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**on Revising the Principles and Recommendations**  
**for Population and Housing Censuses**  
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**Agenda: Session 2**

## **Mid-Decade Assessment of the United Nations 2010 World Population and Housing Census Program<sup>1</sup>**

Prepared by  
US Census Bureau

Note: The intent of this report is to inform interested parties about the results of the 2010 World Population and Housing Census Program Review conducted at the request of the United Nations Statistics Division. Any views expressed in this paper are those of the author and not necessarily those of the U.S. Census Bureau.

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<sup>1</sup> This document is being reproduced without formal editing.

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# 1. Introduction and Background

In accordance with a request from the United Nations (UN) Statistical Commission, the United States (US) Census Bureau presented a review of the 2010 World Population and Housing Census Program<sup>2</sup>, at the UN Statistical Commission's forty-third session, held February 28 to March 2, 2012. The report presented a mid-decade review of the 2010 census program based on member countries' responses to a survey sent out jointly by the UN Statistics Division (SD) and the US Census Bureau.

The analysis summarized the early lessons learned to date from the 2010 World Program on Population and Housing Censuses, covering the years 2005 to 2014, and provides insight into the potential direction for the 2020 World Census Program. Since the Statistical Commission meeting, the UNSD received an additional seventeen questionnaires from countries responding to the survey. This paper includes these new data and the addition of data tables.

For over six decades, the UN has supported national census taking worldwide. The UN Statistical Commission, at its thirty-sixth session, March 2005, initiated the 2010 World Program on Population and Housing Censuses. The UN Economic and Social Council approved the program through the adoption of the UN Economic and Social Council Resolution 2005/13. The resolution, in part, states the need for each country to conduct a census and urges member countries to support three essential program goals:

- Agreeing on international principles and recommendations to conduct a census;
- Conducting a population and housing census at least once in the time frame 2005 to 2014; and
- Disseminating their census results in a timely manner for effective socio-economic planning and monitoring of population issues, policies, and trends.

Critical to the program's success is member countries working with each other, in cooperation with the UN, its Regional Commissions, and other intergovernmental and nongovernmental organizations. The exchange of scientific and technical expertise and information is necessary to strengthen census taking and results.

The Statistical Commission at its forty-second session requested a review of the 2010 World Program on Population and Housing Censuses (hereafter referred to as the 2010 round of censuses or the 2010 census round) be presented at its next session. To meet this request, the UNSD asked the US Census Bureau to prepare the program review. This was the first time a country prepared a program review on the world census program. In the past, the UNSD prepared a report

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<sup>2</sup> United Nations, (2012) Report of the United States of America on the 2010 World Programme on Population and Housing Censuses, E/CN.3/2012/2. Available at: <http://unstats.un.org/unsd/statcom/sc2012.htm>

on the state of the world census program and presented the results at a Statistical Commission Meeting.<sup>3</sup>

This paper is an expanded view of the program review findings with the addition of data tables<sup>4</sup> and responses from an additional 17 countries.

## 2. Objective of the Paper

The primary objectives of this paper are to: 1) expand upon the early lessons learned from the 2010 round of world-wide population and housing censuses, covering the years 2005 to 2014; and 2) identify preliminary trends and considerations as planning begins on the 2020 World Program on Population and Housing Censuses; covering the years 2015 to 2024.

We based our approach and findings on a questionnaire sent to UN member states, literature reviews, and consultations with members of the international statistical community. This is a critical point for census taking, with rapidly changing technology, evolving census methodologies, privacy concerns, rising costs, and increasing needs for more timely data. For many countries, the approach to census taking will likely be fundamentally different in the 2020 round of population and housing censuses from the current 2010 round. Throughout the paper, we will highlight lessons learned from both conducting the program review and the results of the survey.

Note: To limit the size of the paper, the author has chosen to focus on certain topics covered by the survey and not present all the survey results.

## 3. Methodology

To gather the data needed for the review, the US Census Bureau developed a questionnaire to gain insight into the lessons learned by countries at this midpoint in the 2010 World Census Program and their perspectives on potential directions for the 2020 round of censuses. The questionnaire consisted of 38 questions: seven closed-ended, four open-ended, and 27 with closed-ended and open-ended categories. For 17 of the questions, respondents could mark multiple categories. Survey (hereafter referred to as the program review survey) instructions told countries to refer to their census planned during the period 2005 to 2014. If they conducted only one population and housing census, their survey responses would reference that census. If a country planned to conduct or conducted more than one census during this period, they were asked to reference their responses to their census taken in the year closest to 2010.

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<sup>3</sup> Examples of this include: “Results of the Survey on Census Methods used by Countries in the 2010 Census Round,” UN Working Paper UNSD/DSSB/1, February 2011 and the “Population and Housing Census Report of the Secretary General” from the 36th Session of the UN Statistical Commission Meeting, E/CN.3/2005/11, March 1-4, 2005.

<sup>4</sup> United Nations Statistics Division, “General Guidelines for the drafting of Statistical Commission documents,” September 26, 2011. Lengthy descriptions of activities should not be included; nor should the official report contact complex tables or graphs. These materials should be presented as background conference room documents.”

Between June 13 and June 30, 2011, the UNSD sent, primarily by e-mail, questionnaires (with instructions and an introduction) to the 192<sup>5</sup> State Members of the United Nations.<sup>6</sup> Questionnaires were initially sent to countries in English, and then in French, Russian, or Spanish upon request by countries.

**Table 3.1: Number and Percentage of All Responding Countries**

UN Region	Total Number of Countries in Region	Number and Percentage of Countries Responding by September 1, 2011		Additional Countries Responding by August 17, 2012		Total Number and Percentage of Countries Responding to Survey	
		Number	%	Number	%	Number	%
Africa	53	21	39.62	6	11.32	27	50.94
North America	23	14	60.87	4	17.39	18	78.26
South America	12	7	58.33	0	0.00	7	58.33
Asia	48	27	56.25	4	8.33	31	64.58
Europe	43	34	79.07	2	4.65	36	83.72
Oceania	13	6	46.15	1	7.69	7	53.85
Total	192	109	56.77	17	8.85	126	65.63

Table 3.1 provides a breakdown of the number and percentage of responding countries included in this report. Due to the fixed deadline to complete the review and submit a paper in time for the UN Statistical Commission meeting, September 1, 2011 was the final deadline for questionnaires to be included in the program review. By the final deadline, 109 countries (56.77 percent) had returned completed questionnaires; one additional country did not return a questionnaire, but indicated it was not conducting a census during the period under review. Three countries returned questionnaires past the deadline and were not included in the program review.

The US Census Bureau arranged for the translation, into English, of responses to open-ended questions submitted in other languages. Closed-ended questions were keyed and edited using the Census Bureau's Census and Survey Processing System (CSPRO) software. During September 2011, Census Bureau staff conducted quantitative analysis (closed-ended questions) and qualitative analysis (open-ended questions) of the survey results. The US Census Bureau submitted the final paper to the UNSD on October 31, 2011, following an internal Census Bureau review.

Subsequent to the program review, the UNSD contacted non-responding countries to encourage them to complete the questionnaire. Between June 20 and August 17, 2012, the UNSD received 14 additional questionnaires.<sup>7</sup> These 14 questionnaires and the

<sup>5</sup> The UNSD sent questionnaires only to UN Member States; questionnaires were not sent to recognized areas or territories. Therefore, the total universe for this review is the 192 UN Member States.

<sup>6</sup> Excluding South Sudan, that became a State Member of the United Nations in July 2011.

<sup>7</sup> Two additional questionnaires arrived after the August 17, 2012 deadline. They are not included in the survey results.

questionnaires from three countries that just missed the original 2011 deadline (and therefore were not in the program review) are included in the results presented in this paper. The processing of these 17 questionnaires was identical to the questionnaires received in 2011. In total, the final number of countries participating in the survey was 126 (65.63 percent) – the Attachment provides a complete listing of all participating countries. This paper is based on the responses from the 126 responding (i.e., questionnaire completed) countries.

There were regional differences in responses with the highest response rate from Europe (83.72 percent) with an additional two questionnaires. North America increased their response rate from 60.87 percent to 78.26 percent. Asia increased their response rate from 56.25 percent to 64.58 percent. Six additional African countries responded increasing their response rate from 39.62 percent to 50.94 percent. Oceania increased their response rate from 46.15 percent to 53.85 percent. The South American response rate remained unchanged.

The analysis in this paper focuses on:

- a) Establishing an overview of the census methodologies and enumeration methods used during the 2010 round,
- b) Assessing the use of new census methods or technologies, including early challenges and successes for the 2010 World Census Program, and
- c) Looking towards the 2020 round, including future trends, international collaboration, and United Nations assistance.

Please note that the review and this paper reflect the collective experience of the countries responding to the questionnaire. We combined survey responses to present aggregate results and overall impressions. Responses are not associated with a specific country or respondent.

For the 2010 World Census Program, peak census taking was between 2010 and 2011. Table 3.2 illustrates peak census taking for the 2010 round of censuses based on the survey responses. Seventeen countries reported a delay in their censuses; this may have affected the peak census-taking year. Reasons for delaying the censuses included lack of funding, political situations, lack of skilled staff, and technical issues. This limited the collection of lessons learned since many countries were either in the midst of completing their census or in the process of conducting their census when the program review questionnaires were sent out (June 2011). Many countries responded that it was too early to provide lessons learned. Therefore, the lessons learned are preliminary in nature, but instructive.

**Table 3.2: Year Conducted Census (as of June 2011) during the 2010 Round of Censuses**

<b>Year Conducted Census</b>	<b>Number</b>	<b>%</b>
2005	3	3.45
2006	5	5.75
2007	4	4.60
2008	4	4.60
2009	7	8.05
2010	28	32.18
2011	27	31.03
Countries Eligible to respond to Question 4	87	100.00
Total Countries Responding to Question	78	90.00

Source: Question 1

Future program reviews should be conducted at established periods throughout the decade, perhaps both mid program and at the end, to get the full scope of lessons learned and developing trends. A mid program review can provide an initial evaluation of the censuses conducted to date and early lessons learned. A program review at the end will allow all countries to provide their insights and early thoughts on the next census round.

**Lesson Learned #1:** The 2012 program review provided an initial evaluation of the censuses conducted and lessons learned but it was too early in the decade to get a good assessment of the program from most countries, as the bulk of census taking occurs in the years ending in 10 and 11. The UNSD should consider conducting another lessons learned evaluation as the 2010 census round closes out in 2014.

There are limitations to the questionnaire that affected the data collected. The survey development was done in a compressed timeframe, not allowing for pre-testing.<sup>8</sup> During the analysis of the survey results, the Census Bureau analysts noted issues with skip patterns, inconsistencies in responses, and confusion over the purpose of some questions.

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<sup>8</sup> The author thanks Jerry Banda, formerly of the Statistics Division, Andre Cyr and Don Royce, both of Statistics Canada, for reviewing the initial draft questionnaire. The United Nations Statistics Division provided additional comments and editing.

**Lessons Learned #2:** Establish an international working group to develop and test an instrument to look at census challenges, lessons learned, and directions for the future. This survey would be used in the beginning of a census cycle, at the mid point, and at the end to assess the trends of the decade. Repeated use of the same instrument will enable comparison of data throughout the decade. Create a companion document explaining the purpose of each survey question.

## 4. 2010 Experience and Lessons Learned

For the 2010 census round, the survey results show a shift to the increased use of alternative census methodologies and technological advances throughout all the census phases. Other key observations are the expanded use of multiple sources of data to produce the census results and use of multiple modes to collect data. National Statistical Organizations (NSOs) are necessitating changes to their censuses in order to find solutions to:

- Decreasing participation rates,
- Increasing privacy concerns,
- Escalating costs,
- Mounting demands to improve data quality, and
- Intensifying demands to disseminate data faster.

### *4.1 Sources of Data and Enumeration Methods*

For sources of data (where the data come from), at first glance, a “traditional census,” with full field enumeration, is the main source of census data for 105 of the 126 countries (85.37 percent) – see Table 4.1.<sup>9</sup> However, when we review the entire data source and enumeration methods questions, a more complex picture is seen. While some countries do still use only direct enumeration methods (how the data are collected), other countries are combining field enumeration with other sources of data to produce their census results.

In many countries, registers, administrative records, and sample surveys are either replacing field enumeration or are being used to supplement data collected directly by enumerators. Twelve countries (9.76 percent) reported using administrative registers as a main source of census data. No countries indicated using pre-existing administration records as their main census methodology. This will be further explored in Section 5.

Other countries are using a combination of methods to produce their census counts and cannot specify a main method. Based on the survey, six countries (4.88 percent) reported “other” as their main census methodology.

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<sup>9</sup> For this review, a traditional census is defined as one that uses enumerators to conduct face-to-face interviews, with paper questionnaires, as the only census data source. There are many variations on the traditional census approach. Other statistical organizations may use different definitions. This will be further discussed in Section 5.



**Table 4.1: Total Number and Percentage of Countries by Main Census Methodology**

<b>Census Methodology for 2010 Census Round</b>	<b>Number</b>	<b>%</b>
Full Field Enumeration	105	85.37
Administrative Registers	12	9.76
Pre-existing Administrative Records	0	0.00
Rolling Census	0	0.00
Other	6	4.88
Total Countries Responding to Question	123	100.00
Total Countries in Survey	126	

Source: Question 4

Table 4.2 breaks down the census methodologies used by UN Region. The traditional census continues to be the most widely used method. Of the six regions, four use full field enumeration solely as their main census methodology. Only Asia and Europe use a combination of census methodologies. Two Asian countries and four European countries reported their main source of census data as another data source.

**Table 4.2: Number & Percentage of Countries by Main Census Methodology and Region**

<b>UN Region</b>	<b>Total Countries in Regions</b>	<b>Full Field Enumeration</b>		<b>Administrative Registers</b>		<b>Other Methods</b>	
		<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>
Africa	27	27	100.00	0	0.00	0	0.00
North America	17	17	100.00	0	0.00	0	0.00
South America	7	7	100.00	0	0.00	0	0.00
Asia	30	26	86.67	2	6.67	2	6.67
Europe	36	22	61.11	10	27.78	4	11.11
Oceania	6	6	100.00	0	0.00	0	0.00
Total Countries Responding	123	105	85.37	12	9.76	6	4.88

Source: Question 4

To get a more complete view of census methodologies, we also need to look at main census methodology combined with other sources of census data. The majority of countries still use a traditional approach to census taking. While other countries are developing alternative approaches, for example a rolling census or enumeration with characteristic updates on a regularly scheduled basis. Table 4.3 depicts the main census methodology by the enumeration method. For full field enumeration, over 31 percent of the countries using this method are supplementing the field results with administrative registers or pre-existing administrative records. Over 27 percent of the countries reported using survey data, either regularly scheduled sample surveys or ad hoc surveys to supplement the data collection from the field.

Similarly, for countries reporting their main census methodology as administrative registers or any other methods, the survey results show a variety of sources of data used regardless of the main census methodology selected. For the 2010 round of census, the multi-mode approach to census taking is being more widely used than in any other previous census round.

The other category for main census methodology may in fact represent respondents unsure which of the main methodologies to mark, since they are conducting their census using a variety of modes and sources of data.

**Table 4.3: Number and Percentage of Countries by Main Census Methodology and Other Sources of Census Data**

Sources of Census Data	Full Field Enumeration		Administrative Registers		Other	
	Number	%	Number	%	Number	%
Administrative Registers	26	24.76	4	33.33	3	50.00
Pre-existing Administrative Records	7	6.67	2	16.67	2	33.33
Annual or Other Regularly Conducted Sample Survey	17	16.19	5	41.67	0	0.00
Ad Hoc Sample Survey	12	11.43	4	33.33	3	50.00
Other	9	8.57	2	16.67	0	0.00
Total Countries Responding to Questions	105	100.00	12	100.00	6	100.00

Source: Questions 4 and 5

Table 4.4 focuses on the two main methodologies – full field enumeration and administrative registers – and the enumeration methods used. Full field enumeration is typically associated with the term traditional census, which once meant face-to-face interviewing with a paper questionnaire. For the countries responding to the survey, the predominate enumeration method is a face-to-face interview with a paper questionnaire (76.42 percent). The survey results, however, present a more complex view of the traditional census methodology. For the 2010 round of censuses, countries may conduct a traditional census using a variety of enumeration methods.

**Table 4.4: Total Number and Percentage of Countries by Main Census Methodology Used and Enumeration Methods<sup>10</sup>**

Sources of Census Data	Totals		Full Field Enumeration		Administrative Registers	
	Number	%	Number	%	Number	%
Enumeration Method						
Face-to-Face Interviewer, Paper Questionnaire	94	76.42	90	85.71	1	8.33
Face-to-Face Interviewer, Electronic Questionnaire	14	11.38	9	8.57	3	25.00
Telephone	14	11.38	10	9.52	2	16.67
Self-Enumeration, Paper Questionnaire, Collected by Enumerators	30	24.39	28	26.67	0	0.00
Self-Enumeration, Paper Questionnaire, Return by Mail	18	14.63	13	12.38	2	16.67
Self-Enumeration, Internet	33	26.83	26	24.76	3	25.00
Register-Based Enumeration	18	14.63	5	4.76	10	83.33
Pre-existing Administrative Records	8	6.50	4	3.81	1	8.33
Other	2	1.62	2	1.90	0	0.00
Total Countries Responding to Questions	123	100.00	105	100.00	12	100.00

Source: Question 4 & 6<sup>11</sup>

<sup>10</sup> All other sources of data are included in the total column.

<sup>11</sup> For question 4, instructions asked respondents to mark only one box, their main census methodology. For question 6, respondents could mark all the enumeration methods that applied to their census. Three countries did not respond to question four.

For countries reporting full field enumeration as their main census methodology, their main enumeration method is face-to-face interviewing (85.71 percent) with a paper questionnaire. The data also reveal other enumeration methods used for full field enumeration. The survey results indicate self-enumeration with a paper questionnaire, collected by enumerators (26.67 percent) and self-enumeration using the Internet (24.76 percent) are widely used enumeration methods.

Administrative registers using register-based enumeration is the predominant enumeration method as expected. With register data being supplemented by a variety of data sources, such as the Internet (25.00 percent) and face-to-face interviews with an electronic questionnaire (25.00 percent).

This implies countries are increasing the use of multi-modes for data collection and the changing nature of census taking. For the 2020 census round, we will need to reassess how to collect survey responses that accurately reflect the use of multi-mode census data collection and determine ways to compare multi-mode usage across countries and regions. It will not be sufficient to state the number of countries using multi-mode data collection. We will need to know the various modes used and the percentage each mode contributes to a country's overall data collection effort, in order to compare census methodologies across countries to correctly describe census data collection. This will become vital as additional sources of data are used, particularly administrative data and as more countries move to multi-mode data collection.

For example, it is becoming more common to have a country collect data using a variety of methods, such as, telephone, Internet, and perhaps, administrative records and/or ad hoc surveys to supplement the data collected using paper questionnaires. Countries are using the multi-mode option with a multitude of variations to address their own data needs and circumstance. The 2012 program review survey, fielded in 2011, could not accurately reflect all the variations of multi-mode censuses reported for two reasons; (1) the questionnaire design did not allow for all the multi-mode variations and (2) definitional issues with responses. Section 5 will discuss this further.

## ***4.2 Other Methodologies and Sources of Data<sup>12</sup>***

For methodologies, other than the traditional census, the program review survey considered the use of pre-existing administrative records, administrative registers, continuous measurement, rolling census, and hybrid methodologies.

Of the countries responding, 18 (14.9 percent of responding countries) tried a new methodology for the first time, while 13 countries (10.7 percent) used an alternative method this round and in previous rounds. Ninety countries (74.4 percent) did not use an alternative

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<sup>12</sup> Other methodologies refer to any census taking method other than a "traditional method" using a full-field enumeration, including conducting a census using administrative register(s) or a rolling census.

method in the 2000 or the 2010 round of censuses. Still the overall use of alternative methods increased between the 2000 round of censuses and the 2010 round.

By region, based on the survey results, Europe is the frontrunner in the use of alternative methods. Six countries (17.1 percent of the European countries) used an alternative method this round and in previous rounds. An additional eight countries (22.86 percent) used an alternative method this round for the first time. In Asia, 11 countries (36.66 percent) used an alternative method this round; four countries (13.33 percent) have also used an alternative method in previous round and seven countries (23.33 percent) used an alternative method for the first time this round.

The vast majority of countries continue to conduct traditional censuses. In the regions of Africa (92.59 percent), Oceania (83.33 percent), North America (87.50 percent), and South America (85.71 percent), the majority of the countries did not use an alternative method during the 2010 round of censuses.

Cost savings (20.63 percent), improvements to data quality (17.46 percent) and time savings (13.49 percent) were given as benefits to using an alternative methodology. The key risks were the reduction in the number of topics included in the census, that is, decreased content (12.70 percent) and the use of data definitions provided by the data source, instead of census definitions (6.35 percent). For example, if a country is using an administrative register, the data categories defined by the government department responsible for the register, may or may not be the same definitions used or preferred by the statistical agency taking the census. Thirty of the thirty-two countries using an alternative methodology reported that they would use the method in the 2020 round of censuses.

### ***4.3 New (Information) Technologies***

As the complexities in census taking increases, so does the demand for using technology. Most countries use some form of technology or indicated they will use technology in the near future. Countries were asked to indicate what types of (data collection, processing, or geographic) technology they used during the 2010 census round; for this question, a country could mark multiple responses. Geographic Information Systems (GIS) is the most widely used technology (64.1 percent). Computer-assisted coding (48.7 percent), Internet (42.7 percent), Optical Character Recognition (OCR) (41.9 percent), Optical Mark Recognition (OMR) (32.5 percent), as well as, other imaging and scanning methods (37.6 percent) are being used extensively. Data dissemination technologies are addressed in Section 4.5.

Technology clearly has had a large impact on the way we conduct a census. Countries reported the benefits of automated technologies included time savings (61.90 percent) and improving the data quality (57.14 percent). Respondents reported increased cost (29.37 percent) as the greatest risk associated with using automated technologies with negative public perception (1.59 percent) and decreased coverage (0.79 percent) as the lowest risks reported.

Countries responded that the greatest obstacles faced with using technology were staff resources/expertise (51.59 percent), financial resources (33.33 percent), and reengineering/infrastructure (26.19 percent). The least obstacles faced with the use of technology are data dissemination (2.38 percent) and stakeholder privacy and confidentiality concerns (1.59 percent).

From reviewing responses to open-ended questions, consideration should be given to when it is appropriate to use technology and when existing manual processes are sufficient to support a country's census. When funding and technical expertise is limited, options must be carefully weighed before deciding on the suitable level of technology to pursue in census taking. Countries using handhelds and the Internet for data collection now are considering possible technologies, which may be available by 2020. Moreover, most countries using paper questionnaires expressed an interest in using handhelds, laptops, or the Internet by 2020.

**Lessons Learned #3:** Countries should consider many factors and select the most appropriate methods and technologies for their own unique situation and data needs. What is appropriate for one country may be inappropriate for another country's census taking.

#### **4.4 Data Dissemination**

A census is not complete until the data are released to the users. The program review survey inquired about the methods used by countries to provide their data to users. Countries were asked to mark their primary method of census data dissemination. This included the use of paper publications, CDs, DVDs, static web pages, interactive online databases, and web-based mapping tools. Of the responding countries, Table 4.5 shows 63 (52.07 percent) countries use paper publications as their primary method of data dissemination, 34 (28.10 percent) countries use static web pages (html, pdf, etc.), while only 17 (14.05 percent) countries use interactive online databases.

**Table 4.5: Number and Percentage of Types of Data Dissemination Used**

<b>Types of Data Dissemination Used</b>	<b>Number</b>	<b>%</b>
Paper Publication(s)	63	52.07
CD-ROM/DVD	5	4.13
Static Web Pages (html, pdf, Excel)	34	28.10
Interactive Online Databases(s)	17	14.05
Other	2	1.65
Total Countries that Responded	121	100.00

Source: Question 25

Countries were then asked to indicate other methods of data dissemination they use; for this question, a country could mark multiple responses. For other methods countries indicated that they use CD-ROMs or DVDs, static web pages, paper publications, interactive online databases, and mapping tools.

Over 87 percent of the countries consulted with their data users and stakeholders about their data dissemination plans.

#### **4.5 Challenges and Successes**

The program review survey asked about the challenges and successes that each country faced in the 2010 round of censuses. The survey instructions allowed respondents to mark multiple responses to these two questions - the successes or challenges that their country faced in conducting a census during the 2010 census round.

The successes varied greatly, as shown in Table 4.6. The implementation of new technologies (56.91 percent), meeting deadlines (50.41 percent), staying within budget (47.97 percent), and maintaining data quality (47.15 percent) were most frequently cited census successes in 2010. For some countries, just being able to do a census was a major success. Other countries are seeking alternative methods of census taking, noting privacy, falling response rates, or costs as a motivator for using new methods.

**Table 4.6: Number and Percentage of Countries by Successes and Main Census Methodology<sup>13</sup>**

Successes	Totals		Full Field Enumeration		Administrative Registers	
	Number	%	Number	%	Number	%
Kept Within Budget	59	47.97	51	48.57	4	33.33
Met Deadlines	62	50.41	56	53.33	3	25.00
Improved logistics and coordination	56	45.53	54	51.43	1	8.33
Improved/maintained response/participation rates	47	38.21	43	40.95	2	16.67
Improved/maintained data quality	58	47.15	52	49.52	4	33.33
Improved data dissemination	50	40.65	45	42.86	3	25.00
Implemented new technologies	70	56.91	64	60.95	3	25.00
Implemented new methodologies	46	37.40	39	37.14	3	25.00
Other	21	17.07	15	14.29	4	33.33
Total Countries Responding to Questions	123	100.00	105	100.00	12	100.00

Source: Questions 4 and 9

When we look at challenges (Table 4.7) and the two most widely used census methodologies – full field enumeration and administrative registers – the success criteria are quite different. For full field enumeration, the survey results indicated implementing new technologies (60.95 percent) and meeting deadlines (53.33 percent) were the main success criteria. In order to reduce the time and costs of labor-intensive field operations, new technologies added to the operations enable censuses to move away from the need for paper questionnaires. The use of technology lessens the time of the interviewing process and allows for automated quality checks. The processing time and costs associated with these operations are also reduced by eliminating the need for setting up data-capture operations.

For administrative registers, keeping within budget (33.33 percent), data quality (33.33 percent), and other (33.33 percent) are equally important success criteria. The use of administrative registers lessens the needs for labor-intensive and costly field operations, usually resulting in

<sup>13</sup> For question 4, instructions asked respondents to mark only one box, their main census methodology. For question 9, respondents could mark all the success factors that applied to their census. Three countries did not respond to question 4.



cost savings from using this type of method. The down side is the administrative registers' data quality is dependent on the quality of the registers and very often does not include data for all of the topics usually associated with a census or topic categories are reduced.

**Table 4.7: Number of Countries by Challenges and Main Census Methodology**

Challenges	Totals		Full Field Enumeration		Administrative Registers	
	Number	%	Number	%	Number	%
Cost	88	71.54	78	74.29	5	41.67
Timeliness	56	45.53	47	44.76	4	33.33
Response Rates	45	36.59	38	36.19	3	25.00
Data Quality	53	43.09	39	37.14	8	66.67
Public Perception	46	37.40	40	38.10	2	16.67
Privacy Issues	37	30.08	27	25.71	4	33.33
Other	27	21.95	24	22.86	3	25.00
Total	123	100.00	105	100.00	12	100.00

Source: Question 4 & 8

The most frequently reported (countries could mark multiple responses to this question) challenge overall is cost (71.54 percent). Some of the other challenges, in order of frequency included: timeliness (45.53 percent), data quality (43.09 percent), public perceptions (37.40 percent), decreased response rates (36.59 percent), and privacy (30.08 percent).

When we review challenges by main census methodology, not surprisingly, the results are different for the two methodologies shown. Full-field enumeration is comprised of a myriad of operations to collect the census data. Cost (74.29 percent) is by far the greatest challenge in conducting a full field enumeration census.

For administrative registers, data quality (66.67 percent) is now the greatest challenge. This is not unexpected since; registers are developed for purposes other than collecting census data. Not all census topics may be collected or the definition of the topic may not correspond exactly to the census definition. There may also be differences in the how the data is collected or the categories collected for a particular topic. The vintage of the file may also affect the census results. All of these factors must be considered when conducting an administrative register based census.

There were regional differences in the census success criteria (Question 9). Africa (55.56 percent), Asia (55.56 percent), and North America (66.67 percent) rank implementing new technologies as their most frequently selected success factor. For Europe (64.52 percent), meeting deadlines is their most significant success factor. Oceania (71.43 percent) and South

America (57.14 percent) most frequently selected improved/maintained data quality as their success factor.

When we look at the data by region and challenges, cost is the greatest challenge for all regions:

- Africa – 81.48 percent
- Asia – 61.29 percent
- Europe – 66.67 percent
- Oceania – 71.43 percent
- North America – 66.67 percent
- South America – 85.71 percent

Source: Question 8

With cost as the biggest challenge, often countries are faced with the need to defend their budget when conducting a census or to obtain funding from other sources. Being able to share census costs for other countries is one commonly used approach to justify costs. However, in order to do this, there is a need to develop an accurate method to compare the costs of taking a census across countries. Perhaps we should look at the components of a census to derive total cost, using well-defined components to ensure consistency of costs provided. The selected cost method should be based on the purpose of the comparison and not just on the total cost.

For example, one might use gross domestic product (GDP) or per capita income as a measure of economic and educational status of a country. The higher these measures, the greater the probability that there are more expectations from the population regarding a census and census-taking, such as providing more than one response option, qualifications of the enumerators, and the availability of data dissemination tools.

Another factor with an impact on the cost of a census is whether the country already has a national population register that can serve as a source of information or the start-up costs of developing a register from multiple sources of data.

When comparing costs one should also look at the expected quality of census coverage – what are the expectations in terms of how accurate the population count is required to be?<sup>14</sup> In countries where the numbers are used for government representation and distribution of funds, the count may have to be extremely accurate which increases the cost.

In addition, the physical size of the country, terrain, and number of languages spoken by its populace add to the cost. The process to obtain accurate costs is very difficult, but it is critical for countries – including those requiring financial assistance – to keep costs down. We may also consider classifying costs by region and/or by census method.

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<sup>14</sup> For some countries, the expectation for a census may be 100 percent population coverage, even though this is widely believed to be unrealistic.

**Lessons Learned #4:** Work should be done to develop an accurate, viable method to obtain the costs of conducting a census that can be used to compare census cost across regions and/or countries.

We were also interested in knowing the level of participation among countries in the 2010 census round versus the 2000 round. For the 2010 round, as of July 1, 2013, the UNSD's<sup>15</sup> website reported only seven countries and areas, out of a total 235<sup>16</sup> will not conduct a census this round or for whom no information is available on their census plans. The enumerated population is approximately, 6.2 billion people or 90 percent of the world population.



In the 2000 round of censuses, there were 26 countries and areas who did not conduct a census. This is a significant increase and should be noted.

## 5. Defining How We Do What We Do

Countries are becoming more creative in their census designs and developing new census methods. Increasingly countries are moving away from a full-field enumeration with enumerators going door-to-door to collect data. Indeed, additional countries are considering less census data collection and moving to the use of registers and other techniques to obtain data for census counts.

Even within a particular methodology, there are vast differences in how the method is carried out. For example, the labor pool of enumerators may differ from country to country and may be special hires, government employees, teachers, or volunteers. The program review shows a myriad of data sources, data collection methods, and new technologies for countries marking traditional census on the survey questionnaire. These may include the use of administrative records, the

<sup>15</sup> This information is available on the UNSD website: <http://unstats.un.org> and confirmed with UNSD staff through an email exchange.

<sup>16</sup> At the time of the 2012 program review, there were 192 countries recognized by the UN as members. In July 2011, South Sudan became a member country, so now there are 193 member countries of the UN. There are also areas or territories and possessions. The UN recognizes 42 areas. In total, there were 235 countries and areas at the start of the program review data collection period.

Internet, telephone, and/or ad hoc surveys. Countries using administrative registers, may use different types of registers, or use registers and supplement the data with another method.

## **5.1 *Traditional Census***

What is a traditional census? The survey results showed wide variation in the definition of a traditional census and little consistency in how the term is used across countries. What is perceived as a traditional census in one country may be a new methodology in another country. With the use of technology, the inclusion of a multitude of data sources, and data collection methodologies, does the term accurately reflect the current state of census taking? This is another key lesson learned from 2010. The term is more confusing than ever and is used differently across countries.

## **5.2 *Administrative Records and Administrative Registers***

For the purposes of our survey, pre-existing administrative records and administrative registers were separate categories. The program review questionnaire lacked an explanation of the difference between the two terms and consequently, there was a broad range of differences in how the terms are used.

The two terms should be better defined to clarify how they are being used. The distinction we are attempting to make was based on how the administrative data are used. Are the data used to create the census count (register-based census) or to support the enumeration (for example, aid in developing an address frame, item non-response, etc.) through other methods? The distinction needs to be clarified. Then we need to develop terminology, which accurately reflects the use of the data.

In past UNSD studies, these terms have been put into the same category and used interchangeably. From this program review, they were intentionally separated. The survey results indicated that for some countries the terms are interchangeable. While for other countries, due to policies or privacy issues, there are differences between the two terms. It is important for accurate assessments of census methodologies to define the distinction between the two and gather information on their usage.

## **5.3 *Multi-mode Census***

With the growing complexity of census taking within countries, how do we accurately define a multi-mode census? How do we accurately describe all of the different permutations of the multi-mode methodology as its use increases? In the future, we will need common terminology to assess the different types of multi-mode census taking to learn whether countries still have a predominant method or if there is a multiplicity of methods being used.

One method to consider might be to analyze the percentage of final responses attributable to each mode used within a census. This will better enable us to understand and contrast multi-mode use across countries and the cost, quality, and complexity implications. This reinforces the need for Lesson Learned #5 below:

**Lessons Learned #5:** The UNSD should create a task force or committee to rethink, update, and synchronize definitions of census terminology for data sources and enumeration methods based on current practices. Make sure terminology and acronyms are defined and consistently used.

## 6. The 2020 Census Round - Looking Forward

Major changes have occurred in census taking from 2000 to 2010 and will continue to evolve between the 2010 census round and the 2020 census round. The international statistical community exists within a rapidly changing and evolving environment. Technology is changing our daily lives and the way in which census data are collected, processed, and disseminated. New census methods are developed to meet societal changes. The demand for data is increasing to help with policy formation and decision-making, administering programs, and for monitoring overall development progress. Census data may also be used for allocation of national funding and services, a source of demarcation of constituencies, and allocation of governing body representation.

Data collection encompasses both sources of data and enumeration methods. The continuum of change has been facilitated by the introduction of technology, reaching respondents, and ensuring their trust and cooperation. Our ability to match records and process large volumes of data has led to the increased use of administrative registers and pre-existing administrative records. In addition, to meet changes in societies, combinations of data sources and methods have led us to the multi-mode census.

Address list development and mapping techniques have progressed from paper lists created as enumerators distributed questionnaires or conducted interviews, the creation of paper maps, and at present to the use of GIS, global positioning systems (GPS), and digitized maps.

Data capture has evolved from punching key cards to keying to the use of scanning technologies, imaging, and paperless capture with the use of electronic questionnaires. Census data processing began with hand tallies to the early key punch methods to computers processing data at previously unimagined speed. It is too early to know the technologies that might be available in the 2020 round; nevertheless, the international statistical community must be prepared to meet the challenge.

## 6.1 Methodologies

The emergence of the multi-mode census is one of the key directions for the 2020 round. However, many countries will continue to use the traditional census method. For 2020, the survey responses show a number of countries moving away from this method to a blended approach to census taking, choosing data sources and methods to meet the unique needs of their country. A variety of data collection techniques will be used to make responding to the census less burdensome. Alternatively, data sources will be selected which limit or have no respondent burden.

## 6.2 Technologies

Flexibility and keeping up with the pace of new technologies will be the key for the 2020 round. Technology has the potential to decrease cost (after start-up costs) and time, while improving data quality. The use of the Internet, hand-held computers, and tablets will likely increase and provide other options in data collection with the benefit of reducing the volume and therefore reducing time needed for and the cost of data capture. GPS, GIS, and new mapping techniques will improve address listing and geospatial identification. Imaging and scanning will help with data capture. Respondents discussed their (or potential desire for) reliance on improved technology for census taking. What types of technology will be available for the 2020 round? Moreover, will countries have the technical expertise needed to support these technologies? Will countries have the needed funding for the initial start-up costs? These are just some of the questions raised that will need to be addressed during 2020 planning.

**Lessons Learned #6:** The United Nations should monitor changes in technology carefully. With such rapid change in technology, decisions regarding the use of a particular technology need to be fluid and not rigid.

Of those countries using some type of technology, 49.11 percent contracted out (outsourced) some or all of the technology work. The successes of contracting technology included adhering to schedule (23.81 percent), adhering to budget (23.02 percent), and staying within scope (22.22 percent). The challenges to contracting technology included: contract management (12.70 percent), adhering to budget (10.32 percent), and adhering to schedule (11.11 percent). The survey results show the successes and challenges are very often one and the same.

The *UN Principles and Recommendations for Population and Housing Censuses Revision 2*<sup>17</sup> provide some information on contracting. However, from the survey results, countries are experiencing mixed outcomes and could benefit from some additional guidelines.

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<sup>17</sup> *Principles and Recommendations for Population and Housing Censuses, Revision 2*, United Nations publication, Sales No. E.07.XVII.8 (2008).

**Lessons Learned #7:** Consideration should be given to preparing a technical manual on contracting for census technologies or expanding the existing contracting information in the *UN Principles and Recommendations for Population and Housing Censuses*.

### 6.3 International Collaboration

Sharing expertise among countries, particularly within regions, is critical as we move towards 2020. Regions are working together in new ways, consulting with each other, sharing resources, technology (hardware and software), and forming partnerships. Clearly, we are all facing the same challenges to have a successful census with less cost, faster data dissemination, and improved data quality. These are common pressures encountered by all NSOs. One of the most important lessons learned and common themes from the 2010 round is that we can all learn from each other. Countries are urged to share expertise and admit when one needs assistance. The uniqueness of census taking requires us to go to other statistical agencies both to seek advice and to be a sounding board to resolve challenges. This requires the full cooperation and participation from the international statistical community.

**Table 6.1: Collaborated with Other Countries for the 2010 Census Preparation**

Census Topics	Collaborated		Provided		Received	
	Number	%*	Number	%*	Number	%*
Alternative Census Methodologies	27	21.43	11	8.73	13	10.32
New Technologies	23	18.25	13	10.32	28	22.22
Questionnaire Design	27	21.43	19	15.08	28	22.22
Cartography/Mapping	20	15.87	15	11.90	32	25.40
Data Collection	15	11.90	18	14.29	14	11.11
Data Capture	21	16.67	14	11.11	24	19.05
Data Processing	21	16.67	13	10.32	35	27.78
Data Analysis	16	12.70	8	6.35	23	18.25
Post-Enumeration Survey	14	11.11	7	5.56	19	15.08
Data Dissemination	34	26.98	10	7.94	27	21.43
Other	5	3.97	3	2.38	5	3.97
Total Countries Responding	66	52.38	32	25.40	64	50.79

Source: Question 34

\* Percent is out of all countries responding to the survey - 126.

The survey results (Table 6.1) show that countries offer, receive, and collaborate in a number of activities. For this question, countries could mark all categories that applied to them. Data processing advice (27.78 percent) was the area of assistance most received by countries from other countries. Other common areas where countries received assistance from another nation include mapping (25.40 percent) and new technologies (22.22 percent). In terms of collaboration, data dissemination (26.98 percent), alternative census methodologies (21.43 percent), and questionnaire design (21.43 percent) were ranked highest on areas of collaboration for countries. Questionnaire design (15.08 percent) and data collection (14.29 percent) were the most often provided assistance to other countries.

Collaboration among countries is show below, by region, for the most frequent areas of collaboration:

**Africa:**

- Post-Enumeration Survey – 29.63%
- Cartography/Mapping – 25.93%
- Data Dissemination – 22.22%
- Data Analysis – 22.22%

**Asia:**

- Data Dissemination – 25.81%
- New Technologies – 22.58%
- Questionnaire Design – 22.58%
- Data Capture – 22.58%

**Europe:**

- Data Dissemination – 30.56%
- Alternative Census Methodologies – 27.78%
- New Technologies – 11.11%

**Oceania:**

- Alternative Census Methodologies – 57.14%
- Questionnaire Design – 57.14%
- Data Collection - 57.14%

**North America;**

- Data Capture – 38.89%
- Questionnaire Design – 33.33%
- Data Processing – 33.33%

**South America:**

- Questionnaire Design – 28.57%
- Data Processing – 28.57%
- Data Analysis – 28.57%

**Lessons Learned #8:** The UN should call for continued and increased collaboration and cooperation in respect to census activities among countries.

## 6.4 UN Support and Assistance

Around 85 per cent of the responding countries use UN census guidelines or publications to prepare for their census. The most widely used publication (see Table 6.2) is the *Principles and Recommendations for Population and Housing Censuses, Revision 2* (88.33 per cent), followed by the *Handbook on Census Management for Population and Housing Censuses*



(62.50 per cent), and the *Handbook on Population and Housing Census Editing* (53.33 per cent).<sup>18</sup>

**Table 6.2: Did You Utilize UN Census Guidelines/Publications to Prepare for the 2010 Round of Censuses?**

<b>Utilization of UN Guidelines/Publications in 2010 Round</b>	<b>Number</b>	<b>%</b>
Principles and Recommendations for Population and Housing Censuses, Revision 2	106	88.33
Conference of European Statisticians Recommendation for the 2010 Census of Population and Housing	47	39.17
Handbook on Census Management for Population and Housing Censuses	75	62.50
Handbook on Population and Housing Census Editing	64	53.33
Census Data Capture Methods	36	30.00
Post Enumeration Surveys: Operation Guidelines	49	40.83
Other	12	10.00
Total Countries that Responded to Question 33	120	100.00

Source: Question 33

Countries were asked about their preparation for the 2020 round of censuses and how the UN should facilitate experience exchanges and promote the use of best practices in census taking. Countries could mark multiple responses to this question. In Table 6.3, workshops or meetings (84.13 percent), and working papers, technical manuals, or technical reports (82.54 percent) were the most the frequently cited ways, followed by revising the *Principles and Recommendations for Population and Housing Censuses* for the 2020 round (79.37 percent). The use of social media was ranked the lowest (25.40 percent).

<sup>18</sup> *Handbook on Census Management for Population and Housing Censuses, Revision 1*, United Nations publication, Sales No. E.00.XVII.5 Rev. 1 (2000) and *Handbook on Population and Housing Census Editing, Revision 1*, United Nations publication, Sales No. E.09.XVII.11 (2010).

**Table 6.3: How Should the UN Facilitate an Exchange of Experiences and Promote the Use of Best Practices for the 2020 Census Round?**

<b>UN Facilitation Techniques</b>	<b>Number</b>	<b>%</b>
Update UN Principles and Recommendation for Population and Housing Censuses, Revised for the 2020 Census Round	100	79.37
Working Papers, Technical Manuals, or Technical Reports	104	82.54
Training	89	70.63
Workshops or Meetings	106	84.13
Conferences	87	69.05
Social Media	32	25.40
Website Repository	85	67.46
Collaboration with Other Countries	75	59.52
Other	2	1.59
<b>Total Countries</b>	<b>126</b>	<b>100.00</b>

Source: Question 37

The UN could play a significant role in planning for the 2020 round by providing opportunities for countries to exchange information on their 2010 experiences and promote the full range of possible census methods. For some countries, guidance is needed on how to choose the most appropriate method(s) to use in 2020 by carefully reviewing their country’s census goals and its particular data needs. With so many emerging options for census taking, countries need to be mindful of their goals, capabilities, and funding when deciding on an approach.

**Lessons Learned #9:** The UN should provide training, workshops, and guidance on determining which census methodologies to use to meet the needs and unique situation of each country.

To address the needs of the statistical community and the challenges of the 2020 round of censuses, we recommend the UN Statistical Commission direct the UN Statistics Division to plan a series of expert meetings. These meetings will gather more detailed information on the lessons learned, identify best practices from the 2010 round, and clarify emerging trends for the 2020 round. This information will be the starting point for planning the 2020 World Program on Population and Housing Censuses, revisions to key UN census publications, and preparation for workshops and training in the coming decade.

**Table 6.4: What Types of Assistance and Materials Will You Need from the UNSD to Prepare for the 2020 Census Round?**

<b>UNSD Assistance and Materials Needed to Prepare for the 2020 Round of Censuses</b>	<b>Number</b>	<b>%</b>
Update <i>UN Principles and Recommendation for Population and Housing Censuses</i> , Revised for the 2020 Census Round	99	85.34
Working Papers, Technical Manuals, or Technical Reports	94	81.03
Training	78	67.24
Workshops	91	78.45
Collaboration with Other Countries	52	44.83
Consultation with Other Countries	45	38.79
Other	2	1.72
None	3	2.59
Total Countries that Responded to Question 28	116	100.00

Source: Question 38

Countries were asked about the types of assistance and materials they will need from the UNSD to prepare for the 2020 round of censuses. From Table 6.4, 85.34 percent of the countries responding indicated that the *UN Principles and Recommendation for Population and Housing Censuses* should be revised for the 2020 round of censuses. Working papers, technical manuals, or technical reports (81.03 percent), and workshops (78.45 percent) closely followed this.

**Lessons Learned #10:** Due to the anticipated increased use of new technologies and emerging trends in census-taking, a revision 3 to the *UN Principles and Recommendations for Population and Housing Censuses* should be developed.

The 2010 World Population and Housing Census Program Review highlighted some of the early lessons learned from the 2010 round of censuses and preliminary trends and considerations for early 2020 planning. As we approach the end of the 2010 round, we must complete the task of gathering the lessons learned from this round. We can build upon the lesson learned and set the direction for the 2020 round of censuses.

**Lessons Learned #11:** Plans should be made for Expert Meetings to discuss detailed 2010 lessons learned, emerging trends for 2020, and the role of the UNSD in providing assistance.

Finally, the survey results indicate the need for continued UN support of national census taking worldwide for the 2020 census round. We request the Statistical Commission propose a resolution, supported by the member countries, to establish the 2020 World Program on Population and Housing Censuses.

**Lessons Learned #12:** Propose a UN Resolution to kick-off the 2020 World Program on Population and Housing Censuses.

## 7. Conclusions and Discussion Points

The 2010 round may be a transitional time for the world censuses. Census taking has evolved from face to face interviewing and counting by hand to the age of computers and multiple data collection methods being used. Many societal and technological changes are driving the way we conduct a census. To meet these emerging and evolving trends greater cooperation and collaboration among countries will be required.

By 2020, technologies and methods for census taking will likely change rapidly leading toward a paperless (electronic) census conducted using multiple data collection modes and processed as the data are received. Countries will need to acquire technical expertise and prudent decision-making to select the most appropriate methods and technologies for their censuses. Resources, funding, and data quality will need to be balanced with participation and privacy concerns for successful census taking in the 2020 round. Best practices, lessons learned, and open exchanges of information are needed as we move towards the 2020 census round.

The preliminary lessons learned from the 2010 round are presented throughout Sections 4, 5, and 6 of this paper and are summarized below.

As we near the conclusion of the world 2010 round of censuses and countries begin preparations for the 2020 round of censuses, we need to think about the current state of worldwide census taking and discuss the potential implications of impending technical and methodological changes to the 2020 round of world population and housing censuses. We may not fully know how the next round of census taking will be implemented, but we do know significant changes are ahead.

The UN Statistical Commission needs to provide guidance to the UN Statistics Division on how to develop the 2020 World Population and Housing Census Program in order to be prepared to meet the challenges of the next decade.

Lessons learned (summarized from the sections above):

1. The 2012 program review provided an initial evaluation of the censuses conducted and lessons learned but it was too early in the decade to get a good assessment of the program from most countries, as the bulk of census taking

- occurs in the years ending in 10 and 11. The UNSD should consider conducting another lessons learned evaluation as the 2010 census round closes out in 2014.
2. Establish an international working group to develop and test an instrument to look at census challenges, lessons learned, and directions for the future. This survey would be used in the beginning of a census cycle, at the mid point, and at the end to assess the trends of the decade. Repeated use of the same instrument will enable comparison of data throughout the decade. Create a companion document explaining the purpose of each survey question.
  3. Countries should consider many factors and select the most appropriate methods and technologies for their own unique situation and data needs. What is appropriate for one country may be inappropriate for another country's census taking.
  4. Work should be done to develop an accurate, viable method to obtain the costs of conducting a census that can be used to compare census cost across regions and/or countries.
  5. The UN should create a task force or committee to rethink, update, and synchronize definitions of census terminology for data sources and enumeration methods based on current practices. Make sure terminology and acronyms are defined and consistently used.
  6. The United Nations should monitor changes in technology carefully. With such rapid change in technology, decisions regarding the use of a particular technology need to be fluid and not rigid.
  7. Consideration should be given to preparing a technical manual on contracting for census technologies or expanding the existing contracting information in the *UN Principles and Recommendations for Population and Housing Censuses*.
  8. The UN should call for continued and increased collaboration and cooperation in respect to census activities among countries.
  9. The UN should provide training and guidance on determining which census methodologies to use to meet the needs and unique situation of each country.
  10. Due to the anticipated increased use of new technologies and emerging trends in census taking, a revision 3 to the *UN Principles and Recommendations for Population and Housing Censuses* should be developed.
  11. Plans should be made for Expert Meetings to discuss detailed 2010 lessons learned, emerging trends for 2020, and the role of the UNSD in providing assistance.
  12. Propose a UN Resolution to kick-off the 2020 World Program on Population and Housing Censuses.

**Attachment A: Countries that Responded to the 2010 World Population and Housing  
Program Review Questionnaire**

**Africa**

Botswana  
Burkina Faso  
Burundi\*  
Cape Verde\*\*  
Central African Republic  
Chad  
Comoros  
Egypt  
Ethiopia  
Gambia  
Ghana  
Kenya  
Lesotho  
Mali  
Malawi\*  
Mauritius  
Morocco  
Mozambique  
Namibia\*  
Niger  
Rwanda  
Senegal  
Seychelles  
Swaziland  
Togo\*  
United Republic of Tanzania  
Zambia  
Zimbabwe

**North America**

Antigua and Barbuda  
Bahamas  
Barbados  
Canada  
Costa Rica  
Cuba  
Dominica  
Dominican Republic  
Honduras  
Jamaica  
Mexico  
Nicaragua  
Panama  
Saint Kitts and Nevis\*  
Saint Lucia\*  
Saint Vincent and  
The Grenadines

Trinidad and Tobago  
United States of America

**South America**

Argentina  
Chile  
Colombia  
Ecuador  
Honduras\*  
Peru  
Suriname  
Uruguay

**Asia**

Afghanistan  
Armenia  
Azerbaijan  
Bahrain\*\*  
Bangladesh\*  
Bhutan  
Cambodia  
China  
Indonesia  
Iraq  
Israel  
Japan  
Jordan  
Kuwait  
Lao People's  
Democratic Republic\*  
Lebanon  
Malaysia  
Maldives  
Mongolia  
Oman  
Pakistan  
Philippines  
Qatar  
Republic of Korea  
Saudi Arabia  
Sri Lanka  
Tajikistan  
Singapore  
Thailand  
Timor-Leste  
Turkey  
United Arab Emirates  
Viet Nam

**Europe**

Albania  
Austria  
Belarus  
Bulgaria\*  
Croatia  
Czech Republic  
Denmark  
Estonia  
Finland  
Germany  
Greece  
Hungary  
Iceland  
Ireland  
Italy  
Latvia  
Liechtenstein  
Lithuania  
Luxembourg  
Montenegro  
Netherlands  
Norway  
Poland  
Portugal  
Republic of Moldova  
Romania  
Russian Federation  
San Marino\*  
Serbia  
Slovakia  
Slovenia  
Spain  
Sweden  
Switzerland  
Ukraine  
United Kingdom of Great Britain  
and Northern Ireland

**Oceania**

Australia  
Kiribati  
Micronesia\*  
Nauru  
New Zealand  
Palau  
Tuvalu

+ These countries responded to the survey prior to the Forty-third Session of the Statistical Commission. However, they were received too late to be included in the report presented at the Statistical Commission Meeting. Their data are included in the survey results presented in this paper. (Three countries)

\* These countries responded to the survey following the Forty-third Session of the Statistical Commission Meeting (June – August 2012). Their data were not included in the report presented at the Statistical Commission Meeting. Their data are included in the survey results presented in this paper. (14 countries)

\*\* These countries also responded to the survey following the Forty-third Session of the Statistical Commission, however, the UN received their questionnaires after the final deadline (17 August 2012). Therefore, their data are not included in the survey results used to prepare this paper. (Two countries)

One hundred and nine countries were included in the report presented at the Statistical Commission Meeting. Overall, the UN received 128 questionnaires out of 192 countries.

Attachment B: **2010 World Population and Housing Census Program Review Questionnaire**

**Instructions:** The United Nations Statistical Commission at its 42<sup>nd</sup> session has requested a program review of the 2010 World Population and Housing Census Programme to be discussed at its 43<sup>rd</sup> session. The program review will be undertaken by the Census Bureau of the United States. Accordingly, the Bureau is collecting information on the lessons learned from the 2010 round of population and housing censuses from which recommendations will be made to the UN Statistical Commission for the 2020 census round.

When completing the questionnaire, responses should reference your census planned for the 2010 round, which covers the years 2005 through 2014. If you will conduct only one population and housing census from 2005 to 2014, then the questionnaire responses refer to that census. If more than one population and housing census is planned during the 2010 census round, then the responses reference the census taken in the year nearest to 2010.

To select a response electronically, click inside a box  and an "X" will appear, like this . To fill in an open response, click on the line and type as much as you wish. There are no limitations to the amount of information you may provide. Alternatively, you may print out the form, fill out the requested information, and fax it back.

The 2012 program review will be available on the UN Statistics Division website: <http://unstats.un.org> in January 2012.

Please return the completed questionnaire, no later than **29 July 2011** to:  
Email: [globalcensus2010@un.org](mailto:globalcensus2010@un.org)  
Fax: +1-212-963-1940

**I. Respondent Information:**

Country: \_\_\_\_\_

Organization: \_\_\_\_\_

Name of person completing this questionnaire: \_\_\_\_\_

Position/Job Title: \_\_\_\_\_

Telephone number (including country code): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_



## II. 2010 Census Experience and Lessons Learned

1. Have you conducted a census during the 2010 round (covers the time period 2005 to 2014) of population and housing censuses?
  - <sup>1</sup>  Yes, in what year was your most recent census conducted? \_\_\_\_\_ – Go to Question 3.
  - <sup>2</sup>  No. – Go to Question 2.
  
2. Do you have a census planned for this round?
  - <sup>1</sup>  Yes, in what year is your census planned? \_\_\_\_\_ – Go to Question 3.
  - <sup>2</sup>  No, we do not plan to conduct a census in the 2010 round. – Go to Section IV.
  
3. Have you postponed your census at least once for the 2010 round?
  - <sup>1</sup>  Yes, please specify how many times it was postponed and why: \_\_\_\_\_
  - <sup>2</sup>  No
  
4. What was (or will be) the **main** methodology used for your census (the main source of data used for the total population count)? (Mark only one box):
  - <sup>1</sup>  Full field enumeration (Traditional Census)
  - <sup>2</sup>  Administrative register(s), specify: \_\_\_\_\_
  - <sup>3</sup>  Pre-existing administrative records (not part of a register), specify: \_\_\_\_\_
  - <sup>4</sup>  Rolling census
  - <sup>5</sup>  Other, specify: \_\_\_\_\_
  
5. In addition to the main source of data specified above, indicate whether **other** sources were (or will be) used to provide data on specific census topics (Mark all that apply):
  - <sup>1</sup>  Administrative register(s), specify: \_\_\_\_\_
  - <sup>2</sup>  Pre-existing administrative records (not part of a register), specify: \_\_\_\_\_
  - <sup>3</sup>  Annual or other regularly conducted sample survey(s), specify: \_\_\_\_\_
  - <sup>4</sup>  Ad hoc sample survey(s) specifically conducted for the census
  - <sup>5</sup>  Other, specify: \_\_\_\_\_
  
6. What enumeration methods did you (or will you) use? (Mark all that apply):
  - <sup>1</sup>  Face-to-face interviewer, paper questionnaire
  - <sup>2</sup>  Face-to-face interviewer, electronic questionnaire
  - <sup>3</sup>  Telephone (interviewer or automated)
  - <sup>4</sup>  Self-enumeration, paper questionnaire, collected by enumerators
  - <sup>5</sup>  Self-enumeration, paper questionnaire, returned by mail
  - <sup>6</sup>  Self-enumeration, Internet
  - <sup>7</sup>  Register-based enumeration
  - <sup>8</sup>  Pre-existing administrative records (not part of a register)
  - <sup>9</sup>  Other, specify: \_\_\_\_\_

7. What type of residency rules did (or will) you use for your census? (Mark all that apply):

- <sup>1</sup>  Usual resident count (i.e., *de jure*, the place a person spends most of his/her daily night-rest)
- <sup>2</sup>  Population present count (i.e., *de facto*, the place a person is at the time of the census)
- <sup>3</sup>  Legal/permanent address count (i.e., the place a person lives for legal purposes)
- <sup>4</sup>  Other, specify: \_\_\_\_\_

8. What are the challenges that you faced (or will face) in planning and conducting your census for the 2010 round of censuses? (Mark all that apply):

- <sup>1</sup>  Cost
- <sup>2</sup>  Timeliness
- <sup>3</sup>  Response rates
- <sup>4</sup>  Data quality
- <sup>5</sup>  Public perception
- <sup>6</sup>  Privacy issues
- <sup>7</sup>  Other, specify: \_\_\_\_\_

9. What were your successes in the 2010 round of censuses? (Mark all that apply):

- <sup>1</sup>  Kept within budget
- <sup>2</sup>  Met deadlines
- <sup>3</sup>  Improved logistics and coordination
- <sup>4</sup>  Improved/maintained response/participation rates
- <sup>5</sup>  Improved/maintained data quality
- <sup>6</sup>  Improved data dissemination
- <sup>7</sup>  Implemented new technologies
- <sup>8</sup>  Implemented new methodologies
- <sup>9</sup>  Other, specify: \_\_\_\_\_

A. **Census Methodologies:** *When answering questions 10-17, please refer to any census methodologies you may have used for your census as an alternative to a traditional census (full field enumeration), such as the use of an administrative register, other administrative records (not part of a register), rolling census, survey supplements, etc.*

10. Did you (or will you) use an alternative census methodology for the 2010 census round?

- <sup>1</sup>  Yes, used alternative methodologies this round and previous rounds, go to Question 11.
- <sup>2</sup>  Yes, used methodologies for the first time this round, go to Question 11.
- <sup>3</sup>  No, go to Question 17.

11. Was there a cost or time savings **predicted** by using the alternative methodology?

- <sup>1</sup>  Yes, please describe the savings: \_\_\_\_\_  
<sup>2</sup>  No

12. Was a cost or time savings **realized** by using the alternative methodology?

- <sup>1</sup>  Yes, please describe the savings: \_\_\_\_\_  
<sup>2</sup>  No

13. What are the benefits and risks of the alternative methodology that you used compared to a traditional census? (Mark all that apply):

<b>a. Benefits</b>	<b>b. Risks</b>
<sup>1</sup> <input type="checkbox"/> Cost savings	<sup>9</sup> <input type="checkbox"/> Increased cost
<sup>2</sup> <input type="checkbox"/> Time savings	<sup>10</sup> <input type="checkbox"/> Increased time
<sup>3</sup> <input type="checkbox"/> Improved coverage	<sup>11</sup> <input type="checkbox"/> Decreased coverage
<sup>4</sup> <input type="checkbox"/> Improved data quality	<sup>12</sup> <input type="checkbox"/> Decreased data quality
<sup>5</sup> <input type="checkbox"/> Increased participation/response rates	<sup>13</sup> <input type="checkbox"/> Negative public perception
<sup>6</sup> <input type="checkbox"/> Decreased item non-response	<sup>14</sup> <input type="checkbox"/> Reduced topics (content)
<sup>7</sup> <input type="checkbox"/> Use of standardized census topic concepts and definitions	<sup>15</sup> <input type="checkbox"/> Use of data source definition instead of census definition
<sup>8</sup> <input type="checkbox"/> Other, specify:	<sup>16</sup> <input type="checkbox"/> Other, specify:

14. What was the impact of the alternative methodology on participation in the census or on response rates?

- <sup>1</sup>  Increase in participation or response rates  
<sup>2</sup>  Decrease in participation or response rates  
<sup>3</sup>  No change in participation or response rates  
<sup>4</sup>  Not applicable

15. What obstacles did you face planning or implementing the alternative methodology? (Mark all that apply):

- <sup>1</sup>  Financial resources  
<sup>2</sup>  Staff resources/expertise  
<sup>3</sup>  Public perception  
<sup>4</sup>  Public privacy and confidentiality concerns  
<sup>5</sup>  Stakeholder acceptance  
<sup>6</sup>  Stakeholder privacy and confidentiality concerns  
<sup>7</sup>  Legal authority/Governmental support  
<sup>8</sup>  Process reengineering/Infrastructure  
<sup>9</sup>  Data processing/tabulation  
<sup>10</sup>  Data dissemination  
<sup>11</sup>  Culture  
<sup>12</sup>  Geography (Terrain)

- 13  Climate  
 14  Other, specify: \_\_\_\_\_

16. For the next round of censuses, will you repeat the alternative methodologies that you used during this round?

- 1  Yes  
 2  No, why not? \_\_\_\_\_

**B. (Information)Technology:** *When answering questions 17-24, please keep in mind technology you used for your 2010 round of censuses.*

17. Did you use any of the following types of technology during your 2010 round census? (Mark all that apply):

- 1  Internet  
 2  Laptop Computers  
 3  Hand-held/Pocket Computers  
 4  Tablet Computers  
 5  Geographical Information Systems (GIS)  
 6  Computer-assisted coding  
 7  Optical mark reading/recognition (OMR)  
 8  Optical character reading/recognition (OCR)  
 9  Other imaging techniques and scanner devices (including key from image or intelligent character readers)  
 10  Other, specify: \_\_\_\_\_  
 11  None of the above.

18. Was there a cost or time savings **predicted** by using the new technology?

- 1  Yes, please describe the savings for each technology: \_\_\_\_\_  
 2  No

19. Was a cost or time savings **realized** by using the new technology?

- 1  Yes, please describe the savings for each technology: \_\_\_\_\_  
 2  No

20. What are the benefits and risks of the new technology that you used? (Mark all that apply):

<b>a. Benefits</b>	<b>b. Risks</b>
1 <input type="checkbox"/> Cost savings	7 <input type="checkbox"/> Increased cost
2 <input type="checkbox"/> Time savings	8 <input type="checkbox"/> Increased time
3 <input type="checkbox"/> Improved coverage	9 <input type="checkbox"/> Decreased coverage
4 <input type="checkbox"/> Improved data quality	10 <input type="checkbox"/> Decreased data quality
5 <input type="checkbox"/> Increased participation/response rates	11 <input type="checkbox"/> Negative public perception
6 <input type="checkbox"/> Other, specify: _____	12 <input type="checkbox"/> Other, specify: _____

21. What was the impact of the new technology on participation in the census or on response rates?

- 1  Increase in participation or response rates
- 2  Decrease in participation or response rates
- 3  No change in participation or response rates
- 4  Not applicable

22. What obstacles did you face using the new technology? (Mark all that apply):

- 1  Financial resources
- 2  Staff resources/expertise
- 3  Public perception
- 4  Public privacy and confidentiality concerns
- 5  Stakeholder acceptance
- 6  Stakeholder privacy and confidentiality concerns
- 7  Legal authority/Governmental support
- 8  Process reengineering/Infrastructure
- 9  Data processing/tabulation
- 10  Data dissemination
- 11  Culture
- 12  Geography (Terrain)
- 13  Climate
- 14  Other, specify: \_\_\_\_\_

23. Did you contract out (outsource) any type of technology for the 2010 round of censuses?

- 1  Yes, go to Question 24.
- 2  No, go to Question 25.

24. What were the successes and challenges about contracting out technology?

	<b>a. Success</b>	<b>b. Challenge</b>
(1) Contract management	1 <input type="checkbox"/>	7 <input type="checkbox"/>
(2) Staying within scope	2 <input type="checkbox"/>	8 <input type="checkbox"/>
(3) Adhering to budget	3 <input type="checkbox"/>	9 <input type="checkbox"/>
(4) Adhering to schedule	4 <input type="checkbox"/>	10 <input type="checkbox"/>
(5) Improved census integration	5 <input type="checkbox"/>	11 <input type="checkbox"/>
(6) Other, specify:	6 <input type="checkbox"/>	12 <input type="checkbox"/>

C. **Data Dissemination:** *In this section, respond based on how your country distributed data from the 2010 round of censuses.*

25. What is (will be) the **primary** method of data dissemination for your census results? (Mark ONLY one):

- 1  Paper publication(s)
- 2  CD-ROM/DVD
- 3  Static web pages (html, pdf, Excel)
- 4  Interactive online database(s)
- 5  Other, please specify: \_\_\_\_\_

26. What **other** methods of data dissemination do you use? (Mark all that apply):

- 1  Paper publication(s)
- 2  CD-ROM/DVD
- 3  Static web pages (html, pdf, Excel)
- 4  Interactive online database(s)
- 5  GIS web-based mapping tools
- 6  Other, please specify: \_\_\_\_\_

27. Did you (or will you) consult with data users and stakeholders about your data dissemination plans?

- 1  Yes
- 2  No

**III. 2020 World Program on Population and Housing Census – Looking Forward:** *In this section, your responses should refer to lessons learned from the 2010 round of censuses and your plans for the 2020 round.*

28. What **worked well** for you in the 2010 round and will be repeated in the 2020 round?

Please describe: \_\_\_\_\_

29. What **did not work** well for you in the 2010 round and will **not** be repeated in the 2020 round?

Please describe: \_\_\_\_\_

30. What innovations are you planning to look into for in the 2020 round? Please describe: \_\_\_\_\_

**A. New Topics:** *In this section, respond based on new topics that your country may introduce for the 2020 round of censuses.*

31. What, if any, emerging issues may require new topics be added to your 2020 round census questionnaire to fulfill data needs for your country?

Please describe: \_\_\_\_\_

32. How do you determine which new topics are added to your census? (Mark all that apply):

- 1  Legislation
- 2  Request by data users
- 3  Pertinent/evolving issues in country
- 4  Trends in society
- 5  Requests from other statistical agencies in your country
- 6  Consultations with other international statistical agencies
- 7  Other, specify: \_\_\_\_\_

**B. International Cooperation:** *This section asks both about international assistance in the 2010 round as well as assistance in the 2020 round.*

33. Did you utilize UN census guidelines/publications to prepare for your 2010 round census?

- 1  Yes, which materials? (Mark all that apply):
- 2  *Principles and Recommendations for Population and Housing Censuses, Revision 2*
- 3  *Conference of European Statisticians Recommendations for the 2010 Censuses of Population and Housing*
- 4  *Handbook on Census Management for Population and Housing Censuses*
- 5  *Handbook on Population and Housing Census Editing*
- 6  *Census Data Capture Methods*
- 7  *Post Enumeration Surveys: operational guidelines*
- 8  Other, specify: \_\_\_\_\_
- 9  No

34. In preparation for the 2010 round of censuses, please indicate topics on which you collaborated with, provided assistance to, or received assistance from other countries. (Mark all that apply):

	a. <b>Collaborated</b> on:	b. <b>Provided</b> assistance on:	c. <b>Received</b> assistance in:	d. Please describe <b>with</b> <b>whom, to whom or from</b> <b>whom:</b>
(1) Alternative census methodologies	<sup>1</sup> <input type="checkbox"/>	<sup>12</sup> <input type="checkbox"/>	<sup>23</sup> <input type="checkbox"/>	
(2) New technologies	<sup>2</sup> <input type="checkbox"/>	<sup>13</sup> <input type="checkbox"/>	<sup>24</sup> <input type="checkbox"/>	
(3) Questionnaire design	<sup>3</sup> <input type="checkbox"/>	<sup>14</sup> <input type="checkbox"/>	<sup>25</sup> <input type="checkbox"/>	
(4) Cartography/mapping	<sup>4</sup> <input type="checkbox"/>	<sup>15</sup> <input type="checkbox"/>	<sup>26</sup> <input type="checkbox"/>	
(5) Data collection	<sup>5</sup> <input type="checkbox"/>	<sup>16</sup> <input type="checkbox"/>	<sup>27</sup> <input type="checkbox"/>	
(6) Data capture	<sup>6</sup> <input type="checkbox"/>	<sup>17</sup> <input type="checkbox"/>	<sup>28</sup> <input type="checkbox"/>	
(7) Data processing	<sup>7</sup> <input type="checkbox"/>	<sup>18</sup> <input type="checkbox"/>	<sup>29</sup> <input type="checkbox"/>	
(8) Data analysis	<sup>8</sup> <input type="checkbox"/>	<sup>19</sup> <input type="checkbox"/>	<sup>30</sup> <input type="checkbox"/>	
(9) Post-Enumeration Survey	<sup>9</sup> <input type="checkbox"/>	<sup>20</sup> <input type="checkbox"/>	<sup>31</sup> <input type="checkbox"/>	
(10) Data dissemination	<sup>10</sup> <input type="checkbox"/>	<sup>21</sup> <input type="checkbox"/>	<sup>32</sup> <input type="checkbox"/>	
(11) Other, please specify:	<sup>11</sup> <input type="checkbox"/>	<sup>22</sup> <input type="checkbox"/>	<sup>33</sup> <input type="checkbox"/>	

35. Preparing for the 2020 round of censuses, will the use of UN standard concepts and definitions, as found in the UN Principles and Recommendations for Population and Housing Censuses, aid you in the development of new topics for your census (if they exist currently)?

- <sup>1</sup>  Yes  
<sup>2</sup>  No



36. Preparing for the 2020 round of censuses, for new topics that do not have UN standard definitions, would it be useful to have new UN standard definitions to aid in comparability across countries?

- <sup>1</sup>  Yes  
<sup>2</sup>  No

37. Preparing for the 2020 round of censuses, how should the UN facilitate an exchange of experiences and promote the use of best practices in census taking? (Mark all that apply):

- <sup>1</sup>  Update UN *Principles and Recommendations for Population and Housing Censuses, Revised for the 2020 Census Round*  
<sup>2</sup>  Working papers, technical manuals, or technical reports  
<sup>3</sup>  Training  
<sup>4</sup>  Workshops or meetings  
<sup>5</sup>  Conferences  
<sup>6</sup>  Social media  
<sup>7</sup>  Website repository  
<sup>8</sup>  Collaboration with other countries  
<sup>9</sup>  Other, specify: \_\_\_\_\_

38. What types of assistance and materials will you need from the UN Statistics Division to prepare for the 2020 round of censuses? (Mark all that apply):

- <sup>1</sup>  Updated UN *Principles and Recommendations for Population and Housing Censuses, Revised for the 2020 Census Round*  
<sup>2</sup>  Working papers, technical manuals, and/or technical reports  
<sup>3</sup>  Training  
<sup>4</sup>  Workshops  
<sup>5</sup>  Collaboration with other countries, specify: \_\_\_\_\_  
<sup>6</sup>  Consultation with other countries, specify: \_\_\_\_\_  
<sup>7</sup>  Other, specify: \_\_\_\_\_  
<sup>8</sup>  None

**IV. Contact Information:** *Please provide the name and contact details for someone we may contact, if we need additional information or to clarify a response.*

- <sup>1</sup>  Same as Respondent  
<sup>2</sup>  Contact Person:

Name of Contact Person: \_\_\_\_\_

Organization: \_\_\_\_\_

Position/Job Title: \_\_\_\_\_

Telephone number (including country code): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

**Thank you for participating!**