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ESCAP REGIONAL CENSUS PROGRAMME

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**GOOD PRACTICES AND RECOMMENDATIONS FOR THE USE OF INFORMATION
TECHNOLOGY IN POPULATION AND HOUSING CENSUSES**

Note by the secretariat

SUMMARY

In accordance with Economic and Social Council resolution 2005/13 of 22 July 2005, it is recommended that member States conduct a population and housing census at least once during the period 2005 to 2014 in order to collect key information on every person and every housing unit. Being the largest statistical undertaking, a population and housing census requires careful planning, broad-ranging technical capacity and considerable financial resources. Sensibly applied modern information technology can reduce the cost and improve the quality of census results considerably. Based on the results of a survey among statistical and census offices, international recommendations, and past experience in the region, the present document outlines the potential for and modalities of a regional exchange of expertise on census technologies. It also contains an overview of the technological changes that have occurred since the previous round of censuses. The Committee is invited to provide the secretariat with guidance on the most appropriate manner to facilitate the sharing of information technology knowledge and good practices in the region.

* The late submission of the present document is due to the need to include information from a number of survey responses received after the submission deadline.

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INTRODUCTION

1. A population and housing census is a major statistical undertaking in any country, requiring broad-ranging technical capacity and substantial financial resources. Sensibly applied modern information technology (IT) can reduce the cost of a census and improve the quality of results considerably. The present document outlines the potential for and modalities of a regional exchange of expertise on census technologies. Based on a survey¹ conducted among statistical and census offices, it provides an overview of the technologies used during the 2000 round of censuses and identifies areas in which technical assistance will be needed during the upcoming 2010 round.

2. Census operations require a variety of information, communication and space-based technologies. Optimizing the use of IT in a census is primarily a managerial challenge. In that respect, the Expert Group Meeting on Effective Use of IT in Population Censuses will be held in Bangkok from 10 to 12 December 2007. Experts at the meeting will review the challenges and lessons learned in the previous round and assess the technological trends that should be taken into account in the preparations for the 2010 round. The recommendations of the Expert Group Meeting will be made available as an informal document to the Committee at its fourth session.

A. National and United Nations mandates and standards for population and housing censuses

3. Population and housing censuses form a principal component of a functional national statistical system.² Their importance is unquestionable for the following reasons:³

(a) Censuses often represent the only chance in a given decade to collect accurate basic information on the composition and characteristics of a population, as well as changes in that population;

(b) Censuses are a primary source of data for small areas and small population groups for development planning;

(c) Census data are critical for monitoring socio-economic and environmental trends, policies and programmes;

(d) Censuses provide sampling frames for household surveys;

(e) In many countries, the allocation of public funds to administrative regions and electoral representation depend on the population count in censuses;

(f) Research in many fields would not be possible without background and denominator variables provided by population and housing censuses;

¹ A questionnaire-based survey on population and housing censuses, conducted by e-mail in August 2007 among the 58 regional members and associate members of ESCAP.

² In most parts of the region, the population and housing census is conducted by the national statistical office. However, some countries have an office dedicated to conducting the census.

³ See E/ESCAP/CPR(3)/4, paras. 1-3, available at http://unescap.org/pdd/CPR/CPR2006/English/CPR3_5E.pdf.

(g) The private sector uses data from a population and housing census for many purposes, including estimating consumer demand and determining the location of retail units;

(h) The 2010 census round (2005-2014) offers the single most important opportunity for improving the availability and quality of data required for monitoring the Millennium Development Goals and targets. A number of Goal indicators come directly from the population and housing census. In addition, the census provides reference populations for a large number of other Goal indicators.

4. In recent years, resolutions have been adopted on this issue. In its resolution 2005/13 of 22 July 2005 on the 2010 World Population and Housing Census Programme, the Economic and Social Council urged member States to carry out a population census during the period from 2005 to 2014. Subsequently, in its resolution 62/10 of 12 April 2006 on strengthening statistical capacity in Asia and the Pacific, the Commission recalled the Council resolution and provided the Executive Secretary with a general capacity-building mandate. Special legislative acts and dedicated budget provisions are testimony to the national priority given to population and housing censuses. The reference years for population censuses conducted, as well as for those planned in the ESCAP region for the 2010 round of censuses, are listed in table 1.

Table 1. Reference years for population and housing censuses in the ESCAP region
(status known as of the end of October 2007)

Country/area	Latest census	Next census
1. Afghanistan ^a	1979	2008
2. American Samoa ^a	2000	2010
3. Armenia ^a	2001	(2011)
4. Australia ^a	2006	2011
5. Azerbaijan ^a	1999	2009
6. Bangladesh ^a	2001	2011
7. Bhutan ^a	2005	2015
8. Brunei Darussalam ^a	2001	2011
9. Cambodia ^a	1998	2008
10. China ^a	2000	2010
11. Cook Islands ^a	2006	(2011)
12. Democratic People's Republic of Korea	1993	(2008)
13. Fiji	1996	(2007)
14. French Polynesia	2007	(2012)
15. Georgia ^a	2002	2010
16. Guam	2000	2010
17. Hong Kong, China ^a	2006	2011
18. India ^a	2001	2011
19. Indonesia ^a	2000	2010
20. Iran (Islamic Republic of) ^a	2006	(2016)
21. Japan ^a	2005	2010
22. Kazakhstan ^a	1999	2009
23. Kiribati	2005	(2010)
24. Kyrgyzstan ^a	1999	2009
25. Lao People's Democratic Republic ^a	2005	2015
26. Macao, China ^a	2001	2011
27. Malaysia ^a	2000	2010

Country/area	Latest census	Next census
28. Maldives ^a	2006	2011
29. Marshall Islands ^a	1999	2009
30. Micronesia, Federated States of	2000	(2010)
31. Mongolia ^a	2000	2010
32. Myanmar	1983	?
33. Nauru ^a	2002	(2007)
34. Nepal ^a	2001	2011
35. New Caledonia ^a	2004	(2009)
36. New Zealand ^a	2006	2011
37. Niue ^a	2006	2011
38. Northern Mariana Islands ^a	2000	(2010)
39. Pakistan ^a	1998	2008
40. Palau ^a	2005	(2010)
41. Papua New Guinea ^a	2000	(2010)
42. Philippines ^a	2007	2010
43. Republic of Korea ^a	2005	2010
44. Russian Federation ^a	2002	2010
45. Samoa ^a	2006	(2011)
46. Singapore ^a	2000	(2010)
47. Solomon Islands ^a	1999	(2009)
48. Sri Lanka ^a	2001	2011
49. Tajikistan ^a	2000	2010
50. Thailand ^a	2000	2010
51. Timor-Leste ^a	2004	(2010)
52. Tonga ^a	1996	(2006)
53. Turkey ^a	2000	2010
54. Turkmenistan ^a	1995	2009
55. Tuvalu	2002	(2012)
56. Uzbekistan	1989	?
57. Vanuatu	1999	(2009)
58. Viet Nam ^a	1999	2009

Sources: ESCAP survey on population and housing censuses, August-October 2007 and the United Nations Statistics Division, available at <http://unstats.un.org/unsd/demographic/sources/census/censusdates.htm>.

Note: Years in parentheses in the last column refer to the expected, rather than reported, date.

^a Responded to the ESCAP survey.

B. Regional capacity-building activities on population and housing censuses

5. The ESCAP secretariat has been attempting to obtain dedicated regional funding for the priority areas of censuses recommended by expert group meetings in 2004 and 2006.⁴ It has submitted to the Population and Housing Census Trust Fund and other donors project proposals on (a) promoting the *Principles and Recommendations for Population and Housing Censuses*,⁵ (b) building a migration data system around population censuses and (c) supporting the effective use of IT in population censuses. Follow-up discussions are being held with the United Nations Statistics Division and other relevant partners on the schedule for regional activities in 2008 and 2009.

⁴ Expert Group Meeting on Population and Housing Census, held in Bangkok on 9 and 10 December 2004 (see <http://unescap.org/stat/meet/census2004/>) and Expert Group Meeting on ESCAP Regional Census Programme, held in Bangkok on 27 and 28 November 2006 (see <http://unescap.org/stat/meet/egm2004/>).

⁵ United Nations publication, Sales No. E.07.XVII.8. The *Principles and Recommendations* and other key guidelines for censuses can be downloaded at <http://unstats.un.org/unsd/demographic/sources/census/census3.htm>.

6. In the current technical cooperation programme of ESCAP, two ongoing projects contribute directly to the improvement of population and housing censuses. The United Nations Development Account project on improving disability statistics, implemented by ESCAP from 2007 to 2009 in collaboration with the World Health Organization and the Washington Group on Disability Statistics, advocates the collection of data on disability through regular national statistical systems, including the population and housing census. A regional workshop on census-based disability data collection is scheduled for 2008. The project would develop extended sets of questions for surveys, including post-census surveys and health surveys, needed to collect detailed data for policy needs. For more information on the project, see E/ESCAP/CPR(4)/6.

7. In 2007 and 2008, the Statistics Division, in collaboration with the World Bank and the secretariat of the Partnership in Statistics for Development in the 21st Century (PARIS21), is implementing a project that aims to improve access to microdata⁶ in the region, including from population and housing censuses. The project identifies and addresses constraints to microdata dissemination, helps to review national policies and plans for dissemination, and provides advice on the safe dissemination and archiving of microdata. The project provides tools and training for the adoption of systematic metadata documentation practices.⁷ The project is currently being implemented in six countries, whose experiences will be shared in a regional workshop in 2008.

8. In Central Asia, the Economic Commission for Europe (ECE), in collaboration with ESCAP and the United Nations Department of Economic and Social Affairs, is implementing a United Nations Development Account project on the strengthening of the national statistical capacity of countries of the Special Programme for the Economies of Central Asia. Training workshops have been organized for those countries regarding population and housing censuses, the measurement of the health status of the population, and the measurement and analysis of the non-observed economy. The ESCAP secretariat has contributed resource persons to the following workshops:⁸

- Population and housing censuses (Baku, 30 October-3 November 2006);
- Disability statistics (Bishkek, 13-15 December 2006);
- Census questionnaires (Dushanbe, 12-16 March 2007);
- The non-observed economy (Bishkek, 25-27 April 2007);
- Census technology (Astana, 7-8 June 2007).

⁶ Microdata refer to unit-level data on people, households and housing units. These records are strictly confidential and must be properly anonymized before being made available to any third party.

⁷ The website of the International Household Survey Network (<http://surveynetwork.org/>) provides tools and guidelines for microdata. The Microdata Management Toolkit can be downloaded from the site.

⁸ More information about the individual workshops and documents can be found in the ECE documents library at <http://www.unece.org/stats/archive/docs.e.htm>.

9. Central Asian countries have also benefited from the Joint ECE/Eurostat Meeting on Population and Housing Censuses (Astana, 4-6 June 2007) and the Expert Group Meeting on the Implementation of the Conference of European Statisticians Recommendations for Register-based Censuses (Astana, 7-8 June 2007).

10. At the international level, funding for technical assistance during the current round has been made available through the Population and Housing Census Trust Fund. The aim of the Trust Fund is to bridge the distances between national statistical offices in their exchange of resources and support, by providing the funds needed for travel, consultation, fellowships and advisory work, as well as for research and development of standards and methods necessary for the successful implementation of the *World Programme*.⁹ The Trust Fund is being coordinated by the United Nations Statistics Division. Part of the funding will be used for regional activities, such as the Workshop on Census Cartography and Management,¹⁰ organized by the United Nations Statistics Division and the ESCAP Statistics Division and held in Bangkok from 15 to 19 October 2007.

I. APPLICATION OF INFORMATION TECHNOLOGY IN NATIONAL CENSUSES AND EXPECTATIONS FOR THE 2010 ROUND OF CENSUSES

A. Overview

11. In its decision 38/102, the Statistical Commission welcomed and adopted the second revision of the *Principles and Recommendations for Population and Housing Censuses*,¹¹ and encouraged countries to begin its implementation. They include (on pages 46-53 and 58-61) guidance on the use of IT for coding, capturing, editing and disseminating data.

12. In August 2007, the secretariat conducted a survey¹² on population and housing censuses in the region in order to assess the need for country-level and regional technical assistance during the 2010 round of censuses. The questionnaire focused mostly on the types of IT used during the previous round of censuses and on plans for the 2010 round. An expert group meeting, organized just prior to the Committee session, will review the results and make recommendations on exchanging related expertise in the region (see para. 2).

13. Table 2 provides an overview of various information, communication and space-based technologies involved at different stages of census-taking during the 2000 round of population and housing censuses. The third column describes the changes foreseen in the respective technologies by the 2010 round.

⁹ "The United Nations 2010 World Programme on Population and Housing Censuses and related surveys: a proposal for active involvement of member States" (ESA/STAT/AC.97/2).

¹⁰ See http://millenniumindicators.un.org/unsd/demographic/meetings/wshops/Thailand_15Oct07/.

¹¹ See *Official Records of the Economic and Social Council, 2007, Supplement No. 4 (E/2007/24)*, chap. I, sect. B.

¹² The last responses were received in mid-October. A total of 40 of the 58 regional members and associate members responded.

Table 2. Technologies applied at different stages of the census

Stage of census	Applications during the 2000 round	New technology available for the 2010 round
Overall management, planning and monitoring	<ul style="list-style-type: none"> • Generic office suite applications, including charting and presentation • E-mail for communication • Internet for information search and dissemination • Project planning software, most commonly Microsoft Project • Self-developed management and tracking tools 	<ul style="list-style-type: none"> • Collaborative planning, content creation and information sharing tools: wikis, blogs • Tools for sharing favourite bookmarks, resources and content ratings • Tele- and videoconferencing, voice-over Internet protocol • Use of online and multimedia tools in training
Documentation of processes and metadata	<ul style="list-style-type: none"> • Data dictionaries and metadata repositories • Diverse documentation practices and applications • Ad hoc and incomplete documentation 	<ul style="list-style-type: none"> • Harmonization of metadata across statistical data holdings • Centralized metadata base • Systematic and detailed documentation of data sets from the beginning • Microdata Management Toolkit (see http://surveynetwork.org/)
Mapping	<ul style="list-style-type: none"> • Cartography and Geographic Information System (GIS) applications • Pilot use of the Global Positioning System (GPS) in some countries 	<ul style="list-style-type: none"> • Verification/improvement of maps by using GPS • Google Earth, Google Maps and other GIS applications available free of charge to users • High-resolution (20 cm accuracy) satellite maps can be purchased
Listing of housing units	<ul style="list-style-type: none"> • Housing registers/databases • GIS • GPS • Hand-held and portable computers • Field communication tools: mobile phones, radios, Internet • Digital cameras 	<ul style="list-style-type: none"> • Accurate geo-coding of housing units with light-weight GPS and hand-held devices

Stage of census	Applications during the 2000 round	New technology available for the 2010 round
Enumeration	<ul style="list-style-type: none"> • Hand-held and portable computers • GPS • Field communication tools: mobile phones, radios, Internet 	<ul style="list-style-type: none"> • GPS for orientation of enumerators • Instant transfer of results from enumerators • Dynamic progress monitoring, including on GIS • Instant first verification of results
Data coding	<ul style="list-style-type: none"> • Manual coding • Computer-assisted coding • Self-developed applications 	<ul style="list-style-type: none"> • Electronic enumeration applications, such as computer-assisted personal interviewing (CAPI), and applications accessible over the Internet may include automated coding
Data capture	<ul style="list-style-type: none"> • Imaging/scanners • Optical mark and character recognition • CAPI 	<ul style="list-style-type: none"> • Faster scanning • Better recognition engines • Distributed data capture technically more feasible because of improved networks and lower hardware costs
Data processing	<ul style="list-style-type: none"> • Editing and imputation applications, CSPPro/IMPS being the most common • Self-developed database applications 	<ul style="list-style-type: none"> • Better applications for automated and computer-assisted editing
Data analysis	<ul style="list-style-type: none"> • Statistical packages, such as Stata, SAS, SPSS • Cross-tabulation software, including self-developed • Spreadsheet and database software • Charting and GIS applications 	<ul style="list-style-type: none"> • Greater interest in and technological opportunity for longitudinal analysis, linking successive censuses and censuses with other data sets • Geo-coding of all housing units would create new opportunities for data analysis
Evaluation and quality control/Post-enumeration survey	<ul style="list-style-type: none"> • Post-enumeration surveys are usually conducted with the same technology as the census proper, but some are using a more “manual” approach 	<ul style="list-style-type: none"> • Geo-coding of housing units and their residents makes post-enumeration surveys easier to conduct

Stage of census	Applications during the 2000 round	New technology available for the 2010 round
Dissemination of results	<ul style="list-style-type: none"> • Static dissemination of tables and charts in print, on CD-ROMs and on the Web • E-mail for promotion of results and ad hoc dissemination • Dynamic dissemination databases of tabulated census results • Dissemination aired on radio and television 	<ul style="list-style-type: none"> • Internet would become the primary dissemination channel • Automatic data interchange would become more popular through the use of SDMX and web services • Applications that provide on-demand dissemination and that are not bound by predetermined borders are made feasible by the popularization of GPS in the mobile phones of data users.

Note: CPro: Census and Survey Processing System;
IMPS: Integrated Microcomputer Processing System;
SAS: Statistical Analysis System;
SDMX: Statistical Data and Metadata Exchange;
SPSS: Statistical Package for the Social Sciences.

14. The survey included some questions not related to technology. The majority of respondents appeared to take notice of the new topics recommended for the next round of censuses. The response to adding and modifying migration-related questions was overwhelmingly positive. Regarding disability, more than half of the survey respondents expressed the intention to include disability-related questions in one form or another, although a universal and internationally comparable approach appears unlikely at this stage of planning.

15. While outsourcing is generally not common in statistical offices, it was used by census offices in data capture, by either key entry or imaging and optical recognition. Some statistically advanced countries had outsourced parts of the development work on their electronic census. Public relations campaigns, digital mapping and analytical report writing were among the interesting but rarely outsourced functions.

B. Office automation and data security

16. The ESCAP survey focused on specific technologies applicable at each stage of the census. It did not address general IT issues, such as office automation and data security, which are equally critical for the success of a statistical system. Statistical operations can be made more efficient by applying good practices to overall office automation. Such practices would include the following:

- Systematic management of contact information;
- Establishing guidelines for communication;

- Systematic file management, including archiving backups;
- Application of standard templates to word processing and spreadsheets.

17. The security of data and communications is vital for an official statistical system, which handles quantities of confidential information in the office and in the field, such as lists of household addresses, people's names and personal information, and enterprises, and data collection forms and files with personal identifiers and information. It is not often known, for instance, that standard e-mail is a completely unsecured mode of communication. Setting up security for networks, communications and data archives requires special expertise, which is not necessarily present in all statistical offices. An external expert evaluation of security risks is a recommended good practice.

C. Planning and monitoring

18. As with any multi-year project using considerable financial and other resources, a population and housing census requires careful planning and the continuous monitoring of progress. About half of the respondents indicated that they had been using special project-planning software, either commercial packages or self-developed applications. The survey did not reveal additional interest in such software for the next round; respondents already using special project management applications plan to continue using the same ones.

D. The Geographic Information System and the Global Positioning System

19. Geographic Information System (GIS) technology is applicable to all stages of the census, from planning to the dissemination of results. While only about half of the respondents had used GIS technology and digital maps in the previous round, the number of non-users could be very small in the upcoming round. Global Positioning System (GPS) technology is entirely new to most countries in the 2010 round.¹³ Combining location coordinates with population and housing data offers fascinating possibilities for new ways of disseminating and using official statistics. Location-specific information benefits practically all stages of censuses.

20. The demand for training on GIS applications is particularly high, as recently confirmed by the Workshop on Census Cartography and Management (see para. 6) and the survey results (see para. 32).

E. Enumeration

21. The enumeration is expected to continue to be done on paper-based media with interviewers writing down the information. While some countries used hard-copy forms for self-enumeration in the previous round, several offices expect that, during the next round, such forms will be made available through the Internet.

¹³ The *Handbook on Geographic Information Systems and Digital Mapping* (United Nations publication, Sales No. E.00.XVII.12) is a good overall source for related information. An update is scheduled, which will reflect the latest technologies.

22. The popularization of hand-held computing, GPS and mobile phones would make field operations more efficient, although universal enumeration straight into computers is not yet feasible in the region. The listing of housing units is usually done prior to the enumeration, with field staff increasingly using hand-held GPS devices to find locations and register their coordinates.

F. Data capture, coding and editing

23. Table 3 presents a summary of technologies used in data capture and processing. At the time of the survey, not all census offices had decided on the technologies for their next census, as many of the censuses of the 2010 round will be conducted several years in the future.

24. Once the data have been collected, some variables, such as occupation, need to be coded so that meaningful statistics can be calculated. Manual coding was the most common method, although the popularity of computer-assisted coding is slowly increasing. The assisting programmes were self-developed.

25. The majority of respondents were already using optical mark or character recognition in the 2000 round of censuses, and they expected the basic technology to remain the same in the next round. The number of respondents using manual key data entry was expected to drop from 14 countries in the latest census to 11 countries in the next census.

26. Several countries will continue applying multiple modes of data capture, including paper forms, computer-assisted personal interviewing and Internet forms. In most parts of the region, the coverage, quality and timeliness of data from civil registration and administrative data systems are not at the level required for register-based censuses, which are gaining popularity in developed countries.

Table 3. Data capture and processing technologies in the latest enumerated census and the next planned census

Stage of data processing	Latest census			Next census		
	Manual	Automated or computer-aided	Not indicated	Manual	Automated or computer-aided	Not decided
Data coding	22	17	1	10	16	10
Data capture	18	OMR/OCR/ICR: 21 Internet: 3	1	13	OMR/OCR/ICR: 20 Internet: 4	7
Data editing	3	34	3	3	30	5
Data imputation	8	22	10	3	22	15

Note: ICR: intelligent character recognition;
OCR: optical character recognition;
OMR: optical mark reader.

27. The captured data need to be investigated for consistency and random errors. In most censuses, data editing, as well as imputation, was computer-assisted as manual editing is not economically feasible for large censuses.¹⁴ Among the editing applications, the Census and Survey Processing System (CSPro) was the most popular application, but many offices were using self-developed applications based on database or statistical software.

G. Dissemination

28. The release of the final results in the 2000 round of censuses took between 3 and 72 months from the time of enumeration, 8 to 14 months being a typical lag. The offices that had taken a long time to release the results in the previous round expected to reduce this time by one third or more in the next round.

29. While the portfolio of statistical products from censuses has diversified significantly since personal computers and networking became mainstream, statistical and census offices have continued to be rather conservative in their dissemination and product development. Hard-copy publications remained the mainstay during the 2000 round of censuses, dynamic database dissemination being an exception. In the next round, it is expected that there will be a significant increase in the number of census offices providing dynamic online access to data. Statistical offices can add value to census data by linking them to previous censuses and other data sets from surveys and administrative registers.

30. In planning their dissemination strategies and product portfolios, census offices should take into account the drastic changes in user expectations. Key data users are Internet-savvy and used to instant access to information. Fixed-format printed tables continue to be needed, but an increasing proportion of users prefer to customize their data retrieval, analysis and presentation. One of the best investments would be to design a website for the dissemination of data in user-friendly (quick and dynamic) formats. Most countries have professional advisers available to help in setting up a dissemination website, which today is one of the most important image creators of a statistical office.

H. Standards for documentation and data exchange

31. The optimization of IT requires that census offices follow systematic approaches in all operations and standardize their operating procedures. The adoption of common data exchange standards, the Statistical Data and Metadata Exchange being the most important, would improve the efficiency of data dissemination and sharing. Standards are also available for metadata. The Microdata Management Toolkit is based on the standards of the Data Documentation Initiative and the Dublin Core Metadata Initiative.

¹⁴ See the *Handbook on Population and Housing Census Editing* (United Nations publication, Sales No. E.00.XVII.9), available at http://unstats.un.org/unsd/publication/SeriesF/SeriesF_82E.pdf.

II. AREAS AND MODALITIES FOR REQUIRED ASSISTANCE

32. The survey included questions on whether specific skills were either present or lacking in census offices. Cartography/mapping, tabulation and database design, post-enumeration survey, and quality assurance were the most frequently mentioned stages of a census in which external assistance was needed (see table 4). In some cases, the assistance provider had already been identified, although usually not in all areas where needed.

Table 4. Areas where technical assistance is needed

Stage of census	Number of countries
Cartography/mapping	24
Tabulation and database design	20
Post-enumeration survey	20
Census data quality assurance and improvement	19
Evaluation	18
Census output and dissemination	16
Census management	15
Staff recruitment and training	14
Data capture	13
Data editing	13
Sampling	11
Small-area identification	11
Data coding	11
Census communication activities	11
Questionnaire preparation and testing	10
Census tests	7
Enumeration	4
Outsourcing	4
Others	7
Total number of countries/areas needing assistance in one or more areas	32
Total number of countries not needing any assistance	8

33. The questionnaire attempted to identify the census offices that could lend their expertise to other countries. Most responses were positive, with both developed and developing countries willing to share expertise provided that funding was available for related travel. The responses were not detailed enough, however, to identify who would be in a position to assist whom.

34. The sharing of knowledge and expertise can be achieved through various modalities (see table 5), many of which have been included in the projects submitted to donors by the secretariat (see para. 5). Since the funding of the proposed regional projects remains uncertain, the Committee may wish to discuss in particular what could be achieved through bilateral arrangements and South-South cooperation.

Table 5. Possible modalities for the sharing of knowledge and expertise

Form of knowledge sharing	Remarks and issues for discussion
Off-site/electronic	
Website dedicated to providing information on census technology	<ul style="list-style-type: none"> • See the 2010 World Population and Housing Census Programme website at http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/ • See also PARIS21 documents and knowledge base at http://paris21.org/pages/designing-nsds/NSDS-documents-knowledge-base/ • Is a separate site dedicated to census IT needed? • How to deal with commercial vendors and service providers?
Moderated discussion forum/ mailing list	<ul style="list-style-type: none"> • Should the forum be limited to census technology or be open to all census issues? • Non-moderated forums seldom work
Helpline, Q&A desk	<ul style="list-style-type: none"> • Cannot be run by only a single individual • Would national experts volunteer to contribute to a regional effort?
Roster of census IT experts	<ul style="list-style-type: none"> • Should a roster be established? • If so, who should maintain it? Who should have access to it? • How to assure the quality of experts included on the roster? • How to keep the information current? Experts would have to commit to updating their own records
On-site/in person	
Advisory missions	<ul style="list-style-type: none"> • Bilateral exchanges of expertise between statistical offices are not uncommon. Is there a role for ESCAP in their facilitation? • Governments can send requests to the ESCAP secretariat for ad hoc advisory services • How important is the availability of advice in local languages?
Seminars, workshops, training courses	<ul style="list-style-type: none"> • How to ensure that workshops lead to concrete results that benefit census offices? • ESCAP technical cooperation strategy is favouring a programmatic approach, not one time meetings and workshops • Should SIAP organize dedicated training on census technology? In which specific areas?
Training of trainers	<ul style="list-style-type: none"> • Which specific areas are suitable for the master trainer approach?
Study tours	<ul style="list-style-type: none"> • Can study tours be organized by interested countries themselves? • What role, if any, should ESCAP play?

Note: IT: information technology;
PARIS21: Partnership in Statistics for Development in the 21st Century;
SIAP: Statistical Institute for Asia and the Pacific.

35. Some lessons might be drawn from the well-received project on the application of new technology in population data collection, processing, dissemination and presentation, which the secretariat implemented during the previous round (1997-2001).¹⁵ The project had the following elements:

- (a) Funding and continuity provided in a multi-year setting;
- (b) Standing working party of experts assessing and drafting guidelines on new technologies:
 - (i) Active expert members from developed and developing countries;
 - (ii) Credible and pilot-tested recommendations;
- (c) Results channelled into:
 - (i) Guidelines on technologies and good practices;
 - (ii) Training and exposure workshops.

36. Information and communication technologies are rapidly evolving, and keeping up with them requires continuous monitoring and learning. Character recognition, space-based technologies and web-based technologies, for instance, are universal, and advice is often available nationally through other parts of the government or the private sector.

37. The Committee is invited to provide the secretariat with guidance on the priorities of the regional census programme and advice on how to make the sharing of IT knowledge and good practices a reality in the region.

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¹⁵ The project website is archived at <http://www.unescap.org/stat/pop-it/>.