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Information session on the 2010 Round of Population and Housing Censuses

2010 Round of Population and Housing Censuses: A Global Review

Note by the United Nations Statistics Division

Summary

Since the 1950s, the UN Statistics Division (UNSD), as the secretariat to the decennial World Population and Housing Census Programme, has closely monitored the implementation of population censuses worldwide under the authority of the UN Statistical Commission. The present paper summarizes 1) the national implementation of population and housing censuses during the 2010 round of World Census Programme; 2) discusses new developments observed in the current round; 3) addresses challenges that countries have faced in conducting their censuses; and 4) introduces key decisions of the UN Statistical Commission at its 43rd session in 2012 on the World Census Programme.

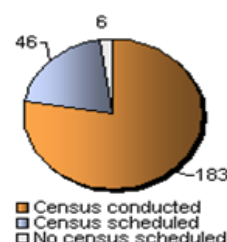
I. National Implementation of the 2010 World Population and Housing Census Programme

1. The 2010 World Population and Housing Census Programme was approved by the Statistical Commission at its 36th session and adopted by the United Nations Economic and Social Council (ECOSOC) in its resolution A/2005/13. The programme recognizes population and housing censuses as one of the main sources of data for effective development planning and objective decision-making: census data are indispensable for monitoring population trends and programmes as well as for evaluating policies. The 2010

World Programme, in particular, aims at ensuring that each Member State conducts a population and housing census at least once in the period which spans from 2005 to 2014 and disseminates the results widely.

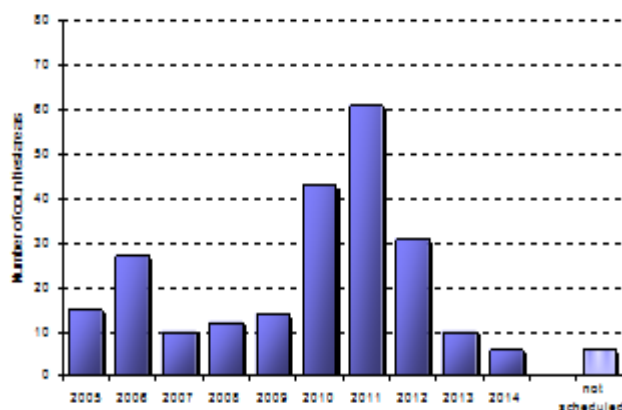
At the global level, the 2010 World Population and Housing Census Programme has been a great success in terms of country participation. In the 2010 census round, as of 1 May 2012, 183 out of 235 countries or areas have conducted a census (enumerating an estimated 88 per cent of the world population), and 46 more have scheduled a census by 2014. Given that only six countries or areas in the world have not yet scheduled a census during the current round, it is expected that nearly 99 per cent of the world population will have been enumerated by national censuses by the end of the round. This is a significant improvement over the 2000 round, when 27 countries or areas did not conduct a census. The noticeable improvement in the implementation of national censuses is seen in Africa where 55 countries have conducted or plan to conduct a census during the 2010 round, as compared to 42 countries during the 2000 round.

Figure 1: Number of countries or areas conducted a census, as of 1 May 2012



2. The peak of the 2010 census round, in terms of number of censuses conducted, was 2011 when 61 countries or areas, many of which are in Europe, had a census. However, the biggest count of the world population was in 2010 with over 2.5 billion persons (36.4 per cent of the world population) enumerated in 43 countries or areas. Four out of the five world's most populous countries, Brazil, China, Indonesia, and the U.S. conducted a census in 2010.

Figure 2: Number of countries or areas that conducted a census by year



II. Innovations in the 2010 Round of Population and Housing Censuses

3. Countries or areas are constantly improving or seeking to improve efficiency in how they conduct a census and collect data through it. The 2010 round of population and

housing censuses can be characterized by dynamic attempts by many countries to conduct a census in more innovative ways. The main innovations are in terms of new census methods to obtain the data and use of advanced technologies. The discussion which follows is based on the results of global surveys on the 2010 World Census Programme conducted by the UNSD in 2009/2010 (United Nations, 2011) and by the US Census Bureau 2011 (United Nations, 2012) for the programme review for the UN Statistical Commission.

A. Census methods

4. Aforementioned global surveys at the mid-decade of the census round corroborate that the large majority of countries or areas in the world are still conducting a census in a traditional way, i.e. direct field enumeration throughout the whole country. Indeed, in the 2010 round, a significant number of countries have used face-to-face interviewing with a paper questionnaire as their only data collection method. However, the trend is for countries to use a variety of methods for their population count and to move away from the concept of a single method of data collection.

5. The choice or combination of additional methods used, in terms of the mode of data collection, greatly varies among countries or areas in the world, reflecting differences in country circumstances and the applicability of technologies. This is because the use of non-traditional modes of enumeration entails some pre-requisites that may not be feasible for many countries or areas to fulfil (United Nations, 2010). Available information shows that, while some countries or areas have used portable devices such as Personal Digital Assistants (PDAs) for data collection, others have adopted computer assisted telephone interview (CATI). Still, others rely on self-enumeration of respondents either through completion of paper questionnaires or over the Internet. The example of multi-mode census can be seen in Thailand where the country, for the first time, offered several channels for people to fill in their information for the 2010 national census. The modes of data collection ranged from face-to-face interviews, telephone interviews, self-enumeration of questionnaire (drop off of a census questionnaire), to self-enumeration through the Internet.

6. It has also become evident in the 2010 census round that many countries or areas are investigating and using alternative sources of data for compiling key statistics that used to be generated by the traditional approach to population and housing censuses. These countries or areas have relied on alternative sources to obtain census data, mainly using pre-existing registers either alone or in combination with other data collection mechanisms.

7. For instance, many countries, especially those in Europe, took advantage of the information in existing administrative sources through record-linking to produce census data. Thus, different basic registers, such as population, buildings and business registers, were linked at the individual level to produce comprehensive data on individuals and households. Whether or not such a register-based census will become a feasible alternative to a traditional census in many countries or areas remains to be seen. However, the trend is such that even countries which do not have a complete population register started seeking the possibility of using registers as a main source of their 2010 census round data.

8. It should be noted that countries or areas that seek alternative methods of census also look for extensively additional sources such as continuous or ad-hoc sample surveys to supplement their census data collection. A rolling census, being conducted thus far only by France, represents an alternative to the traditional model of the census by means of a continuous cumulative survey covering the whole country over several years. The Netherlands conducted a virtual census, by integrating data from registers and those from multi-purpose surveys such as the Continuous Omnibus Survey. In the U.S., the American

Community Survey (ACS) serves as a source to obtain the data that used to be collected through the long form of the decennial census.

B. Use of modern technology

9. The 2010 census round also witnessed a substantial number of countries or areas that have adopted advanced technologies, not just for data collection, but in all phases of the census operation. Countries or areas have also made efforts to use existing technologies more innovatively to improve the completeness, accuracy, timeliness, accessibility and overall quality of census results.

10. The global surveys on population and housing censuses mentioned above revealed that Geographic Information System (GIS) and Global Position System (GPS) as part of census mapping operations were the most widely used technologies in conducting a census. There has been increased use of GIS in different phases of the census operation, and also in combination with other geo-located tools such as hand-held devices and mobile telephones. GIS has been used for creating the cartographic basis for the delineation of enumeration areas (EAs) and monitoring geographically the operation of field enumeration. A number of countries or areas have employed GIS technology for geo-referencing, analysing as well as disseminating census results with GIS web-based mapping tools.

11. For data collection, as has already been mentioned, many countries or areas have used hand-held digital devices such as PDA, tablet computers, the Internet, or CATI. Brazil and Oman carried out their 2010 censuses without any paper questionnaires, by collecting census data using the PDA. Each hand-held device was equipped with an enumeration area map, list of addresses and electronic census questionnaires. The experience of the Republic of Korea in introducing the Internet as an optional mode of enumeration during the 2010 Census attested that the use of the Internet could reduce the cost of census, the burden of respondents, as well as response and coverage errors. The global survey on population and housing censuses revealed that most countries currently using paper questionnaires were interested in employing these advanced enumeration technologies in the 2020 round (United Nations, 2012).

12. It should be noted that new technologies have also improved the overall management of field operations. For instance, for the 2010 Oman census, call centres and mobile telephone technology were used to build an integrated field communication system, allowing real-time flow of information among field staff and between them and the other levels of the census operation. Indonesia, where smooth running of census operations had been hampered in previous censuses by its unique geography consisting of over 17,000 islands, successfully used modern technologies for field operations for the 2010 population and housing census.

13. During the 2000 round of censuses, many countries or areas adopted scanning technology for data capture but often with a lot of failures, mainly due to lack of adequate advance planning and testing. In the 2010 round, countries have taken advantage of further refinements in scanning technology, and have replaced manual data entry with more advanced data capture methods. Hence, the use of optical mark recognition (OMR), optical character recognition (OCR), intelligent character recognition (ICR) or devices for computer-assisted coding, has become the most viable option for data processing for many countries.

14. With the widespread use of microcomputers and growing access to the Internet, an increasing number of data users prefer to obtain census results in electronic media rather than in printed form (United Nations, 2011). In response to such demands, census data have been disseminated by a wider variety of media. In addition to traditional paper

publications, dissemination of census data using CD-ROM/DVD or static web pages has become increasingly common. Dissemination of census results via online databases and with the use of GIS web-based mapping tools has also been on the rise.

15. Thus, it is obvious from the foregoing that advanced technologies have had a significant impact on the way censuses of the 2010 round have been conducted. Indications are that the use of modern technologies has enabled countries or areas to release their census results faster than ever. Modern technologies for data capture and processing, by eliminating the traditional manual process, have drastically shorten the time it takes between data collection and dissemination. Evidence shows that for example, Brazil, Oman and India were able to release their provisional census results in about a month in the current round.

16. Additionally, it is also expected that such an introduction of modern technologies has the potential to improve data quality by reducing human error in data entry and allowing easy internal consistency checks of responses during data collection.

III. Challenges observed during the 2010 Round of Population and Housing Censuses

17. While many innovative developments have been observed in the 2010 census round, there have also been new challenges confronting census-taking. Among the emerging challenges countries experienced in the current round are a) needs for technical expertise, b) difficulties in reaching respondents; c) rising cost or budget of census; and d) political and social instability.

A. Needs for technical expertise

18. Advancement of technology has significantly enhanced technological options for census taking in the current round. The challenge is that countries are not at the same level of technological development and also do not have the same pool of skilled personnel to fully utilize the available technology. Given rapid changes in technology as against a census that usually takes place only once in ten years, technologies employed in the previous census tend to be quickly outdated. Thus, many national statistical authorities, especially in developing countries, have faced challenges of keeping abreast of advances in technologies and enhancing knowledge on new technological tools, especially in the area of GIS.

19. Countries or areas which adopted alternative census methods are also not free from technical challenges or issues. As a pre-requisite of register-based census, existing registers need to be functional and updated continuously. However, the quality and completeness of the information available from registers often vary among different registers. The method also requires innovative technological set-up for record-linking.

B. Difficulties in reaching respondents

20. Throughout the world, the lifestyle of people is changing with startling rapidity, also affecting the conduct of census. People have become more migratory than ever, in search of education, jobs or better opportunities for life. A growing number of individuals live alone in single-person households – a trend more commonly observed in urban areas. Modern dwellings are also better controlled for security, making it difficult to have direct access to residential units and residents. Thus, in the current census round, many countries or areas

noted that changes in lifestyle or patterns of living have made it more difficult for census enumerators to identify and reach the intended respondents.

21. Related to the point above is a growing concern among people about privacy and confidentiality of the information collected through a census. Privacy concerns and the perception of governmental intrusion in peoples' personal life by the census have made it difficult to urge the participation of people in census, resulting in declines in response rates in a growing number of countries. The trend has sometimes eroded political commitment for the indispensability of the census.

C. Rising cost or budget of census

22. Fighting with rising cost of census or staying within budget was one of the most frequently reported challenges in a global survey on the 2010 round of censuses (United Nations, 2012). Investments in modern technologies often increased the census budget significantly as an initial cost, although the same technologies might have contributed to save the cost for field operation, by reducing the number of enumerators or people to follow-up.

23. The 2010 census round saw that the physical size of the country as well as the number of languages used in a country tend to add to the cost. Some countries also allocated a relatively large budget for the publicity campaign with the aim of increasing awareness about a census as an upcoming event, and therefore increasing participation. It should be noted that rising costs of census, coupled with privacy concerns or failing response rates are among motivators for some countries to look into alternative methods for compiling census data (United Nations, 2012).

D. Political and social instability

24. Overall, country participation in the implementation of population and housing censuses has improved significantly in the 2010 census round compared to the 2000 round. Notable contribution had been countries such as Liberia and Sierra Leone, which emerged from long-term civil conflicts or war and conducted a census after many years of not doing so.

25. However, the current round still saw that a non-negligible number of countries have faced difficulties to undertake a census as scheduled, often resulting in cancelling or postponement of census dates. This attests to the fact that political and social stability, in addition to solid financial resources or optimal technical skills of concerned agencies, is a pre-requisite for the successful conduct of a census. In the current census round, in order to help assist smooth planning and conduct of a census, international communities have formed an advisory group for several countries and areas, including Afghanistan, Iraq, the Sudan and Kosovo.

IV. Discussions on the Census Programme at the 43rd Session of the United Nations Statistical Commission

26. At its 43rd session of the United Nations Statistical Commission, held in New York, from 28 February to 2 March 2012, the review of the 2010 World Population and Housing Census Programme was based on the report transmitted by the United States Census Bureau on the mid-decade programme review (United Nations, 2012). The report generated vigorous discussion on national experiences on census-taking and lessons learned to date.

27. The Statistical Commission commended the successful implementation of the 2010 round of censuses, noting that only a handful of countries or areas may not conduct a census in the current round. It recognized the valuable support of UNSD, UNFPA and regional institutions in planning and conducting national censuses, as well as the importance of South-South cooperation which had emerged during the 2010 census round in order to promote exchange of country experience.

28. As the 2010 census round is winding down, the majority of countries have moved from data collection to data analysis and dissemination. In this regard, the Statistical Commission noted the need to analyze and assess the quality of census data produced, especially on the degree of undercount or overcount. The importance of integrating post enumeration surveys (PESs) as a part of the census process was mentioned by a significant number of participating countries.

29. The Statistical Commission also proposed several specific actions to be taken by the international community in view of the 2020 round of censuses. It addressed, among others, the need to work towards viable methods for estimating both the direct and indirect cost of censuses and to conduct cost-benefit analyses, taking into account the factors of quality, duration and coverage and also providing a unit of measurement for country comparison. It also suggested that UN Statistics Division establish an Expert Group to begin work to assess the challenges faced in the 2010 round, discuss emerging trends, compile lessons learned and address issues, and prepare a comprehensive report on the implementation of the 2010 World Population and Housing Census Programme.

30. Finally, the Statistical Commission suggested, based on the above comprehensive review of the programme, that the United Nations Principles and Recommendations for Population and Housing Censuses be revised for the 2020 World Population and Housing Census Programme. The 2020 World Census Program is expected to be approved by the United Nations Statistical Commission by 2015.

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