling at their family place should be considered as part of (2.0) "Conventional dwellings with no usual residents at time of census" since the persons using the dwelling are not usual residents of the dwelling.

Though coverage of this topic was almost universal throughout the rest of the UNECE region, as noted above only four EECCA countries reported collecting this information in their census in the 2010 round (Table 19.3c). Of these four, only Azerbaijan and Moldova adopted the classification at both the recommended 1- and 2-digit level (along with a third of countries in the rest of the UNECE region) while Kazakhstan did so only at the 1-digit level. This time Belarus reported that the classification was not applicable, but had earlier reported that information on the topic was collected. It has been assumed therefore that, as with the Russian Federation above, some other classification was used instead, as was the case with a third of the other UNECE countries.

Table 19.3c
Compliance with recommended housing classifications: occupancy status

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	10	23	1	9	23	7	1	1
at both 1- and 2-digit level	15	35	2	13	33	9	0	4
at all three levels	4	9	0	4	10	3	0	1
Used other classification	14	33	1	13	33	3	8	2
All countries collecting the information	**43**	**100**	**4**	**39**	**100**	**22**	**9**	**8**

Type of ownership

This topic refers to: "…*the type of ownership of dwellings and not that of the land on which the dwelling stands*".

This is not necessarily the same as the topic 'tenure status of the household' described in Chapter 18, except in the case of an owner-occupied dwelling where the type of ownership and the tenure status will be the same. The classification (recommended in paragraph 639), optional at the two-digit level, was:

(1.0) Owner-occupied dwellings
(2.0) In co-operative ownership
(3.0) Rented dwellings
  (3.1) In private ownership
  (3.2) Owned by the local or central government and/or by non-profit organisations
  (3.3) Mixed ownership
(4.0) Other types of ownership

Coverage of this topic was almost universal throughout the UNECE region as a whole. However, although three of the seven EECCA countries (Azerbaijan, Kazakhstan and Moldova) used the classification at the optional 2-digit level, there was only one other (Armenia) that recognised the recommended 1-digit level. This compares with the 55 per cent of countries in the rest of the UNECE region that did so.

Both Belarus and Georgia reported using other classifications, as did over a quarter of the rest of the UNECE countries. This is another example of where a number of EU member states reported using the classification required by EU legislation.

Table 19.3d
Compliance with recommended housing classifications: type of ownership

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	23	49	1	22	55	11	4	7
at both 1- and 2-digit level	10	21	3	7	18	5	0	2
Used other classification	13	28	2	11	28	5	5	1
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**47**	**100**	**7**	**40**	**100**	**21**	**9**	**10**

Number of occupants

The number of occupants of a living quarter was defined (in paragraph 644) as being: "…*the number of people for whom the living quarter is the usual residence*".

Even though this is a core topic no specific classification was recommended, but the CESR noted that a classification of the total number of living quarters according to the type (occupied conventional dwellings, other housing units and collective living quarters) and the number of occupants should be included (that is, dwellings with one person, two persons, etc.) in order that the average number of occupants for each type of living quarter be derived. The UNECE survey did not specifically cover this topic and thus there is no analysis of the extent of compliance with the topic generally.

Useful floor space

This topic was recommended for inclusion in the census so that a measure of density standard in conventional dwellings can be derived. The CESR definition is set out above. The classification (recommended in paragraph 647) is:

(1.0) Under 30 square metres
(2.0) 30 and less than 40 square metres
(3.0) 40 and less than 50 square metres
(4.0) 50 and less than 60 square metres
(5.0) 60 and less than 80 square metres
(6.0) 80 and less than 100 square metres
(7.0) 100 and less than 120 square metres
(8.0) 120 and less than 150 square metres
(9.0) 150 square metres and over

Only two thirds of countries throughout the rest of the UNECE region adopted the CESR classification – almost all of those not doing so used the classification required by EU legislation. In comparison, five of the seven EECCA countries that collected this information did so, with the Russian Federation and Tajikistan being the exceptions. (Once again, Russia's actual response to the survey was treated as an 'other classification' as for previous topics, and Tajikistan did not respond.)

Table 19.3e
Compliance with recommended housing classifications: useful floor space

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR	28	68	5	23	68	13	4	6
Used other classification	12	29	1	11	32	4	5	2
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**41**	**100**	**7**	**34**	**100**	**17**	**9**	**8**

Number of rooms

This topic was recommended as being an alternative (or additional) means of measuring size of the living accommodation. The definition of what constitutes a 'room' for this purpose is given above, but no specific classification was recommended in the CESR.

Density standard

By using the information on either 'useful floor space' or 'number of rooms' as defined above, a derived measure of 'density standard' was recommended as a further core variable in the 2010 round. Consequently, two possible classifications were recommended (in paragraphs 653 and 654 of the CESR):

Using useful floor space:

(1.0) Under 10 square metres per occupant
(2.0) 10 and less than 15 square metres per occupant
(3.0) 15 and less than 20 square metres per occupant
(4.0) 20 and less than 30 square metres per occupant
(5.0) 30 and less than 40 square metres per occupant

(6.0) 40 and less than 60 square metres per occupant
(7.0) 60 and less than 80 square metres per occupant
(8.0) 80 square metres and over per occupant

Using number of rooms:

(1.0) Less than 0.5 room per occupant
(2.0) 0.5 and less than 1.0 room per occupant
(3.0) 1.0 and less than 1.25 rooms per occupant
(4.0) 1.25 and less than 1.5 rooms per occupant
(5.0) 1.5 and less than 2 rooms per occupant
(6.0) 2 and less than 2.5 rooms per occupant
(7.0) 2.5 and less than 3 rooms per occupant
(8.0) 3 or more rooms per occupant.

The UNECE survey thus included a question to determine if and how density standard was derived. Interestingly enough, bearing in mind the less than universal coverage in response to the enquiries about the measurement of floor space, all countries in the UNECE region, including the nine EECCA countries responded. Their responses showed that it was more common to derive a density standard by using information on useful floor space. Some 40 countries (83 per cent) did so while only 29 (60 per cent) used number of rooms (see Table 19.4). This is perhaps surprising considering that the number of countries collecting information on number of rooms throughout the UNECE region was slightly higher (45) than the number of countries collecting useful floor space (41). Both topics were included by 38 countries but only 22 of them also derived both density standard measures.

In the EECCA region the situation was similar but more clear cut. Although eight of the countries collected information on number of rooms while only seven did so for useful floor space (Armenia did not), it was those latter seven that reported only using floor space for determining density standard. No EECCA country chose to derive a density standard from the number of rooms, but Armenia reported that it used some other means of doing so.

In all, only two countries throughout the whole of the UNECE region reported that they did not derive density standard from the information collected on either the number of rooms or the useful floor space. However, the survey did not enquire specifically into the extent in which countries adopted either of the CESR density standard classifications as it was assumed that the level of compliance for those that did so would be much the same as for the adoption of the respective classifications of useful floor space and/or number of rooms.

Table 19.4
How density standard was derived

Method	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Based on useful floor space	40	83	7	33	82	16	8	9
Based on number of rooms	29	60	0	29	72	17	7	5
Other method	2	4	1	1	2	1	0	0
All countries deriving the information	**48**	**100**	**8**	**40**	**100**	**21**	**9**	**10**

Water supply system

The CESR recommended that countries should collect information on the water supply system in occupied conventional dwellings and other housing units. The classification recommended in paragraph 660 was:

(1.0) Piped water in the housing unit
  (1.1) From a community scheme
  (1.2) From a private source
(2.0) No piped water in the housing unit
  (2.1) Piped water available within the building but outside the housing unit
    (2.1.1) From a community scheme
    (2.1.2) From a private source
  (2.2) Piped water available outside the building
    (2.2.1) From a community scheme
    (2.2.2) From a private source
  (2.3) No piped water available

Classification being optional at the 2- and 3-digit level.

Three of the eight EECCA countries that collected information on water supply only adopted the recommended classification at the 1-digit level (Armenia, Belarus and Kazakhstan), whereas more than half the countries in the rest of the UNECE region did so (Table 19.5a). Not surprisingly fewer countries went on to classify at the optional, 2-digit level; only Azerbaijan and Moldova did so within the EECCA region, as did only four other traditional census countries elsewhere. No EECCA countries used the more detailed classification at the 3-digit level, and only three countries in the rest of the UNECE region did so.

Once again the response from the Russian Federation (and Georgia on this occasion) was at variance with earlier responses, and it is assumed that some other classification was adopted in both cases. Tajikistan did not respond.

Table 19.5a
Compliance with recommended housing classifications: water supply system

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	21	54	3	18	58	9	4	5
at both 1- and 2-digit level	6	15	2	4	13	4	0	0
at all three levels	3	8	0	3	10	2	0	1
Used other classification	8	21	2	6	19	2	4	0
No response	1	3	1	0	0	0	0	0
All countries collecting the information	**39**	**100**	**8**	**31**	**100**	**17**	**8**	**6**

Availability of toilet facilities

19.3 The CESR recommended that countries should collect information on the availability of toilet facilities within occupied conventional dwellings and other housing units. The classification recommended in paragraph 664 was:

(1.0) Flush toilet in the housing unit
(2.0) No Flush toilet in the housing unit
- (2.1) Toilet of other type in the housing unit
- (2.2) Flush toilet available within the building but outside the housing unit
  - (2.2.1) Private (i.e. for the exclusive use of the occupants of the housing unit)
  - (2.2.2) Shared (i.e. shared with occupants of another housing unit)
- (2.3) Flush toilet available outside the building
  - (2.3.1) Private
  - (2.3.2) Shared
- (2.4) Toilet of other type within the building but outside the housing unit
  - (2.4.1) Private
  - (2.4.2) Shared
- (2.5) Toilet of other type outside the building
  - (2.5.1) Private
  - (2.5.2) Shared

Classification being optional at the 2- and 3-digit level.

The responses to the survey showed, generally, a very similar pattern of adoption of the CESR classification to that for water supply. Three of the seven EECCA countries that collected information on the availability of toilet facilities only adopted the recommended classification at the 1-digit level – but not all the same countries that did so for water supply (Armenia, Kazakhstan and Moldova), whereas almost two thirds of the countries in the rest of the UNECE region did so (Table 19.5b). Again, not surprisingly, fewer countries went on to classify at the optional, 2-digit level; only Azerbaijan did so within the EECCA region, as did only two other traditional census countries elsewhere. No EECCA country used the more detailed classification at the 3-digit level, and only two countries in the rest of the UNECE region did so.

Once again the responses from the Russian Federation and Georgia were at variance with earlier responses, and it is assumed, as before, that some other classification was adopted in both cases. Tajikistan did not respond.

Table 19.5b
Compliance with recommended housing classifications: toilet facilities

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	25	61	3	22	65	12	4	6
at both 1- and 2-digit level	3	7	1	2	6	2	0	0
at all three levels	2	5	0	5	6	2	0	0
Used other classification	10	24	2	8	24	4	4	0
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**41**	**100**	**7**	**34**	**100**	**19**	**8**	**8**

Availability of bathing facilities

The CESR recommended that countries should collect information on the availability of bathing facilities within occupied conventional dwellings and other housing units. The classification recommended in paragraph 667 was:

(1.0) Fixed bath or shower in the housing unit
(2.0) No fixed bath or shower in the housing unit
  (2.1) Fixed bath or shower available within the building but outside the housing unit
    (2.1.1) Private
    (2.1.2) Shared
  (2.2) Fixed bath or shower available outside the building
    (2.2.1) Private
    (2.2.2) Shared
  (2.3) No fixed bath or shower available

Classification being optional at the 2- and 3-digit level.

Half of the EECCA countries that collected information on the availability of bathing facilities only adopted the recommended classification at the 1-digit level (Armenia, Belarus, Kazakhstan and Moldova), and two thirds of the countries in the rest of the UNECE region did so (Table 19.5c).

Use of the optional 2-digit classification followed the pattern of toilet facilities; only Azerbaijan adopted the recommendation within the EECCA region, and only two other traditional census countries did so elsewhere. Again, no EECCA country used the more detailed classification at the 3-digit level, and only one country throughout the whole of the UNECE region did so. The responses from the Russian Federation and Georgia are reported as before as 'other' classifications, in company with a quarter of the countries from the rest of the UNECE region, most of whom would have adopted the classification required by EU legislation.

Table 19.5c
Compliance with recommended housing classifications: bathing facilities

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	27	63	4	23	66	13	4	6
at both 1- and 2-digit level	3	7	1	2	6	2	0	0
at all three levels	1	2	0	1	3	0	0	1
Used other classification	11	26	2	9	26	4	5	0
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**43**	**100**	**8**	**35**	**100**	**19**	**9**	**7**

Type of heating

The CESR recommended that countries should collect information on the type of heating used within occupied conventional dwellings and other housing units. The classification recommended in paragraph 679 was:

(1.0) Central heating
- (1.1) Central heating from an installation in the building or in the housing unit
- (1.2) Central heating from a community heating centre

(2.0) No central heating
- (2.1) Heating facilities or equipment available in the occupied conventional dwelling/other housing unit
  - (2.1.1) Stove
  - (2.1.2) Fireplace
  - (2.1.3) Portable electric heater
  - (2.1.4) Other
- (2.2) No heating at all

Classification being optional at the 2- and 3-digit level.

Overall, the level of compliance with this classification was high, the second highest of all the core topics. Six of the eight EECCA countries adopted the classification at either the 1- or 2-digit level, as did two thirds of the rest of the UNECE countries (Table 19.5d). The Russian Federation and Tajikistan were the only EECCA countries that did not report doing so.

Once again, proportionately high level of use of other classification reflects the adherence to the prescribed classification required of EU member states.

Table 19.5d
Compliance with recommended housing classifications: type of heating

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	22	48	4	18	47	8	4	6
at both 1- and 2-digit level	10	22	2	8	21	7	0	1
at all three levels	2	4	0	2	5	1	0	1
Used other classification	11	24	1	10	26	4	5	1
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**46**	**100**	**8**	**38**	**100**	**20**	**9**	**9**

Type of building

The CESR recommended that dwellings should be classified by the type of building in which they are located, with the classification (recommended in paragraph 701) being:

(1.0) Residential buildings
- (1.1) Detached house (houses not attached to any other buildings)
  - (1.1.1) Detached houses with one dwelling
  - (1.1.2) Detached houses with two dwellings (with one above the other)
- (1.2) Semi-detached house (two attached dwellings)
- (1.3) Row (or terraced) house (at least three attached or connected dwellings each with separate access to the outside)
- (1.4) Apartment buildings
  - (1.4.1) Apartment buildings with three to nine dwellings
  - (1.4.2) Apartment buildings with 10 or more dwellings
- (1.5) Other residential buildings

(2.0) Non-residential buildings

Although the CESR did not specifically indicate which levels of the classification were recommended as being core or optional, it was intended that the same criterion as for the preceding topics should apply. It is not believed that this affected the level of compliance, but it is noted from Table 19.2 that only five EECCA countries collected this information on building type, and only three (Armenia, Kazakhstan and Moldova) adopted the recommended classification (of which only Moldova went down to the 2-digit level) compared with the quarter of countries throughout the rest of the UNECE region (Table 19.5e). Moreover (and perhaps somewhat contradictory) much higher proportions of countries in the rest of the UNECE region used the classification at the 3-digit level (16 per cent) or some other classification (more than a third) than did so for any other core topic.

Table 19.5e
Compliance with recommended housing classifications: type of building

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	11	26	2	9	24	9	0	0
at both 1- and 2-digit level	10	23	1	9	24	7	1	1
at all three levels	6	14	0	6	16	3	1	2
Used other classification	16	37	2	14	37	3	7	4
All countries collecting the information	**43**	**100**	**5**	**38**	**100**	**22**	**9**	**7**

Period of construction of dwelling

This topic refers to the date when the building in which the dwelling is located was completed. The CESR recommended that information should be collected on all dwellings but that the census should report separately on occupied conventional dwellings. The classification (recommended in paragraph 705), optional at the two-digit level, was:

(1.0) Before 1919
(2.0) 1919–1945
(3.0) 1946–1960
(4.0) 1961–1970
(5.0) 1971–1980
(6.0) 1981–1990
(7.0) 1991–2000
(8.0) 2001–2005
(9.0) 2006 or later
  (9.1) 2006
  (9.2) 2007
  (9.3) 2008
  (9.4) 2009
  (9.5) 2010
  (9.6) 2011

Again, only three EECCA countries reported adopting this classification (Armenia, Belarus and Moldova this time) but only at the 1-digit level. No EECCA county used the full classification in the way that over a quarter of those throughout the rest of the UNECE region did (Table 19.5f).

But this time three EECCA countries (the regulars, Georgia and the Russian Federation together with Kazakhstan) responded to the survey by reporting that the classification was not applicable though they each collected information on period of construction. There seems, clearly, to have been some confusion on the part of some of the responding EECCA countries on these survey questions. Such responses, as has already been noted, have been interpreted here as 'other' classifications.

Table 19.5f
Compliance with recommended housing classifications: period of construction of dwelling

Compliance with classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Compliant with CESR								
at 1-digit level only	19	40	3	16	40	10	1	5
at both 1- and 2-digit level	11	23	0	11	28	6	3	2
Used other classification	16	34	3	13	32	5	5	3
No response	1	2	1	0	0	0	0	0
All countries collecting the information	**47**	**100**	**7**	**40**	**100**	**21**	**9**	**10**

Summary of results on the core topic classifications

Overall, the large majority of countries in the rest of the UNECE region (ranging from 64 per cent for the topic 'type of building' to 81 per cent for 'water supply system') used a classification that was compliant with the CES Recommendations at either the 1-, 2- or 3-digit level, while a relatively smaller proportion (ranging from 19 per cent for 'water supply system' to 28 per cent for 'occupancy status') used the EU classification which was somewhat different from the classification given in the CESR. The results show clearly that the majority of these countries have adopted the classifications only at the recommended levels (generally one digit), and only a small number of countries adopted the more detailed (two or three digits) optional levels.

In comparison the pattern of compliance among the EECCA countries was a little different and less consistent, (though a true comparison is hard to make because of the fewer number of countries involved). Here, the level of compliance ranged from less than a third (three of out of seven) for 'period of construction' to three quarters (six out of eight) for 'housing arrangements' and 'type of heating'. As noted above the pattern of reported non-compliance may have been affected by some confusion about the survey questions among some EECCA countries.

Type of ownership and tenure status of household

It has already been noted above that there is some overlap in terminology between the housing-related topic of 'type of ownership' and the household-related topic of 'tenure status' (covered in Chapter 18). The UNECE survey thus specifically enquired into whether or not countries attempted to distinguish between the two concepts by collecting information on both separately.

Despite their failure to respond to the previous housing-related survey questions Kyrgyzstan and Tajikistan were among four EECCA countries (the other two were Kazakhstan and Moldova) who reported that they included separate questions or collected separate information on type of ownership and tenure status of household. This is a slightly greater proportion than the 39 per cent of countries throughout the rest of the UNECE that did so.

Conversely, while the majority of the rest of the UNECE countries used the same question (or the same source of data for those register-based censuses) – 58 per cent did so – only two EECCA countries (Azerbaijan and Georgia) reported that they adopted this strategy. The other three EECCA countries reported that they adopted other means of collecting or deriving the information.

Inclusion of non-core housing topics in the census

The CES Recommendations also refer to 16 other housing characteristics that are identified as non-core. In the survey the respondents were asked to report on any such topics that they included in their census, and, for each included, if they used the classification recommended by the CES (making no distinction between the different digit levels adopted where these were relevant).

In looking at the results of the survey it will be helpful to see how the CES Recommendations defined and classified these non-core topics. This information is presented below, following the order of presentation of the topics in the CES Recommendations. However, the extent of the inclusion of each topic and the compliance with the CESR classification are set out in Table 19.6 ranked by the total number of countries including the topic in the census. It should again be noted here that Kyrgyzstan is the only country that did not respond to this section of the survey and has thus been excluded from the analysis. However, not all of the other 49 countries provided information on all topics. Where there was non-response for a particular topic this is indicated in the table.

Occupancy by number of private households

More commonly referred to as 'multi-occupancy', this topic relates to the occupancy of a housing unit by more than one household as defined by the 'housekeeping concept' described in Chapter 18. The classification of housing units by single or shared occupancy (as recommended in paragraph 643 of the CESR) was simply:

(1.0) Housing units occupied by a single household
(2.0) Housing units occupied by two households
(3.0) Housing units occupied by three or more households

From Table 19.6 it can be noted that half of the responding EECCA countries (Azerbaijan, Belarus, Georgia and Moldova) included the topics in their censuses – a similar proportion to those countries in the rest of the UNECE region. All of these adopted the CESR classification as did all but one of the rest.

Type of rooms

The CESR recognised (in paragraph 656) that:

"*…some countries might wish to provide more specific information on overcrowding within housing units than is measured by density standard by providing information on the number of certain types of rooms within housing units*".

In particular it was noted that some countries consider that the number of bedrooms provides a more accurate indicator of overcrowding, especially where overcrowding is defined nationally by number of bedrooms and age, sex and relationships of members within the household. However, the CESR recommended that a room that is used as a household living space should not be counted as a bedroom. A count of the following categories of rooms for housing units was recommended:

(1.0) Reception and living rooms
(2.0) Bedrooms

Surprisingly, perhaps, only eight countries throughout the whole of the UNECE region (16 per cent) attempted to categorise rooms in any way, and only Kazakhstan within the EECCA region did so. It adopted the CESR classification.

Availability of hot water

This topic is much aligned with the core topic on the availability of bathing facilities, and the CESR recommended (in paragraph 670) a similar classification:

(1.0) Hot water tap in the housing unit
(2.0) No hot water tap in the housing unit
  (2.1) Hot water tap available within the building but outside the housing unit
  (2.2) Hot water tap available outside the building.
  (2.3) No hot water tap available

The profile of the inclusion of this topic in the census was very similar among the EECCA countries, seven of which reported that they included a question on the availability of hot water, but these were not all exactly the same seven that collected information on bathing facilities. For this topic Armenia was the exception; for bathing facilities it was Tajikistan.

In comparison, however, far fewer countries in the rest of the UNECE region collected information on this topic – not so surprising perhaps given its non-core status. Only 44 per cent of countries collected this information compared with the 85 per cent that did so for bathing facilities. Of these, two thirds adopted the CESR classification compared with the 54 per cent that did so for the recommended classification for bathing facilities.

Table 19.6
Inclusion of non-core housing topics and compliance with CESR classifications

Non-core housing type and whether or not compliant with CESR classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Main type of energy used for heating								
Included in census	29	59	3	26	63	18	5	3
Compliant with classification	23	47	2	21	51	17	3	1
Not compliant	5	10	0	5	12	1	2	2
No response to question	1	2	1	0	0	0	0	0
Not included	16	32	3	13	31	3	5	5
No response to topic	4	8	2	2	5	1	0	1
Availability of a kitchen								
Included in census	26	53	3	23	56	13	5	5
Compliant with classification	20	41	3	17	41	11	3	3
Not compliant	6	12	0	6	15	2	2	2
Not included	22	45	4	18	44	9	4	5
No response to topic	1	2	1	0	0	0	0	0
Availability of hot water								
Included in census	25	51	7	18	44	10	2	6
Compliant with classification	15	31	5	10	24	7	1	2
Not compliant	9	18	1	8	20	3	1	4
Not included	1	2	1	0	0	0	0	0
No response to topic	24	49	1	23	56	22	7	4
Multi-occupancy								
Included in census	23	46	4	19	46	14	1	4
Compliant with classification	22	45	4	18	43	14	1	3
Not compliant	0	0	0	0	0	0	0	0
No response to question	1	2	0	1	2	0	0	1
Not included	25	52	3	22	54	8	8	6
No response to topic	1	2	1	0	0	0	0	0
Type of sewage disposal system								
Included in census	22	45	6	16	39	11	2	3
Compliant with classification	15	31	3	12	29	10	1	1
Not compliant	5	10	1	4	8	1	1	2
No response to question	2	4	2	0	0	0	0	0
Not included	26	53	1	25	61	11	7	7
No response to topic	1	2	1	0	0	0	0	0
Type of sewage disposal system								
Included in census	22	45	2	20	49	13	4	3
Compliant with classification	17	35	0	17	41	12	4	1
Not compliant	2	4	0	2	5	0	0	2
No response to question	3	6	2	1	2	1	0	0
Not included	26	53	5	21	51	9	5	7
No response to topic	1	2	1	0	0	0	0	0

Table 19.6
Inclusion of non-core housing topics and compliance with CESR classifications *(continued)*

Non-core housing type and whether or not compliant with CESR classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Availability of electricity								
Included in census	19	39	6	13	32	10	2	1
Compliant with classification	15	31	4	11	27	9	2	0
Not compliant	2	4	0	5	5	1	0	1
No response to question	2	4	2	0	0	0	0	0
Not included	30	61	2	28	68	12	7	9
Availability of piped gas								
Included in census	19	39	7	12	29	10	0	2
Compliant with classification	14	29	5	9	22	9	0	0
Not compliant	3	6	0	3	7	1	0	2
No response to question	2	4	2	0	0	0	0	0
Not included	30	61	1	29	71	12	9	8
Building construction materials								
Included in census	18	37	5	13	32	10	3	0
Compliant with classification	13	27	4	9	22	8	1	0
Not compliant	3	6	0	3	7	1	2	0
No response to question	2	4	1	1	2	1	0	0
Not included	31	63	3	28	68	12	6	10
Position within the building								
Included in census	15	31	0	15	37	11	2	2
Compliant with classification	12	24	0	12	29	10	1	1
Not compliant	2	4	0	2	5	0	1	1
No response to question	1	2	0	1	2	1	0	0
Not included	33	67	7	26	63	11	7	8
No response to topic	1	2	1	0	0	0	0	0
Presence of a working lift								
Included in census	12	24	1	11	27	7	3	1
Not included	36	73	6	30	73	15	6	9
No response to topic	1	2	1	0	0	0	0	0
Availability of air conditioning								
Included in census	11	22	0	11	27	10	0	1
Compliant with classification	10	20	0	10	24	10	0	0
Not compliant	1	2	0	1	2	0	0	1
Not included	37	76	7	30	73	12	9	9
No response to topic	1	2	1	0	0	0	0	0

Table 19.6
Inclusion of non-core housing topics and compliance with CESR classifications *(continued)*

Non-core housing type and whether or not compliant with CESR classification	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Type of rooms								
Included in census	8	16	1	7	17	6	0	1
Compliant with classification	5	10	1	4	10	3	0	1
Not compliant	3	6	0	3	7	3	0	0
Not included	41	84	7	34	83	16	9	9
State of repair								
Included in census	7	14	0	7	17	6	0	1
Compliant with classification	5	10	0	5	12	4	0	1
Not compliant	2	4	0	2	5	2	0	0
Not included	41	84	7	34	83	16	9	9
No response to topic	1	2	1	0	0	0	0	0
Cooking facilities								
Included in census	6	12	0	6	15	6	0	0
Not included	42	86	7	35	85	16	9	10
No response to topic	1	2	1	0	0	0	0	0
Accessibility to the dwelling								
Included in census	4	8	0	4	10	3	0	1
Compliant with classification	2	4	0	2	5	2	0	0
Not compliant	2	4	0	2	5	1	0	1
Not included	44	90	7	37	90	19	9	9
No response to topic	1	2	1	0	0	0	0	0
Total countries	**49**	**100**	**8**	**41**	**100**	**22**	**9**	10

* Kyrgyzstan did not respond

Type of sewage disposal system

With reference to this topic the CESR suggested (in paragraph 671) that:

"*It is preferable that all countries collect information on the type of sewage disposal system in occupied conventional dwellings and report it separately*", and went on to recommend that: "*...countries which use the building as a unit of enumeration or of data collection collect information on the type of sewage disposal system to which the building containing the housing unit is connected, and to cross-classify housing units by type of toilet facilities at the one-digit level and type of sewage disposal system*"

and referred to the following recommended classification:

(1.0) Wastewater empties into a piped system connected to a public sewage disposal plant
(2.0) Wastewater empties into a piped system connected to a private sewage disposal plant (for example a septic tank built for a single housing unit or a small group of dwellings)
(3.0) All other arrangements (for example waste water empties into an open ditch, a pit, a cesspool, a river, the sea, etc.)
(4.0) No sewage disposal system

Information was collected in only 16 countries throughout the rest of the UNECE region (just over a third), but in 6 of the 7 reporting EECCA countries (Georgia was the exception), half of which used the recommended classification whereas three quarters did so elsewhere. Kazakhstan did not respond to this topic.

Availability of a kitchen

The CESR suggested (in paragraph 673) that:

"…*where occupied conventional dwellings are classified by number of rooms they should also be classified by availability of a kitchen*", where a 'kitchen' or 'kitchenette' was defined as "… *a room (or part of a room) of at least 4 square metres or two metres wide that has been designed and equipped for the preparation of the principal meals and is used for that purpose, irrespective of whether it is also used for eating, sleeping or living*.

The recommended classification of dwellings is:

(1.0) With a kitchen
(2.0) With a kitchenette (that is a separate space with less than 4 square metres or two metres width of floor space)
(3.0) Without a kitchen or kitchenette
(4.0) Cooking facilities are provided in another type of room

Three countries in the EECCA region collected this information (Azerbaijan, Moldova and the Russian Federation), compared with more than half that did so in the rest of the UNECE region. All three reported using the CESR classification. Again, Kazakhstan did not respond to this topic.

Cooking facilities

The CESR noted (in paragraph 677) that the reference to a 'kitchen' or 'kitchenette' in the previous topics referred only to its *availability* in the dwelling. The Recommendations went to suggest, however, that in addition:

"…*some countries may wish to know what kind of equipment is used for cooking (for example: stove, hot plate, fireplace, etc.), what other kinds of equipment are available (such as a sink), and whether electricity, gas, oil, coal, wood or some other fuel is used for cooking. Some of these items would relate to the dwelling and others to the household*".

Only six UNECE countries (all with traditional censuses) wanted to know this information and collected relevant data – the second lowest level of adoption of any of the non-core housing topics. None were in the EECCA region. Kazakhstan did not respond to this topic. There was no classification recommended that related to the type of information that should be collected.

Main type of energy used for heating

In addition to the core topic 'type of heating' described above, the CESR suggested that some countries might also wish to collect information on the main type of energy used specifically for heating purposes. The following 2-digit classification (recommended in paragraph 682), referred to occupied conventional dwellings:

(1.0) Solid fuels
  (1.1) Coal, lignite and products of coal and lignite
  (1.2) Wood and other renewable wood-based products
  (1.3) Other
(2.0) Oil

(3.0) Gaseous fuels
  (3.1) Natural gas
  (3.2) Other (including liquefied gases)
(4.0) Electricity
(5.0) Other types of energy used
  (5.1) Solar energy
  (5.2) Wind energy
  (5.3) Geothermal energy
  (5.4) Other

This was the non-core housing topic most commonly included in the 2010 round of census; some 29 countries overall (59 per cent) did so, but only three of the responding countries in the EECCA region (Azerbaijan, Moldova and Tajikistan). Of these the first two reported that they adopted the CESR classification (but not necessarily at the 2-digit level), while Tajikistan did not indicate what classification it used. For this topic neither Armenia nor Kazakhstan responded.

The inclusion of topics relating to the general availability in the housing unit of particular energy sources was also recommended. These covered:

Electricity for which the recommended classification (in paragraph 685 of the CESR) was simply:

(1.0) Electricity available in the housing unit
(2.0) No electricity available in the housing unit

and

Piped gas defined (in paragraph 686 of the CESR) as: *"...natural or manufactured gas which is distributed by pipeline and the consumption of which is recorded by gas meters" and* for which the recommended classification (in paragraph 687 of the CESR) was:

(1.0) Piped gas available in the housing unit
  (1.1) For heating purposes
  (1.2) For cooking purposes
(2.0) No piped gas available in the housing unit

The pattern of inclusion for each of these topics was very similar. Within the EECCA region, six countries collected information on the availability of electricity (only Armenia and Belarus did not) of which four countries reported that they adopted the CESR classification with Georgia and Tajikistan not responding to this part of the survey question. This extent of compliance was much higher than for countries within the rest of the UNECE region where only a third reported the collection of information on the availability of electricity though almost all of these adopted the recommended classification.

All the six EECCA counties that included a question on electricity, also collected information on the availability of piped gas, plus Belarus; thus only Armenia did not collect information on either. Five of the seven adopted the CESR classification; again neither Georgia nor Tajikistan reported whether they did or not. The pattern of compliance for countries throughout the rest of the UNECE region was very similar to that for availability of electricity, but it was particularly noticeable that no country with a register-based census was able to collect this information.

Availability of air conditioning

The CESR suggested (in paragraph 688) that some countries might wish to record the availability of air-conditioning as a housing quality measure, but noted that the use and importance of this topic as a housing quality measure was likely to vary across countries. Some 11 countries collected this information, (again no register-based census did) and all but one of these adopted the basic recommended classification:

(1.0) Air-conditioning available in the housing unit

(1.1) Central air-conditioning from an installation in the building or in the housing unit
(1.2) Independent air-conditioning unit(s) available in the housing unit
(2.0) No air-conditioning available in the housing unit

However, no EECCA country included this topic in its census on the 2010 round.

Accessibility to the dwelling

The CESR also suggested that some countries might wish to collect the sort of information that could be used as an indicator of *accessibility* to the dwelling, with respect, in particular, to people with disabilities. Three topics were recommended:

Position of the dwelling within the building, for which the recommended classification was:

(1.0) Dwellings on one floor only
(1.1) Dwelling on the ground floor of the building or lower (below ground level)
(1.2) Dwelling on the 1st or 2nd floor of the building
(1.3) Dwelling on the 3rd or 4th floor of the building
(1.4) Dwelling on the 5th floor of the building or higher
(2.0) Dwellings on two or more floors
(2.1) Dwelling on the ground floor of the building or lower (below ground level)
(2.2) Dwelling on the 1st or 2nd floor of the building
(2.3) Dwelling on the 3rd or 4th floor of the building
(2.4) Dwelling on the 5th floor of the building or higher

with the additional proviso that for dwellings extending over two or more floors, information should be provided with reference to the lowest floor level of the dwelling.

Accessibility to the dwelling, for which the recommended classification was:

(1.0) Access with no steps or ramp
(2.0) Access by ramp
(3.0) Access by disabled stair lift
(4.0) Access using lift only (though the building may have staircases as well)
(5.0) Access by using only steps
(6.0) Access only by using both lift and steps

with the note that information on more than one means of access should be recorded.

Presence of a working lift, the concept of which was clarified in paragraph 695 of the CESR, which noted:

> *"It is suggested that information on the presence of a working lift in multi-storey buildings be collected. Countries collecting this information should report it separately for occupied conventional dwellings. The information should not be limited to the presence of a lift, but it should be indicated if the lift is operational for most of the time and is subject to regular maintenance. It could also be useful to collect information on the size of the lift (for the handicapped persons and ambulance transport), and if the lift goes to the ground floor."*

Though the extent of take-up of these three related topics varied across the UNECE region as a whole, the pattern among EECCA countries was consistent. Information on the 'position of the dwelling' was collected by over a third of countries (15) throughout the rest of the UNECE region, of which the majority adopted the recommended classification, but no EECCA country collected this information. In contrast, only four countries in total attempted to collect information on 'accessibility to the dwelling' (the lowest ranking non-core housing topic). Again, none of these were in the EECCA region.

The extent of information collected on 'presence of a working lift' fell between the levels of the other two accessibility topics. Tajikistan reported that it collected this information (the only EECCA country to collect any information on accessibility) together with 11 other countries in the rest of the UNECE region. Though no specific classification for the 'lift' topic was set out in the CESR, 10 of these countries reported in the survey that they had complied with the recommendations (not shown in Table 19.6). This might, instead, have meant that the criteria set out in paragraph 695 had been taken into consideration.

Characteristics of the buildings containing the dwellings

A number of non-core topics related to the characteristics of the buildings containing the dwellings, rather than those of the dwellings themselves, were recommended. These covered:

Number of floors in the building

For this topic the following classification (in paragraph 710 of the CESR) was recommended:

(1.0) 1 floor
(2.0) 2 floors
(3.0) 3 floors
(4.0) 4 floors
(5.0) 5–9 floors
(6.0) 10–19 floors
(7.0) 20 floors or more

Some 20 countries in the rest of the UNECE region (half of them) collected this information, compared with only a quarter of the responding EECCA countries. Georgia and Tajikistan were the only ones to do so. Most of the countries (17) used a classification that was compliant with the CESR but neither of the two EECCA countries reported doing so.

Building construction materials

The CESR suggested (in paragraph 712) that:

"*…information on the materials of which specific parts of buildings containing dwellings are constructed may be used, in conjunction with data on other topics, for assessing the quality of dwellings*".

The CES Recommendations went on to suggest that some countries might wish to collect data on the materials of which the outer walls, the roof, the floors, etc. are constructed for this and other purposes, and recommended the following classification referring specifically to the material of which the outer wall is constructed:

(1.0) Wood
(2.0) Unburnt clay (may be omitted by countries where this is not important)
(3.0) Burnt clay (bricks, blocks, panels, etc.), stone, concrete (in situ cast concrete, blocks, panels, etc.), or steel frame
(4.0) Prefabricated units – generally factory constructed and brought to the site and erected
(5.0) Other material (to be specified)
(6.0) Mixed materials (that is a combination of building materials)

Information on this topic was collected by 13 countries across the rest of UNECE region (a third) of whom three quarters adopted the recommended classification. The level of compliance was proportionately higher within the EECCA region, where more than half of the countries (Armenia, Azerbaijan, Kazakhstan, the Russian Federation and Tajikistan) included a question in the census, of whom all but Tajikistan reported adopting the CESR classification.

State of repair of the building

This refers to whether or not the building (rather than the dwelling itself) is in need of repair and the extent of repair needed. The recommended classification (in paragraph 715 of the CESR) was:

(1.0) Repair not needed
(2.0) In need of repair
  (2.1) Minor repair
  (2.2) Moderate repair
  (2.3) Serious repair
(3.0) Irreparable

In acknowledgement of the rather subjective nature of the topic the CESR went on to define (in paragraphs 716-719) what constituted the different level of repair and irreparability to which the classification referred.

Only seven countries throughout the whole of the UNECE region collected this information; none of the EECCA countries did so.

Overview of the non-core topics in the EECCA region

A summary of the analysis of the survey results (as set out in detail in Table 19.6) is given in Table 19.7 which shows those responding EECCA countries that included a question on each of the 16 non-core housing topics in the 2010 round of censuses ranked by percentage compliance for those countries in the rest of the UNECE region for comparison. The table shows that the level compliance with the inclusion of the recommended non-core topics within the EECCA ranged from a maximum of seven countries for the topics of the availability of hot water and piped gas to no countries at all for several of dwelling- and building-related topics.

For a number of the topics the proportion of EECCA countries including it in the census exceeded that in the rest of the UNECE region, such as availability of hot water and type of sewage disposal system for example, and particularly availability of piped gas for which all but one EECCA country collected information compared with just 29 per cent elsewhere. Information on the availability of electricity was also far more often collected in the EECCA region where three quarters of countries did so compared with only a third of countries elsewhere. On the other hand while 17 per cent of countries in the rest of the UNECE region collected information on state of repair of buildings and 15 per cent did so for cooking facilities, no EECCA country collected any such information at all.

Azerbaijan and Tajikistan reported collecting information on the most number of topics (eight out of the total number of 16) while Armenia collected information on only two.

Table 19.7
Inclusion of non-core housing topics, ranked by percentage of countries in the rest of the UNECE region including them in the 2010 round of censuses

Topic	Arm	Aze	Bel	Geo	Kaz	Mol	Rus	Taj	Total countries including topic	Percentage inclusion in rest of UNECE region
Type energy used for heating		x				x		x	3	63
Availability of a kitchen		x				x	x		3	56
Number of floors in the building				x				x	2	49
Multi-occupancy		x	x	x		x			4	46
Availability of hot water		x	x	x	x	x	x	x	7	44
Type of sewage disposal system	x	x	x			x	x	x	6	39
Position of dwelling in building									0	37
Availability of electricity		x		x	x	x	x	x	6	32
Building construction materials	x	x			x		x	x	5	32
Availability of piped gas		x	x	x	x	x	x	x	7	29
Presence of a working lift								x	1	27
Availability of air conditioning									0	27
Type of rooms					x				1	17
State of repair of building									0	17
Cooking facilities									0	15
Accessibility to the dwelling									0	10
Total topics included	2	8	4	5	5	7	6	8		

Housing characteristics of unoccupied dwellings (non-core)

The majority of topics in this chapter as described above relate to 'occupied conventional dwellings'. However, the CESR suggested that countries might have some interest in collecting information on at least some of the main characteristics of *all* conventional dwellings, regardless of their occupancy status. In the core topic 'Occupancy status of conventional dwellings' reported above, the number of all conventional dwellings includes seasonal, secondary and vacant dwellings. In addition to knowing this number the CESR therefore suggested that some countries might also wish to collect (or least attempt to collect) more information on *unoccupied* dwellings in order to be able to obtain a more complete picture of the entire national housing stock. Accordingly this non-core topic allows for the description of some of the features of unoccupied conventional dwellings.

The range of such features to be measured is, of course, dependent on the individual requirements of countries, but the UNECE survey enquired about the inclusion of a number of

particular core characteristics. These are shown in Table 19.8 ranked by the extent to which they are included in the census throughout the region generally.

Of the particular topics specifically identified in the survey question, information on even the lowest ranking was collected by a quarter of countries in the rest of the UNECE region, and by as many as 35 countries (85 per cent) for the location of the dwelling. In comparison, the extent of coverage of these topics for unoccupied dwellings in the EECCA region was less comprehensive. Period of construction and type of building was collected by just four each of the countries (Georgia, Kazakhstan Kyrgyzstan, and Moldova in both cases), while just two countries (Georgia and Moldova) collected information on both useful floor space and number of rooms compared, respectively, with almost two thirds and over a half of countries in the rest of the UNECE region.

Georgia reported collecting information on the most number of topics identified (all six), while four EECCA countries (Armenia, Azerbaijan, Belarus and the Russian Federation) reported collecting no such information at all, either because such information is not collected or because unoccupied dwellings are not covered in their censuses, or perhaps because they just did not respond to the survey question.

Results from the survey showed that a number of countries were able to assign other characteristics to unoccupied dwellings, ranging from the occasional one or two (such as water supply) to the whole package of housing topics where this was possible. However no EECCA country reported doing so.

Table 19.8
Collection of information on selected topics for unoccupied dwelling

Information collected	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Location of unoccupied dwelling	38	76	3	35	85	21	6	8
Period of construction	37	74	4	33	80	17	8	8
Type of building	37	74	4	33	80	18	8	7
Useful floor space	28	56	2	26	63	11	8	7
Number of rooms	25	50	2	23	56	11	6	6
Other characteristics	10	20	0	10	24	4	4	2
All countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

Other housing characteristics not covered in the CES Recommendations

Finally, some 15 of the countries throughout the UNECE region (30 per cent) reported that information was collected in their census on housing characteristics other than those specifically referred to in the CES Recommendations. However, none of the EECCA countries did so, and, therefore, no analysis is given here. Readers who are interested in seeing what sort of additional housing information was collected elsewhere should refer to the 2014 publication.

20. AGRICULTURE

Introduction

It may seem, at a first glance, to be somewhat strange to include the subject of 'agriculture' in a review of practices of population and housing in censuses, since this is clearly a subject that is normally covered extensively in agricultural censuses. However, the CESR for the 2010 round of censuses gave particular attention to two non-core topics that countries could consider for inclusion in their population census, in order to facilitate the preparation of a frame of agricultural holdings by the household for use in a subsequent agricultural census.

With the first topic, relevant at the *household level*, the information to be collected relates to whether or not any member of the household is 'engaged in own-account agricultural production activities' at their usual place of residence or elsewhere, and where such activities cover (a) the growing of crops, market gardening, and horticultures, or (b) the farming of animals, or (c) a combination of both. With the second topic, at the *individual person level*, the information is intended to identify those 'persons involved in agricultural activities' during a longer period, such as a year. These topics may, therefore, be considered as a particular extension of the enquiry into the economic characteristics of the population.

This chapter presents a brief review of how many countries in the EECCA region compared with the rest of the UNECE region collected information on agriculture in their population census of the 2010 round, and provides some information on national practices in this area[25].

Results from the UNECE survey

Information on agriculture at either the household or individual level was collected in the census by just over one quarter of the UNECE countries (14 out of 50 responding countries) (Table 20.1). Ten countries, including a third of those in the EECCA region (Armenia, Azerbaijan, and Georgia) collected information at household level (that is, relating to whether or not any household members were involved in own-account agricultural production).

Table 20.1
Collection of information on agriculture

Information collected	Total responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
At the household level	10	20	3	7	17	6	0	1
At the individual person level	4	8	0	4	10	1	1	2
No information collected	36	72	6	30	73	15	8	7
All countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

[25] The material in this chapter has been taken largely from the a paper prepared by Paolo Valente (UNECE) and submitted to the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

Armenia for example, collected information on:

- whether or not the household produces any crops on its land (including own garden, rented, or free) or is involved in the farming of animals for own consumption and/or sale;
- the size of agriculture land owned or rented by the household (regardless of whether it is utilized or not);
- number of livestock owned by the household; and
- any household involvement in fishing/aquaculture.

while Georgia on collected information on:

- the structure of the land;
- livestock and poultry; and
- agricultural equipment used by the household.

Information at the individual person level was collected by only four countries throughout the UNECE region but by none of the EECCA countries, although it should be noted that many countries may have collected similar information as part of the more general information collected on occupation (Chapter 11).

PART 3 LESSONS LEARNED AND PLANS FOR THE 2020 ROUND

21. INTRODUCTION

It is generally recognised that censuses of population and housing are never perfect, and that mistakes are made and/or poor practices followed. The value of making critical evaluations of the entire census process is that they not only help to assess the quality of the data but also enable the valuable lessons learned to be recorded in order to benefit the design and planning of subsequent census operations.

In order to inform the content of the Conference of European Statisticians' recommendations for the 2020 round of census, the UNECE survey asked countries to report on any key lessons learned that might benefit the wider international census community. This part of the publication highlights the key messages that came out of a number of countries' responses, and goes on to report on how these lessons learned are helping to shape the plans for the next round of censuses, particularly in those countries that are already advanced in making such plans.[26]

[26] The material in chapters 22-23 has been taken largely from a paper on field operations, legislation and lessons learned from the 2010 census round prepared by the UNECE Steering Group on Censuses, and partly from responses to the survey in respect of number of other specific topics reported by the Task Forces at the Joint UNECE-Eurostat Work Session on Population and Housing Censuses, held in Geneva from 30 September to 3 October 2013 (http://www.unece.org/stats/documents/2013.10.census1.html)

22. KEY LESSONS LEARNED

While there may be a great number of circumstances and situations experienced during the course of taking a census that are unique to each country, there are also many common experiences and hence similarities in the lessons learned throughout the EECCA countries and indeed, across the UNECE region as a whole. In reviewing the responses to the survey a number of common themes emerged. However, it should be noted here that the survey itself was quite challenging, in that it required countries to critically review their last census and succinctly describe those elements that went well and those that did not. For some countries, the results provided an early insight into how their next census might develop in the light of the lessons learned.

It is not the purpose, however, to note in any detail the responses to the survey in this publication. These have already been clearly set out in the 2014 publication. It will be sufficient here just to summarise those comments received from EECCA countries (though not all were at the time of the survey able to submit such comments) and to set these within the overall context of the key lessons learned from the 2010 round of censuses throughout the UNECE region.

A major theme to emerge is the need to review census methodologies, particularly among those countries that have continued to adopt a traditional approach involving an extensive field operation. Even among EECCA countries where this approach is well entrenched there is a need to review options in order to assess the use to of pre-existing administrative data held on registers in order to achieve cost and time efficiencies. Moreover, the increased use of technology has, in most cases, benefitted the census, and there is likely to be more dependence on new and developing technological solutions in the future, particularly in field operations where these continue to be undertaken. In particular, the use of the internet for both data collection and dissemination is replacing, or at least reducing, the need for paper in a traditional census.

But there are challenges as well as opportunities in adopting new methodologies and/or technologies for the first time. Both require time, testing, and trained staff to implement successfully. With each of the methodologies, there are trade-offs.

Keeping within budget, achieving better timeliness, improving data quality, and meeting an increasing demand for data, continue to be important considerations for census planning and implementation. These are all key factors in determining which census methodology and/or technologies countries will utilize in their next census.

This all must be balanced with the role of stakeholders, government, and the public. At a time of increasing public resistance, countries carrying out field enumerations must find ways to maintain response rates and continued support for census taking. Key to this is communications with stakeholder groups to ensure that the messages to the public about privacy, data confidentiality, and data protection are clear and accepted.

To illustrate these points a selection of some of the EECCA countries' written responses to the survey are given below.

Responses from EECCA (and other) countries

Armenia specifically recognised the need for "*the use of innovative technologies in all stages of future census processes, and for more time to be allocated for the necessary preparatory work*". Indeed, the importance (and value) of utilizing new and developing technologies (as noted in Chapter 3) is widely recognised in countries throughout the UNECE region (as it is worldwide). Cyprus, Latvia and Poland were among those other countries that also specifically referred to the use of technology for improving the quality, timeliness and dissemination of the Census data.

Armenia's reference to the allocation of more time for 'preparatory work' covers, of course, many pre-enumeration activities, and the importance of addressing many of these were specifically mentioned by several other countries. Such activities included, in particular, the need "*to improve training of field staff and to exert more control over their activities*" reported by Azerbaijan, and the importance of adopting strict criteria when appointing field staff (Serbia) and recruiting field staff

with good communication skills (Greece). Also, Tajikistan felt the need for "*more careful selection of temporary staff and increase the duration of their training*" while, at the same time, observing that "*increasing the duration of the census would reduce the number of temporary census staff*". More fundamentally Tajikistan also noted "*the need to select the optimal timing for the census taking account of the availability of skilled labour and weather conditions*".

The value of a good publicity campaign (as noted in Chapter 4) was reported by a number of countries. For example, Belarus noted that "*wide information publicity campaign had provided a high level of participation*", while Tajikistan reported that "*a more active publicity campaign improved public awareness*". Other countries also commented that they benefited from a 'more aggressive' campaign and the presence of census managers at public meetings (Romania). The need to reinforce census messages with good publicity and to work closely with local authorities and community groups in order to gain their support and acceptance of the results was also emphasised (United Kingdom). And two countries (Hungary and Ireland) particularly noted the role that social media can play in facilitating improved dialogue with the public and key stakeholders.

In an attempt to improve future response rates the Russian Federation recognised the need for compulsory participation in the census, while other countries also commented on various aspects of improving the public's perception of, and attitudes towards participating in, the census (Croatia, the Czech Republic, Romania and Slovakia, for example).

Belarus reported that "*The centralized approach to data processing had helped ensure the confidentiality of data, and improved the quality of the information. It had established a system to access the census database that allowed better promotion of the census results*", while Tajikistan noted that that "*the scanning of census forms had improved data quality*" and recognised "*the need to use IT and GIS in both data collection and dissemination*". The Russian Federation also acknowledged the need for the introduction of new IT methods for data collection.

Indeed, a wide range of improvements in data collection and processing were specifically referred to by several other countries. In particular the use of the internet for facilitating online data collection was a hot topic with the Czech Republic, Portugal and the United Kingdom, and particularly, in the context of reducing costs, with the United States.

But whereas a number of countries in the rest of the UNECE region referred to the need to consider new methodologies for carrying out the census and to investigate alternative sources of data such as administrative records, none of the EECCA countries specifically reported this aspect as a key lesson to be learned from the 2010 round. But the concluding section of this publication notes whether or not such a change of methodological direction is being considered by EECCA countries for the 2020 round.

23. PLANS FOR 2020

At the time of the UNECE survey (early 2013), planning for the next round of censuses was either at a very early stage or, in the case of several countries, non-existent. Nevertheless, from the comments reported above it is clear that for some aspects of the census at least, some forward thinking had already been undertaken. This is particularly the case where the future use of technology and/or other innovations are concerned. Accordingly, the survey enquired about future plans with reference to a number of specific topic areas such as technology and innovations.

Use of technology

Table 23.1 shows the range of technologies that EECCA and other countries plan to use in the 2020 round, ranked by the total number of countries that reported they were planning to use each technology identified where such usage was anticipated. A comparison with overall usage of each technology throughout the UNECE region in the 2010 round is also given.

Table 23.1
Use of technology in 2010 and planned for the 2020 census round

Use of technology	All countries			EECCA	Type of census in rest of UNECE region				
	2010 round	2020 round			All		Traditional	Register-based	Combined
		Number	%		Number	%			
Geographical information systems (GIS)	19	36	72	5	31	76	19	5	7
Internet response option	18	32	64	4	28	68	18	1	9
Tablet computers	3	19	38	5	14	34	12	0	2
Optical character reading/recognition (OCR)	24	18	38	5	14	34	12	0	2
Global positioning Systems (GPS)	7	15	30	3	12	29	8	0	4
Optical mark reading/recognition (OMR)	20	13	26	1	12	29	11	0	1
Laptop computers	10	13	26	2	11	27	8	0	3
Hand-held devices/ pocket computers/ smart phones	2	12	24	0	12	29	9	0	3
SMS texting	8	11	22	0	11	27	8	0	3
Uploading data from field to data centre	10	10	20	2	8	20	5	0	3
Big Data	0	9	18	0	9	22	4	3	2
Computer assisted telephone Interviewing (CATI)	7	7	14	0	5	12	2	0	3
Internet exploration	0	5	10	1	4	10	3	0	1
Mobile/cell phones	9	4	8	0	4	10	2	0	2
Automated telephone interviewing	1	2	4	0	2	5	1	0	1
Total countries	**50**	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

It is clear, even at this early stage of planning, that use of GIS and internet data collection will be adopted widely across the region in 2020, with 72 per cent and 64 per cent of countries throughout the UNECE reporting the anticipated use of these technologies. These are almost twice the number of countries that used such technologies in the 2010 round. But within the EECCA region, the planned take-up of these technologies is not (yet) so extensive; five countries only (Armenia, Azerbaijan, Belarus, Georgia and the Russian Federation) plan to use GIS applications, and only four of these are thinking about using the internet for providing an online response option (Armenia is the exception).

Other identified technologies expected to increase significantly in usage include tablet computers (the same 5 EECCA countries along with 14 others throughout the rest of the UNECE region, compared with just 3 countries in total in the 2010 round) and hand-held devices/pocket computers/smart phones (12 UNECE countries all outside the EECCA region, compared with just 2 in the 2010 round). As an aid to field operations, GPS also seems to be a technology that is likely to be on the increase, with three EECCA countries (Belarus, Georgia and the Russian Federation) and 12 others reporting its possible use compared with just seven in total in 2010. And proportionately, the use of SMS texting is also likely to increase to a similar extent generally, but not in the EECCA region, in which no country reported its planned use.

One revealing aspect shown by Table 23.1 is that only 2 EECCA countries (Kyrgyzstan and the Russian Federation) and just 16 others throughout the UNECE region reported that they plan to use OCR, and even fewer, (Kyrgyzstan only within the EECCA region along with 12 others), plan to use OMR. If this is the case this would represent a declining trend in the use of such technology compared with the 24 and 20 countries that reported such use, respectively, in the 2010 round, and reflects an anticipated trend to move away from paper questionnaires for countries in the rest of the UNECE region if not within the EECCA area.

Anticipating new and untried technologies is of course always going to be difficult, but it is noticeable that innovative technologies such as the use of Big Data (a technology that enables the potential access to vast volumes of data in real time) is on the horizon for a number of countries, though it is by no means clear in this case how such data will be utilized, nor how the quality of such data will be evaluated. There are no EECCA countries that reported any plans to utilise such sources of data, reflecting, possibly, the anticipated commitment for such countries to stick to the tried and trusted traditional approach to data collection.

Bearing in mind that Kazakhstan and Moldova were not, at the time of the survey, able to report on plans for the 2020 round, no technology is expected to be adopted within the EECCA region by more than five countries. Azerbaijan, Belarus and the Russian Federation reported planned use for five of the technologies identified in Table 23.1, but for several of the technologies listed, such as hand-held devices and mobile phones, there are no plans for any such use by any of the EECCA countries.

New technologies also bring with them, of course, new challenges, and therefore countries were asked what barriers might be encountered in the adoption of such technologies as those identified in Table 23.1.

Lack of financial resources was reported by three quarters of all responding countries, including seven of the nine in the EECCA region, as being a main barrier, followed by the related issues of lack of staff resources (5 EECCA countries and 65 per cent of those elsewhere) and lack of expertise (6 EECCA countries and 12 elsewhere) (Table 23.2).

Lack of, and limited access to, administrative registers is seen as a fundamental barrier to those countries still undertaking traditional censuses and one that will no doubt prevent some countries from looking to adopt a register-based approach in the 2020 round. Revealingly, only two EECCA countries identified these issues as barriers – Belarus and the Russian Federation for the first of these, and Moldova and the Russian Federation for the second. This might seem, at first glance, suggestive of the fact that, as noted above, countries within the EECCA region are not primarily looking to move to alternative data sources for their censuses in the 2020 round. But, as we shall shortly see, this is not entirely the case.

Table 23.2
Barriers to the adoption of new technology in 2020

Barrier to use of technology	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Financial resources	36	76	7	29	74	19	3	7
Staff resources	30	62	5	25	64	16	2	7
Expertise	18	38	6	12	31	10	0	2
Infrastructure	16	33	5	11	28	6	1	4
Administrative registers								
Lack of	16	33	2	14	36	12	0	2
Limited access to	15	31	2	13	33	11	0	2
Public perceptions	14	29	2	12	31	11	0	1
Government support	10	21	1	9	23	7	0	2
Culture	5	10	0	5	13	5	0	0
Geographical conditions	2	4	1	1	3	1	0	0
Climate	2	4	2	0	0	0	0	0
None of the above	7	15	1	6	15	0	0	1
Total countries	**48**	**100**	**9**	**39**	**100**	**21**	**9**	**9**

Moldova, among the EECCA countries reported on the greatest number of barriers (six in all); only Hungary (nine) and Canada (eight) throughout the rest of the UNECE region reported on more. At the other extreme, Tajikistan regarded only climate as an issue of concern, while Azerbaijan identified none of the factors listed in Table 23.2 as a potential barrier to the adoption of new technology – even though it had reported planning to adopt the greatest number of technologies in the 2020 round.

Other innovations

The possible introduction or development of other innovations was also reported in the UNECE survey, and the results from the 50 responding countries are shown in Table 23.3.

Looking first at the methodological innovations, three of the nine responding EECCA countries (Armenia, Azerbaijan and Belarus) reported the use of registers as either alternative or additional sources of data in the 2020 round. That fact that ten other countries with traditional census within the UNECE region similarly reported the likelihood of using registers as part of the methodological design of their 2020 census clearly suggests a continued move away from the long-standing traditional approach, though it seems more than likely that a field enumeration will still form the basis of data collection for the majority of EECCA countries in the next round. Armenia and Belarus also reported the use of sampling as a further innovation in their next censuses, although the proportion of countries elsewhere in the UNECE region reporting this was much lower (just 15 per cent).

Four of the EECCA countries (Armenia, Azerbaijan, Belarus and the Russian Federation) reported plans to use the internet for online data collection the 2020 round, as did over a third of countries in the rest of the UNECE region. A little surprisingly these are not exactly the same four countries that reported using the internet as a future technology in Table 23.1. Georgia did so then, but responded to this part of the survey by commenting that, at the time of the survey, it was too soon for such decisions on innovations to be made (as did Kazakhstan and Moldova), while Armenia did not report the use of the internet in response to the technology survey question. The fact that Azerbaijan, Belarus and the Russian Federation also reported the use of administrative data registers confirms the intention that at least some of the EECCA countries will be looking beyond the traditional field enumeration as a sole source of census information in future censuses, as will more than a third of countries in the rest of the UNECE region.

It has already been noted above that geographical information systems and use of the internet (for data collection) are likely to be high on the list of technological innovations to be utilised in the 2020 round of censuses. But responses from the survey also indicated the use of such technologies for dissemination purposes by 11 countries including Azerbaijan and Tajikistan.

EECCA countries are also well represented among those countries reporting innovative data capture and processing operations for the 2020 round. Azerbaijan, the Russian Federation and Tajikistan plan to apply edit and imputation processes for the first time together with six other countries in the UNECE region, while Armenia, Kyrgyzstan and Tajikistan reported the future use of scanning for data capture along with five other countries elsewhere. Automatic coding will also be introduced more widely within the EECCA region; Armenia, Azerbaijan, the Russia Federation and Tajikistan all reported this as an innovation for the 2020 round.

Table 23.3
Innovations being considered for the 2020 census round

Innovation	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Methodological	**25**	**50**	**4**	**21**	**51**	**12**	**3**	**6**
Use of registers	22	44	3	18	44	10	3	5
Sampling	8	16	2	6	15	3	1	2
Rolling estimates	3	6	0	3	7	2	0	1
Coverage surveys	1	2	0	1	2	1	0	0
Data collection	**28**	**56**	**5**	**23**	**56**	**15**	**3**	**5**
Internet (online)	19	38	4	15	37	12	1	2
Administrative registers	19	38	3	16	39	9	2	5
Hand-held devices	11	22	2	9	22	7	0	2
Long-form/short-form	4	8	1	3	7	3	0	0
Data capturing/ processing	**12**	**24**	**4**	**8**	**20**	**6**	**0**	**2**
Edit and imputation	9	18	3	6	15	4	0	2
Automatic coding	6	12	4	2	5	1	0	1
Scanning	5	10	3	2	5	2	0	0
ICR	5	10	2	3	7	2	0	1
Geographic	**14**	**28**	**5**	**9**	**22**	**5**	**1**	**3**
GIS	11	22	5	6	15	3	1	2
GPS	6	12	2	4	10	2	0	2
Remote sensing	1	2	0	1	2	0	0	1
Dissemination	**15**	**30**	**2**	**13**	**32**	**9**	**1**	**3**
Internet	11	22	2	9	22	6	1	2
Disclosure control	8	16	1	7	17	5	0	2
Too soon to know	**18**	**36**	**3**	**15**	**37**	**9**	**3**	**3**
Total countries	**50**	**100**	**9**	**41**	**100**	**22**	**9**	**10**

Five of the six EECCA countries that were able to report on innovations in the next round noted that they would also use GIS applications, thus confirming the responses given to the survey enquiry into the use of technology, summarised in Table 23.1.

Azerbaijan reported on the most number of innovations (13 of those listed in the table) while Kyrgyzstan reported on only two.

The main factors driving such innovations across the UNECE region as a whole, as shown in Table 23.4, were the need (a) to improve, or at least maintain, data quality – reported by two thirds of all countries including six of the nine within the EECCA region, and (b) to reduce cost, reported by four EECCA countries (Azerbaijan, Belarus, the Russian Federation and Tajikistan) and two thirds of those in the rest of the UNECE region. But Table 23.4 shows that a number of other factors, such as the need to make results more timely and to reduce respondent burden, are almost equally relevant drivers. Indeed six EECCA countries reported the first of these two as a driving factor.

All the other factors were cited as important drivers of innovation by a third of the EECCA countries, though not all the same countries reported each factor – in fact no two factors were reported by the same three countries.

Among the EECCA countries, the Russian Federation reported all eight of the factors identified in the table as being drivers of innovation, and indeed, was only one of four countries throughout the whole of the UNECE region to do so (the others being Greece, Poland and Serbia).

Table 23.4
Factors driving innovation in the 2020 census round

Driving factors	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-based	Combined
	Number	%		Number	%			
Maintain/improve data quality	33	67	6	27	68	15	5	7
Reduce costs	31	63	4	27	68	17	2	8
More timely results	30	61	6	24	60	13	3	8
Reduce respondent burden	29	59	3	26	65	17	0	9
Follow international trends	20	41	6	14	35	10	2	2
Increase accessibility	17	35	3	14	35	9	1	4
Replace obsolete systems/processes	11	22	3	8	20	5	0	3
Respondent privacy	10	20	3	7	18	6	0	1
Too soon to know	9	18	3	6	15	1	4	1
Total countries	**49**	**100**	**9**	**40**	**100**	**21**	**9**	**10**

Outsourcing

For most countries it was, at the time of the survey, too soon to start planning what activities might be outsourced to external suppliers in the 2020 round, other than where previous outsourcing has proven to be a success and where no major methodological changes are anticipated. But at least eight countries, including Kyrgyzstan and the Russian Federation reported that they intend to use external agencies for their publicity campaign in the next census, while four countries (again including Kyrgyzstan and the Russian Federation) reported outsourcing the delivery and/or collection of field materials. The Russian Federation went on to report on other census operations ripe of outsourcing such as data processing and the production and dissemination of outputs. But most countries (30 out of the 36 respondents) including 6 of the 8 responding countries in the EECCA region, said that it was too soon to report on such plans.

Measuring quality

In order to assist UNECE in preparing universally acceptable recommendations on evaluating data quality for the 2020 round, countries were asked whether or not they would support an international recommendation that sets targets for the accuracy of statistics. All but four of countries

that expressed a view responded positively including seven of the nine EECCA countries (Table 23.5). Georgia and Kazakhstan were non-committal on this issue (responded "don't know").

Somewhat fewer countries in total, however, positively supported the proposed recommendation, put forward by the Task Force on Quality and Coverage, that information about the accuracy of census statistics and the methods used to measure such accuracy should be published as part of the census metadata. This proposal was supported only by half the countries overall and by five of the nine in the EECCA region, although it should be noted that the other four were non-committal at that stage. However, five countries in the rest of the UNECE region partially supported the recommendation by reporting that only the information on accuracy should be published.

Table 23.5
Support for new recommendations on data quality in the 2020 census round

New recommendation	All responding countries		EECCA	Type of census in rest of UNECE region				
				All		Traditional	Register-xbased	Combined
	Number	%		Number	%			
Recommendation to set targets for the measurement of accuracy of census data								
Supports	33	67	7	26	65	18	2	6
Does not support	4	8	0		10	1	3	0
Non-committal	12	24	2	10	25	2	4	4
Recommendation to publish information on accuracy and the methods used								
Publish only information on accuracy	5	10	0	5	12	3	2	0
Publish information on accuracy and methods	25	51	5	20	50	11	3	6
Does not support	3	6	0	3	8	1	2	0
Non-committal	16	33	4	12	30	6	2	4
Total countries	49	100	9	40	100	21	9	10

Measuring population and housing in Eastern Europe, Caucasus and Central Asia

Review of practices in the 2010 round of censuses

The population and housing census provides, at regular intervals, information on the number and characteristics of the population of a country, and on its housing stock. It is an essential source of information for small-area, national, regional and international planning and development.

This publication reviews the practices followed by countries in Eastern Europe, Caucasus and Central Asia in the population and housing censuses of the 2010 round (taken between 2009 and 2014). The aim is to compare the different approaches and practices adopted among these countries as well as with those in other countries in Europe and North America, and to assess the compliance with the "Conference of European Statisticians recommendations for the 2010 censuses of population and housing".

The publication reports that, in contrast to the diverging methodologies being adopted elsewhere throughout the UNECE region, the censuses carried in Eastern Europe, Caucasus and Central Asia have continued to follow the long-standing approach of entire field enumeration.

The publication reviews in detail how the different countries collected information on the various population and housing census topics, highlighting similarities and differences, and providing useful information for users of census data and planners of future censuses.

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