

**UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE
CONFERENCE OF EUROPEAN STATISTICIANS**

**CONFERENCE OF EUROPEAN STATISTICIANS
RECOMMENDATIONS FOR THE 2010 CENSUSES OF
POPULATION AND HOUSING**

jointly prepared by the
United Nations Economic Commission for Europe
and the
Statistical Office of the European Communities

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NOTE TO THE READER

This is a draft version of the recommendations, prepared for discussion at the UNECE-Eurostat Meeting on Population and Housing Censuses taking place in Geneva on 12-16 December 2005. This draft is also available on the UNECE website at the following address:

<http://www.unece.org/stats/documents/2005.12.census.htm>

This draft was prepared by merging the contributions of the eleven Task Forces that worked on different parts of the recommendations, and required an intensive work to improve the consistency of the text. In preparing the draft, attention was paid to identify and correct as far as possible inconsistencies, gaps and duplications, and to make sure that paragraph numbering or cross referencing are correct. However, some errors or inconsistencies could still be present in this draft. They will be fixed during the final editing of the recommendations that will take place after the December 2005 meeting.

For census topics (including core, non-core and derived topics) the primary definition of the topic is highlighted in a box. However, it should be noted that in some cases, due to the way the text for the topic was drafted, the text in the box does not correspond exactly to the definition of the topic.

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INTRODUCTION

Purpose for the CES member states

1. The main objectives of the *CES Recommendations for the 2010 Round of Population and Housing Censuses* are: i) to provide guidance and assistance to countries that are members of the Conference of the European Statisticians in the planning and conducting of their population and housing census, ii) to facilitate and improve the comparability of the data at regional level through the selection of a core set of census topics¹ and the harmonization of definitions and classifications.

2. The Recommendations aim at describing the different census topics that are relevant for the region presenting not only definitions and standards but also analyzing their relevance and their comparative advantage in relation to other census topics and other data collection activities outside the census. The topics are presented using a structure by theme (demographic, migration, ethno-cultural characteristics, etc.) to facilitate a broader view in the description of the content of a census. A new section on methodology and technology has been included. The objective is not to recommend a specific method or a technology, but rather to present the different approaches with their advantages and disadvantages and guide countries to make the best choice that fits their national circumstances.

3. The *CES Recommendations* have been developed by the UNECE in close collaboration with Eurostat.

Relation to the 2010 UN World Programme

4. The process that led to the *CES Recommendations* was conducted simultaneously to the process that led to the revision of the “Principles and recommendations for population and housing censuses” (also known as “World census recommendations”), with a great deal of coordination. Countries are encouraged to use the two sets of census recommendations in a complementary manner. The *CES Recommendations* reflect the reality of the CES countries and they can bridge the work carried out at world level into the more specific needs of the region where countries are less diverse than at global level. In general the two sets of Recommendations are consistent, but if the World Recommendations are broader in scope (in terms of issues and countries coverage), the *CES Recommendations* are more specific in the use of some definitions (such as usual residence) and classifications.

¹ The term "topic" refers to the subject regarding which information is to be sought for each person, household, housing unit or building containing housing units.

PART A: CENSUS METHODOLOGY AND TECHNOLOGY

Chapter 1 Methodology

Introduction

1. This chapter provides a broad overview of the methodology suggested for the year 2010 round of population and housing censuses in the ECE region. It looks at the aims and objectives of a census as well as methodological issues associated with the different phases of census. More detailed information can be found in Principles for population and housing censuses (revision 2)². In this publication a new chapter has been added, Chapter 2 Emerging Census Technology. This chapter is designed to look at some of the technologies that have not been traditionally used in population censuses, but are now being seriously investigated by some ECE member countries.

Aims and objectives of a census

Role in national statistical systems

2. The objectives of a census are specific to individual countries and differ according to the local circumstances. Its unique role depends on the demand of statistics existing in a country and by the content and structure of the existing statistical system.

3. The population census represents one of the pillars for the data collection on the number and characteristics of the population of a country. It provides at a regular interval the benchmark for the population counting at national and local level. For small geographical areas or sub-population it may represent the only source of information for certain social, demographic and economic characteristics. For many countries the census also provide a unique source for a solid framework to develop sampling frames.

4. In the countries that produce population statistics only on the basis of registers, the census gives an opportunity to provide an integrated view of the country where social, demographic and economic characteristics are linked together.

1. In July 2005 the United Nations Economic and Social Council (ECOSOC) adopted a resolution³ urging “Member States to carry out a population and housing census and to disseminate census results as an essential source of information for small-area, national, regional and international planning and development; and to provide census results to national stakeholders as well as the United Nations and other appropriate intergovernmental organizations to assist in studies on population, environment, and socio-economic development issues and programmes”.

Non-statistical functions of a census (implications and risks)

5. Some countries use the census operations not only to collect statistical information for the census but also to collect other types of information mainly of administrative nature. The most common use of the census operation for administrative purposes is the creation or

² Principles and Recommendations for Population and Housing Census, United Nations, New York, 2006

³ See www.un.org/esa/coordination/ecosoc/

updating of population registers. This type of approach has the advantage of being cost-effective. However, it has to be carefully planned since it is at high risk of violating one of the Fundamental Principles of Official Statistics stating that “individual data collected by statistical agencies ... are to be used exclusively for statistical purposes”⁴. In addition, the use of the census operations for administrative purposes may have a negative impact on the trust of the people on the neutrality of the census and ultimately can affect the quality of the results.

Definitions, essential features and phases of a census

Background

6. Traditionally, the definition of a census has been based on the basic enumeration features of individual counting, universality, simultaneity and periodicity. In the last few years’ different methods have emerged in the ECE region where census has assumed a wider concept. In some countries the traditional methods based on the field enumeration of all individuals has moved to the use of data included in administrative registers. More recently the priority of universal enumeration of individuals and their characteristics shifted toward the need for more frequent and relevant data for the total population and the smallest local areas. At this time, a common definition of a population and housing census can be found in the ECE region on the basis of the output produced rather than on the methodology used.

Definition

7. The population census is defined as the operation that produces at regular intervals the counting of official statistics (or benchmark) of the population in the territory of a country and in its smallest geographical sub-territories together with information on a selected number of social and demographic characteristics of the total population. This operation includes the process of collecting (through enumeration or registered-based information), and compiling individual information and the evaluation, dissemination of demographic, economic and social data, and analysis. In order to plan for, and implement, economic and social development policies, administrative activity or scientific research, it is necessary to have reliable and detailed data on the size, distribution and composition of population. The population census is a primary source of these basic benchmark statistics, covering not only the settled population but homeless persons and nomadic groups as well. Data from population censuses may be presented and analysed in terms of statistics for a wide variety of geographical units ranging from the country as a whole to individual small localities or city blocks.

8. The housing census is defined as the operation that produces at regular intervals the official counting (or benchmark) of all living quarters and their occupants in the territory of a country and in its smallest geographical sub-territories together with information on a selected number of characteristics of these living quarters. This operation includes the process of collecting (through enumeration or registered-based information), and compiling of information related to single living quarters and the evaluation, analysis and dissemination of data related to the living quarters and their occupants. The census must provide information on the stock of housing units together with information on the structural characteristics and facilities that have a bearing upon the maintenance of privacy and health and the development of normal family living conditions. Demographic, social and economic data concerning the occupants must be collected to furnish a description of housing conditions. Data obtained as part of the population census, including data on homeless persons, are often used in the presentation and analysis of the results of the housing census.

⁴ See appendix iii

9. The population and housing census is the process that produces at the same time the information related to the population and the information related to the living quarters as described above. This operation has the advantage of obtaining information on two universes (population and living quarters) using the same process of enumeration. In relation to the population census, the population and housing census is also able to provide information on the living conditions of the population. The outputs of a census process related to the total population and housing stock are indispensable for providing statistics on the population, family, household and housing situation on a uniform basis for small areas and population sub-groups. The characteristics of the population include geographic, demographic, social, economic, and household and family characteristics. For many countries, the outputs obtained through a census process are vital for providing such information since the census is the only source available and there are no other viable alternatives.

Essential features of Population and Housing Census

10. The essential features that distinguish a population and housing census from other data collections in the ECE region are the following:

1. Individual enumeration
Information on each enumerated person and living quarter is obtained so that their characteristics can be separately recorded. This allows cross-classifying the various characteristics and obtaining data by more than one characteristic.
2. Specific reference period/Simultaneity/Unique reference period
Information obtained on individuals and living quarters in a census should refer to a well-defined and unique reference period. Ideally data on all individuals and living quarters should be collected simultaneously. However, if data are not collected simultaneously, adjustment should be made so that the final data have the same reference period.
3. Comprehensive results/Comprehensiveness/Universality/Benchmark/Full coverage
The population and housing census should provide data on the total number of persons, households and housing units within a precisely defined territory of a country. The counting (or benchmarking) of the population should include every person residing in the defined territory of a country.
4. Small-area data
The census should produce data on the number and characteristics of the population and housing related to the smallest geographic areas of the country consistent with protecting individual confidentiality.
5. Defined periodicity
The census should be taken at regular intervals so that comparable information is made available in a fixed sequence. It is recommended that census data be produced at least every ten years.
6. Independent quality check
The data provided by the census on the counting of the basic units should be validated with an independent quality check of the coverage.

Strategic objectives and criteria for the selection of census topics

11. Given the costs required and the massive involvement of the population, the content and the methods used in a census should be carefully scrutinized to make sure that all the aspects of collection operations and the dissemination of results are acceptable to the users and comply with the highest standards of confidentiality, privacy and ethics. The content of a

census should be decided after looking into i) the demand of data at national and local level ii) the data already collected in other data collection activities, iii) the constraints of a census as data collection where only a limited number of questions can be asked on single topics and sensitive or more complex topics that require extended modules and specialized training of interviewers can be covered only to a limited extent.

12. Each census topic should meet a number of key user requirement criteria:

1. the topic carries a strong and clearly defined user need;
2. data on the topic are required for small population groups and/or at detailed geographical levels;
3. there are no other means than the census to collect data on the topic;
4. the topic is of major national importance;
5. data on the topic are expected to be used in multivariate analyses with other census topics; and
6. the questionnaire content does not differ drastically from previous censuses and where appropriate the new topic can still provide comparison with previous censuses.

13. The user requirement for data should be balanced against a number of other factors when evaluating what topic can be collected from the Census. A topic should NOT be included in a census if:

1. It is sensitive or potentially intrusive, or requires lengthy explanations or instructions to ensure an accurate answer;
2. It imposes an excessive burden on respondents, or seeks information not readily known or people are unlikely to remember accurately;
3. It enquires about opinions or attitudes; or
4. It is likely to present major coding problems or extensive processing or significantly add to the overall cost of the census.

14. In addition to these factors, the Census should be seen to be an exercise carried out purely for statistical purposes, and should not, therefore, be used to collect data that will deliberately promote political or sectarian groups, or sponsor particular causes.

15. In optimising the limited space available on the questionnaire the design and size of a question will also be an important factor in deciding whether certain data can be collected.

16. The inclusion of new topics should always be tested to ensure successful collection and production of reliable results. In general, population and housing census should be seen as part of an integrated programme of data collection and compilation aimed at providing a comprehensive source of statistical information for economic and social development planning, for administrative purposes, for assessing conditions in human settlements, for research and for commercial and other uses. The value of either a population or a housing census is increased if the results can be employed together with the results of other investigations.

17. A list of proposed topics can be found in Appendix A. The list is divided between core and non-core topics and reflects the recommendations contained in the following chapters of this publication. Core topics are those considered of basic interest and value to CES

members, and it is recommended that these countries cover these topics in their 2010 round of population and housing censuses. Non-core topics are those topics that countries could select based on their national priorities. Criteria for the selection of these topics are presented in paragraph 12. Some topics are referred to as derived topics. Derived topics are those for which information is obtained from other topics, and therefore are not required to be collected separately. The derived topics are presented in general after the topics from which they are derived, and are designated by means of letters in italics.

Census phases

18. Censuses with field enumeration do not follow a uniform pattern but they have certain major common elements to be taken into account. In general, census operations can be divided into seven phases which are not entirely separate chronologically or mutually exclusive: involvement of stakeholders, preparatory work (including testing and outsourcing), enumeration, data processing, dissemination of the results, evaluation of the results and analysis of the results. It is important that appropriate quality assurance strategies (reference to the section on quality assurance) be applied in all these phases to make sure that all aspects of data quality (relevance, cost, timeliness, accuracy, accessibility, interpretability, coherence) are taken in consideration and each choice made in all census phases is the best trade-off that “fits-the-purpose”.

The relation between censuses and sample surveys

19. While population censuses go back at least 6000 years, as suggested by clay tablets found in ancient Babylon, the history of modern censuses can be traced to the mid-17th century. Sampling, in turn, is much more recent dating back a mere three quarters of a century.

Long forms

20. Censuses started out as pure enumeration of people. Over the years, they grew in size and scope as requests started to be made for information on other areas of social and economic life, in addition to basic demographic characteristics. Consequently, as new issues emerge, there are pressures to ask more census questions. Allowing for too many extra questions may result in exceedingly large census forms. This can cause concern for the quality of all of the information collected.

21. Indeed, “the advantages of simultaneous investigation of several topics may be offset to some extent by the additional burden on the respondent and on the enumerator resulting from the increased amount of information that must be collected at one time”⁵. Therefore, “the data collection could involve both a short form (with selected questions) and one long form (with more questions for specific topics). The long form is completed for a sample of dwellings, households or people”⁶.

22. Relaxing the constraint on the number of census forms, from one to two, has made it possible to collect more information while keeping planning, training and field operations relatively simple, and costs in check. However, in view of the ever increasing demand for information, this strategy may lead to new compromises since the number of questions comprising the long form cannot itself keep growing for reasons already explained. Should “simultaneity” become an overriding principle, countries may wish to consider data collection

⁵ Principles and Recommendations for Population and Housing Censuses, Revision 1.

⁶ Recommendations for the 2000 censuses in the ECE region

involving both a short form and two or more longer forms (with more questions for one or more specific topics) and with each long form being completed for a separate sample of households or people.

The census as benchmark and frame

23. The value of either a population or a housing census is increased if the results can be used with the results of other investigations. These could take the form of use of the census data as a basis or benchmark for current statistics, or to furnish the information needed for conducting other statistical investigations. It can, for example, provide a statistical frame for other censuses or sample surveys. The population census is also important in developing the population estimates needed to calculate vital rates from civil registration data. In addition, these censuses are a major source of data used in official compilations of social indicators, particularly on topics that usually change slowly over time.

24. The purposes of a continuing coordinated programme of data collection and compilation can best be served, therefore, if the relationship among the population census, the housing census and other statistical investigations is considered when census planning is under way and if provision is made for facilitating the joint use of the census and its results in connection with such investigations.

25. An essential ingredient of probability sample design is the existence of a complete, accurate and up-to-date sampling frame. A sampling frame is defined essentially as comprising the materials from which a sample is selected. A sampling frame may be a list of small areas. It may also be a list of structures, households or persons. The census can be used to construct either type of frame, or both. Indeed, most countries use their census for such purposes. The census frame is almost always the departure point for the design of a household sample survey. It is important to note that an old census – even one that, in rapidly changing or growing countries, is one or two years old - may be unsuitable as a frame. In such cases, it is essential to update the census frame with current fieldwork or from administrative records before using it as a frame for a household sample survey

26. Population and household counts for the enumeration areas, taken from the census, are a highly useful ingredient to establish measures of size for the selection of first- or second-stage sampling units, or to help in various stratification schemes. Whenever the census captures also socioeconomic information, this can be used to complement such stratification schemes.

Intercensal surveys

27. Regardless of whether or not information on a wide number of topics was collected simultaneously, the rapidity of current changes in the size and other characteristics of populations and the demand for additional detailed data on social, economic and housing characteristics that are not appropriate for collection in a full-scale census have brought about the need for continuing programmes of intercensal household sample surveys to collect current and detailed information on many topics.

28. The population and housing census can provide the frame for scientific sample design in connection with such surveys; at the same time, it provides benchmark data for evaluating the reasonableness of the overall survey results as well as a base against which changes in the characteristics investigated in both inquiries can be measured. To permit comparison of census and survey results, the definitions and classifications employed should be as nearly alike as possible, while remaining consistent with the aims of each investigation.

Additional census inputs to intercensal survey programmes.

29. Early developments in sampling theory and methods concentrated on efficient designs and associated estimation techniques for population totals or means. In consequence, it is generally believed that while censuses covering the total population and housing provide statistical information on a uniform basis for small areas and sub-groups of the population, large sample sizes may have to be considered to produce similar results for long form topics. More recently, however, the methods for analysis of survey data that take into account the complexity of the sampling design (both sampling and non-sampling errors) have developed rapidly. Therefore, even though sample surveys used alone cannot provide data for small areas and sub-groups of the population, they can be used in combination with a census on specific topics. For instance, aggregates of variables recorded on every individual in the population, which are often used for stratification of enumeration areas, may in turn be used as calibrator or independent variables when models are fitted and used in estimation of aggregates of variables recorded for samples only, for small areas not in the sample. Information users, however, must be made aware whenever results obtained in this fashion are published. Related techniques have been used in some census operations when checking information for internal coherence and in some approaches for imputation of missing or incoherent information.

The relation between population and housing census and the agricultural census

29.a While the population and housing censuses have a close relationship, their relationship with the agricultural census is less well defined. However, as the result of increasing integration within programmes of data collection, the relationship between the population and housing census and the agricultural census is now far closer than in the past and countries are increasingly looking at new ways to strengthen this relationship.

29.b One issue in relating the two censuses is that they use different units of enumeration. The unit of enumeration in the agricultural census is the agricultural holding, which is the techno-economic unit of agricultural production, while the unit of enumeration in the population census is the household and the individual within the household. However, in many developing countries, most agricultural production activities are in the household sector and households and agricultural holdings are very closely related, often in a one-to-one relationship.

29.c The agricultural census collects various household/individual data for members of the agricultural holder's household. The *World Programme for the Census of Agriculture 2010*⁷, recommends the collection of data on household size and limited data on demographic characteristics and economic activity of members of the holder's household, as well as some limited information on persons working as employees on the holding. To get a complete picture, agricultural data users will need both agricultural census data and data from the population census to meet their needs. Users may find some agricultural activity data from the agricultural census more comprehensive than from the population census because the latter normally investigates only the principal economic activity of each person during a short time-reference period and this may not identify persons connected with agricultural activity on a seasonal or part-time basis. On the other hand, the population census provides data on agricultural employment and agricultural population, which is not available from the agricultural census because it only covers households associated with agricultural holders.

⁷ FAO Statistical Development Series No. 11 (Rome, 2005)

29.d In planning the population and housing census, every opportunity for developing the relationship between this census and the agricultural census should be explored. This can take several forms. Definitions used in the population and housing censuses should be compatible with those used in the agricultural census so that meaningful comparisons can be made between the two data sets. The population and housing census can also be of use in the preparation of the agricultural census, such as in the demarcation of enumeration areas, the preparation of the frame for the agricultural census or, if applicable, the sample design.

29.e In planning the National Census Programme, consideration should be given to the possibility of collecting additional agricultural information as part of the population and housing census exercise that would facilitate the preparation of the frame of agricultural holdings in the household sector, for a subsequent agricultural census. This could be done as part of the pre-census cartographic work and/or listing exercise or by adding an additional question to the census questionnaire. In the later case, an additional item at the household level could be included on whether any member of the household is engaged in own-account agricultural production activities. Alternatively, additional data at the individual person level could be collected to identify persons involved in agricultural activities during a longer period, such as a year. These new items are included in these principles and recommendations as non-core items. In all cases the agricultural census should be synchronised with the population and housing census, and conducted as soon as possible after the population and housing census, while the frame is still up-to-date.

29.f The opportunity of linking population and agricultural census data should also be explored. This could add considerable analytical value to data sets from both censuses and save on data collection costs. Much of the demographic and activity status data collected in the population census are also collected in the agricultural census. If data from the two censuses could be linked, it would no longer be necessary to collect these data again in the agricultural census.

29.g Some countries conduct the data collection for the population and agricultural censuses as a joint field operation. Normally, each census retains its separate identity and uses its own questionnaire, but field operations are synchronized so that the two data collections can be done at the same time by the same enumerators. Occasionally, the two censuses are merged into one. This may have a number of advantages, but its effect on field operations and data quality needs to be carefully considered.

Methodology approaches in the ECE region

30. There are four primary approaches to conducting a census, based on the method of data collection:

1. The traditional method of using census questionnaires;
2. The method of using registers and other administrative sources;
3. A combination of registers and other administrative sources and surveys (complete enumerations or sample surveys); and
4. Traditional enumeration with yearly updates of characteristics.

31. Registers and other administrative sources are an alternative to the traditional census as far as they contain the relevant topics, definitions and classifications and cover the entire population. Sample surveys used alone cannot provide equivalent data but they can be used in combination with a census or to supplement census information on specific topics.

32. There are other alternative approaches to traditional and register based population and housing censuses that may not meet all essential census features but aim to provide a comprehensive set of statistical information similar to that provided by traditional and register-based approaches.
33. Whichever method of data collection/data providing is to be used should take into account a wide range of issues such as (a) the users' needs, (b) the quality of the data, (c) completeness of the count, (d) data protection and security, (e) comparability of the results between the countries and over time, (f) the burden on the respondents, (g) timeliness of outputs and (h) financial and political implications.
34. The results of the ECE Questionnaire on Population and Housing Censuses, sent to ECE member countries in Spring 2004, shows a shift away from the traditional census approach that was adopted by the clear majority of countries in the 2000 round (and is fully explicated in the United Nations' *Principles and Recommendations for Population and Housing Censuses*) towards increasing use of administrative registers, either exclusively or supplemented with information from questionnaires or surveys. Though the majority of countries still intend to do so, ten fewer countries report that they are planning for a conventional population census in the 2010 round. Even so, a clear majority of countries still envisage use of traditional methods to carry out their censuses.
35. Of those that are abandoning the traditional approach, the majority plan to use existing administrative registers supplemented with survey- or questionnaire-based information.
36. Even among those countries planning to continue with a fundamentally traditional approach, several will introduce significant methodological changes that will utilize additional sources of administrative data to develop information to support a conventional enumeration.
37. Most countries will continue to collect information on both households and on people through the same operation.
38. More or less the same extent of use of enumerator and self-completed form will be adopted in 2010, as was the case in the 2000 round. There will still be a greater emphasis on enumerator collection compared with use of mail-back. However, a number of countries have indicated that they are considering using the Internet as one of a number of possible modes of data collection in the next round.
39. Appendix B discusses the traditional approach to the census as well as several non-traditional approaches, including register-based, register-based with a sample survey, rolling census, and traditional enumeration with ongoing updates of characteristics. Each is described and necessary conditions, advantages and disadvantages, implications for the phases of census taking, and implications for content are detailed.

Confidentiality and security

Confidentiality principles

40. The Census collects information from each person and household in the country. In its uses it is not concerned with facts about individuals as such. Its purpose is to provide statistics about the community, and groups within the community, as a whole. The public, therefore, has a right to expect, and needs to be assured that, personal information provided in confidence will be respected. The confidentiality requirement encompasses the whole census operation, ranging from the security of the completed census questionnaires both in the field

and during processing as well as the information contained in the outputs and made publicly available.

41. Assurances should be given to the public that all the information given will be treated in strict confidence by the census authorities and any person who is employed by or provides a service to, the census authority for the purposes of carrying out the census. Many countries will have domestic legislation that protects such information in the form either of specific census legislation or of more general legislation relating to data protection and freedom of information.

42. The following additional principles should govern the treatment of the information given in the Census returns:

1. Only persons under the management of the census authorities, or agents acting on their behalf, will have access to personal census information.
2. Completed questionnaires should be collected or returned in such a way that will not reveal information to other members of the public. Additionally, individual household members should, if they wish, be able to give personal information on a separate questionnaire in a way that will not reveal it to others in their household or establishment, or to the enumerator.
3. All members of the census organisation and outside agents providing services to the census authority in connection with the Census should be given strict instructions, and be required to sign legal undertakings, about confidentiality. They should be liable to prosecution for any breaches of the law.
4. The physical security of census documents containing personal information held by the census authorities, by field staff or by authorised agents should be strictly enforced and, if felt necessary, independently reviewed.
5. The computer systems handling census data should have strict safeguards to prevent unauthorised access to the information.
6. In releasing statistics from the Census, all possible steps should be taken to prevent the inadvertent disclosure of information about identifiable individuals and households. Special precautions may apply particularly to statistical output for small areas. Measures to ensure disclosure control may include some, or all, of the following procedures:
 - a. swapping of some records between households of similar demographic characteristics within the same higher geographical area;
 - b. restricting the number of output categories into which a variable may be classified, such as aggregated age groups rather than single years of age;
 - c. where the number of people or households in an area falls below a minimum threshold, suppressing statistical output – except, perhaps, for basic headcounts – or amalgamating with that for a sufficiently large enough neighbouring area;
 - d. randomly modifying or rounding data before the statistics are released; and/or
 - e. in the case of micro data or public use samples, removing all information from databases relating to name, address and any unique characteristics that might permit the identification of individual respondents.

Public access to closed census records

43. Many National Statistical Institutes receive requests from time to time from genealogists, social historians and individual members of the public, to allow public access to, or reduce the period of closure for, census records for the purpose of researching family histories.

44. The period of closure of census records in many countries is prescribed specifically by statute but may vary from country to country. Other countries may rely on more general provisions within data protection and/or freedom of information legislation to keep confidential records closed until such a time that minimises the risk of disclosure of information about living individuals. Some countries, however, may choose to destroy the census forms once processing of the data has been completed.

45. While national Governments may recognise both the sociological and commercial value of historical census records, they should also recognise that the ability of National Statistical Institutes to collect information from the general public may be seriously compromised if assurances given about the confidentiality of the information collected were not honoured. Public confidence in the security and confidentiality of the information given in the census should be regarded, therefore, as paramount.

Metadata

46. A metadata system provides supplementary information on characteristics of surveyed and published data. Each national statistical office uses its own metadata system based on international standards but corresponding at the same time to the specifics of the national effort. Since a population census and its results are connected with other areas of statistical activities, it is necessary for the metadata system of a population census in each country to use the same elements as the entire metadata system of the particular NSO. What is also needed, however, is that the metadata system of a population census contain some elements that are used only for that census. It is also necessary that the metadata system of a population census ensure the widest possible data comparability internationally.

47. The population census around 2010 has to ensure comparability with the data from the previous population censuses and, on the other hand, it should include new elements relevant for development that has taken place during the time since the previous census. Thus, the metadata system of the population census around 2010 should follow the metadata system from the previous population census (see: *Recommendations for the 2000 Censuses of Population and Housing in the ECE Region*) with an update in line with the needs resulting from the development since the previous population census. Peculiarities of metadata systems of individual National Statistical Offices result also from the extent to what they use administrative data sources and their metadata systems.

48. A metadata system contains especially definitions of terms, classifications, and nomenclatures. Classifications and nomenclatures are used for unified classification of data. For indicators for which international standard classifications had been created, these classifications are used. For indicators that cannot be classified by international standards, new nomenclatures must be created.

Integrity

General Background

49. In the context of the population census, integrity can be defined as strict adherence to all *UN Fundamental Principles of Official Statistics* throughout the various stages of the census operations by all institutions and persons involved. Integrity is provided through the main institution responsible for the census being perceived, by a broad range of users (including the media and the public), by respondents, and by those stakeholders that have to decide on the legal framework and the funding of the census, as being guided exclusively by the criterion of providing an accurate picture of certain key characteristics of the society for the purposes outlined in chapter A, within the limits of a given resource envelope that should be used in the most efficient way, and by taking due account of the response burden. The main institution involved in the census is in most cases the National Statistical Office (NSO). The task of the NSO is to set the standards of integrity and to make sure that these standards are observed by its regular staff, its temporary staff especially recruited for the census, and staff of any other (public or private) organisation to which certain parts of the operations may be assigned or sub-contracted. *The Fundamental Principles of Official Statistics* are fully discussed in Annex iii.

Quality assurance

Plans for the quality assurance and improvement programme

50. The product of any census of population and housing is information and confidence in the quality of that information is critical. The management of quality must therefore play a central role within the overall management of a country's census. Thus a quality assurance programme must be an element in the overall census programme right from its inception. It will touch on all activities during planning, the development period, operations like data collection and processing through to evaluations and dissemination of results. It should be stressed that a major goal of any quality assurance programme is to build quality in from the beginning through the sound application of knowledge and expertise by employees at many levels. It will also include reactive components to detect errors so that remedial actions can be taken during census operations. Further, a quality assurance programme should also be viewed as a quality improvement programme. Without such a programme, the census data when finally produced may contain errors, which will severely diminish the usefulness of the results. If data are of poor quality, decisions based on these data can lead to costly mistakes. Eventually the credibility of the entire census may be called into question.

51. The quality assurance and improvement system should be developed as part of the overall census programme, and integrated with other census plans and procedures. The system should be established at all phases of census operations, including planning, pre-enumeration, enumeration, document flow, coding, data capture, editing, tabulation and data dissemination. Establishing a quality assurance and improvement system at the planning stage is crucial to the success of the overall census operations.

Need for a quality assurance and improvement programme

52. Because of the size and complexity of census operations, it is likely that errors of one kind or another may arise at any stage of the census. These errors, whether in planning, development or in operations, may easily lead to serious coverage or content errors, cost overruns or major delays in completing the census. If not anticipated and controlled during

design and implementation they can introduce non-sampling error to the point of rendering results useless. To minimize and control errors at various stages of a census, it is good practice to devote a part of the overall census budget to quality assurance and control programmes.

53. Every national census organization should establish a system of quality assurance and improvement as an integral part of its census programme. The primary objective of such a programme should be to ensure that quality is appropriately considered in all phases of the census work. The dimensions of quality, outlined below, are overlapping and interrelated and each must be adequately managed if information is to be fit for use. Each phase in executing a census may require emphasis on different elements of quality.

54. Achieving an acceptable level of quality is the result of addressing, managing and balancing the various dimensions of quality with due attention to program objectives, major uses of the information, costs and other factors that may affect information quality. Actions taken to address one dimension of quality may affect other dimensions. Decisions and actions aimed at achieving an appropriate balance of quality dimensions are based on knowledge, experience, reviews, feedback, consultation and judgement.

55. Quality evaluations and measurements from previous censuses can be valuable to indicate priorities and focus in the development of plans and procedures. It may be desirable to ascertain the quality level that was achieved in previous censuses and use that information to establish standards for the next census.

56. The quality control and improvement system should be seen as an important component of the overall census programme. As such, it must be fully integrated with the other census plans and procedures. There is no single standard quality control and improvement system that can be applied to all censuses or even to all steps within a census. Census designers and administrators must keep in mind that no matter how much effort is expended; complete coverage and accuracy in the census data are unattainable goals. However, efforts to first detect and then to control errors should be at a level that is sufficient to produce data of a reasonable quality within the constraints of the budget and time allotted.

Defining information quality

57. It is generally accepted that there are six dimensions of quality:

1. The *relevance* of statistical information reflects the degree to which it meets the needs of users. The challenge for a census programme is to balance needs where they conflict of current and potential users so as to go as far as possible in satisfying the most important needs within resource constraints. This dimension of quality is particularly important in census content development and in dissemination.
2. The *accuracy* of statistical information is the degree to which the information correctly describes the phenomena it was designed to measure. It is usually characterized in terms of error in statistical estimates and is traditionally broken down into bias and variance. In a census context, variance only applies in situations where a longer more detailed questionnaire is used for a sample of persons or households or where only a sample of records is processed. Accuracy can also be described in terms of major sources of error (e.g. coverage, sampling, non-response, response, data capture, coding)
3. *Timeliness* refers to the delay between the reference point (usually census day) to which the information pertains, and the date on which the information becomes available. Often for a census there are several release dates to be considered in a

dissemination schedule. Typically there is a trade-off against *accuracy*. As well, *timeliness* can affect *relevance*.

4. The *accessibility* of statistical information refers to the ease with which it can be obtained. This includes the ease with which the existence of information can be ascertained, as well as the suitability of the form or medium through which the information can be accessed. Even though Censuses are conducted primarily to meet the needs of central government, the data obtained are of great value to many secondary users including local administrations, private organizations and the public at large. To maximize the benefit of the information obtained, it should be widely accessible to all of these potential users. Consequently, Censuses often provide a mix of free products, standard for cost products and a user pay service for ad hoc information products. The strategy adopted and the cost of the services also affects *accessibility*.
 5. The *interpretability* of statistical information reflects the availability of supplementary information and metadata necessary to interpret and use it. This information usually covers the underlying concepts, variables and classifications used, the methodology of data collection and processing, and indications of the accuracy of the information.
 6. *Coherence* reflects the degree to which the census information can be successfully brought together with other statistical information within a broad analytic framework and over time. The use of standard concepts and classifications – possibly international – promotes coherence. The degree of quality on *coherence* can be assessed via a programme of certification and validation of the census information as compared to corresponding information from surveys and administrative sources.
58. Quality assurance management and implementation are fully described in Appendix iv.

Evaluation of census content and coverage

Purpose of census evaluation

59. As in the past, it is generally recognized that a population census is not perfect and that errors can and do occur at all stages of the census operation. Most errors in the census results are classified into two general categories - coverage errors and content errors. Coverage errors are errors that arise due to omissions or duplications of persons or housing units in the census enumeration. Content errors are errors that arise in the incorrect reporting or recording of the characteristics of persons, households, and housing units enumerated in the census.

60. Many countries recognize the need to evaluate the overall quality of their census results and employ various methods for evaluating census coverage as well as certain types of content error. A comprehensive evaluation program should, however, also include assessments of the success of census operations, in each of its phases. Countries should ensure, therefore, that their overall census evaluation effort addresses the census process (hereafter referred to as operational assessments), as well as the results (referred to as evaluations). Together, operational assessments and evaluations tell us “How well we did.” A third component of a comprehensive research program includes experiments. Experiments tell us “How we can do better.”

1. Operational assessments document final volumes, rates, and costs for individual operations or processes, using data from production files and activities; quality assurance files and activities; and information collected from debriefings and lessons learned. Operational assessments can include some discussion of the data, but do not

involve explanation of error. The final volumes, rates, and costs can be broken out by demographics, geographic level, and housing unit and/or person-level data at intermediate stages of operations or processes;

2. Evaluations analyze, interpret, and synthesize the effectiveness of census components and their impact on data quality and coverage using data collected from census operations, processes, systems, and auxiliary data collections; and
3. Experiments are quantitative or qualitative studies that must occur during a census to have meaningful results to inform planning of future censuses. The census provides the best possible conditions to learn about the value of new or different methodologies or technologies and typically involve national surveys with multiple panels.

61. In addition to conducting operational assessments, evaluations, and experiments during the census, census tests provide a useful vehicle for planning and developing the actual census. Census tests can be conducted as a national sample (useful for testing content, mail and/or Internet response, and other questionnaire related features of the census) or as a site test (useful for testing operational procedures). Other pre-census testing could involve cognitive testing of the questionnaire, research and testing of the automated processes for address list development, questionnaire addressing and mail out, data collection, data capture, and data processing, and conducting innovative research into the use of administrative records, improved cost modelling, and improved methods of coverage measurement.

62. Prior to conducting the actual census, a dress rehearsal provides an opportunity to test the full array of operations, procedures, and questions, much like a play's dress rehearsal provides an opportunity to "fix things" before the real event.

63. Evaluation efforts focused on census results should generally be designed to serve one or more of the following main objectives: to provide users with some measures of the quality of census data to help them interpret the results, to identify as far as is practical the types and sources of error to assist the planning of future censuses, and to serve as a basis for constructing a best estimate of census aggregates, such as the total population, or to provide census results adjusted to take into account identified errors. Evaluations of the completeness and accuracy of the data should be issued with the initial census results to the extent possible. Additional results can be issued after the initial results are published. A number of methods exist for carrying out census evaluations, and in practice, many countries use a combination of such methods to fully serve these objectives. These methods are described in Appendix v. Evaluation techniques for register-based censuses are described in Appendix vi.

Outsourcing and assuring the quality of the census data

64. The outsourcing of components of census operations still requires the census agency to take responsibility for and manage the quality of the census data. This should never be outsourced. Automated data capture, repair and coding systems both increase greatly and introduce a different set of risks to data quality compared with traditional census processing approaches. If not properly monitored and managed, data quality problems can remain undetected until late in the process when cost and timing constraints limit the options for any corrective activity. This has implications for the way outsourcing is undertaken.

65. In setting up outsourcing arrangements, the census agency needs to ensure that it continues to have the ability to both understand and manipulate those elements that contribute to final data quality. This requires that census agency staff have an understanding of how such systems as recognition engines and coding algorithms work and have the ability to change the

tolerances or parameters of these systems at little cost and in a timely manner during processing. Varying these parameters will allow the census agency to determine and manage the appropriate balance between data quality, cost and timeliness as processing progresses

66. Some methods of measuring data quality from data capture processes, such as substitution rates or measures of key entry errors, are inadequate as these forms of monitoring simply measure the overall incidence of errors but not the significance of the errors. Indeed this approach could lead to considerable extra expenditure for the correction of trivial errors that lead to no appreciable gain in quality. For this reason, data quality should be measured at the topic response level rather than at the individual character/numeral level. This should be done in two ways: independently processing a sample of records using manual processes and comparing the results for each of the records with those obtained through the automated systems; and in aggregate by comparing the overall data for an area with the expected results based on other information for that area (e.g. from the previous census or other data sources).

67. This process should be undertaken continuously during processing with a focus on early detection of quality problems and an understanding of any systems or processes that have contributed to these. The amount of error that is acceptable and the degree of intervention and systems or process changes undertaken will depend on the assessment by the census agency of the overall fitness of purpose of the output and the overall cost and timeliness impacts. This will vary from topic to topic. For example, it would be expected that there would be a greater focus on the quality of key demographic variables compared with other data items collected on the census form.

68. Some approaches to outsourcing put an emphasis on “turn key” arrangements – in which contractors deliver systems according to a set of predetermined client specifications with the expectation that the client focuses solely on the outputs and not the internal workings of the system. This assumes that the census agency completely understands and can fully anticipate all data quality issues that might arise during the census and has included these in the specifications. The client is not expected to have any understanding of how these systems work or how they might contribute to the final outputs. Any changes to the system typically require cumbersome processes to determine contract responsibilities and heavy financial costs. This sort of approach effectively hands over the quality of the census data to the contractor, while the risks associated with intervention to the census agency. It removes any flexibility and greatly restricts the ability of the census agency to react to quality problems that emerge during processing.

Consultation

69. In undertaking such a vast and complex exercise as a census of population and housing, census takers need to be assured, through consultation and public engagement, that the broad strategic aims can be met. Countries will wish to consider how consultation can ensure that:

1. The question content is appropriate to meet the demonstrated information requirements of users;
2. Practicable questions, and the means to collect the data, can be devised, which are sufficiently accurate to meet users’ requirements;
3. Output products and services meet users’ needs within agreed quality standards and timetable; and
4. That all aspects of the census data collection operation and the dissemination of results are acceptable to the public.

70. Thus a comprehensive programme of communications for a census should cover three distinct audiences:

1. Users of census data (both the experienced and specialist user and the more occasional generalist);
2. Persons and institutions participating in the census enumeration; and
3. The general public.

71. Though participation is usually a statutory obligation, the census is a national activity that is almost entirely dependent for its success on the co-operation and assistance of the general public and many government and local organisations. It is essential therefore that a communications strategy be developed which is co-ordinated with other substantive preparations for the census. Good communication is valuable not only for providing the census authorities with early and continuing information about the requirements of users, but also in assessing public reaction to the census plans and activities in various parts of the country. Details on the scope and design of consultation programs are provided in Annex 6.

Dissemination

72. A census is not complete until the information collected is made available to users in a form, and to a timetable, suited to their needs. Thus in disseminating the results of the Census much emphasis should be put on responsiveness to users and on high standards of quality in the production of statistics.

73. There are several ways of making the results of a census available to the user:

1. As printed reports containing standard and pre-agreed tabulations, usually at the national, regional or local district area level, that may be obtained from government agencies or directly from booksellers;
2. As unpublished reports (often referred to as abstracts) comprising standard tables but produced for either smaller geographies or population sub-groups not otherwise included in the published reports – these may often be requested by users who may have to contribute towards a proportion of the marginal costs of their production;
3. As commissioned output produced from a database, comprising customised cross-tabulations of variables not otherwise available from standard reports or abstracts; and
4. As micro data, usual available in restricted format only and supplied under strictly controlled conditions.

74. A range of products and output media should be available to meet the changing requirements of users. There is likely to be a need for:

1. National, regional and local authority summaries;
2. Reports on key findings on particular topics, supplemented detailed results and analyses either in a standard form for areas down to the more local geographic levels, or more detailed statistics on particular topics;
3. Local profiles;
4. Spatial and graphical analyses; and

5. Supplementary metadata covering definitions, classifications, and coverage and quality assessments.

75. The main national and local results should be released, to a pre-announced timetable, as speedily and over a short period of time as is possible once processing is completed and the total population of the country has been determined.

76. Due to their ever increasing production costs, printed publications may become less the preferred choice for the dissemination of the main census results, though paper still provides a media that does not readily deteriorate and does not require the user to have any necessary hardware, software or technical skills. Concurrent release of outputs may, however, be made possible only by distribution through the use of high capacity electronic media. However, when data are provided in electronic form, special attention should be given to providing users with easy means of data retrieval. The options for obtaining the outputs and relevant metadata should be accessible in standard formats as well as in common database and spreadsheet format for easy retrieval and manipulation.

77. With the growing importance of the use of the Internet, on-line facilities for ordering, specifying, and receiving census tabulations and public use samples should be developed wherever possible, ensuring that appropriate measures are in place to protect statistical confidentiality of the data and the security of transmission.

78. Although the need to provide flexible outputs and a variety of dissemination options is primarily user-driven, the greatest care should be exercised to avoid the inadvertent disclosure of information about identifiable individuals through the statistical results of the Census. To protect confidentiality, various statistical measures should be applied (see paragraphs 41 to 43 above).

79. Charges, where they are necessary, should be set to make access to the results affordable to all types of users, and there may need to be a print-on-demand service to supply any of the material in electronic supplements to users who prefer paper copies.

80. Products should be developed which will allow statistical and geographical information to be delivered together with geographical information systems to meet as widespread an interest, and with as much flexibility as possible commensurate with assurances on confidentiality. By having associated graphing and mapping capabilities, databases will greatly increase their usefulness. Ideally users should, themselves, be able to generate graphs and/or maps easily, and then to print or plot them or make the images available for other uses. Several census organisations have produced this kind of product, sometimes in co-operation with a commercial company.

Publicity and information campaign

81. In recent years, due to the complexities of collecting information from the population, the issue of effectively informing the population of the forthcoming census and explaining its purposes and tasks have become a basis for census quality and the collection of reliable information.

82. The main task is the explanation of the importance of the forthcoming population and housing census for the depiction of the society, prospects of development of the country, and the updating of social, regional and national demographic information. The census has a large cultural and historical meaning, not only to the country, but also on a global scale.

83. The main practical goal is the formation of positive attitude of the society to the census, prompting the inhabitants of the country to participate in it and give reliable information about themselves.

84. Important messages about when and how the census is going to be held, what is expected from the public, and how the public can find out more about the census need to be communicated. Public understanding of these aspects of the census will contribute to the smooth conduct of collection operations. The implementation of a publicity and information campaign—before, during, and after data collection—is fully described in Annex viii.

Chapter 2 Emerging Census Technology

Introduction

85. Technology has been used to assist in all phases of population censuses for many years. The focus of this chapter is on new technologies that might be used for direct census collection, processing and dissemination activities. These technologies have not been widely used in past census activity and are presented here to provide a review of possible options to countries. There is no doubt that emerging or yet to be discovered technologies will impact on future census taking.

86. Well-established technologies such as key entry systems are not covered because these systems are already well understood and documented. Countries interested in traditional technologies should refer to *Principles and Recommendations for Population and Housing Censuses* United Nations, New York 1998 and *Handbook on Census Management for Population and Housing Censuses*, United Nations, New York 2001. These well established approaches and technologies might continue to be the most viable option for many countries. Adoption of new technology or approaches should only be considered where there is a sound understanding of the new approaches and technologies and the developments can be managed. There should also be a clear understanding of both the risks and the benefits.

87. The feasibility of the adoption of any technology that is untested in a census environment should be carefully evaluated in advance, taking into consideration the national context and in particular factors like the size of the country, the relative costs of these technologies compared to traditional solutions, the work needed to develop and test the technologies, and the potential implications of the adoption of the technologies on the overall organisation of the census operations. Potential effects on the quality of census results as well as the impact on the general population need to be carefully considered.

88. This chapter also does not focus on ancillary systems that are required to conduct a census. Census operations involve a range of administrative processes that are common to other large-scale projects. For example, planning of a complex operation such as the census may be assisted by use of appropriate project planning software. Many countries may require systems and processes to recruit and pay large numbers of temporarily employed census enumerators. Census managers should also consider how technology might assist in improving the efficiency and effectiveness of these operations. This can contribute both to containing the cost of the census as well as improving the overall quality of the census by allowing resources to be focused on the primary tasks of enumeration, processing and dissemination rather than on administrative processes such as paying staff.

Drivers for technological innovation

89. Technology has the potential to greatly reduce the cost and improve the quality of censuses. Census managers need to consider how the new opportunities provide by technological innovation may contribute to improving the relevance, quality and timeliness of the census. For example, with reductions in processing cost, it may be possible to expand the content of the census or increase sampling rate for sampled questions to improve the quality of data for small population groups and small geographic areas. Any content expansion needs to be balanced against the impact on respondents.

90. The demand for evidence-based policy and planning generates a demand for census data from a wider range of users beyond the traditional government users. Output systems therefore need to be able to cope with a diverse range of users who may have limited knowledge of census data and may no longer be content with the limited tabular output that may have been traditionally available.

91. In some countries there is a legislative requirement that citizens can conduct government business electronically. Even without the legislative requirement, growing use of the Internet in the community generates expectations that this is the way to do business. In the census context it is likely, at least in the initial stages, that use of the Internet will increase the overall cost of the census.

Determining what systems are appropriate

92. Census agencies need to undertake an evaluation to determine what systems and processes are appropriate for their own situation. Issues to be considered include the relative costs of staff and clerical based processes compared with costs of possible computer systems and associated infrastructure; the technological capability and infrastructure within both the census agency and the country as a whole and the capacity of the census agency to manage complex and sophisticated systems development processes.

Outsourcing

93. The complexity of much of the new software and the infrastructure required for many of the new and emerging technologies go beyond the current technical capabilities of most census agencies. It is likely that significant components of any solution will need to be outsourced. As with the adoption of any new technology, outsourcing should only be considered if the census agency has sufficient skills to manage the process.

94. The decision to outsource will depend on the requirements of the census agency (including those of confidentiality and security), whether the skills are available in-house and the ability of the census agency to manage complex system development projects. There may be a gradation from total outsourcing of the census processing system or discrete components of the system through to systems that involve a combination of outsourced components, external service providers working as contractors on specific projects and in-house developments.

95. Total outsourcing can be simpler to manage than for a mixed approach. However, a clear understanding of requirements is needed before the project commences so that these can be specified unambiguously to the contractor. These include understanding the objectives of the project, the outputs to be achieved and the standards these outputs must meet (quality, timeliness, cost). Specifications must allow for the possibility of requirements changing over the life of the project. How these changes are agreed and approved by the census agency and the provider need to be determined.

96. Timetabling, including milestones for key deliverables linked to payment schedules needs to be agreed with the contractor. Regular monitoring on a routine basis needs to be undertaken at an operational level. As well processes should be established to allow senior staff to monitor progress and to deal with any major issues that cannot be resolved at the operational level.

97. A mixed approach to systems development is one in which the overall system may consist of outsourced systems, systems developed by external contractors working alongside census

agency staff and systems developed in-house. This approach can have many advantages such as greater flexibility to adapt systems as more is learnt through the systems development, systems testing program and actual census processing operations. This can lead to improved data quality and savings in processing costs as systems are optimised. However, management becomes much more complex. The census agency must be skilled in the management of complex projects, have a clear understanding of business processes and manage carefully the integration of both the technological and clerical processes. Team based working, where external contractors work very closely with census agency staff is essential, if this method of systems development is to be successful.

98. Detailed discussion of outsourcing and evaluation and acquisition of software and hardware can be found in *Handbook on Census Management for Population and Housing Censuses*, United Nations, New York 2001.

Census collection

99. The following three collection technologies are considered: Internet return of census forms, telephone interviewing and hand held devices. The opportunities that new technologies offer for managing better the collection operations are also discussed.

Internet return of forms

100. Using the Internet as a collection method means that the census collection methodology will need to be self-enumeration rather than interview based. The Internet option can be incorporated into any of the traditional methods of delivering and collecting census forms (e.g. list-leave, mail-out, mail back). The key factor is managing collection control operations – that is ensuring that every household and individual is counted once and once only. This requires the ability to provide each household and individual with a unique code linked to a geographic location. An added complication for those countries where forms are collected by census enumerators (rather than mailed back) is to have adequate and timely feedback to enumerators so that they can update their own collection control information so that they do not visit households that have already returned forms.

101. The potential level of take-up of an internet option should be considered by assessing the proportion of the population who can access the internet from home, the proportion who use broadband services and the general use of the internet for other business purposes (e.g. on-line banking, filing tax forms, shopping). The use of the Internet is likely to increase the cost of the census, at least initially. As it is not known in advance who is likely to use the Internet, there will be a need to deliver a paper form to every household including those who will subsequently use the Internet. Systems and processes that allow for Internet return of census forms will also need to be developed. These will increase costs. On the other side there are potential savings in data capture costs. However, scanning and Intelligent Character Recognition are in themselves cost efficient. Therefore, savings in data capture costs are likely to be considerable less than the costs of developing and implementing the internet system.

102. Security is an important consideration. Industry standard encryption (SSL128) offers two-way encryption (i.e. it encrypts data flowing both from and to the user's computer) and has been accepted by nearly all countries as adequate to protect the census information. Security should be a key consideration in designing the infrastructure. A physically separate infrastructure should be set up to collect the census information. Completed individual census forms should be moved behind firewalls and then into infrastructure that is completely separate from the collection infrastructure.

103. A downloadable on line form requires much less infrastructure than for forms that are completed on line. Downloadable forms require a greater level of computer literacy than on-line forms. They will not necessarily work in thousands of different computer configurations and there will be an expectation that the census agency will be able to deal with each individual problem. From the respondents' point of view, they are much more likely to prefer completing the form on line. For these reasons it is expected that most countries will adopt on-line completion of census forms.

104. An electronic form offers the possibility of interactive editing to improve response quality that is not possible on a paper form. People using electronic forms have a certain level of expectation that a certain amount of guidance will be offered – at a minimum that they will be sequenced through the form and not asked questions that are not relevant to their situation. How far other editing or on-line coding is built in to the form needs to be carefully considered. Some limited studies indicate that forms returned by the Internet are of higher quality than paper forms. More work is required in this area to determine whether this is a function of the type of people using the Internet or the technology itself.

105. Providing an Internet option may contribute to the improving the quality of the census by making it easier for some hard to enumerate groups to respond. Most countries report difficulties in enumerating young adults and people living in secured accommodation where access is restricted. Some people with disabilities will also find it easier to complete an Internet form than a paper form. These groups are also more likely to be using the Internet and if available, this option should be promoted to these groups as a means of encouraging participation in the census.

106. Provision of sufficient infrastructure provides one of the major challenges for offering an Internet option. The census occurs over a relatively short period of time and affects the whole population of a country and it is unlikely that the census agency will have adequate infrastructure to cope with the peak demands of a census. It is therefore likely that this component at least, of the Internet solution will be outsourced. It may be necessary for collection procedures to be modified to constrain demand. For example, requiring people outside predetermined target populations/areas, to contact the census agency before they can use the Internet form may be a means of restricting use of the Internet form. Census agencies need to assess how they wish to promote the use of the Internet. Promotion of the Internet option should be determined by the capacity of the service to handle the expected load and should be coordinated with the collection procedures. The public relations strategy will need to encompass assurance about security of information supplied via the Internet. Assuming that the Internet option is targeted to the whole population, the public relations strategy should encompass managing public expectations about the ability to access the site during periods of peak demand. Simple messages advising people to use the internet option at “off peak” times should be prepared and used if necessary on the census internet site itself and through the census telephone inquiry service, radio and print.

Automated telephone interviewing

107. Automated telephone interviewing may be a cost effective solution in some situations – and in particular for countries that have a “short form” census questionnaire requiring only the capture of basic family and demographic information.

108. As with the Internet solution, each household would need a unique code to enable proper collection control.

109. Voice recognition software can be used to lead the respondent through the census form with either voice recognition or the phone keypad used as the response mechanism. Confirmation that important census variables such as date of birth or age have been captured correctly would need to be provided.

110. The user friendliness of such systems decreases greatly as either, the number and complexity of the questions increase or, the number of people in the household increases.

Hand held devices

111. The increasing sophistication and the reduction in unit costs for hand held devices means that these may be a cost-effective solution for some aspects of census collection. Possible applications for such devices include the replacement of enumerator paper maps, address registers and lists as a means of data capture in the field. They have application in the full range of census collection methodologies from drop-off/pick up through to census form collection.

112. Hand held devices have the advantage of being able provide real time two-way management information. Census managers can be informed of the progress of the collection operations as the enumerators deliver and collect completed census forms. Likewise census managers can provide, via the hand held device, the enumerator with updates on forms received and which households need to be followed-up. Census managers can identify in real time areas where the enumeration is falling behind or not meeting quality standards and undertake appropriate interventions.

113. Several technical issues need to be considered in using these devices. Storage capacity is related to the cost of the devices, but is of itself not now a limitation on their use. Many of these devices can hold up to 20 gigabytes of data. Battery life remains a significant problem. Given the intensive use that these devices would be subject to during census enumeration, the battery may last less than a day and a replacement battery would need to be available. Uploading of data should not be a problem especially if this was done over night.

114. Training and technical support for enumeration staff is an important issue. It cannot be assumed that the people who are likely to be recruited for enumerator tasks are technically competent. These factors become increasingly complex and difficult to manage as the size of the enumerator work force and the physical distances increase. In larger countries, enumerators will be relying on training, and technical support delivered remotely via the Internet or phone.

Managing field operations

115. At a basic level, multi-modal collection operations require that timely information be provided to census enumerators so that they do not visit households that have already submitted a census form. This is both an efficiency issue and a public relations issue. As well, the new technologies provide opportunities to improve the management of field operations and thus the quality of the census itself.

116. While the key issue is the flow of timely information to the census enumerator, the same systems set up to ensure this can also provide for a close to real time two-way flow of information between census managers and enumeration staff. Timely monitoring of enumerator work will allow for more timely interventions where census collection is having problems.

117. It is unlikely that the census agency will have the knowledge or capacity to develop and run these systems in-house and will need to rely on external organisations for key parts of the solution. An integrated field communication system can use and build on already existing infrastructure present in most developed countries. The following contains a brief description of a possible solution that uses a combination of census agency developed systems and processes, call centres and mobile (cell phone) technology. It also presumes that the census agency has a central register of all enumerators, their enumeration areas and their mobile (cell) phone number.

1. The census agency needs to establish an electronic central register of forms received either by mail or by the Internet. This register will contain the unique identification number (“census reference number”). This census reference number will allow the identification of the enumerator responsible for that enumeration area and ultimately a physical address (for list/leave collections the actual address may only be known at this stage by the census enumerator).
2. Most census agencies establish some form of telephone inquiry service to handle queries from the public during the census collection period. Call centres use technologies that can be readily adapted to meet census requirements. The call centre systems record callers’ “census reference number” or derive the census reference number from the address supplied by the caller. The call centre also records what action is required for the enumerator (e.g. census form needs to be picked up, assistance is required in completing the form, a form has not been received etc).
3. The information from the electronic register and the call centre are sent to the enumerator as an SMS message. This message only needs to contain the census reference number and a code to indicate the action required on the part of the enumerator.
4. The solution is cost effective as it relies on readily available commercial infrastructure (call centres) in a highly competitive industry (and most of this cost is not a new requirement for censuses) and the fact that most enumerators are likely to own their own mobile phones. The cost of SMS messaging is small. The census agency needs to develop the electronic register and manage the integration of the various systems.
5. Alternative arrangements will need to be made for the small number of enumerators who do not have mobile phones. While voice mail to a fixed line phone is an alternative, people find it more difficult to receive and record numeric information provided by voice mail than by written SMS messages.

Processing

118. The last decade has seen significant improvements in intelligent character recognition, data repair, imaging and automated coding technologies that have reduced the cost of census processing, and improved data quality. These trends are likely to continue. .

Data capture methods

119. Several data capture technologies have traditionally been used such as key entry and optical mark recognition (OMR).

120. Key entry requires simple software and low-end computing hardware. However, it requires many more staff than other automated methods of data entry and is likely to take more elapsed time to complete. The cost-effectiveness of this method is dependent on the

relativities between staff costs and hardware/system development costs required for other methods.

121. OMR can be a cost-effective option where the census form contains only tick-box responses. Additional means of data capture/computer assisted coding operation are required to handle write-in responses. However, OMR has largely been superseded by intelligent character recognition (ICR) technologies.

122. For most countries, the most cost-effective option is likely to be a combination of digital imaging, ICR, repair and automated coding. This process is briefly described below.

1. The census forms are processed through scanners to produce an image. Recognition software is used to identify tick box responses and translate handwritten responses into textual values. Confidence levels are set to determine which responses are of acceptable quality and which responses require further repair or validation.
2. Automated repair is designed to reduce the need for operator intervention and typically involves the use of dictionary look-up tables and contextual editing. The dictionaries are tailored according to the census question being processed. Thus the dictionary for country of birth question would only contain names of countries.
3. Operator repair can be undertaken on images not recognised. This is only cost-effective for those questions where there is a high probability that the repaired data can then be automatically coded.
4. Automatic coding uses computerised algorithms to match captured responses against indexes. Those responses that cannot be matched are then passed to a computer assisted coding process. To further contain costs and improve quality, responses that are not coded should be analysed for common responses. These responses could be either, added to the coding indexes and resubmitted through automated coding, or some other form of bulk coding be undertaken.

123. The combination of ICR/automatic coding/imaging technology described above is likely to prove the most cost-effective solution for most countries. Staffing can be reduced through automatic coding and use of these systems. Use of images greatly reduces the need to move paper forms and it has been shown that referring to images for follow up coding of responses that cannot be automatically captured is much more efficient than referring to paper forms.

124. Importantly, this methodology offers the opportunity to improve the quality of the data. The consistent treatment of identical responses can be guaranteed. However, the quality of the automated capture and coding need to be carefully monitored during processing to ensure that the system is functioning as specified. Character substitution rates should be monitored closely and for critical questions or parts of questions (such as the year of birth as compared with the day of birth) may require more stringent confidence rules that require higher level of inspection and quality assurance than other fields or values. Numeric values in particular may require extra scrutiny as there may be no contextual information that can be used to automatically check their validity.

125. There should be ongoing quality assurance of the final outputs of the system – such as manually recoding from the images a sample of the responses and comparing them with the automatically captured and coded responses. This should allow a proper balancing of the

quality/cost equation including the reducing the amount of manual repair and not therefore wasting resources for marginal improvements in quality.

126. For this reason, it is vital that even if these systems are outsourced, that census managers have a good understanding of quality/cost equation implicit in the confidence levels being implemented in the ICR/data repair software, their affect on the substitution rate and the ultimate quality of the census data. Contracts should allow ready adjustments of these parameters to meet the quality and the operational requirements of the census agency. This issue is considered in further detail in paragraphs 93 to 98.

127. Census agencies need to consider how the data are going to be held through the processing stream. Traditionally, census processing has been conducted using a flat file that gets progressively updated with the earlier version of the file retained for backup and recovery processes. Typically this has been allied with batch processing where a discrete group of forms (typically for an enumeration area) are processed together. Thus the forms will be data entered, edited and coded as a group. This allows a high degree of workload control. Databases allow information to be held and processed at the individual field level. This provides a greater degree of flexibility as once census data is electronically captured it easily organised to maximise both processing efficiency and quality as similar responses can be readily grouped and coded together. However, holding the census data in a database requires more complex systems to manage and deliver work. Consideration also needs to be given to backup and recovery mechanisms.

128. These systems typically require far more extensive systems development and testing than traditional census processing system. There are a number of factors that need to be considered through the systems design and integrated into the systems development such as the work organisation of the remaining clerical processes.

129. Adequate network capacity is critical because of the large number and size of the files associated with images – as technique such as form drop-out, where only needed information is image can greatly reduce the size of the files.

Output

130. Traditionally, census output has been conceived in terms of generating tabulations – usually for sophisticated clients well acquainted with the census data, with how the data are structured and presented as well as the Meta data. Less sophisticated users traditionally relied on static products such as publications that generally contained a limited range of data.

131. Internet dissemination allows for: the design of appropriate products to meet the needs of different types of census data users from novice users to sophisticated users; the cost-effective dissemination of a much wider range of census data; and improved usability of the census data.

132. Functionality and data content can be targeted to satisfy the different levels of users. This functionality should be seamless from simple to sophisticated with the clients being lead by the nature of the query or analysis they are wishing to undertake through the different products.

133. The main purpose of the census in a developed statistical system is to complement the information provided by other data collection methods such as surveys with a focus on small domain statistics – that is information for small geographic areas and for small population groups (both social and economic). Internet dissemination can support both types of use of the data. For small geographic areas, GIS technology can be used as means for both defining

areas of interest in searching for data and for mapping of the outputs of the search. There is a range of packages that can be used to hone in on populations of interest from large pre-defined matrix tables.

134. The Internet dissemination system should provide freedom for clients to specify the form of the output – whether as hard copy or a data file that can be exported into a range of commonly available statistical analysis, tabulation or mapping packages.

135. Some countries may wish to consider providing access to clients to submit tabulations directly on-line to be run against the census unit record file. Protecting the confidentiality of the census data is a prime consideration in such systems. As well as implementing confidentiality procedures (such as random rounding), there may be a requirement to limit the size of tabulations that can be submitted through this method.

PART B – POPULATION TOPICS

Chapter 3 Geographic Characteristics

Introduction

136. The recommendations and conventions set out in this chapter have been drafted with a view to ensuring that each person should have one, and only one, place of usual residence. This is important in an international context in order to avoid persons either being counted in the usually resident populations of more than one country or not being counted at all. The same principle applies in a national context. While for previous censuses recommendations may have allowed a degree of latitude in the interpretation of some of the conventions relating to place of usual residence the current recommendations attempt to be more prescriptive.

Place of usual residence (core topic)

137. Place of usual residence is the geographic place where the enumerated person usually resides. This may, or may not, be:

1. the place where he/she actually is at the time of the Census; or
2. his/her legal residence; or
3. his/her residence for voting or other administrative purposes.

Only those persons

1. who have lived in their place of usual residence for a continuous period of at least twelve months⁸ before Census Day; or
2. who have arrived in their place of usual residence during the twelve months before Census Day with the intention of staying there for at least one year⁹

should be considered as usual residents of the relevant geographic or administrative subdivision. Children born in the twelve months before Census Day should be included in the usually resident population of the relevant geographic or administrative subdivision where they live.

138. A person's country of usual residence is the country in which the place of usual residence is located. This will be straightforward for the vast majority of the population. For people who move frequently between countries, this concept may be difficult to understand. The definition and recommendations for international migrants are discussed in Chapter 7.

139. For short-term migrants¹⁰ the country of departure should continue to be the country of usual residence of the international migrant during his/her stay abroad. For long-term

⁸ In practical terms the interpretation of "continuous period of at least 12 months" means that the person has been present for twelve of the last fifteen months.

⁹ The same interpretation applies here as for the "continuous period of at least twelve months" above.

¹⁰ Short-term migrants are those who move to a country other than his or her usual residence for a period of at least three months but less than a year. Excepted are cases where the movement is for the purpose of recreation, holiday, visits to friends or relatives, business, medical treatment or religious pilgrimage. See Recommendations on Statistics of International Migration, United Nations, New York, 1998

migrants¹¹ the country of destination should become the country of usual residence of the migrant.

140. The general rule governing usual residence is that a person's place of usual residence is that at which he/she spends most of his/her daily night-rest. For most persons the application of this rule will not give rise to any major difficulty. However, problems may be encountered in a number of special cases. The recommended conventional treatment of these cases is as follows:

1. Persons who work away from home during the week and who return to the family home at week-ends should consider the family home as their place of usual residence regardless of whether their place of work is elsewhere in the country or abroad;
2. Primary and secondary students who are away from home during the school term should consider their family home as their place of usual residence regardless of whether they are pursuing their education elsewhere in the country or abroad;
3. Third level students who are away from home while at college or university should consider their term time address as their place of usual residence regardless of whether this is an institution (such as a boarding school) or a private residence and regardless of whether they are pursuing their education elsewhere in the country or abroad;
4. The institution should be taken as the place of usual residence of all inmates who at the time of the census have spent, or are likely to spend, twelve months or more in the relevant institution. Examples of inmates of institutions include patients in hospitals or hospices, old persons in nursing homes or convalescent homes, prisoners and those in juvenile detention centres;
5. Where a person regularly lives in more than one residence during the year, the one where he/she spends the majority of the year should be taken as his/her place of usual residence regardless of whether this is located elsewhere within the country or abroad;
6. The general rule in relation to where the most of the daily night rest is spent applies to persons in compulsory military service as well as to members of the armed forces who live in military barracks or camps;
7. The place of enumeration should be taken as the place of usual residence of homeless or roofless persons, nomads, vagrants and persons with no concept of usual residence.

141. Objective rules should be formulated for dealing with each of these cases. These rules should be clearly set out in the census instructions and described in the various census reports.

142. The place of usual residence topic is included in order to obtain the information needed to determine the total usually resident population of a country and in order to classify the population by territorial divisions and by household status.

143. Where possible, separate information should be collected for each household and for each person in a household, and for each person in an institutional household concerning:

1. persons usually resident and present at the time of the census;

¹¹ Long-term migrants should comprise either those international migrants who have lived in the country of destination for a continuous period of at least twelve months before Census Day; or those international migrants who have arrived in the country of destination during the twelve months before Census Day with the intention of staying there for at least one year

2. persons usually resident but temporarily absent at the time of the census; and
3. persons temporarily present at the time of the census that are usually resident elsewhere (including their address of usual residence).

Temporarily present persons

144. Persons enumerated but not meeting the criteria for usual residence in the enumeration place, i.e. not living or not expecting to live in the enumeration place for a period of at least 12 months, are considered as temporarily present persons.

145. A special sub-group of the temporarily present persons is represented by short-term international migrants (see Recommendations on Statistics of International Migration). In order to count short-term international migrants, the following topics should be collected for each person in a household and for each person in an institutional household who is temporarily living in the country¹²

1. country of usual residence. This information allows the identification of persons having usual residence outside the country.
2. Reason for migration. This information allows for the exclusion of persons who undertook an international movement due to recreation, holiday, visits to friends and relatives, business, medical treatment and religious pilgrimage.
3. Duration of stay. This information is needed to include only persons staying in the country for at least 3 months but less than a year

Temporarily absent persons

146. On the basis of the definition of the place of usual residence, persons usually resident in the enumeration place but absent, or expected to be absent, at the time of the census for less than one year should be considered as *temporarily absent persons* and thus included in the total population.

147. In contrast, persons living or expected to live outside the enumeration place for one year or more should not be considered as temporarily absent persons and should therefore be excluded from the total population. This is regardless of regular visits that these persons may pay to their families.

148. The group of *absent persons living abroad* (relatives of the members of a household that live or are expected to live in another country for one year or more) can be particularly important in countries experiencing high emigration. If data on absent persons living abroad is to be collected through the census, their information (in terms of counting and characteristics) should be distinguished from the information collected for the total resident population.

149. Information on place of usual residence should be collected in enough detail to enable tabulations to be made for the smallest geographic or administrative subdivisions required to meet users' needs for information on this topic.

¹² Persons whose duration of stay in the country is (or is intended to be) shorter than one year and according to the rules of usual residence do not qualify as usual residents.

Total population (derived core topic)

150. A total usually resident population count for each territorial division would normally be compiled by adding persons usually resident and present or temporarily absent. However, it is not always possible to collect information about persons absent from their place of usual residence, particularly if a whole household is temporarily absent at the time of the census. Provision must therefore be made to collect information about such persons at the place where they are found at the time of the census, and if necessary "transfer" them to their place or territorial division of usual residence.

151. The composition of the figure compiled for the total usually resident population (and other population totals based on other concepts) should be described in detail in the census report. As a general rule, the total usually resident population should include all persons who have their usual residence in the relevant territorial division (see paragraphs 137 - 139) regardless of their legal status.

152. The total usually resident population should usually include the following groups of persons:

1. nomads;
2. vagrants;
3. persons living in remote areas;
4. military, naval and diplomatic personnel and their families, located outside the country (note that this overrides the provisions of paragraphs 4 and 5 above);
5. merchant seamen and fishermen resident in the country but at sea at the time of the census (including those who have no place of residence other than their quarters aboard ship);
6. civilian residents temporarily working in another country provided they are not long term immigrants of the destination country;
7. civilian residents who cross a frontier daily to work in another country;
8. civilian residents (other than those in categories 4 to 7) temporarily absent from the country provided they are not long term immigrants of the destination country.

153. Persons who may be illegal, irregular or undocumented migrants should be included in the resident population and should follow the same rules of usual residence as for other persons. In this context it is important that the usually resident population (which is sometimes called the de-jure population) should not be confused with the legal (as distinct from illegal) population. For most users of census data, especially those responsible for planning and providing health care, education and other public services, it is important to know the size of the total population, which could potentially utilise these services regardless of their immigration status. It is recognised that this is a sensitive issue and that it may be difficult or impossible to ensure that persons with illegal status are covered by the census enumeration. However, in the overall design of the census, efforts should be made to try to ensure that all persons are covered regardless of the legality of their immigration status.

154. Asylum-seekers and persons who have applied for or been granted refugee status or similar types of international protection should be included in the resident population if the duration of stay in the country is, or is expected to be, at least twelve months as for the rest of the population. This also applies when persons are granted temporary protection in situations of mass displacement but where a formal status of protection has not yet been granted due to practical considerations.

155. The following groups should not normally be considered part of the total usually resident population but countries may wish to collect data on them to produce alternative population counts:

1. foreign military, naval and diplomatic personnel and their families, temporarily located in the country;
2. foreign civilians temporarily working in the country;
3. foreign civilians who cross a frontier daily to work in the country;
4. foreign civilians other than those in groups 10 and 11 temporarily in the country e.g. tourists.

156. If feasible, the magnitude of groups in paragraphs 152 and 155 should be shown.

157. Each country should compile a figure for the total usually resident population, and the detailed tabulations should in general be provided on this basis. In those countries where the total population figure has been corrected for under- or over-enumeration (usually measured by use of a post-enumeration survey or by comparison with other sources), both the enumerated figure and the estimated corrected population figure should be shown and described. The detailed tabulations will normally be based only on the population that was actually enumerated.

158. Some countries may wish to compile for national purposes one or more additional figures for the population such as the total present-in-area population, the total legally resident population or the population working in the country. The present-in-area population can be classified by the relevant geographic or administrative subdivision in which they were enumerated during the census operation (see non-core topic “place where found at time of census”).

Locality (derived core topic)

159. For census purposes, a locality is defined as a distinct population cluster, that is, the population living in neighbouring buildings
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160. They may either:

1. form a continuous built-up area with a clearly recognizable street formation; or
2. though not part of such a built-up area, form a group to which a locally recognized place name is uniquely attached; or
3. though not coming within either of the above two requirements constitute a group, none of which is separated from its nearest neighbour by more than 200 metres.

161. In applying this definition certain land-use categories should not be regarded as breaking the continuity of a built-up area (and accordingly should not be counted in applying the 200-metre criterion above). These categories are: industrial and commercial buildings and facilities, public parks, playgrounds and gardens, football fields and other sports facilities, bridged rivers, railway lines, canals, parking lots and other transport infrastructure, churchyards and cemeteries, etc.

162. This definition is intended to provide general guidance to countries in identifying localities and in determining their boundaries, and it may need to be adapted in accordance

with national conditions and practices. The population not living in clusters as defined above may be described as living in scattered buildings. The definition of a locality adopted for the census should be given in detail in the census report.

163. Localities as defined above should not be confused with the smallest civil divisions of a country. In some cases, the two may coincide. In others, however, even the smallest civil division may contain two or more localities. On the other hand, some large cities or towns may contain two or more civil divisions, which should be considered only segments of a single locality rather than separate localities.

164. Countries are recommended to develop their census statistics for localities in accordance with national needs and possibilities. In doing so, they should try to approach as closely as possible the concept of the population cluster as defined above. Countries which tabulate statistics only for civil divisions should, as a minimum, endeavour to compile data on the total population of each part of a civil division containing a population cluster, or part of a population cluster, of at least 2,000 inhabitants and so provide a basis for making a more clear-cut distinction between urban and rural areas and populations (see paragraph 31 below).

165. It is recommended that the population be classified by size of locality according to the following size-classes:

1.0	1,000,000 or more inhabitants
2.0	500,000 - 999,999 "
3.0	200,000 - 499,999 "
4.0	100,000 - 199,999 "
5.0	50,000 - 99,999 "
6.0	20,000 - 49,999 "
7.0	10,000 - 19,999 "
8.0	5,000 - 9,999 "
9.0	2,000 - 4,999 "
10.0	1,000 - 1,999 "
11.0	500 - 999 "
12.0	200 - 499 "
13.0	Population living in localities with less than 200 inhabitants or in scattered buildings
13.1	Population living in localities with 50 to 199 inhabitants
13.2	Population living in localities with less than 50 inhabitants or in scattered buildings
14.0	Population without a fixed place of residence

166. This classification could also be applied to other relevant areas such as the economically active population, households, families and dwellings.

Urban and rural areas (derived non-core topic)

167. For national purposes as well as for international comparability, the most appropriate unit of classification for distinguishing urban and rural areas is the locality as defined in paragraphs 159 and 160 above. However, it is left to countries to decide whether to use the locality or the smallest civil division as the unit of classification.

168. Countries that use the smallest civil division as the unit are encouraged to endeavour to obtain results, which correspond as closely as possible to those obtained by countries, which use the locality as the unit. The approach to be adopted to achieve this aim depends mainly on

the nature of the smallest civil divisions in the countries concerned. In some countries the smallest civil divisions are relatively small in area and in average number of inhabitants and generally do not contain more than one population cluster (or part of a larger population cluster). If it is not feasible for some of these countries to use the locality as the unit, they are encouraged to make use of the concept of the multi-communal agglomeration (i.e. to treat as single units groups of two or more contiguous minor civil divisions which form part of the same population cluster). It is also suggested that minor civil divisions at the periphery of such an agglomeration be included in the agglomeration if the major part of their resident populations live in areas belonging to the continuous built-up area of the agglomeration, and that minor civil divisions containing one or more isolated localities be classified according to the number of inhabitants of the largest population cluster within the unit.

169. The situation is different, however, in the case of countries in which the smallest civil divisions are relatively large in area and in average number of inhabitants and often contain two or more population clusters of varying sizes. If it is not feasible for some of these countries to use the locality as the unit, they should endeavour to use units smaller than minor civil divisions for this purpose, e.g. parishes, enumeration districts, grid squares, etc. They should endeavour to use these smaller units as building blocks and to aggregate them so as to correspond as closely as possible with the boundaries of localities in the same way as described above in the case of multi-communal agglomerations. If it is not feasible for some countries to adopt this approach, they should endeavour to develop new approaches to the classification of entire minor civil divisions in ways which will yield results that are as comparable as possible with those obtained by using the locality as the unit.

170. It is suggested that localities or similar units be grouped into the following five categories:

1. Less than 2,000 inhabitants
2. 2,000 to 9,999 inhabitants
3. 10,000 to 99,999 inhabitants
4. 100,000 to 999,999 inhabitants
5. 1,000,000 or more inhabitants

171. Countries are also encouraged to develop typologies of localities or similar areas based on additional criteria that could be used to distinguish different types of areas within particular categories of the suggested classification. For example, some countries may wish to subdivide category 1 (and in some cases category 2 as well) to distinguish agricultural localities from other types of small localities. Some countries may wish to subdivide one or more of the intermediate categories to distinguish market towns, industrial centres, service centres, etc. Some countries may wish to subdivide the large urban agglomerations included in categories 4 and 5 to distinguish various types of central and suburban areas. Extensions of the classification in these and other ways would enhance its analytical usefulness.

172. It is suggested that for purposes of international comparisons, countries define urban areas as localities with a population of 2,000 or more, and rural areas as localities with a population of less than 2,000 and sparsely populated areas. Some countries might also wish to consider defining urban areas in other ways (e.g. in terms of administrative boundaries, of built-up areas, of the area for which services such as shops, educational facilities, recreational facilities, employment, etc., are provided, or in terms of functional areas). Whatever approach is taken should be clearly described in the census report.

Commuting

173. The following topics examine issues associated with commuting from home to workplace, school, college or university. Accurate commuter flows are important for a whole raft of reasons including transport planning, housing development and economic development.

Location of place of work (core topic)

174. The location of place of work is the precise location (e.g. street address and locality) in which a "currently employed" person performs his/her job, and where a "usually employed" person currently performs or last performed the job. Information on the location of place of work should be collected only for employed persons with a fixed place of work outside the home (see topic "Type of place of work" on paras. 255-256)

175. The main reason why place of work information is collected is to link it with place of usual residence in order to shed further light on commuter flows in addition to that provided by mode of transport to work, distance travelled and time taken. The place of work should be coded to the smallest possible civil division in order to establish accurate commuter flows from the place of usual residence to the place of work. Persons who do not have a fixed place of work but who report to a fixed address at the beginning of their work period (e.g. bus drivers, airline pilots and stewards, operators of street market stalls which are not removed at the end of the workday) should provide information on this address. This group may also include individuals who travel to work, on a regular basis, across the border to a neighbouring country. To devise an appropriate coding procedure for places of work abroad to which respondents travel regularly, it is recommended to use geographic reference files from the neighbouring countries.

Location of school, college or university (non-core topic)

176. By including this topic in their census, countries can extend the scope of their data on commuting patterns to cover pupils and students in addition to the coverage of the economically active population provided by place of work. In order to maintain comparability with the place of work variable, the location of school, college or university should be coded to the smallest possible civil division.

Mode of transport to work (non-core topic)

177. Mode of transport to work relates to the daily journey made. For people making several journeys or using more than one mode of transport, the mode of transport used for the greatest distance in the journey should be indicated

178. The following classification is recommended:

- 1.0 Rail
 - 1.1 National/international rail network
 - 1.2 Metro/Underground
 - 1.3 Tram/Light railway
- 2.0 Bus, minibus or coach

- 3.0 Car or van
 - 3.1 Driver
 - 3.2 Passenger

- 4.0 Other
 - 4.1 Motorcycle
 - 4.2 Pedal cycle
 - 4.3 Walk
 - 4.4 Other (e.g. boat, ferry, aeroplane)

179. The classification is basic at the one-digit level and optional at the two-digit level.

Mode of transport to school, college or university (non-core topic)

180. As for the mode of travel to work topic the mode of transport to work relates to the daily journey made. For people making several journeys or using more than one mode of transport, the mode of transport used for the greatest distance in the journey should be indicated. The classification set out in paragraph 178 above applies in this case also.

Distance travelled to work and time taken (non-core topic)

181. Countries may wish to collect information on the distance travelled to work and the time taken with a view to monitoring the extent to which persons are living at greater distances from their work places and the impact which traffic congestion has on the time taken to get to work.

Distance travelled to school, college or university and time taken (non-core topic)

182. By asking these questions countries will be in a position to monitor the extent to which students may be undertaking longer journeys to school, college or university with consequent increases in the time taken to undertake these journeys.

Chapter 4 Demographic characteristics

Introduction

183. The demographic characteristics of sex, age and marital status are core variables, which are often used to classify other information from the census to help in the understanding of various issues. In the case of sex and age, it is considered important that this information be available for every person from whom census information has been collected. It is therefore recommended that where this information is incomplete it be derived for census purposes.

Sex (core topic)

184. The sex of each person should be recorded in the census. Sex is, together with age, the census topic that is most frequently cross classified with other characteristics of the population. Therefore, it is fundamental that information on sex is as complete and accurate as possible. If information on sex is missing, an imputation based on other individual or household entries should be made.

185. Many countries in the region have identified the need for further development of statistics analysed by gender. It is therefore important that countries ensure that the various definitions and classifications for data on educational attainment, economic activity status, occupation, position in the family and household, etc. are appropriately used in the census. Parallel data for both men and women should be provided for all appropriate topics.

Age (core topic)

186. To obtain information on age, it is recommended to collect information on date of birth. Collecting information on the date of birth allows the tabulation of data in two ways: by year of birth and by completed years of age. Given that age is one of the most important variables collected in a census, used in many tabulations and analyses, it is fundamental that information on age is as complete and accurate as possible. If information on age is missing, imputation based on other individual or household entries should be made.

187. Many countries in the region as special population groups for which various types of census data will be required have identified children, youth and the elderly. The types of data on children and youth that are likely to be of interest to countries include topics such as family type (two-parent or one-parent family), family income, labour force activity of parents, and school attainment and/or educational attainment of parents. For the elderly, data on age, sex, marital status, economic activity status, position in the family and household and type of living quarters are illustrations of some of the topics that are likely to be of interest to countries. It is recommended that countries ensure that the definitions and classifications that are planned to be used in the census for these and other topics of interest are appropriate for the dissemination of data on children, youth and the elderly that will be required.

Legal marital status (core topic)

188. Marital status is defined as the (legal) conjugal status of each individual in relation to the marriage laws (or customs) of the country (i.e. *de jure* status).

189. Information on the legal marital status of each person should be collected at least for persons aged 15 and over. However, since the minimum legal age (or the customary age) for marriage varies between countries and since the population may also include young persons

who have been married in other countries with lower minimum ages, it is recommended to collect the data for all persons.

190. The following classification of the population by marital status is recommended:

1. Single (i.e. never married)
2. Married
3. Widowed and not remarried
4. Divorced and not remarried

191. It should be noted here that insofar as this recommended classification of legal marital status is concerned, all persons living in consensual unions should be classified as single, married, widowed or divorced in accordance with their de jure (legal) status.

192. In some countries, people living in a registered partnership may be included in the “married” category.

193. A separate category for “legally separated” could be considered in countries where the legislation includes provisions for this status, as different from “married” or “divorced”.

194. In countries where the group of persons whose only or latest marriage has been annulled is substantial in size, a separate category should be considered for this group, if possible. When a separate category is not considered for this group, the individuals should be classified according to their marital status before the annulled marriage took place.

De facto marital status (non-core topic)

195. Countries which have experienced increases in the number of persons living in consensual unions may wish to collect information not only on the de jure status but also on the de facto status. In some countries it is already possible to include registered partnership, as this category may have status equivalent to legal marriage. De facto marital status is defined here as the marital status of each individual in terms of his or her actual living arrangements within the household enumerated. It is suggested that information on this topic be collected for persons of the same age categories as those for whom information on the legal status was collected.

196. A possible classification could be:

1. Single (i.e. never married)
2. Married
3. Living in a consensual union
4. Widowed and not remarried
5. Divorced and not remarried

197. It is to be noted that information on de facto marital status can also be derived from, and/or confronted to, information collected on topics related to household and family characteristics of persons, characteristics of family nuclei and characteristics of private households, based on the relationship to the reference person question or the full household relationship matrix in countries where the matrix is used. Where such matrix is not used, a separate question could be asked.

198. The census report should explain clearly the definitions of each tabulated marital status category, taking into account the enumeration procedures and the data-processing procedures. The explanation should also specify how groups such as the legally separated and persons with an annulled marriage were treated.

Total number of children born alive (non-core topic)

199. Information on total number of children born alive can be collected in the census by countries that plan to use it to calculate estimates of fertility based on indirect techniques. If this topic is included in the census, it is suggested that information on total number of live-born children be collected for all women.

200. The data collected on total number of live-born children should, in principle, include all children born alive during the lifetime of the women concerned up to the census date (i.e. excluding foetal deaths). The number recorded should comprise all live-born children whether born of the present or prior marriage(s), whether born of consensual or other unions or by a single mother, and regardless of whether they are living or dead at the time of the census, or where they may be living. It is recognized that it may not be possible to specify in the enumeration instructions that all children including those not born in a marriage or in a consensual union should be included.

Date(s) of legal marriage(s) of ever-married women: (i) first marriage and (ii) current marriage (non-core topic)

201. Information on dates/duration of marriage is valuable for fertility statistics and extends the knowledge that can be derived from data on number of live-born children. In the case of women who have been married more than once, it is suggested to obtain information on the dates of both the first marriage and the current marriage.

Date(s) of the beginning of the consensual union(s) of women having ever been in consensual union : (i) first consensual union and (ii) current consensual union (non-core topic)

202. Information on dates/duration of consensual union is, as well as information on dates/duration of marriage, is valuable for fertility statistics and extends the knowledge that can be derived from data on number of live-born children. In the case of women who have been in consensual union more than once, it is suggested to obtain information on the dates of both the first and the current consensual union. Information on dates/duration of consensual union(s) can be combined with the information on the date(s) of legal marriage(s).

Chapter 5 Economic Characteristics

Introduction

203. Statistics on the economic characteristics of persons are needed from population censuses for many reasons. Information on the number and characteristics of the employed, unemployed and inactive persons are needed in detail at the same reference point of time that other demographic and social items are being measured so that a comprehensive picture of the socio-economic situation is available. Such statistics might be obtained from other sources such as a household-based labour force survey, but these other sources rarely provide sufficient level of detail for small areas, or for finely classified groups of industries and occupations. Sample surveys are constrained by sample precision and administrative records may not have the same quality of occupational and industry coding. Other personal, household and dwelling characteristics that are included in the range of census topics (such as education, income level, type of dwelling, etc) are strongly related to economic activity of the household members. It is therefore desirable to collect information on the economic characteristics of household members in the census so that cross-relationships between these data items can be examined.

204. The population census provides benchmark information to which statistics from other sources should be related. Population censuses also provide the sample frames for most household-based surveys. There may be problems in reconciling information from different sources due to differences such as scope and coverage, concepts and definitions, classifications, statistical units, reference periods, precision, measurement errors. When presenting census results, it is suggested that any differences be highlighted and explained in footnotes as well as in textual analysis.

Economic activity of persons

205. The "economically active" population comprises all persons who provide the supply of labour, as employed or as unemployed, for the production of goods and services¹³.

206. Economic activities, i.e. production, in the present context, include: (i) the production of all individual or collective goods or services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods or services used up in the process of producing such goods or services (intermediate inputs); (ii) the own-account production of all goods that are retained by their producers for their own final use (final consumption or gross fixed capital formation); and (iii) the own-account production of domestic and personal services by employing paid domestic staff.

207. In principle, the production of all goods falls within the System of National Accounts (SNA) production boundary, irrespective of whether the goods are intended for supply to other units or for the producers' own final use. In practice, the production of a good for own final use within households should be recorded only if the amount of the good produced by households for their own final use is believed to be quantitatively important in relation to the total supply of that good in a country. Persons engaged in the production of goods for own final use within the same household should be considered as economically active only if such production comprises an important contribution to the total consumption of the household. Examples of common types of household production include the production of agricultural

¹³ System of National accounts 1993, ST/ESA/STAT/SER/F/2/Rev.4, United Nations, Sales No. E.94.XVII.4 Brussels/Luxembourg, New York, Paris, Washington, D.C. 1993

products and their subsequent storage; production of dairy products such as butter or cheese; (the preparation of meals for immediate consumption is excluded); weaving cloth; dress making and tailoring; and construction of dwellings, and major renovations (e.g. re-plastering walls, repairing roofs) or extensions to dwellings. For more details, see System of National Accounts, 1993¹⁴

208. Domestic or personal services provided by unpaid household members for final consumption within the same household are excluded from the production boundary and, hence, are not considered to be economic activities in the census context. (Examples are: (a) the cleaning, decoration and maintenance of the dwelling occupied by the household, including small repairs of a kind usually carried out by tenants as well as owners; (b) the use, cleaning, servicing and repair of household durables or other goods, including vehicles used for household purposes; (c) the preparation and serving of meals; (d) the care, training and instruction of children; (d) the care of sick, infirm or old people; and (e) the transportation of members of the household or their goods). Persons engaged in such activities may be included among providers of unpaid services, (see paragraph 214 below).

209. Information on activity status should be collected for each person at or above a minimum age set in accordance with the conditions in each country. The minimum school-leaving age should not automatically be taken as the lower age limit for the collection of information on activity status. Countries in which many children participate in agriculture or other types of economic activity (e.g. mining, weaving, petty trade), will need to select a lower minimum age than countries where employment of young children is uncommon. Tabulations of economic characteristics should at least distinguish persons less than 15 years of age and those 15 years of age and over. Countries where the minimum school-leaving age is higher than 15 years and where there are economically active children below this age should endeavour to secure data on the economic characteristics of these children with a view to achieving international comparability at least for persons 15 years of age and over. Use of a maximum age limit for measurement of the economically active population is not recommended, as a considerable number of elderly persons beyond retirement age may be engaged in economic activities.

210. The "economically active" population can be measured in different ways: (a) the "currently active" population (or, equivalently, the "labour force"), measured in relation to a short reference period such as one week or one day; and (b) the "usually active" population measured in relation to a long reference period such as a year.

211. To have a complete set of data compiled on the basis of both current and usual activity has advantages for a number of important uses, but this may be difficult in a census because of expense, limitations of questionnaire space and the burden of coding and processing. It is recommended that countries collect information based on current activity first and if possible supplement this information with data based on usual activity. Countries using the concept of "usual activity" should endeavour to also obtain data covering at least the size of the "labour force" during a one-week period.

212. The "not economically active" population comprises all persons, irrespective of age, including those below the age specified for measuring the economically active population, who were not "economically active" as defined in paragraphs 208-209 above.

¹⁴ System of National accounts 1993, ST/ESA/STAT/SER/F/2/Rev.4, United Nations, Sales No. E.94.XVII.4 Brussels/Luxembourg, New York, Paris, Washington, D.C. 1993

213. Some “not economically active” persons may be classifiable to more than one category of the population not economically active. In such situations it is recommended priority should be given to the categories listed in paragraph 265 below.

Providers of unpaid services (non core topic)

214. Countries may wish to identify separately the persons who provide social and personal services to their own household, other households or to voluntary, non-profit organizations on an unpaid basis, either for a short reference period or for a longer one. Such persons may be sub-divided either according to types of services provided or according to type of recipient. (It should be noted that the provision of non-paid services to other households and to voluntary, non-profit organizations is outside the production boundary as defined by the national accounts, and thus not considered as an economic activity, notwithstanding the general rule given in paragraph 206).

Current activity status (core topic)

215. “Current activity status” is the current relationship of a person to economic activity, based on a brief reference period such as one week or one day. The use of the “current activity” is considered most appropriate for countries where the economic activity of people is not influenced much by seasonal or other factors causing variations over the year, and it is recommended that countries in the ECE region collect information in the census on activity status based on this concept (i.e., the “labour force” concept). A time-reference period of one week should preferably be used, which may be either a specified recent fixed calendar week, or the last complete calendar week or the last seven days prior to enumeration.

The “currently active population” (i.e. the labour force)

216. The “currently active population” (the “labour force”) comprises all persons who fulfil the requirements for inclusion among the employed or the unemployed as defined in paragraphs 217 to 228.

Employed persons

217. “Employed” persons comprise all persons above a specified age who during the short reference period of preferably one week:

1. performed some work for pay or profit, in cash or in kind, or
2. were temporarily absent from a job in which they had already worked and to which they had a formal attachment or from a self-employment activity such as a farm, a business enterprise or a service undertaking.

218. The census documentation and tabulations should clearly describe the time limit chosen as cut-off for considering persons to be 'at work'. According to the present international recommendations, the notion of 'some work' should be interpreted as work for at least one hour during the reference period. The one-hour criterion is an essential feature of the labour force framework embedded in the international definitions of employment and unemployment, and a prerequisite for the consistency of employment statistics with national accounts data on production. Countries concerned about the usefulness of the one-hour

criterion for other users of census results should also collect data on 'time worked', following the recommendations of paragraphs 230-233 below.

219. Persons in paid employment temporarily not at work because of illness or injury, holiday or vacation, strike or lock-out, educational or training leave, maternity or parental leave, reduction in economic activity, temporary disorganization or suspension of work due to such reasons as bad weather, mechanical or electrical breakdown, or shortage of raw materials or fuels or other temporary absence with or without leave should be considered as in paid employment provided they had a formal job attachment. This formal job attachment should be determined on the basis of one or more of the following criteria: a continued receipt of wage or salary; an assurance of return to work following the end of the contingency, or the agreement as to the date of return; or the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligations to accept other jobs¹⁵.

220. Self-employed persons (excluding contributing family workers) should be considered as "employed" and "with enterprise, but not at work" if their absence from work is temporary and their enterprise meanwhile continues to exist.

221. The *Guidelines concerning treatment in employment and unemployment statistics of persons on extended absences from work*, endorsed by the Sixteenth International Conference of Labour Statisticians, (October 1998)¹⁶ provides standards on how to treat the following groups of person on extended absence from work:

1. "Women on maternity leave, who have an assurance of a return to work following the end of the leave, should be classified as employed if, during the reference period, they are in receipt of all or a significant part of their wage or salary from the employer or an equivalent payment from other sources received by virtue of being an employee. Women on maternity leave, who have an assurance of a return to work following the end of the leave, should also be considered as being employed during the compulsory period of the leave stipulated by national legislation to ensure that mothers before and after childbirth have sufficient rest, or for a period to be specified according to national circumstances. In countries where they are not classified as employed according to these criteria, women on maternity leave should be classified as unemployed or not economically active, depending upon their current availability for work and recent job-search activity."
2. Employees on unpaid leave initiated by the employer: Persons having an agreed date for return to work should be considered employed if the elapsed duration of their leave falls within a time-limit to be specified according to national circumstances.
3. Employees on extended leave such as parental leave, who have an assurance of a return to work with the same employer following the end of the leave, should be classified as employed if the employer continues to pay all or a significant part of the wage or salary of the person on leave, or if the duration of the leave does not exceed a time-limit to be specified according to national circumstances.

¹⁵ For guidance in respect of long-term absences see "Recommendations of the Joint ILO/Czech Statistical Office Meeting on the statistical treatment of persons on extended types of leave in respect to the international definitions of employment and unemployment (Prague, 15-17 November 1995)", *Bulletin of Labour Statistics*, 1996-1, pp. XXV-XXVI.

¹⁶ For further details see general report at <http://www.ilo.org/public/english/bureau/stat/download/16thicls/report4.pdf>

4. Seasonal employees not engaged in any kind of work during the off-season should be classified as employed if they have an assurance of a return to work with the same employer at the beginning of the next season, and the employer continues to pay all or a significant part of their wage or salary during the off-season.
5. Other persons on extended leave, including those who (i) have an agreed date for return to work but whose elapsed duration of leave is longer than the specified time-limit, (ii) have no agreed date for return to work but who are expecting to return to their work in the near future, and (iii) neither have an agreed date for return to work nor expect to be recalled to their work in the near future should not be considered as employed. Similarly, seasonal employers, own-account workers, members of producers' cooperatives and contributing family workers not engaged in any kind of work during the off-season when the enterprise ceases to exist should not be considered as employed. (There is no inconsistency between this point and the point made earlier on this page concerning self-employed persons "with enterprise but not at work". During the off-season, many enterprises (such as ice cream shops, fruit stalls, beach restaurants) are not in operation (ceases to exist), and therefore the operators of such enterprises should not be classified as employed when they are not at work in the off-season. If it can be assumed that the enterprise continues to exist in the off-season (such as a farm), a seasonal self-employed person not at work could be classified as employed provided that the period of absence from work falls within an acceptable limit.)

222. The notion of expectation of returning to work "in the near future" should be specified in the light of the national circumstances and economic situation of each country.

223. Treatment of specific groups of employed persons: The following treatment of certain groups of individuals is recommended:

1. Contributing family workers should be considered to be at work on the same basis as other "self-employed" persons, i.e. irrespective of the number of hours worked during the reference period. Countries which prefer for special reasons to set a minimum time criterion for the inclusion of contributing family workers among the "employed" should identify and separately classify those who worked less than the prescribed time, to be able to provide internationally comparable data. Contributing family members who were not at work during the reference period should not be considered as employed;
2. Persons engaged in economic activities in the form of production of goods for own final use within the same household should be considered as in "self-employment" (and classified as "own account workers") if such production comprises an important contribution to the total consumption of the household, (cf. paragraph 207 above);
3. Apprentices and trainees who received pay in cash or in kind should be considered in paid employment and classified as "at work" or "not at work" on the same basis as other persons in paid employment;
4. Participants in job training schemes should be considered to be "employed" if the training took place within the context of an enterprise and in connection with its production, or if the participants could be said to retain a formal job attachment to an enterprise in which they had formerly been employed, even if the training was outside the context of the enterprise or without connection to its 'production'. (Other participants in job training schemes may be classified as unemployed or not economically active, depending upon their current availability for work and recent job-search activity.)

5. Students, homemakers and others mainly engaged in non-economic activities during the reference period, who at the same time were in "paid employment" or "self-employment" as defined above should be considered as employed on the same basis as other categories of employed persons and be identified separately, where possible;
6. All members of the armed forces should be included among persons in paid employment. The "armed forces" should include both the regular and the temporary members as specified in the most recent revision of the International Standard Classification of Occupations (ISCO)¹⁷.
7. "Requital" workers (that is persons who work for friends, neighbours, etc within a mutual exchange of work as part of an exchange of work but not money) should be considered as employed because the remuneration that they receive in exchange for their economic activity is the provision of labour input by someone else (barter of work).
8. Persons who provide community work (building bus shelters, village administration, etc) for pay in cash or kind should be considered as employed. However, volunteer work (without any pay in cash or kind) is not considered to be employment. (See also "Status of volunteers" below.) Similarly family members who are not members of the household or friends who provide labour inputs without pay in cash or kind (that is, they volunteer to help without expectation of requital) in an enterprise operated by another household are not considered to be employed. (See also point ? concerning a relaxation of this rule for family members who are resident in another household.)

224. Information should be given in the census reports describing how these groups and other relevant groups (e.g. retired persons) were treated. Consideration should also be given to the desirability of identifying some of the groups (e.g. working students) separately in tabulations.

225. Persons engaged in unpaid community and volunteer services (even if engaged in producing goods or market services within the SNA production boundary) and other persons engaged in activities that fall outside the boundary of economic activities (see also paragraph 214 above) should not be considered as employed. They should be classified as unemployed or not economically active, depending upon their current availability for work and recent job-search activity. If classified as inactive, then separate sub-categories of the inactive may be introduced to identify them, where considered useful.

226. Unemployed persons. The "unemployed" comprise all persons above a specified age who during the reference period were:

1. "without work", i.e. were not in paid employment or self-employment as defined above in paragraphs 217-223;

¹⁷ "Members of the armed forces are those personnel who are currently serving in the armed forces, including auxiliary services, whether on a voluntary or compulsory basis, and who are not free to accept civilian employment. Included are regular members of the army, navy, air force and other military services, as well as conscripts enrolled for military training or other service for a specified period, depending on national requirements. Excluded are persons in civilian employment of government establishments concerned with defence issues; police (other than military police); customs inspectors and members of border or other armed civilian services; persons who have been temporarily withdrawn from civilian life for a short period of military training or retraining, according to national requirements, and members of military reserves not currently on active service)." See International Standard Classification of Occupations (ISCO-88), International Labour Office, Geneva, 1990. p. 265

2. "currently available for work", i.e. were available for paid employment or self-employment during the reference period¹⁸; and
 3. "seeking work", i.e. had taken specific steps in a specified recent period to seek paid employment or self-employment. (The specific steps may include registration at a public or private employment exchange (for the purpose of obtaining job offers); application to employers; checking at work sites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprises; arranging for financial resources; applying for permits and licenses, etc).
227. Treatment of specific groups: Some groups of persons require careful treatment to be properly included among the "unemployed". The following treatment is recommended:
1. Persons without work and currently available for work who had made arrangements to take up paid employment or undertake self-employment activity at a date subsequent to the reference period should be considered as "unemployed", irrespective of whether or not they recently sought work;
 2. Persons temporarily absent from their jobs with no formal job attachment that were currently available for work and seeking work should be regarded as "unemployed" in accordance with the standard definition of "unemployment". Countries may, however, depending on national circumstances and policies, prefer to relax the seeking work criterion in the case of persons temporarily laid-off. In such cases, persons temporarily laid-off who were not seeking work but classified as "unemployed" should be identified as a separate sub-category;
 3. Persons mainly engaged in non-economic activities during the reference period (e.g. students, homemakers), who satisfy the criteria for unemployment laid down in paragraph 226 above should be regarded as "unemployed" on the same basis as other categories of "unemployed" persons and be identified separately, where possible.
228. Information should be given in the census reports on how persons in these and any other specific groups were treated.

The population not currently active (i.e. persons not in the labour force)

229. The "population not currently active" or, equivalently, "persons not in the labour force", comprises all persons who were neither "employed" nor "unemployed" during the short reference period used to measure "current activity". It is recommended that this population be classified into the following four groups:
1. "Students": persons not "currently economically active", who for most of the reference period attended any regular educational institution, public or private, for systematic instruction at any level of education. (See also non-core topic 'School attendance', paragraphs 321-325)
 2. "Pension or capital income recipients": persons, not "currently economically active", who receive income from property or investments, interests, rents, royalties or pensions from former activities.
 3. "Homemakers": persons, not "currently economically active", who for most of the reference period were engaged in unpaid household duties in their own home, for example, housewives and other relatives responsible for the care of the home and

¹⁸ In EU countries, current availability for work is interpreted as availability during the reference week or the subsequent two weeks).

children. (Domestic and personal services produced by domestic employees working for pay, however, are considered as economic activities in line with paragraph 206 above).

4. "Others": persons, not "currently economically active", who are receiving public aid or private support, and all other persons not falling into any of the above categories (e.g. children not attending school).

Time usually worked (core topic)

230. "Time usually worked" should reflect the time worked during a typical week or day, and should be measured for a short reference period and in hours. It is the total time usually spent producing goods and services during the reference period adopted for "economic activity" in the census, within regular working hours and as overtime. "Time usually worked" should include activities which, while not leading directly to the production of goods or services, are still defined as being part of the tasks and duties of the job, such as time spent preparing, repairing or maintaining the workplace or work instruments. In practice it will also include inactive time spent in the course of performing these activities, such as time spent waiting or standing by, and other short breaks. Longer meal breaks and time usually not worked because of regular sickness, regular reductions in hours due to economic or technical reasons (i.e. partial unemployment), etc. should be excluded. Time not worked which is not common nor regular should not be excluded.

231. It is recommended that for persons who have had more than one job during the reference period, the questionnaire should ensure the recording of both "total time usually worked" (considering the sum of the hours worked in the different jobs) and "time usually worked" in the main job.

232. The inclusion of "time usually worked" as a topic is particularly useful in the application of the standards concerning the economically active population. Countries concerned with the usefulness for some users of the one-hour criterion in the definition of "employment" when measuring "current activity" can apply alternative higher time limits for the definition of "employment" when tabulating census results for such users, if "time usually worked" has been measured.

233. To minimize response errors, the questions and instructions used to measure time usually worked needs to ensure that responses exclude all absences, whether paid or unpaid, and that all usual overtime, whether paid or unpaid, is included.

Occupation (core topic)

234. "Occupation" refers to the type of work done in a job. "Type of work" is described by the main tasks and duties of the work.

235. For purposes of international comparisons, it is recommended that countries make it possible to prepare tabulations in accordance with the latest revision available of the *International Standard Classification of Occupations (ISCO)*. At the time the present set of census recommendations was approved, an update to ISCO was in progress and was expected to be considered at the 18th International Conference of Statisticians in 2008. Hence, the latest revision available at this time (2005) was the one that was developed by the Fourteenth *International Conference of Labour Statisticians (ICLS)* in 1987 and adopted by the

Governing Body of the *International Labour Organisation (ILO)* in 1988¹⁹. Countries belonging to the European Economic Area should refer to ISCO-88 (COM).²⁰

236. Countries should code the collected occupational data at the lowest possible level supported by the responses. Some countries find it useful to ask for both the occupational title and a brief description of tasks and duties performed on the job by each active person.

237. Countries coding "occupation" according to a national standard classification can establish correspondence with ISCO either through double coding or through "mapping" from the detailed groups of the national classification to ISCO.

238. The collection of occupation details for second jobs (if any) was previously a non-core topic but is not now considered necessary. Details of second (or other) jobs if collected might include a wider range of topics including status in employment, occupation, industry, type of sector, and type of place of work.

Industry (branch of economic activity) (core topic)

239. Industry" (branch of economic activity) refers to the kind of production or activity of the establishment or similar unit in which the job(s) of the economically active person (whether employed or unemployed) was located. It is recommended that the name (and address if given) of the enterprise or establishment be collected in order to permit a check on the reporting (and to assist in the coding) of the "industry" variable.

240. For purposes of international comparability, it is recommended that countries compile the industrial characteristics of active persons according to the latest revision of the *International Standard Industrial Classification of All Economic Activities (ISIC)* available at the time of the census. At the time the present set of census recommendations was approved, the third edition of ISIC, adopted by the *United Nations Statistical Commission* at its twenty-fifth session in 1989, was the latest revision available²¹ although this was being revised. Countries belonging to the European Economic Area should refer to NACE Rev.1.²²

241. Countries should code the collected industry information at the lowest possible level supported by the responses.

242. Countries coding "industry" according to a national standard classification can establish correspondence with ISIC either through double coding or through "mapping" from the detailed groups of the national classification to ISIC.

¹⁹ International Labour Office: *International Standard Classification of Occupations (ISCO-88)*, ILO, Geneva, 1990.

²⁰ ISCO-88, *Definitions and Structure*, Eurostat, February 1993, gives a list of occupational groups identified for EU-wide occupational statistics. The descriptive text is limited to explanations of the ways ISCO-88(COM) differs from ISCO-88.

²¹ *International Standard Industrial Classification of All Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990.

²² *NACE Rev.1, Statistical Classification of Economic Activities in the European Community*, Eurostat, Luxembourg 1996.

Status in employment (core topic)

243. "Status in employment" refers to the type of explicit or implicit contract of employment with other persons or organizations, which the person has in his/her job. The basic criteria used to define the groups of the classification are the type of economic risk, an element of which is the strength of the attachment between the person and the job, and the type of authority over establishments and other workers, which the person has or will have in the job. Care should be taken to ensure that an "economically active" person is classified by "status in employment" on the basis of the same job(s) as used for classifying the person by "occupation", "industry" and "sector".

244. It is recommended that the economically active population be classified by status in employment as follows²³.

1. "Employees", among whom it may be possible to distinguish between "employees with stable contracts" (including "regular employees")
2. "Employers"
3. "Own-account workers"
4. "Contributing family workers"
5. "Members of producers' co-operatives"
6. "Persons not classifiable by status"

245. It is also recommended to identify separately "Owner-managers of incorporated enterprises", who normally will be classified among "employees", but whom one may prefer, for certain descriptive and analytical purposes, to group together with "employers".

246. In the ILO international standards, the term "self-employed" refers to all categories 2 to 5 in paragraph 244. A "self-employment" job is a job where the remuneration is directly dependent upon the profits (or the potential for profits) derived from the goods and services produced (where own consumption is considered to be part of the profits). Eurostat uses the term "self-employed" to refer to only own-account workers (category 3 in paragraph 244). Eurostat's classification does not distinguish Members of producers' co-operative but includes them in their category of "self-employed". In the presentation of these Recommendations, ILO terminology has been followed.

247. An "employee" is a person who works in a "paid employment" job, i.e. a job where the explicit or implicit contract of employment gives the incumbent a basic remuneration, which is independent of the revenue of the unit for which they work (this unit can be a corporation, a non-profit institution, government unit or a household). Persons in "paid employment" jobs are typically remunerated by wages and salaries, but may be paid by commission from sales, by piece rates, bonuses or in-kind payment such as food, housing or training. Some or all of the tools, capital equipment, information systems and/or premises used by the incumbent may be owned by others, and the incumbent may work under direct supervision of, or according to strict guidelines set by the owner(s) or persons in the owners' employment. "Employees with stable contracts" are those "employees" who have had, and who continue to have a contract, or a succession of contracts, with the same employer on a continuous basis. "Regular

²³ For further details see "Resolution concerning the *International Classification of Status in Employment (ICSE)*" in ILO (1993): Fifteenth International Conference of Labour Statisticians, Report of the Conference, ICLS/15/D.6 (Rev.1), International Labour Office, Geneva 1993.

employees" are those "employees with stable contracts" for whom the employing organisation is responsible for payment of relevant taxes and social security contributions and/or where the contractual relationship is subject to national labour legislation. "Owner-managers of incorporated enterprises" are workers who hold a job in an incorporated enterprise in which they: (a) alone, or together with other members of their families or one or a few partners, hold controlling ownership of the enterprise; and (b) have the authority to act on its behalf as regards contracts with other organizations and the hiring and dismissal of "employees", subject only to national legislation regulating such matters and the rules established by the board of the enterprise.

248. An "employer" is a person who, working on his or her own economic account or with one or a few partners, holds a "self-employment" job and, in this capacity, on a continuous basis (including the reference period) have engaged one or more persons to work for him/her as "employees". The incumbent makes the operational decisions affecting the enterprise, or delegates such decisions while retaining responsibility for the welfare of the enterprise. In this context, "enterprise" includes one-person operations. Some countries may wish to distinguish among "employers" according to the number of persons they employ, see paragraphs 289-290 on non-core topic Number of persons working in the local unit of the establishment.

249. An "own-account worker" is a person who, working on his own account or with one or a few partners, holds a "self-employment job", and has not engaged on a continuous basis any "employees". (Note, however, that during the reference period an "own-account worker" may have engaged one or more "employees" on a short term and non-continuous basis without being classified as "employer".) Members of families belonging to a producers' co-operative whose only activity is the cultivation of privately owned ancillary plots or the care of privately owned livestock should be included in this category. It is recommended that countries, where the number of persons exclusively engaged in the own-account production of goods for own final use by their households is significant, should identify such persons separately among own-account workers.

250. A "contributing family worker" is a person who holds a "self employment" job in a market- oriented establishment operated by a related person living in the same household, and who cannot be regarded as a partner (i.e. an employer or own account worker) because the degree of commitment to the operation of the establishment, in terms of working time or other factors to be determined by national circumstances, is not at a level comparable to that of the head of the establishment. Where it is customary for young persons, in particular, to work without pay in an economic enterprise operated by a related person who does not live in the same household, this requirement may be relaxed.

251. A "member of a producers' co-operative" is a person who holds a "self-employment" job in an establishment organised as a co-operative, in which each member takes part on an equal footing with other members in determining the organisation of production, sales and/or other work, the investments and the distribution of the proceeds among the members. Note that "employees" of producers' cooperatives are not to be classified to this group.

252. "Persons not classifiable by status" include those "economically active" persons for whom insufficient information is available, and/or who cannot be included in any of the preceding categories.

253. In most census questionnaires the information concerning "status in employment" will be captured through pre-coded alternatives where only a few words can be used to convey the intended meaning of each category. This may mean that classification of some of the situations on the borderline between two or more categories will be according to the subjective understanding of the respondent rather than according to the intended distinctions. This should be kept in mind when presenting the resulting statistics. Countries, which rely on

the direct use of administrative records for the classification of persons according to “status in employment”, may find that the group "contributing family workers" cannot be separately identified. Those who would have been classified to this group when using a questionnaire may either be excluded from the "economically active population" or be classified to one of the other groups.

Place of work

254. Place of work is the location in which a "currently employed" person performs his or her job, and where a "usually employed" person currently performs or last performed the job. It is useful to distinguish the type of place of work from the geographic location of the place of work. Information on the type of place of work, distinguishing those working at home from those working in a fixed place outside home or with no fixed place of work, is useful in analysis of employment characteristics, particularly employment in the informal sector. Information on the geographical location of place of work is used mainly to study commuting issues (see topic “Location of place of work” on paras. 174-175).

Type of place of work (core topic)

255. “Type of place of work” refers to the location of the workplace and distinguishes between the home and other workplaces whether fixed or otherwise.

256. Type of work place would have the following recommended response categories, or a variance thereof necessitated by national circumstances:

1. With a fixed place of work outside the home: To this group should also be classified persons who do not have a fixed place of work but who report to a fixed address at the beginning of their work period (e.g. bus drivers, airline pilots and stewards, operators of street market stalls which are not removed at the end of the workday). This group may also include individuals who travel to work, on a regular basis, across the border to a neighbouring country.
2. Work at home: This category will include farmers who work and live on their farms, home workers, self-employed persons operating (work)shops inside their own home, etc. Persons working and living at work camps will also fall in this category, unless they are identified as a separate category.
3. No fixed place of work: This category includes persons whose work involves travel in different areas and who do not report daily in person to a fixed address, e.g. travelling salesmen, and long-distance lorry drivers. It also includes ambulant vendors, operators of street or market stalls, which are removed at the end of the workday, construction workers working at different sites during the reference period and push-cart operators, etc.

257. For those persons who have a fixed place of work outside the home (category 256.1), information on the geographical location of place of work can be collected and used, for instance, to study commuting issues (see topic “Location of place of work” on paras. 174-175). Information on place of work also enables profiles in terms of the employed labour force (as opposed to demographic profiles by place of usual residence) to be built up. Coordination with the name (and address if given) of the enterprise or establishment collected for the "industry" variable is recommended.

Usual activity status (non-core topic)

258. "Usual activity status" is the usual relationship of a person to economic activity based on a long reference period such as a year.

259. In countries where the economic activity of people varies widely over the year and where people are likely to be engaged in more than one type of economic activity during the year or to be seasonally unemployed, the "current activity" concept may not be considered as appropriate. In such countries, the economic activity of people should be measured with reference to a longer period i.e. on the basis of the "usual activity" concept rather than on the basis of the "current activity" concept only. If the concept of "usual activity" is adopted, a specified twelve-month period should be used as the reference period. A long reference period such as the preceding 12 months will provide information on the year as a whole and thereby provide an opportunity for collecting information needed not only on the principal activity but also on any secondary activity. It is also possible to obtain useful information on the intensity of activity over the year and relate it to household income for that period (if collected). The main drawback of the usual activity approach is that it is susceptible to recall errors. Another drawback is the problem of ascertaining the principal *occupation* and *industry* over a long period such as a year, unless an appropriate question or series of questions are introduced to identify a main job, which may be defined in terms of time worked or income earned. Difficulties are also often encountered in measuring the "usual activity" status of persons who, though not usually active, have worked or were available for work at some time during the year.

The usually active population

260. The "usually active population" comprises all persons above a specified age whose main activity status, as determined in terms of number of weeks or days during a long specified period (such as the preceding 12 months) was "employed" or "unemployed" as defined in paragraphs 217 to 227 above with respect to the current activity during a short reference period.

261. In applying the above definitions of employment and unemployment in respect of the usual activity during a long reference period, it is necessary to determine the "main activity status" of each person above a specified minimum age. For this purpose, one's main activity status may be conceived as a summary measure of the variable statuses of each person during the 52 weeks or the 365 days of the specified 12-month period. The main activity status could be different as pointed out in the following paragraph depending on whether it is based on weeks or days as the unit of measurement.

262. In countries where employment is mostly of a regular and continuing nature and hence a week of employment generally means a week of full time employment or, at any rate, employment for a major part of the working time, it is suggested to base the main activity status on weeks of employment or unemployment. The main activity status could also be determined on the basis of days of employment or unemployment, and this would be considered more appropriate for countries where employment is largely of an irregular nature and where a week of employment does not generally mean a week of full-time employment or even employment for a major part of the working time.

263. Two procedures may be followed to determine the main activity status of each person. One is to interpret it as that status, usually active or not usually active, which prevailed over most of the 52 weeks (or most of the 365 days) during the specified reference year. Another is

to set a specific number of weeks (or days) as the cut-off point and classify anyone with at least that many weeks (or days) of employment and unemployment as belonging to the "usually active population".

264. Where the concept of "usually active population" is considered useful and feasible, the "usually active population" may be subdivided as "employed" and "unemployed" in accordance with the situation which prevailed most of the time, i.e. "usually active" persons should be classified as "employed" if the number of weeks (or days) of employment is larger than or equal to the number of weeks (or days) of unemployment, and as "unemployed" if the number of weeks (or days) of employment is smaller than the number of weeks (or days) of unemployment. As the subdivision as "employed" and "unemployed" is made among "usually active persons", the resulting classification by usual activity status may differ from a classification directly by main activity status during the reference year (i.e. when the distinction between "employed", "unemployed", and "not economically active" is made directly). It is therefore recommended to construct the questionnaire in a way, which makes it possible to distinguish between "usually active" and "usually inactive" persons and among the former between "usually employed" and "usually unemployed" persons.

The population not usually active

265. The "population not usually active" comprises all persons whose main activity status during the long reference period used to measure usual activity was neither employed nor unemployed. It is recommended that this population be classified into the following four groups:

1. "Students": persons not "usually economically active", who for most of the reference period attended any regular educational institution, public or private, for systematic instruction at any level of education.
2. "Pension or capital income recipients": persons not "usually economically active", who receive income from property or investments, interests, rents, royalties or pensions from former activities.
3. "Homemakers": persons not "usually economically active", who for most of the reference period were engaged in unpaid household duties in their own home, for example, housewives and other relatives responsible for the care of the home and children. (Domestic and personal services produced by domestic employees working for pay, however, are considered as economic activities in line with paragraph 206 above).
4. "Others": persons not "usually economically active", who are receiving public aid or private support, and all other persons not falling into any of the above categories (e.g. children not attending school).

266. Where considered useful, separate sub-categories may be introduced to identify (i) persons engaged in unpaid community and volunteer services and (ii) other persons engaged in activities that fall outside the boundary of economic activities.

Difference between main and usual activity status

267. It follows from the above that the usual activity during the long reference period is not the same concept as main activity during the period. A person who spends 20 weeks inactive, 18 weeks unemployed and 14 weeks employed during the last year would be classified as active by usual activity status, for which the period of employment and the period of unemployment are summed. He/she would then be classified as usually unemployed, because

the number of weeks unemployed exceeds the number of weeks employed. By main activity status, the same person would however be classified as inactive, because inactivity was the largest spell during the last year.

Recommended classification by activity status (current or usual)

268. It is recommended that in presenting the total population according to activity status (current or usual) the categories should be presented as follows:

1. Economically active
 - 1.1. employed
 - 1.2. unemployed
2. Not economically active
 - 2.1. Students
 - 2.2. Pension or capital income recipients
 - 2.3. Homemakers
 - 2.4. Others

Time-related underemployment (non-core topic)

269. Time-related underemployment exists when the hours of work of an employed person are insufficient in relation to an alternative employment situation in which the person is willing and available to engage²⁴.

270. In order to measure time-related underemployment, it is necessary to collect data on time *actually* worked in all jobs as opposed to time *usually* worked (described in paragraph 230 above) in all jobs. *Hours actually worked* includes all hours actually worked whether these hours were remunerated at normal rates, overtime rates or worked without remuneration (unpaid overtime). It includes tea/coffee breaks, preparation time, time for repairs and maintenance, time spent at the place of work waiting or standing by for such reasons as lack of supply of work, breakdown of machinery, or accidents, or time spent at the place of work during which no work is done but for which payment is made under a guaranteed employment contract. Hours actually worked should exclude hours paid for but not worked (such as paid annual leave, paid public holidays, paid sick leave), meal breaks, and time spent travelling from home to work and vice versa.²⁵ The definition of hours of work may be revised by the resolution on working time, which will be considered by the 18th International Conference of Labour Statisticians in 2008.

271. Persons in time-related underemployment comprise all persons in employment, as defined in current international guidelines regarding employment statistics, who satisfy the following three criteria during the reference period used to define employment:

²⁴ *Resolution concerning the measurement of underemployment and inadequate employment situations*, adopted by the Sixteenth International Conference of Labour Statisticians (October 1998)

²⁵ *Resolution concerning statistics of hours of work*, adopted by the 10th International Conference of Labour Statisticians, October 1962.

1. “*willing to work* additional hours”, i.e. wanted another job (or jobs) in addition to their current job (or jobs) to increase their total hours of work; to replace any of their current jobs with another job (or jobs) with increased hours of work; to increase the hours of work in any of their current jobs; or a combination of the above. In order to show how “willingness to work additional hours” is expressed in terms of action, which is meaningful under national circumstances, those who have actively sought to work additional hours should be distinguished from those who have not. Actively seeking to work additional hours is to be defined according to the criteria used in the definition of job search used for the measurement of the economically active population, also taking into account activities needed to increase the hours of work in the current job;
2. “available to work additional hours”, i.e. are ready, within a specified subsequent period, to work additional hours, given opportunities for additional work. The subsequent period to be specified when determining workers’ availability to work additional hours should be chosen in light of national circumstances and comprise the period generally required for workers to leave one job in order to start another;
3. “worked less than a threshold *relating to working time*”, i.e. persons whose “hours actually worked” in all jobs during the reference period, as defined in current international guidelines regarding working time statistics, were below a threshold, to be chosen according to national circumstances. This threshold may be determined by e.g. the boundary between full-time and part-time employment, median values, averages, or norms for hours of work as specified in relevant legislation, collective agreements, agreements on working time arrangements or labour practices in countries.

272. Among time-related underemployed persons, countries may want to identify separately the following two groups:

1. persons who usually work part-time schedules and want to work additional hours;
2. persons who during the reference period worked less than their normal hours of work and wanted to work additional hours.

Duration of unemployment (non-core topic)

273. “Duration of unemployment” refers to the length of time an “unemployed” person as defined in paragraph 226 above has been in that state since previously being either “employed” or “not economically active”.

274. To estimate the "duration of unemployment" one should either ask when the search for employment started, or for how long the search has been going on - with precoded alternative periods of duration. It should be noted that if the current activity measurement is used, the census can only provide information on the duration of incomplete spells of unemployment, i.e. the elapsed duration of unemployment up to the time of the census. Countries should decide on the basis of national priorities and conditions whether the duration of unemployment should be measured in terms of number of days, weeks or other time units, but to facilitate international comparisons it is suggested that from the measure chosen it should be possible to produce numbers for duration of "six months or more" and for "one year or more".

Selection of "job" to be classified by descriptive variables

275. The descriptive variables "occupation", "industry", "status in employment" and "sector" should apply to either current or usual activity, depending on the choice of the main concept for the measurement of economic activity in the census. Individuals can be classified according to these variables only through their relationship with a job. This means that they must have been identified as being either "employed" or "unemployed" through the questions on "economic activity". Whether "economically active" according to the "current activity" ("labour force") concept or according to the "usual activity" concept, a person may have had more than one job during the reference period. For "employed" persons it is therefore recommended to first establish the "main" job held during the reference period as well as a possible second most important job. The "main" job should be the job at which the person worked most of the time during the reference period,²⁶ and the second job should be the job at which the persons worked most of the time among the other jobs held during the same period. For persons who have more than one job when using "current activity" to define "employment", it is recommended not to consider as "main" job a job from which the person is temporarily absent during the reference period, even if that would have been the "main" job if the person had been active in it during the reference period. This is to simplify the census questionnaire.

276. An "unemployed" person should be coded to "occupation", "industry", "status in employment" and "sector" on the basis of the last job, which he/she had. The collection of data on characteristics of the last job (if any) of the unemployed is particularly important for users to have information on the characteristics of the unemployed in order to identify the specific areas of the economy or particular skills and occupations of unemployed people. The collection of these data may also be relevant to countries applying ILO Convention No 160 which requires the preparation of statistics on the structure and distribution of the economically active population (that is, the employed and the unemployed) that are representative of the country as a whole.

277. However, such data is of only limited relevance in respect of unemployed people who change jobs frequently or for the unemployed who last worked a long time ago. For the first group, it may be better to ask the characteristics of the type of job in which the person most frequently worked and for the second group, it might be better to set a time limit and only seek job characteristics of the job last worked since that time cut-off.

278. It is important to design the census questionnaire or the census information taken from registers in a way, which will ensure that the variables "occupation", "industry", "status in employment" and "sector" are measured for the same job. This should be a central concern also for countries, which rely on the use of administrative registrations for the capturing of the correct values of these variables.

279. Some countries may want to describe in more detail the type of secondary work carried out by respondents engaged in more than one job during the reference period, in particular if those countries would like to be able to describe the extent and structure of employment in the informal sector. In this case the questionnaire should allow for the identification of a second, and perhaps even a third, job for which information about "occupation", "industry", "status in employment", "sector" and, if possible, "time worked" can be collected and coded.

²⁶ In principle one can also select as the "main" job the job which generated, or which is expected to generate the highest income in cash or in kind. However, that is likely to be more difficult to implement (explain) on a census questionnaire.

Type of sector (institutional unit) (non-core topic)

280. "Type of sector (institutional unit)" relates to the legal organisation and the principal functions, behaviour and objectives of the establishment with which a job is associated.

281. Following the definitions provided in the *System of National Accounts (SNA)*, distinction should be made between the following institutional sectors:

1. "Corporations sector", consisting of non-financial and financial corporations (i.e. incorporated enterprises, private and public companies, joint-stock companies, limited liability companies, registered cooperatives, limited liability partnerships, etc.) and quasi-corporations;
2. "General government sector", consisting of central, state and local government units together with social security funds imposed or controlled by those units;
3. "Non-profit institutions serving the household sector" (for example, churches, professional societies, sports and cultural clubs, charitable institutions, aid agencies) that provide goods or services to households free or at prices that are not economically significant;
4. "Household sector" (including unincorporated enterprises owned by households).

282. Countries collecting information on this topic may wish to consult the UN Technical Report on the Collection of Economic Characteristics in Population Censuses^{1/} where further details can be found.

283. Where informal sector activities play an important role in employment creation and income generation, some countries of the ECE region may wish to consider collecting information on the number and characteristics of persons employed in the informal sector²⁷ Because of the complexity involved in collecting information on the informal sector, surveys would be the most ideal medium to use for collecting such data. However, if countries intend to attempt to collect information on this sector through their population census, they are encouraged to consult the UN Technical Report on the Collection of Economic Characteristics in Population Censuses where additional useful advice is given.

Informal employment (non-core topic)

284. The 17th International Conference of Labour Statistics (November 2003)²⁸ established *Guidelines concerning a statistical definition of informal employment*. Under these Guidelines, "informal" employment comprises all informal jobs as defined below, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period.

285. Informal employment includes the following types of jobs:

1. own-account workers employed in their own informal sector enterprises;

²⁷ See "Resolution concerning statistics of employment in the informal sector", adopted by the Fifteenth ICLS in 1993 and published in the ILO *Bulletin of Labour Statistics 1993-2*. The resolution covers a variety of issues relating to the scope and definition of the informal sector and the design, content and conduct of informal sector surveys. The relevance of the resolution goes beyond employment statistics, and its definitional parts were included in the SNA 1993.

²⁸ See Chapter 3 of the final report at <http://www.ilo.org/public/english/bureau/stat/download/17thicls/final.pdf>

2. employers employed in their own informal sector enterprises;
3. contributing family workers, irrespective of whether they work in formal or informal sector enterprises;
4. members of informal producers' cooperatives;
5. employees holding informal jobs²⁹ (that is jobs in which their employment relationship is, in law or in practice, not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits such as advance notice of dismissal, severance pay, paid annual or sick leave, etc) in formal sector enterprises, informal sector enterprises, or as paid domestic workers employed by households;
6. own-account workers engaged in the production of goods exclusively for own final use by their household, if considered employed.

286. Producers' cooperatives are considered informal if they are not formally established as legal entities and also meet the other criteria of informal sector enterprises specified in the resolution concerning statistics of employment in the informal sector adopted by the 15th ICLS.

287. Informal employment outside the informal sector comprises the following types of jobs:

1. employees holding informal jobs (as defined above) in formal sector enterprises or as paid domestic workers employed by households;
2. contributing family workers working in formal sector enterprises;
3. own-account workers engaged in the production of goods exclusively for own final use by their household, if considered employed.

288. Countries, which exclude agricultural activities from the scope of their informal sector statistics, should develop suitable definitions of informal jobs in agriculture, especially with respect to jobs held by own-account workers, employers and members of producers' cooperatives.

Number of persons working in the local unit of the establishment (non-core topic)

289. The "number of persons working in the local unit of the establishment" is the number of persons usually employed in the establishment or similar unit in which the job(s) of persons in employment was located. This information is necessary in order to code correctly certain categories in ISCO-88(COM), the European Community version of ISCO-88.

290. The suggested classification is:

1. 1-10 persons
2. 11-19 persons
3. 20-49 persons
4. 50 persons or more.

²⁹ The operational criteria for defining informal jobs of employees are to be determined in accordance with national circumstances and data availability.

Main source of livelihood (non-core topic)

291. The "main source of livelihood" is the principal source of income from which the consumption of each person was financed during a specified reference period. It is recommended to give preference to a long reference period, such as the preceding twelve months or the calendar year, in order to take account of sources which may actually provide an income at periodic or seasonal intervals (such as income from seasonal activities, payment of quarterly benefits from pension plans, annual payment of scholarships or dividends, income from intermittent secondary activities, etc.). Income in kind as well as in cash should be taken into account.

292. Information on "main source of livelihood" should be obtained for all persons, whether they are economically active or not, and may not necessarily coincide with the main activity status or the main economic activity of the person. The "main source of livelihood" is a useful concept to complement the measurement of the economically active population and of status in employment. However, it is not suitable for the measurement of economic activity status and should not be used to classify the population according to activity status. The "main source of livelihood" can be very useful to cross-classify the different activity statuses. For example, the category of "economically active" persons whose "main source of livelihood" is not "economic activity" is relevant when the labour force concept is used for the collection of data on type of activity because the persons classified as "employed" may include some who only work during a brief portion of the year and who depend on other sources of income (such as unemployment benefits) or other persons for their livelihood. This category may also be of some importance even when data on type of activity are collected on the basis of the concept of usual activity if no time limit is used as a criterion for the inclusion of part-time workers in the economically active population or if the time limit used is relatively low.

293. Where countries decide to include this topic, it is recommended that the information be obtained through direct questions, if possible by means of a list of potential sources. The list of potential sources of livelihood should be sufficiently detailed so as to avoid omitting certain possibilities (e.g. social welfare payments, pensions, rentals).

294. It is suggested that the following main sources of livelihood should be specified to the extent that they are relevant:

1. Economic activity:
 - 1.1. Paid employment
 - 1.2. Self-employment
2. Property and other investments
3. Pensions of all types
 - 3.1. Paid by the State and other public bodies
 - 3.2. Paid by enterprises, institutions, co-operative organizations and others
4. Other transfers:
 - 4.1. Sickness and maternity allowances
 - 4.2. Unemployment benefits and relief
 - 4.3. Scholarship
 - 4.4. Benefits and assistance other than pensions, unemployment benefits, scholarship, and sickness and maternity allowances, provided by the State, other public bodies, co-operative organizations, enterprises or institutions

5. Loans or reduction of savings, realisation of capital
6. Dependent (mainly supported by another person or persons)
7. Other sources

295. Category 5 (“Loans or reduction of savings, realisation of capital”) covers the situation in which a person’s main source of livelihood is the proceeds from the sale of assets or from drawing on savings or from loans.

296. Category 6 comprises those persons who rely on the support of another person or persons for his or her main source of livelihood. A dependant may have some income from economic activity or other sources but insufficient from these sources to constitute his or her main source of livelihood.

297. The independent population comprises all persons who are classified in categories 1 to 5. A supporter is a person in any of these five categories on whom one or more persons rely for their main source of livelihood.

Income (non-core topic)

298. “Income” is defined as: (a) income received by each household member and from each source of livelihood (in accordance with the classification proposed in paragraph 294 above) during the preceding twelve months or past year, and (b) total annual household income in cash and in kind from all sources.

299. Countries may wish to collect information on the amounts of income received by individual persons and/or households. If this topic is included in the census, it is recommended that data be obtained from all persons above a specified age, whether they are economically active or not. Income should be measured both for the individual and for the household of which he/she is a member.

300. Depending on national circumstances, the necessary information can be collected either through a census questionnaire or through the direct use of administrative records. Problems of collecting data on income through a questionnaire are partly related to the sensitivity of such questions in many societies and partly to the difficulty, which many persons may have in finding or remembering the requested information.

Socio-economic groups (derived non-core topic)

301. The purpose of a set of "socio-economic groups" is to identify different groups of persons where the members of a particular group are, on the one hand, reasonably homogeneous and, on the other hand, fairly clearly distinguished from members of other groups in respect of their social, economic, demographic and/or cultural circumstances and behaviour. A set of "socio-economic groups" can be derived from the detailed categories of the following classifications: industry branch (type of economic activity); status in employment; occupation; and main source of livelihood.

302. A classification of the population by socio-economic group is presented in Appendix ix.

303. Unemployed persons who have previously worked should be included in the category relating to their former activity.

Chapter 6 Educational Characteristics

Introduction

304. The education characteristics are understood to incorporate all deliberate, systematic and organised communication designed to bring about learning. While most of this is likely to be undertaken at schools or Universities (or there equivalents), it is possible that education can be provided outside these institutions. For purposes of international comparisons, it is recommended that countries compile their data in accordance with the latest revision available of International Standard Classification of Education (ISCED)³⁰.

Educational attainment (core topic)

305. "Educational attainment" refers to the highest level successfully completed in the educational system of the country where the education was received. The term "education" is understood to comprise all deliberate, systematic and organized communication designed to bring about learning. If relevant all education should be taken into account even if this was provided outside schools and universities.

306. Information on educational attainment should be collected for all persons above the minimum age for starting compulsory schooling.

307. Data should be collected based on the highest level successfully completed.

308. Countries should consider a further question, which captures data on levels of education not successfully completed. This may be achieved by asking whether a higher level than the one attained has been started and interrupted, or studies are ongoing at the higher level. Alternatively a question on grade or number of years of education completed may be appropriate in this context.

309. The data collected should, in all cases, be coded to ISCED level, allowing the following levels of education to be distinguished: primary; lower secondary – first stage; upper secondary – second stage; post secondary, non tertiary and tertiary. Persons who have received no formal schooling should be identified.

310. Special attention needs to be paid to establishing the appropriate level/grade equivalence for persons who received their education under a different or foreign system and to situations where the educational system may have changed more than once. Countries may wish to consider asking for the foreign country where the education was received.

311. Necessary deviations from the recommended definitions and classifications that result from particular characteristics of the national educational system should be explained in census publications. If, for national purposes, it is necessary to publish the results entirely in terms of the designations used for the schools within a country, it is recommended that an effort be made to relate the categories distinguished for national users to those which will make it possible to use the data for international comparisons. Countries coding "educational attainment" to a national standard classification can establish correspondence with the most recent version of ISCED either through double coding or through "mapping" from the detailed groups of the national classification to ISCED.

³⁰ Education at a Glance, 2004, OECD

312. It is important to recognise that under certain circumstances a level of education may have been completed even though a relevant qualification was not obtained. It is recommended that educational attainment data and data on qualifications are collected separately or in such way that it is possible to draw a distinction. If data is not collected separately or the distinction is not possible this should be made clear in any census publications.

Educational qualifications (non-core topic)

313. Educational qualifications are the degrees, diplomas, certificates, etc. which have been conferred on a person by educational authorities, special examining bodies or professional bodies in his/her home country or abroad on the successful completion of a course of full-time, part-time or private study.

314. It is suggested that information on educational qualifications be collected at least for all persons who have successfully completed a course of study at the post-secondary level of education. Such information should include the title of the highest degree, diploma or certificate received, with an indication of the field of study if the title does not make this clear.

Field of study (non-core topic)

315. Field of study, as defined in ISCED is the subject matter taught in an education programme.

316. Information on the distribution of educated persons by field of study is important for examining the match between the supply and demand for qualified manpower with specific specializations within the labour market. It is equally crucial for planning and regulating the production capacities of different levels, types and branches of educational institutions and training programmes. Besides educational attainment, the field of study of a person represents a second important dimension of his/her qualification. Titles, degrees, diplomas and further training received, as well as experience gained on the job would constitute additional components of a qualification.

317. Information on the field of study should be collected primarily for persons within the adult population who have attained secondary education or above. This would mean that the question is to be principally addressed to persons aged 15 years and over who have completed secondary education or higher, or other organized educational and training programmes at equivalent levels of education.

318. A problem may arise in identifying the exact field(s) of study of persons with interdisciplinary or multidisciplinary specializations. In these cases, countries should follow the identification of the major or principal field of study. However, countries may wish to identify specialization in different ways depending on the planned use of this information and data processing capacities.

319. The most common method is to ask the person during census enumeration to identify only one principal field of study, and this may result in loss of information on the other fields. The second solution is to accept multiple responses to the question, in which case appropriate data processing facilities for handling and tabulating multiple responses must be put into place. If necessary, the data collection and processing procedures could be adapted to enable

the distinction between principal and secondary fields of study. Another possible solution would be to establish a separate category for each multi-disciplinary field within the classification.

320. Countries may follow established national nomenclature or, to facilitate international comparison, adopt the classifications and coding of fields of study of the most recent version of ISCED. Countries coding "field of study" to a national standard classification can establish correspondence with the most recent version of ISCED either through double coding or through "mapping" from the detailed groups of the national classification to ISCED. Detailed examples and guidance on classifying educational programs within the ISCED framework are available in the Eurostat "Fields of Education and Training Manual"³¹ ..

School attendance (non-core topic)

321. School attendance is defined as attendance at any accredited educational institution or programme, public or private, for organised learning at any level of education. For the purposes of ISCED, the term 'education' is taken to comprise all deliberate and systematic activities designed to bring about learning. Instruction in particular skills, which is not part of the recognised educational structure of the country (e.g. in-service training courses in factories), is not considered "school attendance" for census purposes. Data on school attendance should refer to the time of the census. If the census is taken during the school vacation period, school attendance during the period just before the vacation will be taken into account.

322. The concept of school attendance is different from, but complementary to, that of enrolment as normally covered by school statistics. Attendance means the day-to-day presence of participants at an institution of learning. Enrolment refers to the formal registration of the participant at the start of the course, e.g. the registration of a school pupil at the start of the school year. A person may be enrolled but does not attend, for example, due to illness. A person attending a training programme may not be formally enrolled in a school or an educational institution.

323. The definition of attendance as day-to-day presence at an institution of learning is most relevant to primary and secondary education. There may be other instances where a person is enrolled and actively participating in a course of education to achieve a qualification but does not regularly attend any institution. Examples of this include participation via an Internet based course of study, correspondence courses and certain modes of tertiary education, which only require infrequent attendance.

324. Depending on national priorities, the data collected may be restricted to attendance in primary and secondary education. More broadly it may refer to all modes of participation in all levels of education and information on active participation in a course of study towards a qualification may be gathered. In every case it should be possible to draw a distinction between each type of participation and this should be made clear in Census publications.

325. Information on school attendance relates in particular to the population of official school age, which ranges from 5 to 29 years old in general but varies from country to country depending on the national education structure. In cases where data collection is to be extended to cover attendance in pre-primary education and/or other systematic educational and training

³¹ see

http://forum.europa.eu.int/Public/irc/dsis/edtcslibrary?l=/public/measuring_lifelong/classifications/isced97_fields

programmes organized for adults in productive and service enterprises, community-based organizations and other non-educational institutions, the age range may be adjusted as appropriate. Note that those among the 'not currently active' who are classified as 'students' (see paragraph 265 above) will include only a sub-set of all persons attending school, as some of those attending school will either be classified as 'employed' or as 'unemployed' (see paragraphs 260-264 above).

Literacy (non-core topic)

326. Literacy is defined as the ability both to read and to write. If this topic is included in the census, the information collected should be designed to distinguish persons who are literate from those who are illiterate. A person who can, with understanding, both read and write a short, simple statement on his everyday life is literate. A person who cannot, with understanding, both read and write a short, simple statement on his everyday life is illiterate. Hence, a person capable of reading and writing only figures and his/her own name should be considered illiterate, as should a person who can read but not write and one who can read and write only a ritual phrase which has been memorized. Literacy is an applied skill and ideally needs to be measured in relation to a particular task such as reading a newspaper or writing a letter. Potentially this requires a trained interviewer so it may be unsuitable for a census. Reading and writing may be measured separately to allow simpler questions to be asked and to enhance analytical power.

327. The collection and tabulation of statistics on literacy during the population census should not be based on assumed inferences between literacy, school attendance and educational attainment. There are circumstances in which people may leave school with only partial literacy skills and may lose these if they are not regularly required to read and write.

328. The language or languages in which a person can read and write is not a factor in determining literacy and need not be considered on the questionnaire. In multi-lingual countries, however, information on the ability to read and write in a particular language may be essential for the determination of educational policy and would, therefore, be a useful additional subject of inquiry.

329. Countries may consider the introduction of some form of literacy assessment questions based on advice from regional experts and UNESCO. Alternatively a simple question on reading and writing literacy may be appropriate.

330. It is suggested that data on literacy be collected for all persons ten years of age and over. In order to permit international comparisons of data on literacy, however, any tabulations of literacy not cross-classified by detailed age should at least distinguish between persons under 15 years of age and those 15 years of age and over.

Computer literacy (non-core topic)

331. Computer literacy is defined as the ability to use basic computer applications to accomplish everyday tasks. If this topic is included it is recommended that information be collected about ability to use word processing, spreadsheet, e-mail and web browsing applications.

Chapter 7 International and internal migration

Introduction

332. Two different aspects relevant for migration can be identified through the census:

1. measurement of stocks of international migrants and other groups relevant to international migration, with information on timing and geographical patterns of their international migrations;
2. measurement of stocks of internal migrants, with information on timing and geographical patterns of their internal migrations.

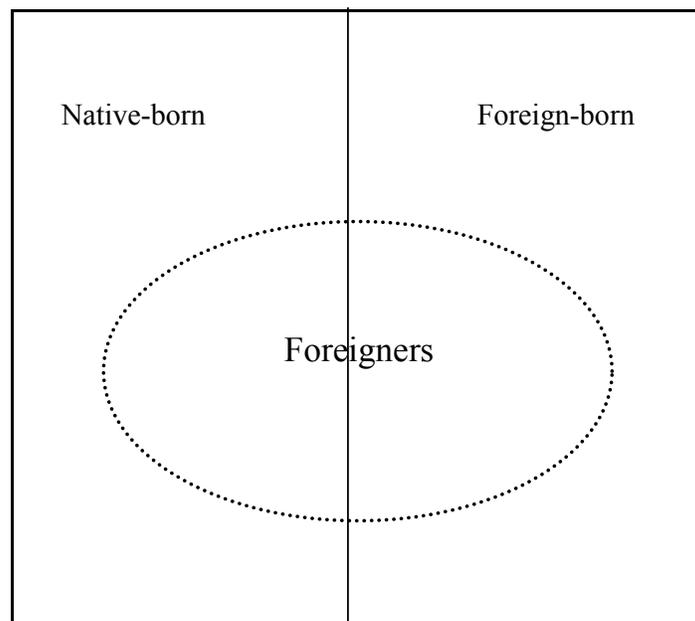
Population groups relevant to international migration

333. Two population groups relevant for international migration are usually identified in population censuses: foreign-born and foreigners.

334. *Foreign-born*: this is the group of persons who were born in another country. This group corresponds to the stock of international migrants that migrated at least once in their life and reside outside of their country of birth at the time of the Census. Persons born in the country are defined as native-born.

335. *Foreigners*: this is the group of persons who do not have the citizenship of the country. Foreigners can be foreign born or native born. Persons having the citizenship of the country are defined as nationals.

Chart 1: *Native-born, foreign-born and foreigners*



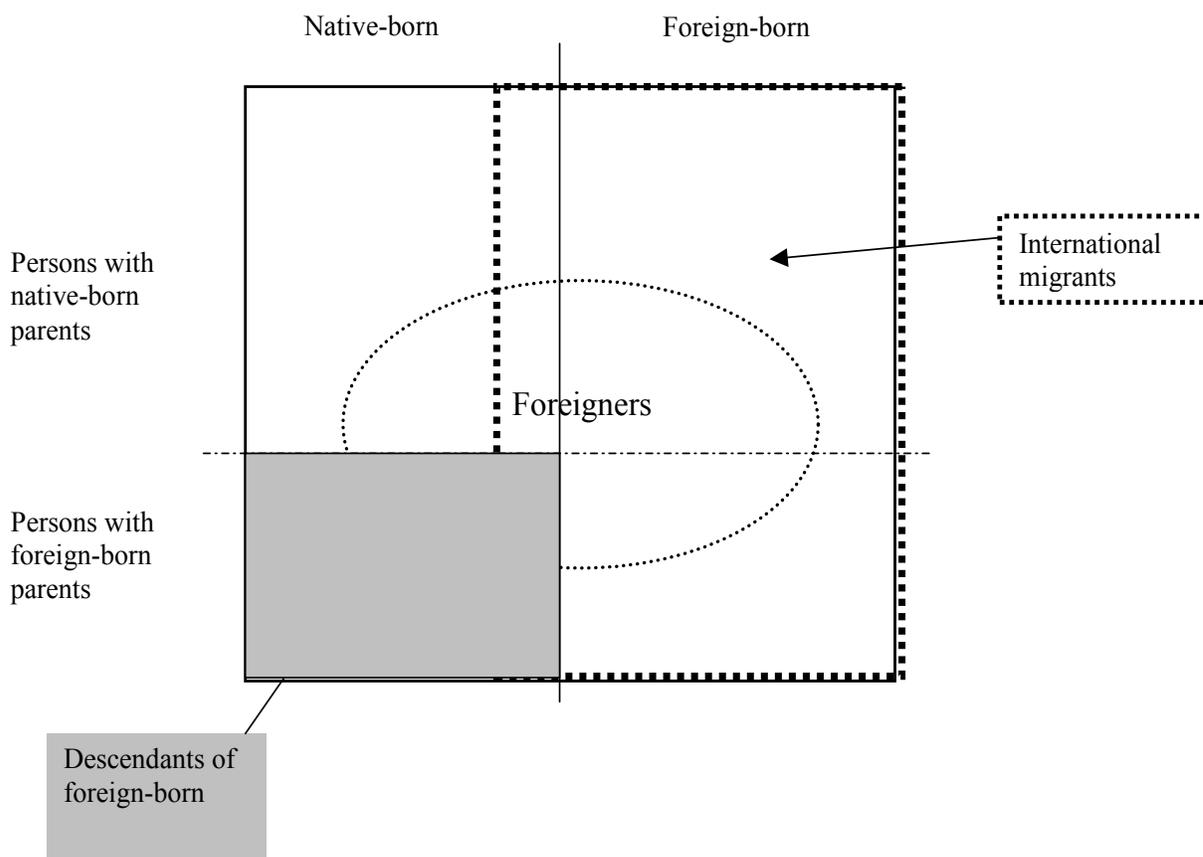
336. The population groups that are identified on the basis of place of birth and citizenship are represented in chart 1. Though being very important, information on these groups is in

many countries not sufficient to monitor and analyse the impact of international migration. It is therefore suggested that two additional population groups be considered:

337. *Descendants of foreign-born*: This is the group of persons born in the country whose parents were born abroad. Several generations of descendants can theoretically be distinguished: persons whose parents, grandparents, etc, were born abroad. However, in population censuses the focus is generally restricted to those persons whose parents were born abroad (this group is often referred to as the “second generation”).

338. *Ever-international migrants*: the Recommendations on Statistics of International Migration³² define an *international migrant* as “any person who changes his or her country of usual residence”. According to this definition, the stock of *ever-international migrants* in a country is the set of persons who have ever changed their country of usual residence. This group includes all foreign-born plus those native-born who have ever resided abroad³³.

Chart 2: *Native-born, foreign-born, foreigners, descendants of foreign-born and international migrants*



339. The groups defined above are not mutually exclusive and they can overlap to a great extent, as shown in chart 2. However, each group is relevant for different aspects of the

³² Recommendations on Statistics of International Migration – Revision 1, United Nations, 1998, ST/ESA/STAT/SER.M/58/Rev.1, paragraph 32.

³³ It is assumed that all foreign-born are international migrants and that they all resided or were expected to reside in the country of birth for at least one year

migration and integration process and represents a possible target of different programmes and policies. The size of each group clearly depends on the country, its legislation and its migration history.

340. Analytical classifications can be built by using jointly the four variables listed above. The classifications built using respectively place of birth/citizenship and place of birth/place of birth of parents/citizenship are particularly important since they allow to identifying various population groups relevant to international migration. A full description of these classifications is given in paragraphs 365-372.

341. In all topics related to international borders (country of birth, country of birth of parents, country of citizenship, country of previous/current residence) reference should be made to the boundaries existing at the time of the census. This can have important implications in countries that originated from the splitting of a former country, since many moves that occurred within the borders of the former country can now be recorded as international migrations. It is therefore important to pay attention to the interpretation of data from these countries, particularly in relation to country of birth or country of previous residence. Wherever possible, complementary tabulations on the population stocks relevant to international migration should be provided, distinguishing the persons who migrated before the break-up of the former country from those who did so after the break-up.

Internal Migrants

342. Internal migrants are broadly defined as persons who are usually resident in a particular dwelling and who have previously been resident elsewhere in the country. Interest in internal migrants generally focuses on geographical patterns of recent internal migrations that can be addressed with the recommended core topic on place of usual residence one year prior to the census. *Internal migrants* are therefore defined as those who were resident elsewhere within the country one year before the census. In order to provide relevant information on internal migrants, a detailed classification should distinguish local, intra-regional or inter-regional migrations.

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

344. Decisions taken to implement alternative items on internal migration – such as place of usual residence five years prior to the census - will have an effect on the scale and patterns of internal migration that are recorded. In the interests of international comparability, the core recommended item is the place of usual residence one year prior to the census. Other, non-core, suggested items on internal migration are intended to supplement rather than replace this core topic.

Country/Place of birth (core topic)

345. Place of birth is the geographical unit in which the birth took place. For persons born in the country, information on the smallest civil division should be collected. For persons born outside the country, it is sufficient to collect information on the country of birth.

346. For purposes of international comparability as well as for internal use, information on country of birth should be collected on the basis of international boundaries existing at the

time of the census. It is recommended that the information on this topic be collected and coded in the most feasible detailed manner. For the foreign-born, the country of birth should be coded, based on the three-digit alphabetical codes presented in the classification issued by the UN Statistical Division (Standard Country or Area Codes for Statistical Use, ST/ESA/STAT/SER.M/49/Rev.4/).

Country of citizenship (core topic)

347. Citizenship is defined as the particular legal bond between an individual and his/her State, acquired by birth or naturalization, whether by declaration, option, marriage or other means according to the national legislation. Citizenship is used to identifying the foreign resident population, i.e. the resident persons who do not hold the citizenship of the country.

348. Information on country of citizenship should be collected for all persons and coded in the most feasible detailed manner, based on the three-digit alphabetical codes presented in the classification issued by the UN Statistical Division (Standard Country or Area Codes for Statistical Use, ST/ESA/STAT/SER.M/49/Rev.4/). This classification of countries and areas is a useful tool for developing a classification of citizenships but attention should be paid in considering the dependent territories which are included in the classification above but that may not have their own citizenship.

349. Provisions should be made in order to obtain separate data for stateless persons, i.e. persons without a recognized citizenship of a state.

350. Countries where a significant proportion of the population has dual or multiple citizenship may want to collect data on all citizenships held by the respondents.

Place of usual residence one year prior to the census (core topic)

351. This topic is primarily intended to allow patterns of recent migration to be studied. If the place of usual residence one year prior to the census was inside the country, it is intended to be the smallest civil division. If the place of usual residence one year prior to the census was outside the country, the country of residence should be collected.

Country of birth of parents (non core topic)

352. Countries with a significant number of immigrants may want to collect information on the country of birth of parents. Information on the country of birth of parents (father and mother) should be asked to all resident persons following the same indications given for the country of birth. Special attention should be paid in collecting this topic in countries where boundaries have undergone major changes (see paragraph 341).

Citizenship acquisition (non-core topic)

353. Countries with a significant number of naturalized persons may want to collect information on the way the national citizenship was acquired, either at birth or by naturalization or other means according to the national legislation.

354. Some countries may also wish to include, for naturalized citizens, questions on the year of acquisition of citizenship and the type of naturalization (by marriage, by residence, by legal status, etc.).

Place of usual residence five years prior to the census (non-core topic)

355. In addition to the question on the place of usual residence one year prior to the census, the place of usual residence five years prior to the census could be asked. This extension of the time interval allows the capture of a larger number of moves at the cost of an increased uncertainty about the exact timing of the migration. If the place of usual residence five years prior to the census was inside the country, it is intended to be the smallest civil division. If the place of usual residence five years prior to the census was outside the country, the country of residence should be collected.

Year of arrival in the current place of usual residence (non-core topic)

356. The year of arrival is the calendar year when the person established residence in the current place of usual residence. The place of usual residence is defined in terms of the smallest civil division. This topic provides information on the duration of residence in the present location. The information is particularly useful in combination with the information on the previous place of usual residence.

Previous place of usual residence (non-core topic)

357. For persons who moved from another place of residence into their actual place of residence, information on the place of previous usual residence can be collected. If the place of usual residence was inside the country, it is intended to be the smallest civil division. If the place of usual residence was outside the country, the country of residence should be collected.

Ever resided abroad and year of arrival (non-core topic)

358. This topic focuses on all persons who have ever resided outside the current country of usual residence, regardless of country of birth or citizenship and regardless of other changes of usual residence that may have occurred inside the country. In order to collect information on this topic, individuals should be asked whether they have ever had a usual residence abroad. Information on this topic allows to identifying the group of persons who are defined according to the Recommendations on Statistics of International Migration³⁴ as international migrants (see paragraph 338).

359. For those who ever resided abroad, the year of arrival in the current country of residence should also be collected. The year of arrival is the calendar year when the person

³⁴ Recommendations on Statistics of International Migration – Revision 1, United Nations, 1998, ST/ESA/STAT/SER.M/58/Rev.1

most recently established usual residence in the country. The purpose of this topic is to measure the duration of residence of international migrants in the host country. It is preferable to measure duration using the time of arrival rather than the number of years elapsed since arrival in the country because time of arrival is likely to yield more accurate information.

360. Difficulties of understanding may occur where a person has established residence in the country on more than one occasion. Guidance to enumerators and respondents should emphasise that this item relates only to the most recent immigration.

Country of previous usual residence abroad (non-core topic)

361. For persons that have ever resided abroad, the country of previous residence may also be recorded. For purposes of international comparability as well as for internal use, information on country of previous residence should be collected on the basis of international boundaries existing at the time of the census. It is recommended that the information on this topic be collected and coded in the most feasible detailed manner, based on the three-digit alphabetical codes presented in the classification issued by the UN Statistical Division (Standard Country or Area Codes for Statistical Use, ST/ESA/STAT/SER.M/49/Rev.4/).

Reason for migration (non-core topic)

362. Some countries may wish to collect information on reasons for international and/or internal migration. This topic refers to the main reason that drove the respondent to undertake the most recent migratory move. It is recommended to allow for only one main reason for migration. It may be most appropriate to include this topic as a sub-question of the item on residence abroad (reason for international migration) or as a sub-question of the item on the previous place of usual residence (reason for internal migration).

363. To facilitate international comparisons, it is suggested to classify responses according to the following broad reasons for migration:

1. Employment
2. Study
3. Family
 - 1) Dependent migrant
 - 2) Family reunion
 - 3) Family formation
4. Forced migration³⁵
 - 1) 1951 Geneva Convention on refugee status
 - 2) Other forms of international protection (temporarily protected, persons in asylum procedure etc.)
 - 3) Internal displacement
3. Free establishment³⁶

³⁵ Items 4.1 and 4.2 apply to reason for international migration while 4.3 is to be used for internal migration

364. The questions should record the self-declared reason for migration. It should be explained that the information collected does not affect in any way the legal status or rights of the respondent.

Persons with foreign/national background (derived non-core topic)

365. The group of persons with a foreign background is composed of those persons whose parents were born outside the country. The persons in this group may or may not have directly experienced an international migration.

366. Persons whose parents were born in the country form the group of persons with a national background. Those persons who have one parent born in the country and the other one born abroad form the group of persons with a mixed background.

367. Countries that do not ask for country of birth of parents but for acquisition of citizenship can approximate information on the foreign/national background by using the following rules:

4. Persons having national citizenship since birth will be considered as having national background
5. Persons who have got the national citizenship by naturalization or other means will be considered as having foreign background
6. Persons without the national citizenship (i.e. all foreign citizens) will be considered as having foreign background.

368. When using the topic on citizenship acquisition to identify national/foreign background, the following issues should be considered:

1. Persons with foreign background cannot be identified if, by the time of their birth, their foreign-born parents had already acquired the citizenship of the country
2. Persons with mixed background cannot be identified

369. Persons with national/foreign background cannot be identified through a question on citizenship acquisition in countries where granting of citizenship is based on the country of birth (*jus soli* principle).

Population groups relevant to international migration (derived non-core topic)

370. This topic identifies whether foreigners were foreign or native born and for nationals whether they were foreign or native born. It is based on the two-core topics place of birth and citizenship.

371. It is suggested the following classification be used:

1. *Foreign-born foreigners*: persons born abroad without the citizenship of the country. This group will include the foreign-born immigrants who did not acquire the citizenship of the host country.

³⁶ Those persons who are legally entitled to move and have moved for reasons other than employment, study, family or forced migration

2. *Native-born foreigners*: persons born in the country without the citizenship of the country. This group will be in large part formed by those descendants of foreign-born who did not get the citizenship of the host country.
3. *Foreign-born nationals*: persons born abroad and having the citizenship of the country. This group will in large part formed by persons with national background who were born abroad and by persons with foreign background who eventually got the citizenship of the host country.
4. *Native-born nationals*: persons born in the country with the citizenship of the country. This group will be in large part formed by native-born with national background. It will also include those descendants of foreign-born who got the citizenship of the country.

372. Based on the two core topics place of birth and citizenship and the non-core topic place of birth of parents the population groups identified in table 1 can be derived:

Table 1: Classification of population according to country of birth of parents, country of birth and citizenship

Place of birth of parents	Place of birth	Citizenship	Description of the population group		
Country of census	Country of census	National	1. <i>Native-born nationals with national background</i> : persons with the country's citizenship and whose parents were born in the country. This group usually includes the large majority of the population.		
		Foreigner	2. <i>Native-born foreigners with national background</i> : foreign citizens who were born in the country and whose parents were also born in the country. In principle this is a small population group. It may include members of the so-called third generation, persons with double citizenship who report only the foreign one or other persons with special cases.		
	Abroad	National	3. <i>Foreign-born nationals with national background</i> : nationals who were born abroad but whose parents were born in the country. This group usually includes children of emigrants returned to the country of origin of their parents. This group can be sizeable, especially in countries that in the past experienced large emigration flows. Foreign-born adopted children will also be part of this group.		
		Foreigner	4. <i>Foreign-born foreigners with national background</i> : foreign citizens who were born abroad but whose parents were born in the country. Children of former emigrants can also be included in this group, if not entitled to national citizenship. This group is in principle very small.		
Abroad	Country of census	National	5. <i>Native-born nationals with foreign background</i> : persons born in the country whose parents were born abroad. This group includes children of international immigrants who have got the citizenship of the host country, either at birth or by naturalization.	These two groups jointly form the group of <i>descendants of foreign-born</i> .	These groups jointly form the group of <i>persons with foreign background</i>
		Foreigner	6. <i>Native-born foreigners with foreign background</i> : foreign citizens born in the country but whose parents were born abroad. In this group there are children of immigrants who did not get the citizenship of the host country.	This group is also defined as <i>native-born with foreign background</i> .	
	Abroad	National	7. <i>Foreign-born nationals with foreign background</i> : nationals born abroad whose parents were also born abroad. This group includes the foreign-born immigrants who got naturalized.	These two groups jointly form the <i>foreign-born with foreign background</i> .	
		Foreigner	8. <i>Foreign-born foreigners with foreign background</i> : foreign-born foreigners with foreign background. This group includes the foreign-born immigrants living in the host countries and keeping their original citizenship. In many countries this is the largest group among all those with foreign background.	This group is often referred to as the first generation.	

Population with refugee background (derived non-core topic)

373. Population with refugee background includes persons who were “forced migrants” and immediate family members of forced migrants. If the topic on reason for migration is included, the *population with refugee background* can be identified. At the international level, the identification of a group of persons having experienced (directly or indirectly) a forced migration can be useful for cross-country and across time analyses.”

374. The count of the stock of refugees (persons being granted asylum under national regulations and/or international conventions) living in a country is often difficult because of mobility of persons and administrative procedures, like changes in the formal status of the refugee. Countries may use different definitions of the stock of refugees, with specific legal and administrative implications. How individuals perceive themselves may be different again from the legal situation within a country.

375. The narrow definition of this population group includes:

A Persons who declared that their main reason for migration was ‘Forced migration’.

376. The broad definition of this population group also includes (in addition to group A above): Foreign-born persons who declared that their main reason for migration was ‘Family’ and are members of the same family nucleus of a person of the group A.

B Native-born children members of the same family nucleus of the parents and having both parents of the group A or one parent in the group a and the other parent of the group B.

377. Further relevant details, such as country of birth, citizenship or date of arrival can be obtained by tabulating the *population with a refugee background* according to the other relevant topics.

Internally Displaced Persons (IDPs) (derived non-core topic)

378. In countries where massive flows of internal migration occurred as a consequence of dramatic events like wars, social unrests, natural or environmental disasters, it is important to measure the size of the group of IDPs (Internally Displaced Persons). In countries having experienced such phenomena, it can be important to include a question on the reason for internal migrations. The group of IDPs includes the persons who declared that their main reason for internal migration was ‘Forced migration’ and their dependants living in the same household at the time of the census, including children born after the forced migration. The date of arrival and the place of previous residence are important characteristics of IDPs and may be obtained by cross-tabulation with other topics.

Chapter 8 Ethno-cultural Characteristics

Introduction

379. Data on ethno-cultural characteristics of the population are of increasing relevance to countries of the UNECE region in the context of migration, integration and minority policies.

380. Countries with a culturally diverse population may wish to collect information on the ethnic identity (or composition) of the population, on mother tongue, the knowledge and practice of languages as well as on religious communities and denominations.

381. They may also wish to collect information on the ethno-cultural characteristics of parents and grand-parents (ancestry) to gain a deeper understanding of the origins of the population and of integration processes.

382. Ethno-cultural characteristics have generally a subjective dimension, they can be politically sensitive and groups are often small. The free and open declaration of the respondents is therefore of essential importance. Members of certain minority groups may be particularly vulnerable to discrimination on the grounds of ethnic group or religion. Special care may be required in census procedures and outputs relating to ethnic group and religion in order to demonstrate to respondents that appropriate data protection and disclosure control measures are in place.

383. Register data are only of limited relevance to the topic and can at best cover certain aspects, e.g. the formal membership of a church or religious community or the official language of communication between the government and households in a multilingual setting.

384. It is recommended to closely associate representatives of ethnic, language and religious groups in the drafting of census questionnaires, the definition of classification procedures and the conduct of censuses among minority populations to assure transparency, the correct understanding of the questions and the full participation of the population.

385. Countries may wish to implement special monitoring mechanisms in relation with the collection of data on ethno-cultural characteristics to guarantee the free declaration of the respondents and data protection.

Ethnicity (non core topic)

386. Ethnicity is based on a shared understanding of the history and territorial origins (regional, national) of an ethnic group or community as well as on particular cultural characteristics: language and/or religion and/or specific customs and ways of life.

387. Multiethnic countries with long established minorities and/or recently arrived immigrant populations may wish to collect information on the ethnic composition of the population or of certain subgroups of the population. The data are relevant for the understanding of the cultural diversity of the population, the position of ethnic groups in society as well as for the definition and monitoring of anti-discrimination policies.

388. Affiliation with certain ethnic groups is distinct from affiliation with language and/or religious groups, although overlaps are frequent. The combined collection and analysis of data on several ethno-cultural characteristics is particularly informative for the understanding of cultural diversity.

389. In some countries, ethnicity is also related to physical characteristics of the population (in particular colour, e.g. white, black). Data on physical characteristics are used to identify “visible minorities”.
390. Some countries may consider collecting data on ancestry and ethnic origin of parents and grandparents.
391. Data on ethnicity should not be confounded with data on citizenship (or nationality). The use of the term nationality in place of ethnicity should be avoided.
392. Ethnicity has necessarily a subjective dimension and some ethnic groups are very small. Information on ethnicity should therefore always be based on the free self-declaration of a person, questionnaires should include an open question and interviewers should refrain from suggesting answers to the respondents. Respondents should be free to indicate more than one ethnic affiliation or a combination of ethnic affiliations if they wish so.
393. In order to guarantee the free self-declaration of ethnicity, respondents should be allowed to indicate “none” or “not declared” when asked for their ethnicity.
394. Countries should document the basic criteria and classification procedures for ethnicity and inform the data users about the scientific and socio-political concepts on which they are based.
395. Classifications of ethnic groups should be comprehensive and include on the finest level ethnic groups, self-perceived groups, regional and local groups as well as groups that are usually not considered to be ethnic groups (e.g. religious groups, groups based on nationality in sense of citizenship etc.). Classifications on the highest level depend on national conditions and concepts and no internationally comparable classification is recommended.

Language (non core topic)

396. Multilingual countries and countries with significant immigrant populations may wish to collect data on languages that are currently written or spoken as means of communication between people.

397. Depending on information needs, the following data may be collected:
- (0.0) “Mother tongue”, defined as the first language spoken in early childhood at home
 - (1.0) Main language, defined as the language which the person commands best;
 - (2.0) Language(s) most currently spoken at home and/or work;
 - (3.0) Knowledge of language(s), defined as the ability to speak and/or write one or more designated languages.
398. Data on 1.0 and 2.0 are relevant to understand processes of language change and to determine language regions and language groups. Questions will generally refer to one language only. Data on 3.0 and 4.0 are relevant to understand language practices and knowledge of languages, including official languages and languages learnt at school. Questions refer to several languages and have to allow for multiple answers.

399. It is recommended to ask more than one question regarding language and to combine at least one question on ethnicity (1.0,2.0,3.0) with the question on literacy (4.0)
400. Many language groups are small. It is therefore recommended to include an open answer box at least in questions of the first group (1.0,2.0).
401. Countries should explain the chosen concepts and definitions and document the classification procedures for languages in the census documentation and reports.
402. Classifications should be comprehensive and include on the finest level language groups, separate languages, regional dialects as well as *invented* and sign languages.

Religion (non core topic)

403. Religion is generally regarded as a set of beliefs and practices, usually involving acknowledgment of a divine or higher being, power or principle, by which people order the conduct of their lives both practically and in a moral sense.

404. Countries that are traditionally multi-denominational or have significant immigrant populations with different religions may wish to collect data on religion.
405. Depending on the specific circumstances and information needs, the following data on religion may be collected:
1. Formal membership of a church or a religious community;
 2. Identification with a certain religion, religious community or denomination;
 3. Religious belief;
 4. Religion in which a person was brought up;
 5. Religious attendance
406. In all approaches respondents should be allowed to declare “none”.
407. Data should always be based on the free self-declaration of a person and questionnaires should include open questions to allow small groups, break-off groups and local denominations to identify.
408. Countries should explain in the census instructions and the census documentation how the religion of children from mixed couples is determined. Parents should have the right to decide freely on the religion of their children up to the age of 15.
409. Countries should explain in the census instructions and during data collection the chosen concepts and definitions and document the classification procedures for religious groups.
410. Classifications should be comprehensive. They should include on the finest level: groups of religions, religions, and subsets of religions, such as, religious denominations, administrative and organizational groupings, groups of churches, churches, breakaway groups as well as belief systems that are not generally considered as religions.

411. To increase consistency and comparability of data, the following classification of Christianity and world-wide religions is recommended on the highest level:

- (1.0) Christianity
 - (1.1.) Catholic
 - (1.2.) Orthodox
 - (1.3.) Protestant (including Anglican, Baptist, Brethren, Calvinist, Evangelical, Jehova's Witnesses, Lutheran, Methodist, Pentecostal, Pietist, Presbyterian, Reformed, and other Protestant groups)
 - (1.4.) Anglican
 - (1.5.) Oriental Christian
 - (1.6.) Other Christian
- (2.0) Islam
 - (2.1.) Alawit (Nusayris)
 - (2.2.) Ismaili (Seveners)
 - (2.3.) Ithna'ashari (Twelvers)
 - (2.4.) Shia
 - (2.5.) Sufi
 - (2.6.) Sunni
 - (2.7.) Zaydi (Fivers)
- (3.0) Judaism
- (4.0) Buddhism
- (5.0) Hinduism
- (6.0) Sikhism
- (7.0) Other religious groups
- (8.0) No religion

Chapter 9 Disability

Introduction

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

Disability framework and terminology

413. In 2001 The World Health Organization (WHO) issued the International Classification of Functioning, Disability and Health (ICF)³⁷ which is the successor of the International Classification of Impairments, Disabilities and Handicaps issued in 1980 (ICIDH)³⁸. The ICF is a classification system offering a conceptual framework, conceptual definitions, terminology and definitions of the terms, and classifications of disability related issues including both participation and environmental factors.

414. The ICF distinguishes multiple dimensions that can be used to monitor the situation of individuals with disability. The system is divided into two parts: Functioning and disability, which include the components:

1. body functions and body structures (impairments)
2. and activities (limitations) and participation (restrictions),
3. Contextual factors which includes the components:
4. environmental factors
5. personal factors.

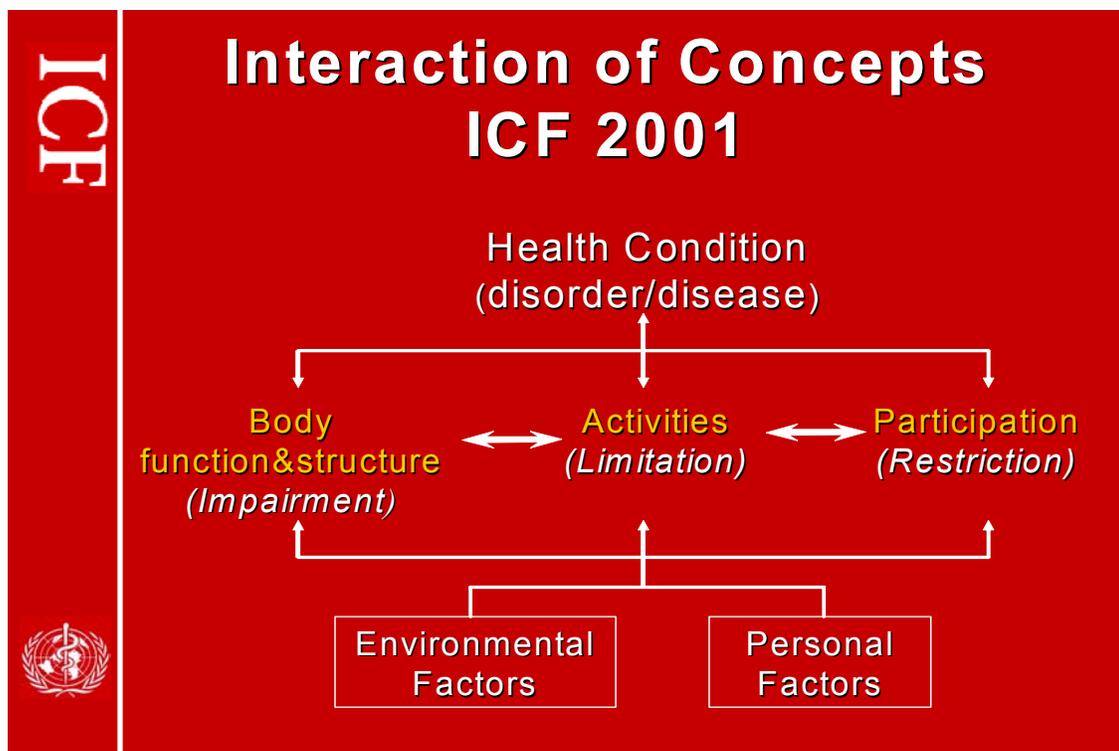
415. The ICF provides classification schemes for all these elements except for personal factors.

Interactions between components of the ICF

416. The interactions between the parts and components are reflected in the following model.

³⁷ International Classification of Functioning, Disability and Health (ICF), Geneva, World Health Organization, 2001.

³⁸ International Classification of Impairments, Disabilities and Handicaps (ICIDH), Geneva, World Health Organization, 1980.



417. The main structure of the classification is reported in Appendix x.

Use of the census to measure disability at aggregate level

418. A census format offers limited space and time for questions for one topic such as disability. Since the ICF offers several dimensions for use to develop a census measure, it is best to focus on a few of those dimensions, leaving the remaining dimensions for use in more extensive household surveys. The Washington Group on Disability Statistics (WG), a UN City Group which focuses on proposing international measures of disability is developing short sets of disability questions which can be included in censuses and extended sets to be recommended for inclusion in population based surveys. The aim of the recommended sets is to improve comparability of disability data across countries. Updates on the development of a census instrument to collect disability in a census can be found in the Washington Group Web-site³⁹.

419. The Washington Group has provided recommendations for developing the purpose in censuses and household surveys. The selected purpose for the census or survey will then link to the ICF conceptual dimension that is best suited to inform that purpose.

420. The World Programme of Action concerning Disabled Persons (WPA)⁴⁰ provides a valuable guide for conceptualizing the uses of data on disability. The three major goals of the World Programme of Action are equalization of opportunities, rehabilitation and prevention.

421. The Washington Group identified three major classes of purposes for measuring disability in a census:

³⁹ www.cdc.gov/nchs/citygroup.htm.

⁴⁰ *World Programme of Action concerning Disabled Persons*, United Nations, New York, 1983.

1. to provide services, including the development of programs and policies for service provision and the evaluation of these programs and services. The provision of services at the population level includes, but is not limited to, addressing needs for housing, transportation, assistive technology, vocational or educational rehabilitation, and long-term care.
2. to monitor the level of functioning¹ in the population. Monitoring levels of functioning includes estimating rates and analyzing trends. The level of functioning in the population is considered a primary health and social indicator, which characterizes the status of the population in a society.
3. to assess equalization of opportunities. The assessment of equalization of opportunity involves monitoring and evaluating outcomes of anti-discrimination laws and policies, and service and rehabilitation programs designed to improve and equalize the participation of persons with impairments³ in all aspects of life. The intent of these purposes for measurement is consistent with that of the WPA , which outlines major goals for policy formulation and program planning, internationally. The common goal is to promote the participation of persons with disabilities in all aspects of life by preventing the onset and consequences of impairments³, promoting optimal levels of functioning¹, and equalizing opportunities for participation.²

422. The WG recognizes the assessment of equalization of opportunity as the purpose that can be best achieved in a census.

423. In line with the WG's work to measure the equalization of opportunity in a census, it is recommended to define persons with disabilities as those persons who are at greater risk than the general population for experiencing restrictions in performing specific tasks or participating in role activities. This group would include persons who experience limitations in basic activity functioning even if such limitations are ameliorated by the use of assistive devices, a supportive environment or plentiful resources. Such persons may not experience limitations in the specifically measured tasks or participation activities because the necessary accommodations or adaptations have been made at the person or environmental levels. These persons would still be considered to be at greater risk for restrictions in activities and/or participation than the general population because of the presence of limitations in basic activity functioning and because the current level of accommodation might not always be available or might not continue to produce the same level of functioning.

424. This definition requires that disability be defined in terms of limitations in primary basic activities, and not by performance of or participation in the organized activities (such as educational attendance or work participation)⁴¹. Disentangling the conceptual dimensions of basic activity limitations, that result from impairment, from the more complex activities associated with participation provides the opportunity to determine the intervening mechanisms that facilitate or interfere with performance of tasks and organized activity. At the analysis stage, people who are identified with and without disabilities on the basis of their ability to perform basic activities can be compared in relation to their participation in

⁴¹ While assessment of equalization of opportunities might seem to require measurement of activities and participation, such an approach does not help to identify changes in the level of participation in the population in response to changes in opportunities. It only reflects the circumstances of those who because of unfriendly environments or lack of assistive devices are experiencing restrictions in participation. Approaching the assessment of equalization of opportunity by recognizing the link between a basic level of activity and subsequent participation can reduce some of the methodological problems.

organized activities (such as school and work). This comparison can assess the equalization of opportunities⁴².

425. Within the framework of the ICF Model and its four major dimensions (body structure and function, Activity, Participation and Environment), an Activity-oriented set of questions should be used to capture the basic activity elements required for a good measure of the risk of participation restrictions.

426. The adoption of an activity-oriented approach is also used in the European Health Status Module developed by Eurostat. The module has been developed within the European Statistical System and although has been designed for more extended data collection activities such as health interview surveys, it still can be used to identify questions to measure activity limitations (Reference to the ECHIS) in census. This module also includes the Minimum European Health Module (MEHM).

427. Given the sensitivity and the complexity of disability it is recommended to identify few activity domains where people can be asked about their ability to perform in such domains rather than about a general disability status.

Essential domains:

428. It has been suggested that only those domains that have satisfied a set of selection criteria be eligible for inclusion in a short set of questions recommended for use in Censuses. Criteria for inclusion include cross-population or cross-cultural comparability, suitability for self-report and parsimony. The set of domains should capture the definition of disability that is being operationalized. Other suggested criteria include the importance of the domain in terms of public health problems. Based on these criteria the WG recommends four basic domains, which are considered to be essential domains. These include the areas of walking, seeing, hearing and cognition. In addition, if space permits, two other domains were identified for inclusion, self-care and communication. The domains of walking, seeing and hearing are also included in the European Health Status Module.

429. *Walking* fulfils the criteria of cross-cultural applicability and parsimony requirements for comparable data since walking is a good indicator of a central physical function and is a major cause of limitation in participation. It is also a basic area of activity functioning that can be self-reported.

430. While *seeing* also represents a public health problem, self-reporting of seeing limitation is more problematic, particularly when individuals use glasses to correct visual impairments. Similar difficulties are associated with asking about *hearing* activity. The most direct way to deal with assistive devices like glasses and hearing aids without contributing to confusion over answering such questions is to ask the questions about difficulty hearing or seeing without any devices or assistance. However, devices, such as glasses, provide almost complete accommodation for large proportions of those with impaired functioning and the numbers with the impairment can be very high. It is often argued that asking about seeing without the use of glasses greatly increases the number of persons with disabilities and makes the group too heterogeneous, that is, the group would include persons at very little risk of participation problems along with those at great risk. An alternative is to ask questions on

⁴² The separation between activities and performance differentiates approaches for the purpose of monitoring functioning in the population and for the purpose of assessing equalization of opportunity. When assessing opportunity equalization, *the connection between the conceptual elements is made during analysis*, whereas for monitoring functioning *the connection is done during data collection*.

difficulty seeing even *with* the use of glasses if they are usually worn and difficulty hearing *with* the use of hearing aids if these devices are used.

431. Of the four essential domains, *cognition* is the most difficult to operationalize. Cognition includes many functions such as remembering, concentrating, decision making, understanding spoken and written language, finding one's way or following a map, doing mathematical calculations, reading and thinking. Deciding on a cross culturally similar function that would represent even one aspect of cognition is difficult. However, remembering and concentrating or making decisions would probably serve the cultural compatibility aspects the best. Reading and doing mathematical calculations or other learned capacities are very dependent on educational systems within a culture.

Additional domains:

432. There are additional physical functioning domains that could be included in a set of Census questions depending on the space available. Other domains that might be incorporated include upper body functioning of the arms, hands and fingers and mental/psychological functioning. While identifying problems with mental /psychological functioning in the population is a very important element of measuring disability for the stated objective, questions that would attempt to represent mental/psychological functioning would run into difficulty because of the levels of stigmatization of such problems within a culture. This could jeopardize the whole set of questions.

Census Instruments

433. It is recommended that special attention be paid in designing census questions to measure disability. The wording and the construct of questions greatly affect the precision in identifying the people with disabilities. Each domain should be asked through a separate question⁴³. The language used should be clear, unambiguous and simple. Negative terms should always be avoided. The disability questions should be addressed to each single household member and general questions on the presence of persons with disabilities in the household should be avoided. Scaled response categories can also improve the reporting of disability.

434. The European Health Module (reference) includes a set of standard questions for various domains and can be used as source to develop census questions in three of the four core domains (seeing, hearing, and walking). The WG has also developed a set of questions for use on national Censuses for gathering information on the four essential domains⁴⁴. The questions were designed to provide comparable data cross-nationally for populations living in a great variety of cultures with varying economic resources. The objective was to identify persons with similar types and levels of limitations in functional activities regardless of nationality or culture. It was not the purpose of these questions to identify every person with a disability within every community. The WG questions may not meet all the needs for disability statistics, nor will it replicate a population evaluated across a wider range of domains that would be possible in other forms of data collection or in administrative data.

435. The information that results from the use of the WG questions is expected to:

⁴³ When domains are combined such as asking a question about seeing OR hearing, respondents frequently are confused and think they need to have difficulty in both domains in order to answer yes. In addition, having the numbers with specific limitations is useful for both internal planning and for cross national comparisons.

⁴⁴ For more information see the Washington Group Web-site: www.cdc.gov/nchs/citygroup.htm.

1. Represent the majority, but not all persons with limitation in basic activity functioning in any one nation.
2. Represent the most commonly occurring basic activity limitations within any country.
3. Capture persons with similar problems across countries.

436. The WG questions identify the population with functional limitations that have the potential to limit independent participation in society. The intended use of this data would compare levels of participation in employment, education, or family life for those with disability versus those without to see if persons with disability have achieved social inclusion. In addition the data could be used to monitor prevalence trends for persons with limitations in the particular basic activity domains. It would not represent the total population with limitations nor would it necessarily represent the 'true' population with disability, which would require measuring limitation in all domains.

Use of Census to screen for disability and follow-up with other surveys

437. Countries that are planning specialized surveys on disability may want to use the census to develop a sampling frame for these surveys and include a screening instrument to identify persons who will be interviewed subsequently. The definitions and the instruments used for this purpose are very different from the ones used to assess equal opportunities. The main purpose of a screening is to be the most inclusive as possible in order to identify the largest group of people who could be further studied. The screening question should be designed so that false negative⁴⁵ are minimized, while false positive⁴⁶ should be less of a concern.

438. Within the framework of the ICF, the census screening may include all of the three main dimensions of body structure and function, activity, and participation. This will allow for keeping a broad approach to the follow-up survey where the different aspects of disability can be better studied.

439. The same recommendations highlighted in paragraphs 433 to 436 should also be considered when a screening module is designed.

440. Before embarking in using the census to develop a frame for a follow-up survey, it is important that the legal implications of using the census data for this purpose are fully considered. Respondents should be informed that the data may be used for follow-up studies and national authorities responsible for ensuring the privacy rights of the population may need to be consulted in order to obtain their approval.

⁴⁵ Persons who have disabilities but are not identified in the census as having disabilities.

⁴⁶ Persons who are identified with disabilities in the census but in reality they do not have disabilities (as assessed in the largest instrument used in the follow-up survey).

Chapter 10 Households and Families Characteristics

Introduction

441. Household and family composition can be examined from different points of view. In considering topics related to households it is important to be aware of the different concepts relating to households and families. These issues are explored in detail in this chapter. Many issues (e.g. housing problems) focus on data at the household and family level rather than the individual level. In many countries the pattern of family and household formation is changing and it is important to examine structural changes that are occurring.

Definitions

442. Countries are recommended to use the place of usual residence as the basis of household membership, see paragraphs 141-150 on core topic "place of usual residence" where, *inter alia*, issues such as temporary absence are considered. If only *de jure* information is available (e.g. from registers) on place of residence i.e. no information is available on usual place of residence, then that information can be used (alone or in combination with other information from other sources) provided that it is judged to reflect the usual residence situation sufficiently accurately.

The household concept

443. A private household is either:

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

444. The concept of a private household in paragraph 443 is known as the housekeeping concept. This concept does not assume that the number of private households is equal to the number of housing units. Within this concept, it is useful to distinguish between "boarders" and "lodgers". Boarders take meals with the household and generally are allowed to use the household facilities. They are a member of the household as defined in paragraph 443. Lodgers have hired part of the housing unit for their exclusive use. They belong to a different household.

445. Some countries are unable to collect data on common housekeeping of household members, for example when their census is register-based. Many of these countries use a different concept of the private household, namely, the household-dwelling concept. The household-dwelling concept considers all persons living in a housing unit to be members of the same household, such that there is one household per occupied housing unit. In the household-dwelling concept, then, the number of occupied housing units and the number of

households occupying them are equal, and the locations of the housing units and households are identical.

446. Whether a country uses the 'housekeeping unit' or the 'household-dwelling' concept of a household has generally little implication for the total number of private households. However, differences can be large for certain household types, for example for one-person households. In view of international comparability it is therefore recommended that countries that use the 'housekeeping unit' concept, if possible, make an estimate of the number of private households according to the 'household-dwelling' concept, and break this number down by household size.

447. Countries should specify in their census reports whether they used the 'housekeeping unit' or the 'household-dwelling' concept of a private household.

448. An institutional household comprises persons whose need for shelter and subsistence are being provided by an institution. An institution is understood to be a legal body for the purpose of long-term inhabitation and provision of services to a group of persons. Institutional living quarters usually have common facilities shared by the occupants (baths, lounges, eating facilities, dormitories and so forth). The great majority of institutional households fall under the following categories: residences for students, hospitals, convalescent homes, establishments for the disabled, psychiatric institutions, old people's homes, nursing homes, assisted living facilities, welfare institutions, military barracks, correctional and penal institutions, religious institutions, and worker dormitories. Members of an institutional household have their place of usual residence at the institution. People who are normally members of private households but who are living in institutions are considered as members of institutional households if their actual or expected absence from a private household exceeds one year. People living for more than one year in hotels, motels and boarding houses who provide themselves with food and other essentials are classified as members of private households.

449. Countries should endeavour to distinguish between the institutional population and persons who are part of private households within collective living quarters. For example, employees of the institution who live alone or with their family at the institution should be treated as members of private households.

450. Prior to census enumeration, countries should consider using a living quarters validation instrument. A brief questionnaire instrument can identify, among other things, the nature and functions of collective living quarters, the potential presence of private households, and whether services are offered to persons considered to be homeless. Also, one main advantage of using a living quarters validation instrument is that it allows for the dealing of multipurpose institutional households. Thus, parts of an institutional household can be classified differently.

451. There will be differences between countries in the ways in which the boundary between the population living in private households and the population living in institutional or other households is drawn. The definitions used should therefore be explained clearly in census publications, and attention should be drawn to any differences between national practice and these recommendations.

The homeless

452. In addition to private and institutional households, there are other households comprising, for example, homeless persons.

453. The definition of the homeless can vary from country to country because homelessness is essentially a cultural definition based on concepts such as “adequate housing”, “minimum community housing standard” or “security of tenure” which can be perceived in different ways by different communities.

454. The following two categories or degrees of homelessness are recommended

(1.0) Primary homelessness (or rooflessness). This category includes persons living in the streets without a shelter that would fall within the scope of living quarters (see paragraphs 537-541)

(2.0) Secondary homelessness. This category may include the following groups:

(2.1) Persons with no place of usual residence who move frequently between various types of accommodations (including dwellings, shelters or other living quarters). This category includes persons living in private dwelling but reporting “no usual address” on their census form

(2.2) Persons usually resident in long-term (also called “transitional”) shelters or similar collective institutions for the homeless.

455. These definitions are supported by a collection and other strategies that ensure, for example, that dwellings are properly identified as shelters and not private dwellings (see chapter on housing characteristics).

The family concept

456. A family nucleus is defined in the narrow sense as two or more persons within a private household who are related as husband and wife, as cohabiting partners, or as parent and child. Thus a family comprises a couple without children, or a couple with one or more children, or a lone parent with one or more children.

457. The family concept as defined above limits relationships between children and adults to direct (first-degree) relationships, i.e. between parents and children. In some countries, numbers of skip generation households, i.e. households consisting of (a) grandparent(s) and one or more grandchild(ren), while no parent of those grandchildren is present, are considerable. Therefore, countries may include such skip generation households in their family definition. The census report should clearly state whether or not skip generation households are included in the family nucleus definition.

458. “Children” refer to blood, step- or adopted sons and daughters (regardless of age or marital status) who have usual residence in the household of at least one of the parents. Grandsons and granddaughters who have usual residence in the household of at least one grandparent while there are no parents present may also be included, Foster children are not included. A (grand)son or (grand)daughter who lives with a spouse, with a consensual partner, or with one or more own children, is not considered as child. A child that alternates between two households (for instance after the parents' divorce) is counted at only one of these households, for instance on the basis of the *de jure* place of usual residence or the number of nights spent at either of the households.

459. The term "couple" should include married couples, registered couples, and couples who live in a consensual union. Two persons are understood as partners in a consensual union when they have usual residence in the same household, are not married to each other, and have a marriage-like relationship to each other.

460. A three-generation household consists of two or more separate family nuclei or one family nucleus and (an)other family member(s), while it contains at least three generations. The youngest two generations always constitute one family nucleus. For example, a woman who is living in a household with her own child(ren) and her own parent(s) should be regarded as being in the same family nucleus as the child(ren) even if she is never married.

461. A reconstituted family is a family consisting of a married or cohabiting couple with one or more children, where at least one child is a non-common child i.e. the child of only one member of the couple. If the child of one partner is adopted by the other partner, the resulting family is no longer a reconstituted family.

462. A few family nuclei live in institutional households, e.g. elderly couples living in old age homes. However, the number is very small in most countries in the ECE region and it is often difficult to identify them. The scope of the basic data to be compiled on family nuclei is therefore confined to family nuclei living in private households. If those living in institutional households are included, they should, if possible, be shown separately.

463. Family nuclei are usually identified at the processing stage on the basis of marital status, sex, age, and relationship to the reference member of the household. In the case of multi-family households, however, these data are often not sufficient to provide a reliable basis for allocating persons to particular family nuclei. It is left to countries to decide whether family nuclei in these households should be distinguished by asking the respondent to list the members of each family nucleus in consecutive order, or in some other way.

464. Some countries may wish to derive information on "extended families" also. It is suggested that an extended family be defined for census purposes as a group of two or more persons who live together in the same household and who do not constitute a family nucleus but are related to each other (to a specified degree) through blood, marriage or adoption. Data on extended families can have certain advantages for studying the economic relationships of families or kin as spending units, but they also have certain advantages for studying and classifying families from a demographic point of view. Countries that derive information on this type of family unit are encouraged to use the suggested classifications proposed for the non-core topics "extended family status" and "type of extended family" shown in paragraphs 490 and 505 below.

Household and family characteristics of persons

Relationships between household members (core topic)

465. Information should be collected for all persons living in private households on their relationship to other members of the household. Data on this topic are needed for use in (i) identifying family nuclei and private households of various types; (ii) deriving the family status and the household status of household members.

466. In previous censuses, the selection of the one reference person in the household to whom all other household members report or designate their relationship, was the recommended method for mapping household structures. When the household's reference person is chosen carefully, this method gives accurate information for most household types and family types. In certain cases, however, for instance in multiple family households, this method will not always give the information that is required. Therefore, a more elaborative method has been developed, namely the household relationship matrix method. The

household relationship matrix allows for the collection of all relationships between all household members.

467. Some countries have good experience with the household relationship matrix method in their censuses. Other countries have noted problems with this approach, due to its complicated character. Therefore, it is recommended that countries consider the relationship matrix as a possible method for mapping household structures. Pre-census tests of the relationship matrix are recommended to check the feasibility of the method. When feasible, the relationship matrix method is the recommended approach. Otherwise, countries are recommended to use the household's reference person. It is to be noted that the household relationship matrix, if necessary, may be limited to certain members of the household, for example only the adult members, or the children.

468. The classification of types of relationship to one (in case the reference person method is used) or more (when the household relationship matrix is used) other members are given in paragraph 458 and paragraph 464, respectively.

469. In case the household relationship matrix method is used, the following classification of persons living in a private household by relationship to other household members is recommended. The classification is basic at the one-digit level and optional at the two-digit level.

- (1.0) Other person's husband or wife
- (2.0) Other person's partner in consensual union (cohabiting partner)
 - (2.1.) Other person's opposite-sex cohabiting partner
 - (2.2.) Other person's same-sex cohabiting partner
- (3.0) Other person's child
- (4.0) Other person's father or mother
- (5.0) Other person's other relative
- (6.0) Non-relative of other person
 - (6.1.) Foster child
 - (6.2.) Boarder
 - (6.3.) Domestic servant
 - (6.4.) Other

470. The optional distinction between categories (2.1) "Other person's opposite-sex cohabiting partner" and (2.2) "Other person's same-sex cohabiting partner" should be considered by countries that would like to collect data on same-sex partnerships. Adding a specific category for same-sex partners distinct from the category for opposite-sex partners allows for the collection of data on same-sex partnerships without having to rely on the sex question to distinguish between opposite-sex and same-sex partnerships. Depending on the data needs and the national legislation, the information can be collected for marital (registered) and/or non-marital (de facto) same-sex partnerships. It is suggested that a thorough testing program (both cognitive and quantitative) be conducted prior to introducing such a sensitive topic on the census questionnaire.

471. Countries that define a skip generation family as family nucleus are recommended to use two additional categories, namely one for grandparent and one for grandchild.

472. Countries may wish to subdivide category (3.0) into children according to the different age groups. It is further suggested that employees, other than domestic servants, who are members of the household be included in category (6.4). Countries that use the household-dwelling concept may also need separate headings for sub-tenants and members of sub-tenants' households.

473. The selection of the one reference person in a household to whom all other persons in the household report or designate their relationship requires careful consideration. In the past the person considered to be the 'head' of the household was generally used as the reference person, but this concept is no longer considered appropriate in many countries of the region. It has also sometimes been proposed that the person designated as the reference person should be the oldest person in the household or the one who contributes the most income. However, given that the primary purpose of the question is to assign family status and to assign individuals into families, both of these possibilities have weaknesses. The selection of the oldest person is undesirable because in multi-generational households the broadest range of explicit kin relationships can be reported where the reference person is selected from the middle generation. Similarly, the selection of the person with the highest income may be a person who will not solicit the broadest range of explicit kin relationships. There is some evidence though to suggest that the following criteria for selection of the reference person will yield the most fruitful range of explicit kin relationships:

1. either the husband or the wife of a married couple living in the household (preferably from the middle generation in a multi-generational household);
2. either partner of a consensual union couple living in the household where there is no married couple present;
3. the parent, where one parent lives with his or her sons or daughters of any age;
4. where none of the above conditions apply, any adult member of the household may be selected.

474. These criteria are presented here to provide an example of how an adult member of the household could be selected with a view to facilitating the determination of family relationships. The considerations given here may also be appropriate when countries wish to apply the concept of head of household.

475. In order to facilitate identification of family nuclei and households, the following classification of persons living in a private household by relationship to the household's reference person is recommended. The classification is basic at the one-digit level and optional at the two-digit level.

- (1.0) Reference person
- (2.0) Husband or wife
- (3.0) Reference person's partner in consensual union (cohabiting partner)
 - (3.1.) Opposite-sex cohabiting partner
 - (3.2.) Same-sex cohabiting partner
- (4.0) Child of reference person and/or of husband/wife/cohabiting partner
 - (4.1.) Child of reference person only
 - (4.2.) Child of reference person's husband/wife/cohabiting partner
 - (4.3.) Child of both

- (5.0) Husband/wife or cohabiting partner of child of reference person
- (6.0) Father or mother of reference person, of husband/wife, or of cohabiting partner of reference person
- (7.0) Other relative of reference person, of husband/wife, or of cohabiting partner of reference person
- (8.0) Non-relative of reference person of the household
 - (8.1.) Foster child
 - (8.2.) Boarder
 - (8.3.) Domestic servant
 - (8.4.) Other

476. Countries that define a skip generation family as family nucleus are recommended to use two additional categories, namely one for grandparent and one for grandchild.

477. The optional distinction between categories (3.1) “Opposite-sex cohabiting partner” and (3.2) “Same-sex cohabiting partner” should be considered by countries that would like to collect data on same-sex partnerships. Adding a specific category for same-sex partners distinct from the category for opposite-sex partners allows collecting data on same-sex partnerships without having to rely on the sex question to distinguish between opposite-sex and same-sex partnerships. Depending on the data needs and the national legislation, the information can be collected for marital (registered) and/or non-marital (de facto) same-sex partnerships. It is suggested that a thorough testing program (both cognitive and quantitative) be conducted prior to introducing such a sensitive topic on the census questionnaire.

478. The optional distinction between categories (4.1), (4.2) and (4.3) allows the identification of reconstituted families in private households provided that the reference person is a parent in the reconstituted family (see paragraph. 461).

479. Countries may wish to subdivide categories (4.0) to (4.3) into children and son/daughter according to the different age groups. It is further suggested that employees, other than domestic servants, who are members of the household be included in category (8.4). Countries, which use the household-dwelling concept, may also need separate headings for sub-tenants and members of sub-tenants' households.

Household status (derived core topic)

480. Information should be derived for all persons on their status or position in the household and for people in private households whether they are living alone, in a nuclear family household or living with others.

481. The following classification of the population by household status is recommended:

- (1.0) Person in a private household
 - (1.1.) Person in a nuclear family household
 - (1.1.1.) Husband
 - (1.1.2.) Wife
 - (1.1.3.) Male partner in a consensual union
 - (1.1.4.) Female partner in a consensual union
 - (1.1.5.) Lone father

- (1.1.6.) Lone mother
- (1.1.7.) Child under 25 years of age
- (1.1.8.) Son/daughter aged 25 or older
- (1.1.9.) Other persons not member of the nuclear family, but in a nuclear family household
- (1.2.) Person in other private households
 - (1.2.1.) Living alone
 - (1.2.2.) Living with others
 - (1.2.3.) Living with relatives
 - (1.2.4.) Living with non-relatives
- (2.0) Person not in a private household
 - (2.1.) Person in institutional household
 - (2.2.) Primary homeless person
 - (2.3.) Other

482. This classification is basic at the three-digit level.

483. Countries that define a skip generation family as family nucleus are recommended to use two additional categories under (1.1), namely one for grandparent and one for grandchild.

484. It should be noted that information on household status can be used to derive what is commonly known as *de facto* marital status, for example, whether a person who is not legally married, lives together with a partner in a consensual union, or whether a person who is legally married, lives without a partner.

Family status (derived core topic)

485. Information should be derived for all persons on their family status. Family status is measured in terms of partner, lone parent or child.

486. The following classification of the population living in families is recommended:

- (1.0) Partner
 - (1.1.) Husband in a married couple
 - (1.2.) Wife in a married couple
 - (1.3.) Male partner in a consensual union
 - (1.4.) Female partner in a consensual union
- (2.0) Lone parent
 - (2.1.) Lone father
 - (2.2.) Lone mother
- (3.0) Child
 - (3.1.) Child aged under 25
 - (3.1.1.) Child of both partners
 - (3.1.2.) Child of male partner only
 - (3.1.3.) Child of female partner only
 - (3.1.4.) Child of lone father
 - (3.1.5.) Child of lone mother
 - (3.2.) Son/daughter aged 25 or over
 - (3.2.1.) Son/daughter of both partners
 - (3.2.2.) Son/daughter of male partner only
 - (3.2.3.) Son/daughter of female partner only
 - (3.2.4.) Son/daughter of lone father
 - (3.2.5.) Son/daughter of lone mother

487. This classification is basic at the two-digit level. Further detail on the age of the youngest child may be added, for instance under 18, 18-24, 25-29, and 30 or over.

488. Countries that define a skip-generation family as family nucleus are recommended to use three additional categories, namely (3.3) Grandchild aged under 25, (3.4) Grandson/granddaughter aged 25 or over, and (4.0) Grandparent.

489. The classification of children in reconstituted families requires special attention. These children should be classified according to the relationship with both parents. If the child has been adopted by the new partner, he/she should be classified in (3.1.1) or (3.2.1), and the family should not be considered a reconstituted family (unless not all children have been adopted by the new partner), see paragraph 461. If not, he/she belongs to (3.1.2) or (3.1.3) or (3.2.2) or 3.2.3.

Extended family status (derived non-core topic)

490. It is suggested that countries interested in deriving data on extended families classify persons in private households by extended family status.

491. The following classification, on the basis of their relationship to the reference person of the household is suggested:

- (1.0) Extended family reference person
- (2.0) Husband/wife or cohabiting partner of reference person
- (3.0) Child of reference person
- (4.0) Other relative of reference person
- (5.0) Not member of an extended family

492. Some countries may also wish to subdivide category (4.0) by type of relationship to meet specific requirements.

Characteristics of family nuclei

Type of family nucleus (derived core topic)

493. Family classification status is defined in paragraph 485 and the type is specified in the following classification.

494. The following classification of family nuclei by type is recommended:

- (1.0) Husband-wife family, not reconstituted family
 - (1.1) Without resident children
 - (1.2) With at least one resident child under 25
 - (1.3) Youngest resident son/daughter 25 or older
- (2.0) Cohabiting couple, not reconstituted family
 - (2.1) Without resident children
 - (2.2) With at least one resident child under 25
 - (2.3) Youngest resident son/daughter 25 or older
- (3.0) Lone father
 - (3.1) With at least one resident child under 25
 - (3.2) Youngest resident son/daughter 25 or older
- (4.0) Lone mother

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

495. This classification is basic at the two-digit level.

496. Countries that define a skip generation family as family nucleus are recommended to use an additional category, namely (6.0) Skip generation family.

497. It is suggested that countries that wish to subdivide the classification by age of female partner (for couple families) and/or by age of parent (for lone parent families) do so by using at least the following age groups: below 35; 35 to 54; 55 and over. These age groups are suggested because they are significant age groupings to use in family life cycle constructs. An additional subdivision showing the age of children is encouraged.

Identifying reconstituted families (derived non-core topic)

498. A reconstituted family is defined in paragraph 441. The identification of reconstituted families requires careful attention. Several approaches have been used in previous censuses and these are described below.

1. household relationship matrix
A reconstituted family can be identified provided that each child in the household can specify The his/her relationship to each adult so that he/she can be classified in one of the following three distinct categories:
 1. child of both the adult person *and* his/her spouse/partner;
 2. child of the adult person only; and
 3. not the child of the adult person.

In category (1.0) it is assumed that the spouse/partner of the adult person is a member of the same private household.

2. The partial household relationship matrix
the household relationship matrix as described under 1 covers the relationships between all members of the household. For the purpose of identifying a reconstituted family it is sufficient to use only part of that matrix, namely that part that asks all children information on their relationship to all adults in the household, as specified by categories (1.0) to (3.0) above.
3. Relationship to the reference person of the household
In those cases where the reference person is a parent in a reconstituted family, that family can be identified when relationship to reference person includes the following three categories:
 - 1.0 child of both the reference person and his/her spouse/partner;
 - 2.0 child of reference person only; and
 - 3.0 child of the reference person's spouse/partner only.

However, this approach will not cover reconstituted families in private households in those cases where the reference person is not a parent in the reconstituted family.

4. Birth dates

Countries with a register-based census are recommended to identify reconstituted families on the basis of children's birth dates. More particularly, a matching between birth dates of all natural children ever-born to each adult household member on the one hand, and the birth dates of all children present in the household on the other, will facilitate identification of reconstituted families.

499. Countries with a register-based census are recommended to use the fourth approach for the purpose of identifying reconstituted families. Other countries are recommended to use the first or the second approach, provided that the household relationship matrix method is feasible. Otherwise, the third approach can be used, provided that the reference person is chosen carefully. .

500. Reconstituted families may or may not have one or more children that are common to both partners, in addition to at least one child that is non-common. Therefore, the following classification of reconstituted families is recommended:

- (1.0) Reconstituted family, one non-common child
 - (1.1.) And no common children
 - (1.2.) And one common child
 - (1.3.) And two or more common children
- (2.0) Reconstituted family, two non-common children
 - (2.1.) And no common children
 - (2.2.) And one common child
 - (2.3.) And two or more common children
- (3.0) Reconstituted family, three non-common children
 - (3.1.) And no common children
 - (3.2.) And one common child
 - (3.3.) And two or more common children
- (4.0) Reconstituted family, four or more non-common children
 - (4.1.) And no common children
 - (4.2.) And one common child
 - (4.3.) And two or more common children

501. Some countries may wish to add further detail on the family status of the couple (married or cohabiting), on the age of the children, and/or whether the children are solely the woman's children, solely the man's children, or children from an earlier liaison of both the man and the woman.

Same-sex partnerships (derived non-core topic)

502. Some countries may wish to collect and disseminate data on same-sex partnerships. Data needs can arise based on the increasing legal recognition of such unions. In such cases, information on same-sex partnership can be derived by adding a specific category for same-sex partners (distinct from the category for opposite-sex partners) to the Relationship to the Reference person question (see paragraph 473) or the Household Relationship Matrix (see paragraph 466).

503. The following response categories could be used to collect information on marital and nonmarital partners:

- (1.0) Husband or wife
- (2.0) Opposite-sex cohabiting partner
- (3.0) Same-sex cohabiting partner

504. When data are collected on same-sex partnerships, same-sex partners should be included in the family categories in census tabulations. They should form couples, families (with or without children), and should be distinguished from opposite-sex couples and families. The same distinction should be applied when presenting data on the family status of individuals.

Type of extended family (derived non-core topic)

505. Extended families are defined in paragraph 464. Some countries may also wish to derive data by type of extended family.

506. The following classification is suggested:

- (1.0) One-couple extended families
 - (1.1.) One couple with other relatives only
 - (1.2.) One couple with children and other relatives
- (2.0) Two-couple extended families
 - (2.1.) Two couples only
 - (2.2.) Two couples with children but no other relatives
 - (2.2.1.) Two couples both with children
 - (2.2.2.) One couple with children, one without
 - (2.3.) Two couples with other relatives only
 - (2.4.) Two couples with children and other relatives
 - (2.4.1.) Both couples with children and other relatives
 - (2.4.2.) One couple with children, one without, and other relatives
- (3.0) All other extended families

Size of family nucleus (derived core topic)

507. Family nuclei (as defined in paragraph 456) should be classified by size according to the total number of resident members of the family.

508. Family nuclei should also be classified according to the total number of resident children in the family.

Characteristics of private households

Type of private household (derived core topic)

509. Private households are defined in paragraph 443. Information on different types of private households should be collected.

510. The following classification of private households by type is recommended at the three-digit level:

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

511. Countries that define a skip-generation family as family nucleus are recommended to use one or more additional categories under (2.0) for this family type.

512. Countries are recommended to classify one-person households by sex and five-year age group of the person in the household. This classification is basic. A further breakdown by marital status is optional.

Other household classifications

513. The family-based classification recommended above involves expensive and time-consuming processing; it is therefore only derived for a sample of households in some countries and this limits its use. In earlier censuses, some countries used a supplementary classification of private households by type on the basis of the age and sex structure and size of household that could be derived easily and quickly on a 100 per cent basis at an early stage of the census processing and that could therefore be used down to the small area level. These countries found that these types of classifications complemented each other, and that the classification of private households by type, on the basis of age structure and size of household, had produced useful and interesting results. In view of this, the following

classification is suggested on an optional basis, as a complement to the classification recommended in paragraph 510 above:

- (1.0) One adult under legal retirement age without children
- (2.0) One adult over legal retirement age without children
- (3.0) Two adults both under legal retirement age without children
- (4.0) Two adults one or both over legal retirement age without children
- (5.0) One adult with one or more children
 - (5.1) Adult female with one or more children
 - (5.2) Adult male with one or more children
- (6.0) Two adults with one child
- (7.0) Two adults with two children
- (8.0) Two adults with three children
- (9.0) Two adults with four or more children
- (10.0) Three or more adults with one or more children
- (11.0) Three or more adults without children

514. Countries in which individuals have the legal right to retire during a certain age span (for instance, between ages 63 and 68) may use the highest legal retirement age (68 in the previous example) in categories (1.0) to (4.0).

Generational composition of private households (derived non-core topic)

515. In addition to deriving data on type of private household, some countries may also wish to derive information on the generational composition of private households, particularly in cases where the practice of living together in multi-generational households is considered to be sufficiently widespread or important.

Size of private household (derived core topic)

516. Private households should be classified by size according to the total number of resident members in the household.

Tenure status of households (core topic)

517. This topic refers to the arrangements under which a private household occupies all or part of a housing unit.

518. Private households should be classified by tenure status as follows:
- (1.0) Households of which a member is the owner of the housing unit
 - (2.0) Households of which a member is a tenant of all or part of the housing unit
 - (2.1) households of which a member is a main tenant of all or part of the housing unit
 - (2.2) households of which a member is a sub tenant of an owner occupier or main tenant
 - (3.0) Households occupying all or part of a housing unit under some other form of tenure

519. This classification is basic at the one digit level but optional at the two-digit level.

520. In view of the diversity of legal arrangements in different countries, countries should describe fully in the census report the coverage of each of the categories in the above classification. These descriptions should specify, where applicable, the treatment of households which (a) live in housing units as members of different types of housing co

operatives, (b) live in housing units rented from an employer under the terms of the contract of employment of one of the household members, and (c) live in housing units provided free of charge by an employer of one of the household members or by some other person or body. Some countries may wish to extend the basic classification to distinguish these or other groups of households that are of interest for national purposes. Households which are in the process of paying off a mortgage on the housing unit in which they live or in purchasing their housing unit over time under other financial arrangements should be classed as 1.0 in the classification.

Single or shared occupancy (non-core topic)

521. Countries that use the housekeeping unit concept may wish to collect information on this topic directly through the census questionnaire, while others may prefer to derive the information from the non-core topic occupancy by one or more households.

522. The following classification of private households living in conventional dwellings by single or shared occupancy is suggested for countries using the housekeeping unit concept of households:

- (1.0) Households living alone in a dwelling
- (2.0) Households sharing a dwelling with one or more households

523. Category (2.0) may be subdivided to distinguish households sharing with one, two, or three or more households. This category may also be sub divided, where feasible, to distinguish households which are voluntarily sharing a dwelling and those which are doing so involuntarily. This classification does not apply to countries that use the household dwelling concept of households, since all would appear in category 1.0 of the classification.

524. There is an increasing amount of accommodation which is being provided for the elderly, the disabled, and other special groups which falls between an institutional and a private household, in that meals can be taken communally or by each household with its own cooking facilities. It is suggested that if at least half the population living in such accommodation possess their own cooking facilities, they should be treated as private households and, if possible, identified separately in the output.

Rent (non-core topic)

525. Rent is the amount to be paid in respect of a specified period for the space occupied by a household including, in some cases, local rates and ground rent. Payments for the use of furniture, for utilities such as electricity, gas and water and for the provision of special services like washing, cooking, etc., should be excluded.

526. Nominal rent paid may not correctly reflect the real rates. For instance, an individual housing allowance determined on the basis of a means test and paid by housing authorities directly to the landlord should be included in the rent; and if a rebated rent is charged by a public sector landlord on the basis of a means test, the full rent should be recorded. It may also be possible to ask questions such as whether the tenant is a relative or an employee of the landlord, whether he performs any function or office as part of his rent, etc., in order to appraise the actual rent paid.

527. If this topic is included in the census, it may be desirable to obtain information on the range within which the rent paid falls rather than on the exact amount paid.

Durable consumer goods possessed by the household (non-core topic)

528. With the purpose of obtaining some qualitative indicators on the households' levels of living, a question on durable goods in the possession of the household might be included. Examples of durable goods, which could be considered, include: washing machines, refrigerators, deep-freezers, ovens, televisions, fax machines and personal computers. Consideration could also be given to the household's accessibility to durable consumer goods rather than their possession.

Number of cars available for the use of the household (non-core topic)

529. It is suggested that this topic cover the number of cars and vans available for use by members of the household, including any car and van provided by an employer if available for use by the household but excluding vans used solely for carrying goods.

530. The following classification is suggested:

- (1.0) No car
- (2.0) One car
- (3.0) Two or more cars

Availability of car parking (non-core topic)

531. It is suggested that this topic cover the availability of car parking facilities for use by the members of the household. Such facilities are restricted for census purposes to physical space for the exclusive use of the household, either owned by one or more household members, or for which a written or oral agreement exists between the owner of the physical space and the household member(s).

532. The following classification is suggested:

- (1.0) No car parking available
- (2.0) Car parking for one car available
- (3.0) Car parking for two or more cars available
- (4.0) Not applicable

Telephone and Internet connection (non-core topic)

533. Telephone and Internet connections reflect a household's ability to communicate with the rest of society using technology.

534. The following classification is suggested:

- (1.0) Telephone(s) fixed in the housing unit
- (2.0) Mobile cellular telephone(s)
- (3.0) Both (1.0) and (2.0) are available.
- (4.0) No telephone in the housing unit

535. It is also suggested to collect information on the availability of an Internet connection in the housing unit.

Chapter 11 Agriculture

Introduction

535.a In this chapter two non-core topics on agriculture are presented. These two alternative topics could be considered by countries that would like to collect in the population and housing census information that would facilitate the preparation of the frame of agricultural holdings in the household sector, for a subsequent agricultural census (see also paras. 29.a to 29.g).

535.b With the first topic, at the household level, information is collected on whether any member of the household is engaged in own-account agricultural production activities. With the second topic, at the individual person level, information is collected to identify persons involved in agricultural activities during a longer period, such as a year.

Own-account agriculture production (non-core topic)

535.c Some countries may want to use the population census to identify households engaged in own-account agricultural production to provide additional data for agriculture-related analysis of the population census and for use as a frame for a subsequent agricultural census. In this case, information should be collected for all households on whether any member of the household is engaged in any form of own-account agricultural production activities.

535.d Where possible, information should be collected separately on the type of activity under the broad headings of crop production and livestock production. For countries where household level agriculture is particularly important, additional information on the size (area) of the agricultural holding and the numbers of livestock by type may also be collected in the population census.

535.e Where aquacultural production is important at the household level, information can also be collected on whether any member of the household is engaged in any form of own-account aquacultural production activities.

535.f Agricultural production activities refer to Groups 011,012 and 013 of ISIC (Rev 3.1) namely:

Group 011: Growing of crops; market gardening; horticulture.

Group 012: Farming of animals.

Group 013: Growing of crops combined with farming of animals (mixed farming).

535.g Aquacultural production activities refer to Class 0502 of ISIC (Rev 3.1), namely:

Class 0502: Aquaculture

535.h An own-account worker in agricultural production (agricultural holder) is a person who is working on his/her own account (self-employed), or with one or more partners, and where that person has overall responsibility for the management of the agricultural production unit.

Characteristics of all agricultural jobs during the last year (non core topic)

535.i The population census normally collects employment data in respect of a person's main activity during a short reference period, which may not cover all persons working in agriculture because of the seasonality of many agricultural activities. To overcome this problem, information should be collected for all economically active persons on all agricultural jobs carried out during the year preceding the population census day. The information to be collected should normally be limited to occupation and status of employment, but can be expanded to identify main or secondary occupation and time worked.

535.j Information on occupation and status in employment of all agricultural jobs can be used as an alternative way of identifying households engaged in own-account agricultural production activities (topic reference code), for use as a frame for an agricultural census. It can also provide additional data for agriculture-related analysis of the population census.

535.k Where aquacultural production is important in a country, an additional topic on occupation and status in employment of all aquacultural jobs, carried out during the year preceding the population census day, can also be included and expanded to identify main or secondary occupation and time worked, as required.

535.l An agricultural job is defined as a job in the agricultural industry as defined by Groups 011,012 and 013 of ISIC (Rev 3.1); namely:

Group 011: Growing of crops; market gardening; horticulture.

Group 012: Farming of animals.

Group 013: Growing of crops combined with farming of animals (mixed farming).

535.m An aquacultural job is defined as a job in the aquacultural industry as defined by Class 0502: Aquaculture of ISIC (Rev 3.1).

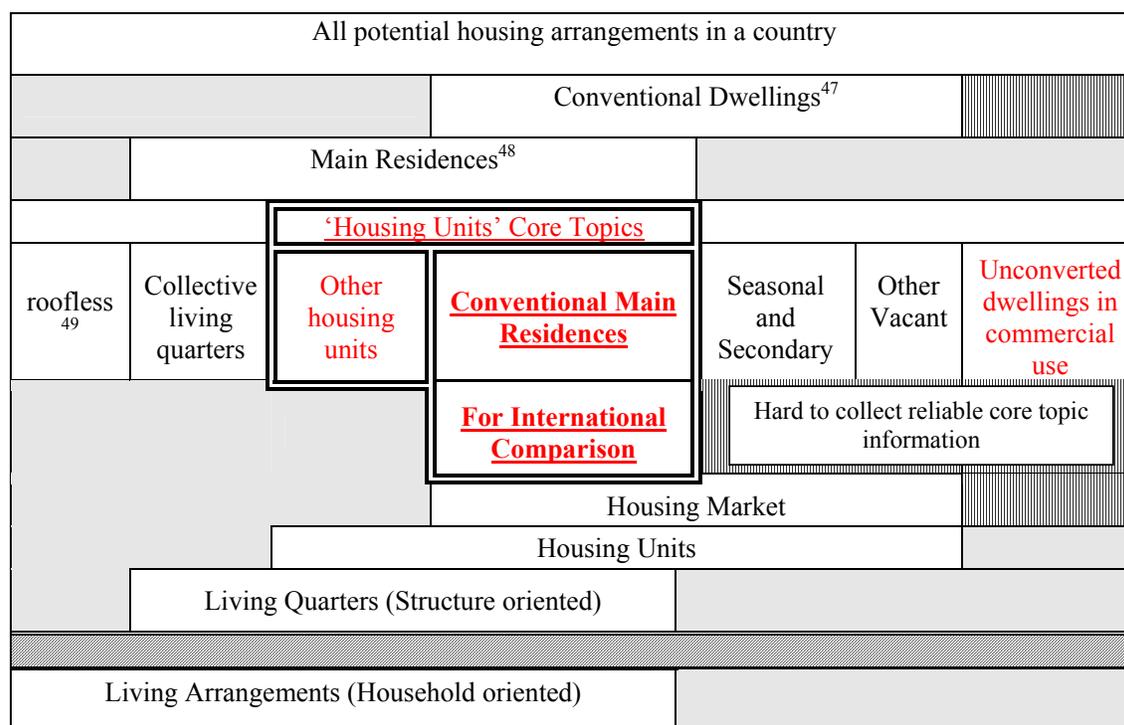
PART C: HOUSING TOPICS

Chapter 12 Living quarters, dwellings and housing arrangements

Introduction

536. The present chapter focuses on housing topics and on the relationship between the population and the living quarters. Housing topics can be defined as the characteristics of housing units and buildings that are collected on the occasion of the housing census. It should be noted that certain housing topics (e.g. the core topic of tenure status in paragraphs 517-520 above, and the non-core topics of single or shared occupancy, and rent) have been included amongst the characteristics of private households since the principle units of enumeration for these topics generally are households. For all housing topics presented in this chapter the principle unit of enumeration is living quarters and, additionally, in some countries buildings. The only exception is the topic "housing arrangements" which describes the relationship between the population and the living quarters, and which can be referred to either the individuals or the households. The figure below shows the relationships between living quarters and the most important components of the housing stock and core topics.

Relationship between housing arrangements, components of the housing stock and core topics.



⁴⁷ It has been noted that the UN recommendations (DESA 1998, Principles and Recommendations for Population and Housing Censuses (Rev 1), UN, New York) currently break this category into basic and conventional dwellings. However, the non-core topics allow the distinction to be made if it is required. Also it is more useful to know which amenity is not present rather than to simply aggregate together dwellings, which have one or more of a variety of facilities missing. And it may be difficult in a Census to collect all the information to divide seasonal and secondary dwellings into basic and conventional.

⁴⁸ Where referring to living quarters with usual residents, the term 'Main Residence' is used for the housing unit, and the people within a 'Main Residence' are referred to as 'Usual Residents'. A 'Main Residence' is therefore a housing unit and must have at least one usual resident. It is the same as the previous term 'Usual residence'.

⁴⁹ See definition of primary homeless in paragraph 454

Definitions

Living quarters

537. The concept of living quarters must be qualified by the more precise definitions of the main categories into which living quarters are divided. It is from these more precise definitions that the practical application of the rules determining what are and are not "living quarters" can most clearly be understood. The definitions of living quarters, together with the principal categories into which they are divided, and of buildings, are set out below.

538. Living quarters are structurally separate and independent premises, which are designed for permanent human habitation at a fixed location and are not used wholly for other purposes at the time of the census and are actually used as the Main (synonymous with 'usual') Residence of at least one person at the time of the census. This is irrespective of whether or not the living quarters were so designed, fixed or mobile, and/or permanent or temporary.

539. The essential features of living quarters are separateness and independence and the presence of a usual resident. An enclosure is separate if surrounded by walls, fences, etc., and covered by a roof so that a person, or a group of persons, can isolate themselves from other persons for the purposes of sleeping, preparing and taking meals or protecting themselves from the hazards of climate and environment. It is independent when it has direct access from the street or from a public or communal staircase, passage, gallery or grounds. That is, when the occupants can enter and leave without passing through anybody else's accommodation.

540. Attached rooms having an independent entrance, or detached rooms for habitation which have clearly been built, rebuilt, converted etc., to be used as a part of the housing unit should be counted as part of the housing unit. Thus, living quarters may consist of rooms or groups of rooms with independent entrances or by separate buildings.

541. Living quarters are classified and defined as follows:

1. Conventional main dwellings - a house, apartment, room or suite of rooms
2. Other housing units - an occupied hut, cabin, shack, caravan, houseboat, or a barn, mill, cave or other shelter used for human habitation at the time of the census
3. Collective living quarters – a hotel, institution, camp, etc.

Conventional dwellings

542. Of the main categories of "Living quarters" the most important is the "conventional (Main Residence) dwelling". The main residence dwelling (later called 'Conventional main dwellings') is the most important component of conventional dwellings. In the UNECE 2000 Housing Census Recommendations the expression 'occupied conventional dwelling' was used.

543. A conventional dwelling is generally defined as a room or suite of rooms and its accessories (e.g. lobbies, corridors) in a permanent building or structurally separated part thereof which, by the way it has been built, rebuilt or converted, is designed for habitation by one private household all the year round and is not at the time of the census used wholly for non-residential purposes. It should have separate access to the street, direct or via a garden or grounds, or to a common space within the building (staircase, passage, gallery, etc.), but it need not necessarily have a bathroom or toilet available for the exclusive use of its occupants.

A "permanent building" is a building, which was constructed to be structurally stable for at least ten years. Some countries may prefer to define permanence in terms of the method of construction or in terms of the building materials used. Detached rooms for habitation which are clearly designed to be used as part of the dwelling should be included, e.g. a room or rooms above a detached garage.

544. Conventional Main Residences, secondary, seasonal and other vacant dwellings together are conventional dwellings. All conventional dwellings are counted for census purposes whether or not they are a conventional Main Residence (i.e. have at least one usual resident) - although some topics and consequently some parts of the tabulation programme apply only to conventional Main Residences dwellings.

545. Because of their importance, conventional dwellings are further classified by occupancy and type of building. However, countries can also subdivide Conventional Main Residences using the core housing infrastructure (presence of Kitchen, water supply, toilet, bathing and heating facilities) to classify how basic the housing is; indeed if any one of these facilities is missing the UN defines such Main Residences as 'basic'.⁵⁰

Other housing units

546. Some housing units do not come fully within the category of a conventional dwelling because they are mobile or semi-permanent or improvised or are not designed for human habitation, but which are used at the time of the census as the Main Residence of one or more persons who are members of one or more private households. All these are grouped under the term "Other housing unit". The main distinction between their treatment for census purposes and the treatment of conventional dwellings is that they are counted only if they are occupied in the sense defined above. Also, certain census topics will not apply to them. In the UNECE 2000 Housing Census Recommendations the expression "non-conventional dwellings" was used.

547. The definitions applicable to other housing units are set out below

1. A mobile housing unit is any type of living accommodation which has been made to be transported (such as a tent) or which is a moving unit (such as a ship, yacht, boat, barge or caravan) and which is designed for human habitation and is occupied at the time of the census, that is, it is somebody's Main Residence. Gypsy camps should be included in this category. Passenger quarters in means of transport such as passenger ships, railroad cars and aircraft should not be considered as living quarters and the persons who happen to be travelling in them at the time of the census should not be counted as living in these vehicles, ships or aircraft.
2. A semi-permanent housing unit is an independent structure such as a hut or a cabin which has been constructed with locally available crude materials such as wooden planks, sun-dried bricks, straw or any similar vegetable materials for the purpose of habitation by one private household and which is used as the Main Residence of at least one person at the time of the census. Such units may be expected to last for only a limited time, although occasionally they may last for longer periods.
3. Other housing units designed for habitation comprise independent, makeshift shelters or structures such as shacks and shanties which have been built of waste materials which are used as the Main Residence of at least one person at the time of the census.

⁵⁰ The UN recommendations (DESA 1998, Principles and Recommendations for Population and Housing Censuses (Rev 1), UN, New York) currently break this category into basic and conventional dwellings.

4. Other housing units not designed for habitation comprise premises in permanent or semi-permanent buildings such as stables, barns, mills, garages, warehouses, offices, etc. which have not been built, rebuilt, converted or arranged for human habitation but are, nevertheless, used by one or more private households as their Main Residence at the time of the census. This category also includes natural shelters such as caves, which are used by one or more private households as their Main Residence at the time of the census.

548. Premises, which, not initially designed or constructed for human habitation but have been converted for the purpose of habitation by a private household should not be included in this category, but instead classified as a conventional dwelling.

Collective living quarters

549. The category "collective living quarters" comprises separate and independent sets of premises which are designed for habitation by large groups of individuals or several households and which are used as the Main Residence of at least one person at the time of the census. This category covers (a) hotels, rooming houses and other lodging houses; (b) institutions; and (c) camps. Once again, the category of "collective living quarters" differs from the other categories in the range of topics which apply to it and, consequently in the extent to which it features in the tabulation programme.

550. The definitions applicable to collective living quarters are set out below

1. A hotel is a separate and independent set of premises comprising all or part of a permanent building or set of buildings which by the way it has been built, rebuilt or converted is designed to provide accommodation on a fee basis and which is used as the Main Residence of at least one person at the time of the census. Motels, inns, boarding houses, pensions, rooming houses and other lodging houses are included in this category. If the accommodation occupied by a private household residing in a hotel or similar establishment fulfils the requirements of a conventional dwelling, it should be classified as such. Otherwise it should be classified with collective living quarters. Some countries may wish to consider distinguishing hotels and similar establishments as a separate category of the classification.
2. An institution is a separate and independent set of premises comprising all or part of a permanent building or set of buildings which by the way it has been built, rebuilt or converted is designed for habitation by a large group of persons who are subject to a common authority or regime or bound by a common objective or personal interest, and which is used as the Main Residence of at least one person at the time of the census. Such collective living quarters usually have certain shared common facilities such as cooking and toilet facilities, baths, lounge rooms or dormitories. This category includes premises such as nurses' hostels, student residences, hospitals, sanatoria and convalescent homes, welfare institutions, monasteries, convents, military and police barracks, prisons and reformatories.
3. A camp is a separate and independent set of premises comprising all or part of a semi-permanent or temporary structure or set of structures which by the way it has been built, rebuilt or converted is designed for the temporary accommodation of groups of persons with common activities or interests, and which is used as the Main Residence of at least one person at the time of the census. Such collective living quarters usually have certain common shared facilities such as cooking and toilet facilities, baths, lounge rooms or dormitories. This category includes military camps, refugee camps and camps for housing workers employed by agriculture, logging, mining, construction or other enterprises.

551. Housing Units located on the grounds or within a building containing a hotel, institution or camp should be separately identified and counted as dwellings. If they fulfil the requirements of a conventional dwelling they should be classified as such, and the others should be classified as 'collective living quarters'.

Homeless

552. Homeless is defined as a person who, because of the lack of housing, has no other option than to sleep rough or in buildings which were not designed for human habitation; in emergency centres or, among other places, in night shelters; in emergency accommodation in hotels, guest houses, or bed and breakfast; or in hospitals due to a lack of decent shelter; or in accommodation temporarily provided by friends or relatives because of the lack of a permanent place to stay. In practice, it is difficult to identify and then to collect information on homeless people. For this group, it may be possible to make an estimate using different sources of information, such as, capacity of emergency shelters and information provided in social housing applications.

553. Homelessness is dealt with more fully in the recommendations under families and households where the following groups are identified

1. Roofless homeless - equivalent to rooflessness - these are people without permanent accommodation - living in the streets, derelict buildings, cars etc.
2. Secondary homeless - people moving frequently between various types of shelters or dwellings. This includes people living in emergency accommodation and people living in dwellings but reporting "no usual address" on their census form ("couch surfers")

Characteristics of "Housing units"

Type of living quarters (core topic)

554. Living quarters are defined in paragraphs 537-541. Type of living quarters relate to main residence in terms of conventional main dwellings, other housing units and collective living quarters.

555. It is recommended that living quarters be classified by type as follows:

- (1.0) 1. Conventional main dwellings used as main residence
- (2.0) Other housing units
 - (2.1.) Mobile units
 - (2.2.) Semi-permanent units
 - (2.3.) Other units designed for habitation
 - (2.4.) Other units not designed for habitation
- (3.0) 3 Collective living quarters
 - (3.1.) Hotels, rooming houses and other lodging houses
 - (3.2.) Institutions
 - (3.3.) Camps
 - (3.4.) Others

556. All conventional dwellings, other housing units and collective living quarters must be used at least by one person as the Main Residence to be counted as part of living quarters. This classification becomes optional for detail below this level.

Location of living quarters (core topic)

557. Since living quarters, other than mobile housing units, are permanently located in the areas in which they are enumerated, it is possible to classify them to very detailed geographical areas, but the extent to which this is done will vary according to each country's needs for statistics for localities and the smallest civil divisions relevant. The definitions and classifications set out in paragraphs 159 to 166 above apply equally to this topic as to the place of usual residence core topic.

Housing arrangements (core topic)

558. Housing arrangements cover the whole population and is defined as the housing situation or environment in which a person lives at the time of the census - that is all occupants in living quarters plus persons in geographic locations where, when the Census was taken, at least one homeless person slept in a makeshift way - either with no structure or no purpose-built structure.

559. The concept of 'housing arrangement' is introduced as a core topic to ensure that the whole population is included in housing censuses including those who are roofless.

560. The following classification by housing arrangement is recommended:

1. Occupants living in a conventional dwelling - a house, apartment, room or suite of rooms
2. Occupants living in a non-conventional dwelling, i.e. other housing unit - an occupied hut, cabin, shack, caravan, houseboat, or a barn, mill, cave or other shelter used for human habitation at the time of the census
3. Occupants living in a collective living quarter - a hotel, institution, camp, etc.
4. Roofless (or primary homeless) persons

561. This classification can be considered at the level of individuals or households.

562. The number of occupants in the different categories above is the number of people who usually reside in the housing arrangement, including persons who may be temporarily absent at the census but excluding people temporarily present at the census that usually live elsewhere. (see paragraphs 144 to 149 above relating to 'place of usual residence').

Number of occupants in conventional dwellings (core topic)

563. The total number of occupants living in a conventional dwelling is the number of people who have main residence in the dwelling. A classification of the total number of conventional main dwellings according to the number of occupants (i.e. dwellings with one person, two persons, etc.) should be included. The average number of occupants per dwelling should also be counted.

Occupancy status of conventional main dwellings (core topic)

564. The occupancy status refers to whether a conventional dwelling is occupied by a usual resident or not at the time of the census. For those dwelling not occupied, the reason for not being occupied is classified

565. Living quarters consist of three groups: conventional Main Residence dwellings, other housing units and collective living quarters; the first two of these groups plus conventional seasonal, secondary and other vacant dwellings compose the total of "Housing units". Neither a housing unit nor a dwelling needs to have a usual resident unlike living quarters.

566. A housing unit is a separate and independent place of abode intended for habitation by a single household, or one not intended for habitation but used as living quarters by a household at the time of the census. Thus it may be a dwelling, a mobile or improvised housing unit or any other place used a Main Residence by a household at the time of the census.

567. It is recommended that "Housing units" be classified based on the presence of usual residents and use. By definition, "Other housing units" cannot be vacant and must be a main residence. The following classification is therefore recommended

- (1.0) Conventional dwelling with one or more usual residents.
- (2.0) Conventional dwelling with no usual resident at time of Census (i.e. not a Main Residence)
 - (2.1.) Conventional dwelling reserved for seasonal or secondary use but fit for habitation all the year round used by a person with Main Residence elsewhere
 - (2.1.1.) Not in use at Census
 - (2.1.2.) Used at Census by temporary resident with Main Residence elsewhere
 - (2.2.) Vacant conventional dwellings neither used for Main Residence nor for seasonal or secondary purposes at the time of the census – 'other vacant' (this more general term is preferred since it may be difficult to ascertain the exact status of a dwelling with no one present).
 - (2.2.1.) Vacant for sale
 - (2.2.2.) Vacant for rent
 - (2.2.3.) Other vacant or not known
 - (2.2.4.) For demolition
- (3.0) Dwellings in commercial use (Optional - countries may wish to count them for housing and economic policy purposes).
 - (3.1.) Unconverted dwellings with domestic facilities such as bathrooms and kitchens which may be in temporary use as a commercial property; some countries may include these properties as part of the housing market
 - (3.2.) Converted dwellings now in commercial use (not shown in the figure in paragraph 536 above). These would often be excluded from enumeration processes as non-residential buildings

568. The classification is basic at the one and two digit level but optional at the 3-digit level. Categories (2.2.1) and (2.2.2) may be subdivided to show the length of time the dwelling has remained unoccupied - as an indication of the situation in the housing market in the area concerned. Category (3.0) is optional and therefore not core but it should be stated whether it is included – Some countries may wish to count them for housing and economic policy purposes.

569. Dwellings that are used during the working week only by persons who are resident in another dwelling at their family place should be considered as part of “dwellings with no usual residents at time of census” because the persons using the dwelling are not usual residents of the dwelling.

Type of ownership of conventional main dwellings (core topic)

570. This topic refers to the type of ownership of the main residences and not that of the land on which the main residence stands. Thus, in the case of an owner-occupied dwelling, the type of ownership will be the same as the tenure status

571. The following classification of dwellings by type of ownership is recommended:

- (1.0) Owner-occupied dwellings
- (2.0) In co-operative ownership
- (3.0) Rented dwellings
 - (3.1.) In private ownership
 - (3.2.) Owned by the local or central government and/or by non-profit organisations
 - (3.3.) Mixed ownership
- (4.0) Other types of ownership

572. This classification is basic for main residences in conventional dwellings (i.e. paragraph 504) at the one-digit level but optional at the two-digit level.

573. If subdivisions of category (1.0) or (2.0) are distinguished for national purposes, the types of ownership included in each of the subdivisions should be clearly described in the census reports.

Number of rooms (core topic)

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

575. Rooms used only for business and professional purposes should preferably be counted separately as it is desirable to include them when calculating the number of rooms in a dwelling but to exclude them when calculating, for instance, the number of persons per room. Each country should indicate in its census report how such rooms have been treated.

576. Where a classification by number of rooms is used, the residual group should at least be limited to one which contains less than 10 per cent of the cases and, at most the category 10 or

more rooms. Countries should report the total number of rooms and the average number of rooms per dwelling. Classification by number of rooms is considered to be basic for conventional main dwellings so that the density standard can be calculated, but optional for other dwellings and housing units.

Overcrowding (derived core topic)

577. Overcrowding indicators can be calculated using the classification of conventional main dwellings according to the number of persons (i.e. dwellings with one person, two persons, etc; and the count of number of rooms). Also information concerning the number of bedrooms or the useful floor space can be used to produce overcrowding indicators.

Occupancy by one or more households (non-core topic)

578. This topic is a core topic for countries which define dwellings on a structural basis and which use the housekeeping unit concept of the private household. It is a non-core topic for all other countries.

579. The following classification of other living quarters and conventional main dwellings by single or shared occupancy is recommended

1. Dwellings occupied by a single household
2. Dwellings occupied by two households
3. Dwellings occupied by three or more households

Housing Market status (non-core topic)

580. There is some interest in comparative assessments of housing markets. The housing market for comparative purposes includes all conventional dwellings. Countries should make it clear whether it includes former dwellings wholly in commercial use or not at the time of the Census.

Type of rooms (for overcrowding) (non-core topic)

581. Some countries would like to provide more specific information on overcrowding within the dwelling and use of rooms within dwellings, so a recommended classification is provided.

582. Rooms used only for business and professional purposes should preferably be counted separately as it is desirable to include them when calculating the number of rooms in a dwelling but to exclude them when calculating, for instance, the number of persons per room. Each country should indicate in its census report how such rooms have been treated.

583. Some countries consider that the number of bedrooms provides a more accurate indicator of overcrowding, especially where overcrowding is defined by number of bedrooms and age, sex and relationships within the household. Rooms, which are used as household living space, should not be included as a bedroom.

584. The count of the following categories for dwellings is suggested
1. Reception and Living rooms
 2. Bedrooms

Useful floor space of conventional main dwellings (non-core topic)

585. It is suggested that countries, which can collect information on the useful floor space of conventional main dwellings, should do so. The definition of this topic used for census purposes should preferably be the same as that recommended in the Programme of Current Housing and Building Statistics for Countries in the UN/ECE Region (Statistical Standards and Studies No. 43). Useful floor space is defined in that document as the floor space measured inside the outer walls excluding non-habitable cellars and attics and, in multi-dwelling houses, all common spaces. In the document mentioned above, another concept of living floor space is also used, which is defined as the total floor space of rooms falling under the concept of "room" as defined in paragraph 574 above. If this concept is used, it should clearly be mentioned and defined to avoid confusion in international comparisons.

586. The following classification of conventional main dwellings by area of floor space is suggested:

1. Under 30 square metres
2. 30 and less than 40 square metres
3. 40 and less than 50 square metres
4. 50 and less than 60 square metres
5. 60 and less than 80 square metres
6. 80 and less than 100 square metres
7. 100 and less than 120 square metres
8. 120 square metres and over

587. Countries should also report the total useful floor space of all conventional main dwellings and the average useful floor space for those dwelling.

Infrastructure characteristics of housing units

588. Information on the characteristics of all housing units should be collected where possible. However, some countries may find it difficult in a census to collect internal characteristics of all conventional dwellings. For the purpose of international comparability, it is recommended that information on core topics is collected and presented separately for conventional main dwellings. Countries are encouraged to also collect information on 'other housing units' and on conventional seasonal, secondary and other vacant dwellings, where possible.

Kitchen (core topic)

589. It is recommended that where dwellings are classified by number of rooms they should also be classified by availability of a kitchen. A kitchen is defined as a room (or part of a room) of at least 4 square metres or two metres wide that has been designed and equipped for the preparation of the principal meals and is used for that purpose, irrespective of whether it is also used for eating, sleeping or living.

590. The definition of a kitchen adopted for the census should be given in detail in the census report, and attention should be drawn to any deviations from the general definition given above. In particular, countries should indicate how they have classified dwellings in which meals are prepared in a room that is also used for other activities.

591. The following classification of dwellings by availability of a kitchen is recommended:

1. With a kitchen or a kitchenette (that is a separate space with less than 4 square metres or two metres width of floor space)
2. Without a kitchen or kitchenette

592. This classification is considered to be a core topic for conventional Main Residence dwellings but optional for other living quarters and secondary, seasonal or other vacant dwellings.

Water supply system (core topic)

593. All countries should report separately on water supply systems for conventional main dwellings and where appropriate for all living quarters, though in some countries it may be derived from other topics (e.g. from the availability of toilet facilities or of bathing facilities).

594. The following classification of living quarters by type of water supply system is recommended:

- (1.0) Piped water in the living quarters
 - (1.1.) From a community scheme
 - (1.2.) From a private source
- (2.0) Piped water outside the conventional main dwellings/living quarters
 - (2.1.) Piped water available within the building but outside the housing unit
 - (2.1.1.) From a community scheme
 - (2.1.2.) From a private source
 - (2.2.) Piped water available outside the building
 - (2.2.1.) From a community scheme
 - (2.2.2.) From a private source
- (3.0) No piped water available

595. This classification is basic at the one-digit level but optional at the two- and three-digit levels.

596. A community scheme is one, which is subject to inspection and control by public authorities. A public body generally operates such schemes but in some cases they are operated by a co-operative or a private enterprise.

Toilet facilities (core topic)

597. All countries should report separately on toilet facilities for conventional main dwellings but information should also be collected for all other living quarters.

598. The following classification of conventional main dwellings/living quarters by type of toilet facilities is recommended:

- (1.0) Flush toilet in the housing unit
- (2.0) Toilet of other type in the housing unit
- (3.0) No flush toilet nor other type of toilet in the housing unit
 - (3.1.) Flush toilet available within the building but outside the housing unit
 - (3.1.1.) Private (i.e. for the exclusive use of the occupants of the housing unit)
 - (3.1.2.) Shared (i.e. shared with occupants of another housing unit)
 - (3.2.) Flush toilet available outside the building
 - (3.2.1.) Private
 - (3.2.2.) Shared
 - (3.3.) Toilet of other type within the building but outside the housing unit
 - (3.3.1.) Private
 - (3.3.2.) Shared
 - (3.4.) Toilet of other type outside the building
 - (3.4.1.) Private
 - (3.4.2.) Shared

599. This classification is basic at the one-digit level but optional at the two- and three-digit levels.

Bathing facilities (core topic)

600. All countries should report separately on bathing facilities for conventional main dwellings but information on the availability of bathing facilities in other living quarters should also be reported.

601. It is recommended that the following classification of conventional main dwellings/living quarters by the availability of bathing facilities be used:

- (1.0) Fixed bath or shower in the housing unit
- (2.0) No fixed bath or shower in the housing unit
 - (2.1.) Fixed bath or shower available within the building but outside the housing unit
 - (2.1.1.) Private
 - (2.1.2.) Shared
 - (2.2.) Fixed bath or shower available outside the building
 - (2.2.1.) Private
 - (2.2.2.) Shared
 - (2.3.) No fixed bath or shower available

602. This classification is basic at the one-digit level but optional at the two- and three-digit levels. A fixed bath or shower is one, which has fixed connections to both a water supply and a waste pipe leading outside the building.

Type of heating (core topic)

603. All countries should report separately the type of heating in conventional main dwellings.

604. The following classification of conventional main dwellings/housing unit by type of heating is recommended:

- (1.0) Central heating
 - (1.1.) Central heating from an installation in the building or in the housing unit
 - (1.2.) Central heating from a community heating centre
- (2.0) No central heating but heating facilities or equipment available in the conventional main dwelling/housing unit
 - (2.1.) Stove
 - (2.2.) Fireplace
 - (2.3.) Other
- (3.0) No heating at all

605. This classification is basic at the one-digit level but optional at the two-digit level.

606. A housing unit is considered as centrally heated if heating is provided either from a community heating centre or from an installation built in the building or in the housing unit, established for heating purposes, without regard to the source of energy. Some countries may wish to include additional sub-categories in this classification so as to obtain information, which can be used for energy planning (see also non-core topic Main type of energy used for heating).

Cooking facilities (non-core topic)

607. Core topic Kitchen is limited to the availability of a kitchen or a kitchenette to the dwelling. In the case of dwellings which have a kitchen or kitchenette, it might be useful to know what kind of equipment is used for cooking (e.g. stove, hot plate, fireplace, etc.), what other kinds of equipment are available (e.g. sink etc.) and whether electricity, gas, oil, coal, wood or some other fuel is used for cooking. Some of these items of data would relate to the dwellings and others to the household.

Hot water (non-core topic)

608. Information should be given separately on the availability of hot water to conventional main dwellings and, depending on the availability of information, to living quarters. The concept of "hot water" would have to be defined by each country.

609. A classification similar to that given for the availability of bathing facilities would be appropriate.

- (1.0) Hot water tap in the housing unit
- (2.0) No hot water tap in the housing unit
 - (2.1.) Hot water tap available within the building but outside the housing unit
 - (2.2.) Hot water tap available outside the building.
 - (2.3.) No hot water tap available

Type of sewage disposal system (non-core topic)

610. It is preferable that all countries collect information on the type of sewage disposal system in conventional main dwellings and report it separately. It is suggested that countries which use the building as a unit of enumeration or of data collection should collect information on the type of sewage disposal system to which the building containing the living quarters is connected, and to cross-classify living quarters by type of toilet facilities at the one-digit level and type of sewage disposal system.

611. The following classification of conventional main dwellings/living quarters by type of sewage disposal system is suggested:

1. Wastewater empties into a piped system connected to a public sewage disposal plant.
2. Wastewater empties into a piped system connected to a private sewage disposal plant (e.g. a septic tank built for a single housing unit or a small group of dwellings).
3. All other arrangements (e.g. waste water empties into an open ditch, a pit, a cesspool, a river, the sea, etc.)
4. No sewage disposal system

Presence of air-conditioning (non-core topic)

612. Some countries may wish to record air conditioning as a housing quality measure, but use and importance of this as a housing measure will vary from North to South across Europe. Therefore it is a non-core topic. If this information is collected it should be reported separately for conventional main dwellings.

613. The following classification of air-conditioning is suggested:

- (1.0) Air conditioning available in the housing unit
 - (1.1.) Central air conditioning from an installation in the building or in the housing unit
 - (1.2.) Independent air conditioning unit(s) available in the housing unit
- (2.0) No air conditioning available in the housing unit

Main type of energy used for heating (non-core topic)

614. Core topic Type of heating is limited to the types of heating facilities that are available in living quarters. Some countries may also wish to collect information on the main type of energy used for heating purposes. If this information is available it should be reported separately for conventional main dwellings.

615. The following classification of conventional main dwellings/living quarters by main type of energy used for heating purposes is suggested:

- (1.0) Solid fuels
 - (1.1.) Coal, lignite and products of coal and lignite
 - (1.2.) Wood and other renewable wood-based products
 - (1.3.) Other
- (2.0) Oil
- (3.0) Gaseous fuels
 - (3.1.) Natural gas
 - (3.2.) Other (including liquefied gases)
- (4.0) Electricity
- (5.0) Other types of energy used
 - (5.1.) Solar energy
 - (5.2.) Wind energy
 - (5.3.) Geothermal energy
 - (5.4.) Other

616. Countries should indicate in the census reports how the main type of energy was selected in a housing unit where two types of energy were equally used for heating purposes.

Electricity (non-core topic)

617. Countries collecting this information should report it separately for conventional main dwellings

618. The following classification of conventional main dwellings/housing unit by the availability of electricity is suggested:

- (1.0) Electricity available in the housing unit
- (2.0) No electricity available in the housing unit

Piped gas (non-core topic)

619. Piped gas should be defined as natural or manufactured gas which is distributed by pipeline and the consumption of which is recorded by gas meters. Countries collecting this information should report it separately for conventional main dwellings.

620. A classification similar to that suggested for availability of electricity would be appropriate.

- (1.0) Piped gas available in the housing unit
- (2.0) No piped gas available in the housing unit

Position of dwelling in the building (non-core topic)

621. Some countries may want to collect information on the position of dwellings in the building. This information can be used as an indicator of accessibility to dwellings, possibly in conjunction with non-core topic Accessibility to dwelling. Countries collecting this information should report it separately for conventional main dwellings.

622. The following classification of dwellings by position in the building is suggested:

- (1.0) Dwelling at the ground floor of the building or lower (below ground level)
- (2.0) Dwelling at the 1st or 2nd floor of the building
- (3.0) Dwelling at the 3rd or 4th floor of the building
- (4.0) Dwelling at the 5th floor of the building or higher

623. For dwellings on two or more floors, information should be provided with reference to the lowest floor level of the dwelling.

Accessibility to dwelling (non-core topic)

624. Some countries may want to collect information on the accessibility to dwellings, in particular with reference to accessibility by persons with disabilities. Countries collecting this information should report it separately for conventional main dwellings.

625. The following classification of accessibility to the front door of the dwelling is suggested, based on the presence of ramps, steps, and lifts:

- (1.0) Access with no steps or ramp
- (2.0) Access by ramp
- (3.0) Access by disabled stair lift
- (4.0) Access using lift only (though the building may have staircases as well)
- (5.0) Access by using only steps
- (6.0) Access only by using both lift and steps

Lift (non-core topic)

626. It is suggested that information on the presence of a working lift in multi-storey buildings is collected. Countries collecting this information should report it separately for conventional main dwellings. The information should not be limited to the presence of a lift, but it should be indicated if the lift is operational for most of the time and is subject to regular maintenance. It could also be useful to collect information on the size of the lift (for the handicapped persons and ambulance transport), and if the lift goes to the ground floor.

627. Some countries may want to collect information on the availability of a working lift with reference to the single dwellings in a building. In this case, information should be collected on whether or not the lift stops on the same floor as the dwelling.

Characteristics of buildings containing dwellings

Building

628. The building is an indirect but important unit of enumeration since information on type and on period of construction of buildings is required to describe the dwellings within the building and for formulating housing programmes.

629. These recommendations are primarily about buildings, which contain or are co-extensive with dwellings or other collective living quarters. A building is defined in this context as any independent structure containing one or more dwellings, rooms or other spaces, covered by a roof and enclosed within external walls or dividing walls which extend from the foundations to the roof, whether designed for residential or for agricultural,

commercial, industrial or cultural purposes or for the provision of services. Thus a building may be a detached dwelling, apartment building, factory, shop, warehouse, garage, barn, etc.

Type of building (core topic)

630. Buildings containing dwellings may be classified by type of building. Countries collecting this information should report it separately for conventional main dwellings. At the highest-level buildings are classified into residential buildings, residential buildings for collective living quarters and non-residential buildings.

631. The following classification is suggested

- (1.0) Residential buildings
 - (1.1.) Detached houses (One dwelling unit not attached to any other building)
 - (1.2.) Semi-detached houses (a residential building with two attached dwellings only)
 - (1.3.) Apartment buildings, tenements or blocks of flats
 - (1.4.) Row (or terraced) houses (with at least 3 attached dwellings each with separate access to the outside) - and including the end-of-row dwelling
 - (1.5.) Other residential buildings
 - (1.5.1.) Originally a non-residential property; or
 - (1.5.2.) Originally a residential property with fewer (but always had at least 1 or more) dwelling units but now with more than 2 dwellings
- (2.0) Residential building for collective living quarters
 - (2.1.) Purpose built collective living quarters
 - (2.2.) Converted building for collective living quarters
- (3.0) Non-residential buildings
 - (3.1.) Hotel or similar building
 - (3.2.) Office building
 - (3.3.) Building for wholesale or retail trade
 - (3.4.) Building used by transport/communication sector
 - (3.5.) Workshop, industrial building or warehouse
 - (3.6.) Building for culture. /recreation. /education. /health care system
 - (3.7.) Other non-residential building

632. The classification is basic at the one and two digit level but optional at the 3-digit level. At the 3-digit level, optionally, countries could adapt this classification to reflect their building and dwelling traditions. An example may be to define whether the housing units in a semi-detached house are arranged side-by-side or one upon another.

Period of construction (core topic)

633. Period of construction is measured in terms of the date when the building was completed. Countries should report separately the information for conventional main dwellings.

634. The following classification of dwellings by the period in which the construction of the building containing them was completed is recommended:

- (1.0) Before 1919
- (2.0) 1919 – 1945
- (3.0) 1946 – 1960

- (4.0) 1961 – 1970
- (5.0) 1971 – 1980
- (6.0) 1981 – 1990
- (7.0) 1991 – 2000
- (8.0) 2001 – 2005
- (9.0) 2006 or later
 - (9.1.) 2006
 - (9.2.) 2007
 - (9.3.) 2008
 - (9.4.) 2009
 - (9.5.) 2010
 - (9.6.) 2011

635. This classification is basic at the one-digit level, and optional at the two-digit level.

636. Consideration could be given to collecting information on this through an open-ended question. If no exact reply is obtained, the household should be asked to indicate the approximate years (or year) in brackets following a classification, which could be aggregated, into the above specified classification.

637. Dwellings in buildings, which have undergone thorough reconstruction since they were originally built, may be classified to the period in which the building was originally constructed or to the period of latest reconstruction according to national requirements. Each country should indicate in its census report how such dwellings have been classified.

Number of floors in the building (non-core topic)

638. The number of floors counts from the ground floor up wards. Countries should report separately the number of floor levels for conventional main dwellings.

639. The following classification from ground floor upward in a dwelling is suggested:

- (1.0) 1 floor
- (2.0) 2 floors
- (3.0) 3 floors
- (4.0) 4 floors
- (5.0) 5 - 9 floors
- (6.0) 10 -19 floors
- (7.0) 20 floors or more

Number of dwellings in the building (non-core topic)

640. Countries should report separately on the number of dwellings in a building for conventional main dwellings.

641. The following classification of is suggested:

- (1.0) 1 dwelling
- (2.0) 2 dwellings
- (3.0) 3 dwellings
- (4.0) 4 dwellings
- (5.0) 5 - 9 dwellings
- (6.0) 10 - 19 dwellings
- (7.0) 20 dwellings or more

Materials of which specific parts of the building containing the dwelling are constructed (non-core)

642. Information on the materials of which specific parts of buildings containing dwellings are constructed may be used, in conjunction with data on other topics, for assessing the quality of dwellings. Some countries may wish to collect data on the materials of which the outer walls, the roof, the floors, etc. are constructed for this and other purposes. Countries should report separately the information for conventional main dwellings.

643. The following classification of dwellings by the main structural material of which the outer walls of the building containing them are constructed is suggested.

- (1.0) Wood
- (2.0) Unburnt clay (may be omitted by countries where this is not important)
- (3.0) Burnt clay (bricks, blocks, panels, etc.); stone; concrete (in situ cast concrete, blocks, panels, etc.); or steel frame
- (4.0) Prefabricated units - generally factory constructed and brought to the site and erected
- (5.0) Other material (to be specified)
- (6.0) Mixed materials (i.e. a combination of building materials)

644. When this classification is combined with that by period of construction, a classification providing useful data on the quality of dwellings is obtained. Some countries may wish to have only persons in owner-occupied dwellings respond to questions on this topic, particularly since many tenants and other respondents may not be able to respond accurately.

State of repair (non-core topic)

645. This topic refers to whether the building is in need for repair and the kind of repair needed. The unit of enumeration is a building, though it may be useful to restrict the enumeration to residential buildings only. Countries should report separately the information for conventional main dwellings.

646. The suggested classification of buildings according to the state of repair is as follows:

- (1.0) Repair not needed
- (2.0) In need of repair
 - (2.1) Minor repair
 - (2.2) Moderate repair
 - (2.3) Serious repair
- (3.0) Irreparable

647. Minor repair refers mostly to the regular maintenance of the building and its components, such as a cracked window or inoperative lock, or removing graffiti from the front wall and so forth.

648. Moderate repair refers to correcting moderate defects such as gutters missing on the roof (where they are normally used), large areas of broken plaster and stairways with no secure hand railing.

649. Serious repairs are needed in case of serious structural defects of the building such as missing covering material (e.g. shingles, tiles) cracks and holes in the exterior walls and missing stairways.

650. 'Irreparable' refers to buildings that are beyond repair that is, with so many serious structural defects, it is deemed more appropriate to tear them down than to undertake repairs. This usually refers to buildings with only the frame left standing, without complete external walls and/or roof, windows, doors etc.

PART D - APPENDICES

Appendix I: List of Proposed Core and Non-core Topics for the 2010 Round of Population and Housing Censuses, CES Countries

Appendix I: List of Proposed Core and Non-core Topics for the 2010 Round of Population and Housing Censuses , CES Countries

Geographic characteristics

<u>CORE TOPICS</u>	<u>NON-CORE TOPICS</u>
Place of usual residence	<i>Urban and rural areas (derived)</i>
<i>Total population (derived)</i>	Location of school, college or university
<i>Locality (derived)</i>	Mode of transport to work
Location of place of work	Mode of transport to school, college or university
	Distance travelled to work and time taken
	Distance travelled to school, college or university and time taken

Demographic characteristics

Sex	De facto marital status
Age	Total number of children born alive
Legal marital status	Date(s) of legal marriage(s) of ever married women: (i) first marriage and (ii) current marriage
	Date(s) of the beginning of the consensual union(s) of women having ever been in consensual union: (i) first consensual union and (ii) current consensual union

Economic characteristics

Current activity status	Providers of unpaid services
Time usually worked	Usual activity status
Occupation	Time related underemployment
Industry (branch of economic activity)	Duration of unemployment
Status in employment	Type of sector (institutional unit)
Type of place of work	Informal employment
	Number of persons working in the local unit of the establishment
	Main source of livelihood
	Income
	<i>Socio economic groups (derived)</i>

Educational characteristics

Educational attainment	Educational qualifications
	Field of study
	School attendance
	Literacy
	Computer literacy

International and internal migration

Country/place of birth	Country of birth of parents
Country of citizenship	Citizenship acquisition
Place of usual residence on year prior to the census	Place of usual residence five years prior to the census
	Year of arrival in the current usual place of residence
	Previous place of usual residence
	Ever resided abroad and year of arrival
	Country of usual previous residence abroad
	Reason for migration
	<i>Persons with foreign/national background (derived)</i>
	<i>Population groups relevant to international migration (derived)</i>
	<i>Population with refugee background (derived)</i>
	<i>Internally Displaced Persons (IDPs) (derived)</i>

Ethno-cultural characteristics

	Ethnicity
	Language
	Religion

Disability

	Disability status
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Household and family characteristics***Household and family characteristics of persons:***

Relationships between household members	<i>Extended family status (derived)</i>
<i>Household status (derived)</i>	
<i>Family status (derived)</i>	

Characteristics of family nuclei:

<i>Type of family nucleus (derived)</i>	<i>Identifying reconstituted families (derived)</i>
<i>Size of family nucleus (derived)</i>	<i>Same-sex partnerships (derived)</i>
	<i>Type of extended family (derived)</i>

Characteristics of private households:

<i>Type of private household (derived)</i>	<i>Generational composition of private households (derived)</i>
<i>Size of private household (derived)</i>	Single or shared occupancy
Tenure status of household	Rent
	Durable consumer goods possessed by the household
	Number of cars available for the use of the household
	Availability of car parking
	Telephone and internet connection

Agriculture

	Own-account agricultural production (household level)
	Characteristics of all agricultural jobs during the last year (individual level)

Living quarters, dwellings and housing arrangements***Characteristics of housing units (including infrastructure characteristics):***

Type of living quarters	Occupancy by one or more households
Location of living quarters	Household market status
Housing arrangements (individual or household level)	Type of rooms (for overcrowding)
Number of occupants in conventional dwellings	Useful floor space of conventional main dwellings
	Cooking facilities
Occupancy status of conventional main dwellings	Hot water
Type of ownership of conventional main dwellings	Type of sewage disposal system
Number of rooms	Presence of air-conditioning
<i>Overcrowding (derived)</i>	Main type of energy used for heating

Kitchen	Electricity
Water supply system	Piped gas
Toilet facilities	Position of dwelling in the building
Bathing facilities	Accessibility to dwelling
Type of heating	Lift
Cooking facilities	

Characteristics of buildings containing dwellings:

	Number of floors in the building
Type of building	Number of dwellings in the building
Period of construction	Materials of which specified parts of the building containing the dwelling are constructed
	State of repair

Appendix II: Alternative Approaches to Census-taking

Traditional census

Description

651. The traditional census is the total process of collecting, compiling, evaluating, analyzing and disseminating demographic, economic and social data pertaining, at a specific time, to all persons in a country or in a well-delimited part of a country. It is taken in a given limited period immediately after a given reference date (census day). Data are recorded on census questionnaires.⁵¹ There are two major methods of enumeration: canvasser (or enumerator) method and householder method (self-enumeration of the population).

652. In the canvasser (or enumerator) method information for each individual (in a population census) and for each set of living quarters and the occupants thereof (in a housing census) is collected and entered in the questionnaire by a census official designated to perform this operation in a specified area during a specified and usually short period of time to meet the requirements of universality and simultaneity.

653. In the householder method, the major responsibility for entering the information is given to a person in the unit being enumerated (usually the head of the household/ or reference adult person), although the questionnaire is usually distributed, collected and checked by a census official.

654. In some countries, postal distribution of the questionnaire, with or without postal return, is used in conjunction with the householder method. This mail-out and mail-back procedure can be used exclusively or combined with on-site checking by a census official.

655. Both short and long forms may be used within the context of traditional censuses. The short form contains only questions intended for universal coverage, while the long form is used to collect information only from a sample of households and population. This form usually contains detailed questions on a particular topic in addition to covering complex topics such as fertility. Both are utilized during the same time frame of the census, with no content data collected outside of that time frame.

Necessary Conditions

656. This approach to census-taking is the one utilized by most countries. It has a long-standing tradition of use, and is fully described in the United Nations' *Principles and Recommendations for Population and Housing Censuses*.

Advantages and disadvantages

657. The main advantages of this approach are in providing a snap shot of the entire population at a specified period and the availability of data for relatively small administrative domains.

⁵¹ There are some attempts of use of handheld computers for data collection: in Test census taken in Republic of Macedonia in October 1999 and in 2003 Oman Census in Muscat Governorate, (the largest region in the Sultanate). The results are very good, the necessary operation (such as auditing, coding, and data entry) when paper questionnaire are used were eliminated. Still the use of these devices depends on financial situation, engagement of enumerators with commuter skills and obtaining equipment for data transfer in census district centers.

658. Traditional censuses have been singled out as the most elaborate, complex and costly data collection activity that national/census offices undertake. In addition to costs, this complex task requires full awareness and agreement of the public to participate in it. Because of their complexity and expense, such censuses are usually mounted only once every five or ten years, so that census data is often several years out of date.

659. Each enumeration approach (canvasser or self-enumeration) also has its own advantages and limitations. The canvasser method is the only method that can be used in largely illiterate populations or in other population groups that may be unwilling to complete the census forms themselves, or find it difficult to do so, but requires a huge number of staff for field enumeration.

Implications for the various phases of census-taking

660. In countries where literacy is virtually universal and educational attainment relatively high, the householder method may often yield more reliable results at substantially lower costs, particularly if a mail-out/mail-back procedure can be used. However, the postal services may be used to distribute the census forms only when a comprehensive and up-to-date list of addresses is available or can be prepared.

661. It may sometimes be desirable to rely on one method for enumerating most of the population and to use another method in certain areas or for special groups⁵² of the population. However, overly complex designs should be avoided.

662. The decision regarding the method of enumeration to be employed should be taken at an early stage on the basis of thorough testing of the various alternatives in terms of their costs, the quality of the data produced and their operational feasibility. Even where a method has been followed traditionally, it is well to periodically reassess its relative advantages in light of current census needs and changing techniques. An early decision is required because the method of enumeration used affects the budget, the organizational structure, the publicity plan, the training programme, the design of the questionnaire and, to some extent, the kind of data that can be collected.

663. Timing and length of the enumeration period is of great importance. The main consideration should be to select a period in which the census is likely to be most successful and to yield the most useful data. This may depend on a number of factors. First, it is necessary to avoid those seasons in which it will be difficult to reach all inhabited areas because of rains, flooding, snow and so forth or in which the work will be particularly arduous, as is the case during extremely hot weather. Second, a time should be chosen when most people are staying at their usual place of residence; such a choice will simplify the census operations both in a de jure and in a de facto enumeration, and it can make the results of a de facto enumeration more meaningful. Season of peak agricultural activity should be avoided because it is difficult to interview persons who work late every day and who may even stay on nights on their land if the land is far from home. Great traditional festivals, pilgrimages and fasting periods are also unsuitable times for census work.

664. It is very important that the timing of the census not overlap with some political events as state or local election campaigns, because the population may mix the two events and not be willing to receive the enumerator at home. Also is very important that the census should be

⁵² See more in World Recommendations: *Principles and Recommendations for Population and Housing Censuses*, Statistical Papers, Series M, No. 67/ Rev.1, United Nations, part II . Planning, organization and administration of population and housing censuses

taken in stable political and security situation in the country. In the case of instability, fights or war, the security of enumerators can't be ensured and also the population will be reluctant.

665. When a census has been taken and the census date is found to have been on the whole satisfactory, the next census should be taken at the same time of the year, unless there are strong reasons for changing this date. A regular census date enhances the comparability of the data and facilitates analysis and also provides administrative discipline, motivating all those involved in the census to make necessary preparations in a timely manner.

666. It is desirable to keep the enumeration period short in order to avoid double counting and omissions, which can occur in spite of a single reference date. On the other hand, the shorter the enumeration period, the greater the number of field staff that have to be recruited, trained and supervised. This increases the cost and may lower the quality of the data. How these different considerations should be reconciled depends on the size and nature of the country and on the resources at its disposal.

667. In recent censuses, most developing countries have allowed about one to 10 days for the training of enumerators, while the enumeration period has generally varied from a few days to two weeks. Short periods are often feasible in small countries while longer periods may be necessary in large countries with poor communications.

Implications for content

668. The traditional approach to census-taking does not create content limitations similar to those that might be found with a register-based approach. However, content in this approach must result from a careful balance between statistical need and the desire to limit respondent burden.

Register-based census

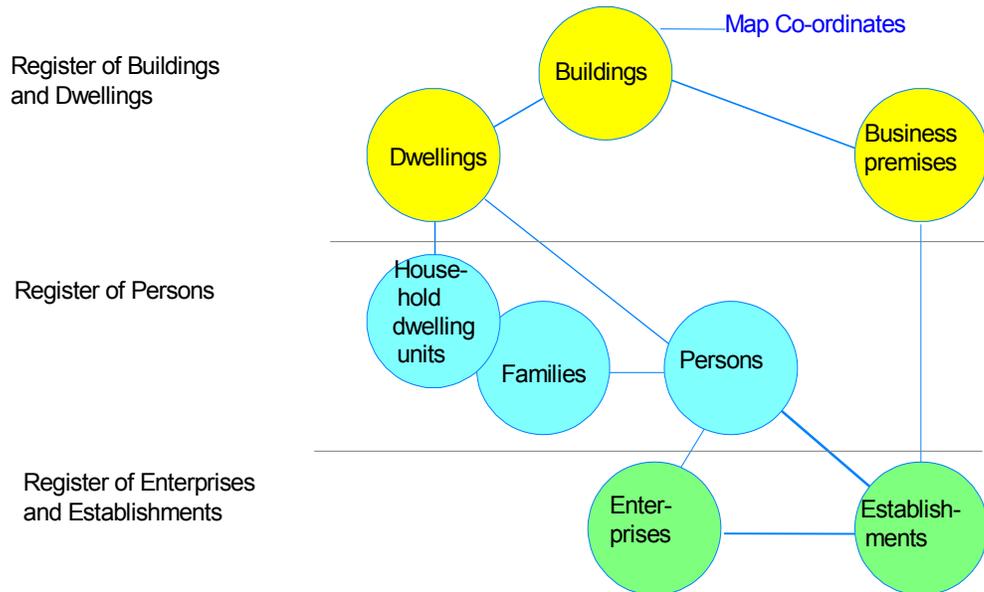
Description

669. The development of a register-based population census system is usually a long process, which might take several years. Many countries can use some register data when they compile their census data, but they still use the traditional data collection process as well. The first data items taken from registers can be addresses, demographic data items and income data. Usually the share of administrative data increases stepwise census by census. It is very important that countries have introduced a common identification number before they can combine data from different data sources.

670. Very few countries can find all the data items needed in a population and housing Census from different administrative data sources. A totally register-based census means several registers and very good linking opportunities between these, before all census data can be collected without questionnaires or interviews. For example, Finland used about 30 administrative registers to compile census data without not a single questionnaire was sent out in the post. These registers cover either the whole population or certain sub-populations.

671. The register-based population census system is built around a set of basic registers that contain comprehensive data on the units that are to be described in the population and housing census. These registers include the data maintained in the Population Register and the Register of Buildings and Dwellings, as well as the data from the Business Register. These registers cover all people resident in the country, the buildings and dwellings in the country and all the business companies (included all the institutions on public sector) and their establishments. All statistical units can be linked to one another by means of the identification systems: persons can be linked to household-dwelling units and to the dwellings and buildings

in which they live. On the other side employed persons have been linked to their employers. Similarly, all units can be located on the maps by using local area codes or map co-ordinates.



672. Population registers usually include only demographic data. To define the main type of activity for all persons, a real set of other registers is needed: working population, unemployed, pensioners, students, military service men and home workers. After that the work places and industries must be defined for all the employed population. This means the a link between employed persons and their employers, further this means a link to the enterprises and establishments of the business register.

673. For census purposes there must be much more data available, for example, occupations, educational, income and family information for the whole population. The most important among these sources are taxation register data (for example, data on income, type of income, data on employer); register data from employment pension systems (for example, data describing employment and employers); data from the Register of Job Applicants (for example, data on unemployment); data from student registers; and register data from Social Insurance.

674. It is also important to have dwelling data, which means that there is at least a dwelling register and probably a building register as well. All the persons should have a link to the dwelling (and building) where they live.

675. The registers may include overlapping data, but also contradictory data. Most importantly, the registers complement one another. The required information on an employment relationship could be obtained through the earnings-related pension system or through the Taxation Register.

676. Population census data are produced using the method of register estimation, in which several register sources are used simultaneously to define for each statistical unit the value of the relevant variable. The decision rules are defined in such a way that the data they produce come as close as possible to the data collected by means of questionnaires. Data from earlier population censuses and register data from the same point of time are also consulted in constructing these rules. These include rules on prioritisation between different sources in the event of contradictory data.

Necessary conditions

677. In the light of the Nordic experiences there are certain key preconditions that facilitate the extensive use of register sources in statistics production. These have included the following:

Legal basis

678. Legislation provides a key foundation for the use of administrative data sources for statistical purposes. National legislation must allow the use of existing administrative data sources for statistical purposes rather than the re-collecting of data whenever it is possible. The Act should also give powers to Statistical Offices to access administrative data on unit level with identification data and to link them for statistical purposes. Furthermore, the Statistics Act should provide a detailed definition of data protection.

Public approval

679. It is also extremely important that the general public appreciates and understands the benefits of using register sources for statistical purposes and that there is broad public approval of the use of these administrative data for purposes of statistics production. Open discussion and debate, explaining the rationale and benefits of register use has always been considered a key principle. It is also important that the national register legislation is up-to-date and the activity of register authorities is open and transparent.

Unified identification code systems

680. One major factor that facilitates the statistical use of administrative data records is the application of unified identification systems across different sources. The data linking happens must occur at the individual level. In the absence of such unified systems it is extremely difficult and laborious, if not impossible, to link different registers, which is absolutely central to register-based statistics production. A bare minimum requirement is to have a unified identification system for key basic registers. The unified identification systems must be in use for business enterprises and buildings and dwellings as well.

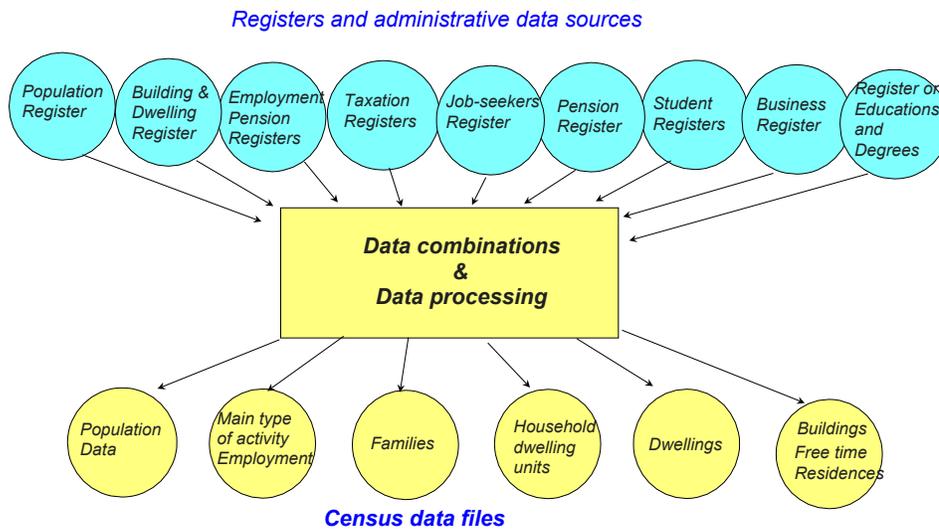
Comprehensive and reliable register systems developed for administrative needs

681. The compilation of administrative data registers has usually arisen from the needs of the functioning of society and development of administration. It has also been closely tied-in with the development of social security and tax systems. Both of these are state-level systems and therefore it has also been necessary to have state-level registers. In recent years the payment of basic benefits has also been increasingly concentrated to the same authorities.

Co-operation among administrative authorities

682. A concerted effort towards register-based statistics production also requires a firm and explicit commitment from the highest possible level as well as close collaboration among the relevant authorities.

Data sources of Population and Housing Census



Advantages and disadvantages

683. Lowered costs are without question the biggest advantage of using administrative register sources. With the introduction of the register system, census statistics (employment, buildings and dwellings and housing conditions) can be compiled on an annual basis. A further key advantage of administrative sources is that the need for processing is confined to those data items that have changed. It is cheaper to collect information just once and to process that information only if and when it changes, for instance changes of address. Nationality, religion and marital status, completed education and degrees change quite seldom. In most dwellings the floor area and number of rooms never changes.

684. Register systems also guarantee unified data processing. A student who works a few hours every now and then may indicate in a questionnaire that he or she is a student, yet the definition of labour force is quite unequivocal: according to ILO definition anyone who works at least one hour a week shall be classified as being employed.

685. A register system also allows for the identification of overlapping activities. Thus it is possible to compile statistics on concurrent employment relationships, employment of students, etc.

686. The use of complete registers alleviates the census non-response problem.

687. Register statistics are obtained from all geographical areas, since registers cover the target population in its entirety, and because detailed geographical information can be obtained for all geographic units, municipalities, freely defined sub-areas and map grids of different sizes.

688. Register-based statistics are available every year. Growing information needs creates new pressures to step up the production of regional statistics. The regional data produced in connection with a ten-year population census may not be enough to satisfy those needs. Again, this is a major asset of using register sources, allowing for more frequent statistics production. The dawn of register-based production also meant that many key statistics (including population and population trend statistics, family statistics, industry and

employment statistics, building and housing statistics, statistics on educational structure) became available on an annual basis.

689. The volume of statistics produced over a ten-year period has increased ten times over, while costs are down to a small fraction of the costs of one single major questionnaire survey.

690. Register-based statistics production has also paved the way to a broader scope and coverage of data contents and to new methods of description, such as flow statistics at a high level of classification accuracy. Examples include placement statistics on recent graduates and labour force flow statistics.

691. The reduced response burden on the population is a significant advantage indeed. It takes some time to read the instructions, fill the forms and mail them back to statistical office. In the registers system this response burden is totally eliminated.

692. The introduction of register-based statistics also has a dramatic impact on the statistical agency's job description of the personnel. There is no longer any need to design and test questionnaires, to send them out for printing, to pre-fill the forms, to mail them and send out reminders, to code and record the data. The agency no longer needs to recruit large numbers of people to sift through the returned forms. Furthermore, there is improved data protection as none of the answers of the population census ever have to be written down in plain language on paper at local level. All the unit data are processed by computers. The number of people handling the data is also essentially reduced. All this improves the data confidentiality of the target population.

693. The use of administrative data sources also involves certain drawbacks that need to be taken into account. One such drawback is the fact that register-based descriptions have to rely exclusively on the information contents that can be formed on the basis of the registers available. This imposes some restrictions with respect to the phenomena that are available for description and may also undermine international comparability.

694. The use of registers also adds to the statistical agency's dependence on register authorities as well as on any changes in legislation and administrative practices. It is therefore crucially important to have close collaboration with the relevant authorities so that information on any changes reaches the office as soon as possible.

Implications for the various phases of census-taking

695. There can be problems with reference periods and consistency. For reasons of statistical reliability it is important that change events are accurately recorded according to their true date. Information on dates of death and birth is usually accurate because it is recorded on the basis of certificates issued by the authorities: in most cases the reference time point is therefore right. Accurate information is also obtained on the dates of employment, unemployment and pension periods, whereas for periods of studying the dates are less accurate. In the event of a change of address the person who is moving may neglect to provide notification altogether, or be late in doing so.

696. The linking of a person's data on such variables as place of work, occupation, and income from different register sources may sometimes give rise to consistency problems, i.e. it is not always clear that the information on occupation and branch of industry, for instance, describe the same period of employment.

697. There might be some items in the register system where data linking has caused difficulty. The data on employment pension do not use the same business code as the taxation and business registers, and therefore extra work is needed to link individuals to the company

where they are employed. Likewise, the linking of enterprises to the building where they are based is not always straightforward since the company address data are not necessarily fully accurate, or they may differ from the information in the buildings register.

Implications for content

698. There are some data items that have had to be dropped from the register-based population census system because the relevant information is not available from any register: these include household-dwelling unit instead of household unit, mode of transport to work, part-time work and mobile work.

699. There is no longer any collection tool for ad hoc needs. In many countries the population census system is an important tool of data collection that is used to meet emerging information needs. This flexibility is lost when data are no longer collected by means of questionnaires.

Register-based census with sample survey

Description

700. Some countries are using registers and other administrative sources, together with information from sample surveys, to provide census statistics. This option is interesting for countries that do not have all census information available in registers. If this option is chosen by a country, some census tables can be produced by simply counting from register information, whereas for other census tables information from surveys has to be weighted to population totals.

Necessary conditions

701. A country can only choose the option of a register-based census with sample surveys if all census information is available in the different sources. Moreover, it should be possible to link the information from the different sources at the record level. Before one can start producing tables in a register-based census with sample surveys, micro-integration of the different sources is important. In the micro-integration process the data are checked and incorrect data are adapted. It is strongly believed that micro-integrated data will provide more reliable results, because they are based on a maximum amount of information. Also the coverage of subpopulations will be better, because when data are missing in one source, another source can be used. Another advantage of micro-integration is that there is no reason for confusion among users of statistical information anymore, because there will be one figure on each socio-economic phenomenon, instead of several figures depending on which sources have been used.

Advantages and disadvantages

702. The advantages of a register-based census with sample surveys are that it is much cheaper than a census with interviewing inhabitants (a virtual census costs only a small fraction of a traditional census) and that no extra burden is put on the population of a country. A traditional census can meet with many privacy objections against the collection of integral information about the population living in the country. This increases the non-response problem. There are almost no objections to a virtual census and the non-response problem only plays a role in the surveys of which the data are used. If non-response can be corrected in a survey, it will certainly be possible to correct for the selectivity of that survey in the census where it is used.

703. The disadvantage is that it involves more work to produce the tables from the microdata as weighting problems may arise. Moreover, it may be more difficult to get attention for the census results when people are no longer interviewed.

Implications for the various phases of census-taking

704. A virtual census is normally off to a later start than a traditional census. It does not make sense to really start the census project until all sources are available. Nevertheless, a virtual census is normally quicker ready as it has the advantage that the incoming census forms do not need to be checked and corrected. However, one must realise that for some variables only sample information is available, which implies that it is sometimes impossible to meet the level of detail required in some tables.

Implications for content

705. Some variables required have to be constructed from different sources and information in registers may be a bit different from the result that one would have got if the people in the country were interviewed. This may damage the comparability of the results among countries and over time. Registers have on the other hand the advantage that complete information is available. It is crucial that statistical bureaus make use of registers that are relevant for the census. This implies normally a renewal of the statistical law. Nevertheless, after a renewal of a statistical law the statistical bureau will have to establish good contacts with register holders. Timely deliveries with relevant variables for the statistical bureau are crucial for statistical production.

Rolling census

Description

706. Rolling census represents an alternative way to the traditional model of census by means of a cumulative continuous cumulative survey, covering the whole country over a period of time, rather than a particular day. There are two main parameters in a rolling census:

- The length of the period of time that is linked to the frequency of update required,
- The sample rate: it depends on the budget and the geographical levels required for dissemination (country, regions, towns, quarters...).

707. For example, it is possible to build a sample framework in order to produce national results with the annual survey, regional results by cumulating three annual surveys and small areas results by cumulating five years. Annual survey may be conducted over the year or in a special month.

Necessary conditions

708. Necessary conditions depend on the complexity of the sample framework. If the sampling units are addresses, a master address file is to build preliminary. But if the sampling unit is larger, for example municipality, it is only necessary to have enough information to spread the municipalities over the different years as each will be representative. However, it will be necessary to explain to the users of census data what will be the consequences and how they will use these data, because people is more used to snapshot data rather than period data.

Advantages and disadvantages

709. The main advantage is the higher frequency for updating data: a traditional census provides decennial update, whereas rolling census provides annual update. Another advantage is to smooth the burden of the census, instead of the huge burden of a general census. It is possible to improve the process year after year, and test new technologies. The disadvantage is that it no longer provides a snapshot of the whole population, complicating comparisons between areas due to different enumeration times.

Implications for the various phases of census-taking

710. It is better to begin a rolling census just after a general census, in order to take benefit of recent information to build the sample framework. As the operation is annual, the process must be well carefully prepared, because any delay can be problematic for the following stages.

Implications for content

711. A rolling census is able to include all usual census topics and there is the possibility of changing the questions regularly. This enable the census to be more reactive to changes in the needs, even if comparability over time must be preserved. According to the organisation of the census, it may be possible to add some thematic surveys.

Traditional enumeration with yearly updates of characteristics*Description*

712. This design is a variation on the traditional census design and focuses on counting the population and collecting only the basic demographic data in the census year. A large household survey collects and tabulates detailed demographic, social, economic, and housing data every year throughout the decade, replacing a census-year long form to collect this detailed data from a sample of the population.

713. The survey samples a percentage of addresses each year to approximate a long form sampling rate over a certain period of the census cycle, such as five years. To improve the reliability of the estimates for small governmental units, a larger proportion of addresses are sampled. In the United States, where this approach has been implemented, annual sampling rates at various geographic levels range from about 1.7 percent to about 10 percent. Over a five-year period, the sampling rates range from about 8.5 percent to about 50 percent.

714. The sample is cumulated over time to produce the lowest levels of geographic detail similar to the long form sample in the traditional census. Five years of data are required for areas with a population of less than 20,000. Three-year estimates are produced for areas with populations of 20,000 or greater. Single year estimates are produced for areas of 65,000 or greater.

715. Addresses are contacted by mail. Non-respondents are contacted by telephone and/or personal visit follow up.

716. The survey data must be weighted to produce reliable and useable estimates. Survey data are weighted to reflect the sample design, to adjust for the effects of nonresponse, and to correct for survey undercoverage or overcoverage. This final weighting adjustment helps to ensure that estimates of the characteristics are comparable to the standard, which is the

periodic census. Once the final weights are applied, the statistics are generated, including population estimates, proportions, means, medians, and ratios.

Necessary Conditions

717. Among a number of necessary conditions, this approach requires the agreement of census stakeholders and government policy makers to introduce such a major variation in design. Users of traditional census data products must be willing to transition from once-a-decade products to a new set of annually updated multi-year products. This approach requires substantial, annual funding, rather than funding clustered in a one- or two-year period once a decade.

718. Operationally, this approach requires an address frame for sample selection. It is critical that this frame be maintained throughout the decade. Keeping the frame up-to-date from year-to-year, especially in rural areas, is critical.

719. Conducting a traditional enumeration with yearly updates of characteristics requires an ongoing high level of professional staff throughout the decade to support the implementation of the survey. In addition, it requires staff to oversee a program of early and comprehensive planning, development and testing designed to continually seek efficiencies in the management and conduct of the short form only component of the census.

Advantages and Disadvantages

720. The primary impetus for this approach is twofold - to provide more frequent and relevant data on the population than is available when a census is conducted only once a decade and to reduce the operational risks associated with the census. Such a program is costly and technically difficult to mount, and requires a multi-year program of comprehensive planning, development, and testing. Particularly in countries with legal requirements for complete counts of the population at intervals, the complete count component of the census design is crucial.

721. In a traditional census design, even when detailed census data are released as soon as possible after the census year, data users are required to work with results that are, on the average, seven years old. The production of timely data to support decision-making at all levels of government is a major motivation for this approach. These timely and, therefore, more relevant data can greatly enhance the value of the information to government officials, policymakers, and businesses that are currently obtained from a once-in-a-decade long form.

722. Removing the responsibility for the collection of detailed data from a sample of the population as part of the census will allow the short-form-only census to focus more directly on meeting the most basic census objectives.

Implications for the Various Phases of Census-Taking

723. This design transfers to the ongoing survey the responsibility to provide estimates of detailed demographic, socioeconomic and housing data throughout the decade. This transfer eliminates the data collection, data processing and tabulation responsibilities for these data from the census. By removing the need for a long form during the census year (which requires collecting information on many more questions from a sample of households), census planners may be able to focus more on coverage improvement in the census year itself. Innovation, including the use of some technologies, may become possible when the census task is limited to short-form data collection. Eliminating the need for the census to capture, process, and tabulate detailed data will reduce the processing workload and allow the census

to develop processing methods specific to the short-form requirements. Tabulation and release of census data will also be dramatically reduced.

724. Many components of the census now must be coordinated across the census (during the years surrounding the census) and the survey (throughout the decade). This includes outreach, promotion, and partnership programs designed to increase public cooperation and awareness. It also includes maintaining a master file of addresses that must be updated regularly, rather than established for a once-in-a-decade endeavor.

725. The fact that the survey is ongoing throughout the decade provides an opportunity to develop a strong foundation to support data collection during the year of the census. Information obtained from the survey itself (for example, language spoken) can be of great use in planning for data collection in the census year. The survey-taking experience can be used to better allocate resources during the census.

Implications for Content

726. Just like the census long form, the ongoing survey can provide data on a wide variety of subjects including: families, children, and the elderly; income and poverty; educational attainment and school enrollment; work and unemployment; disability; immigration and language ability; housing; and many more. In the most obvious approach, the content for the survey is defined to be the content of the census long form. Requirements for adding or revising content must be clearly defined. A survey that relies on multiple years of sample data to support the production of estimates cannot easily accommodate content changes.

For more information

<http://192.91.247.58/stats/documents/2004/11/censussem/wp.1.e.pdf>

<http://www.census.gov/acs/www/>

Appendix III: The Fundamental Principles of Official Statistics

727. *The Fundamental Principles of Official Statistics* were adopted for the ECE region by the Conference of European Statisticians in 1991, and at world level by the UN Statistical Commission in 1994. For the ECE, the principles were also presented for adoption at the political level to the Economic Commission for Europe, the highest ECE body, which resulted in the Decision C (47) on 15 April 1992. These principles are a very dense formulation of the professional and ethical standards that are necessary to ensure credibility in the results of official statistics by all users, and to ensure the integrity of the national institutions that act as producers of official statistics. They are meant to be applicable to all subject areas of official statistics, to all national producers of official statistics, and should be the yardsticks for the national legislation that defines the institutional framework of official statistics⁵³, for the processes that are involved in producing and disseminating official statistics, and for the behaviour of all staff involved in these processes. Many countries have developed a general statistics law that meets these criteria.

728. These fundamental principles have been included into two more operational standards of official statistics of the IMF, the Special Data Dissemination Standard (SDDS)⁵⁴ and the General Data Dissemination System (GDSDS)⁵⁵. The latter also includes some demographic and social statistics. Both standards have a part on integrity, which has been further specified in the IMF's Data Quality Assessment Framework (Generic Framework July 2003)⁵⁶. This DQAF lists the following components on integrity:

⁵³ The notion of statistical system of a country is used here as the sum of all public bodies that are producers of official statistics in the sense defined by the relevant national legislation. The 8th principle asks that these producers do not act independently, but are coordinated. In addition, the statistical system therefore includes in any coordinating or advisory bodies for official statistics foreseen by the statistical legislation, or set up on the basis of this legislation.

In the case of other public bodies than the NSO (or statistical offices at regional or local level) acting as producers of official statistics, the fundamental principles of official statistics imply that statistical tasks are subject to the statistical legislation, and that they are clearly separated in the organisation chart from other tasks assigned to this department, ministry or agency. The notion of producer of official statistics (and of the statistical system) does therefore not include an entire ministry, department or agency, but only those organisational sub-units that have regular tasks as producers of official statistics in the above sense. All government units other than producers defined in this way are considered as potential users of official statistics. This clarification is important because the notion of professional independence refers to this boundary in terms of decisions to be made within the statistical system, and also the exchange of data subject to statistical confidentiality, if legal at all, should not be extended to other government units than statistical producers in the above definition or research institutions.

⁵⁴ Add reference

⁵⁵ Add reference

⁵⁶ Add reference

<p>1. Assurances of integrity</p> <p><i>The principle of objectivity in the collection, processing, and dissemination of statistics is firmly adhered to.</i></p>	<p>1.1 Professionalism---- <i>Statistical policies and practices are guided by professional principles</i></p> <p>1.2 Transparency- ---- Statistical policies and practices are transparent.</p> <p>1.2 Ethical standards— <i>Policies and practices are guided by ethical standards.</i></p>	<p>1.1.1 Statistics are produced on an impartial basis.</p> <p>1.1.2 Choices of sources and statistical techniques as well as decisions about dissemination are informed solely by statistical considerations.</p> <p>1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.</p> <p>1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.</p> <p>1.2.2 Internal governmental access to statistics prior to their release is publicly identified.</p> <p>1.2.3 Products of statistical agencies/units are clearly identified as such.</p> <p>1.2.4 Advanced notice is given of major changes in methodology, source data, and statistical techniques.</p> <p>1.3.1 Guidelines for staff behavior are in place and are well known to the staff.</p>
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729. These components include the principles of impartiality (part of 1st UN fundamental principle), professional independence (2nd UN principle), right to comment on erroneous interpretation and misuse (4th principle), transparency in terms of sources and methods (3rd UN principle) and of rules under which statistical producers operate (6th UN principle), transparency and impartiality of dissemination practices (part of 1st UN principle), and guidelines for staff on ethical standards.

730. The last component in the IMF framework illustrates the point that enshrining principle in law is very instrumental, but not sufficient in itself. These principles have to be translated into institutional safeguards on the hand (see below), and into guidelines for staff and processes by which decisions, especially in borderline cases, are taken in such way that they build up a set of consistent case-laws within the statistical system or at least within the NSO. These guidelines for ethical and professional behaviour have to be internalised by staff, through training and implementation as part of their everyday data collection, processing, and dissemination work. The senior level of the institution has to give a model of behaviour to all other staff in this respect, and contribute to promoting the ethical foundations of official statistics with all stakeholders, the media, and the public.

731. The population and housing censuses is one of the most visible, if not the most visible activity of national official statistics, and therefore strict adherence to these principles is of particular importance for this major activity. If national statistical offices will not ensure that population censuses, both in reality and in the perception of users and respondents, are in line with these principles, the credibility not only of the census as such, but of the NSO as a whole and of the whole statistical system risks to be severely compromised. It is therefore recommended that any specific legislation on the population census in countries where a general statistics law with explicit recognition of the fundamental principles is in force explicitly acknowledges the applicability of these principles for the census, e.g. by making an explicit reference to the general statistical legislation in this respect.

732. The most important and most discussed issue of the *Fundamental Principles of Official Statistics* in the context of the census is confidentiality, especially the “used exclusively for statistical purposes” part of the 6th principle. The trust of respondents, to which the confidentiality principle is linked, is a key part of the integrity. The issue of statistical vs. non-statistical use is addressed in chapter A, and the disclosure aspects of the confidentiality principle in chapter I, in more details. The present chapter will therefore highlight selected other principles of special relevance in the context of a census insofar as they relate to integrity.

Professional independence

733. There is nothing like a full legal independence for producers of official statistics, given that NSOs and other producers of official statistics are in one form or another part of the executive branch of general government. In terms of funding, the overwhelming part of the financial resources for activities of official statistics originates from government budgets (at national, regional and local level, plus international donors where applicable). The principle of “professional” independence can therefore be summarised in such a way that it addresses the “how” part of official statistics (i.e. how official statistics are produced and disseminated), but that this principle does not extend to the “what” part (i.e. the decision about which characteristics in the society are sufficiently relevant to be measured by government funded activities of official statistics, including the frequency of these measurements and the major breakdowns of these characteristics insofar this has a substantial impact on the resources).

734. In the terms of processes, professional independence means that, while a variety of stakeholders, especially main users, will be consulted about professional issues, the decisions about the “how” aspects will be taken within the system of official statistics and not by any political body, notably not by the government. “Within the statistical system” can mean by the head of the NSO, with possible involvement, for major issues, of an advisory board like a statistical council that is set up by the relevant legislation on official statistics, or of a body composed of all or some producers of the national statistical system. In the case of population census, the census law may provide for a special census committee to play a role for such decisions. Whatever the form of decision-making mechanisms within the statistical system of a country may be, it is crucial that the relevant law enshrines very clearly that all bodies involved are subject to the fundamental principles (which preferably are also enshrined in a general statistics law). For the “what” part of official statistics as further described above (which includes decisions on resources and priorities), not falling under the professional independence, the division of roles is exactly the opposite: while most proposals for such decisions will be prepared by various actors of the statistical system in a coordinated way, the decision will be made at the political level, be it by a minister, the government, or the Parliament.

735. Where the line is drawn between the “what” and the “how” can differ from country to country. The perception of integrity of the NSO is so high in certain countries that the head of this organisation can even decide on the allocation of overall envelope of resources for official statistics between subject areas (with only the overall envelope decided at the political level as part of the budgetary process). However, there is a core of issues falling under the principle of professional independence that should never be subject to decision-making by a political body.

736. Such issues are:

- The design of data collection instruments for official statistics with respect to coverage, questionnaires and the terminology used therein, selection of respondent units (in the case of non-exhaustive coverage); this extends to the design of pilot surveys and post-enumeration surveys;
- The choice of administrative sources to be used in the preparation of the census, or (as in the case of registered-based censuses) in the implementation phase;
- The follow-up of non-response in the case of primary data collection, or the verification process of administrative data by the persons concerned and the respective follow-up of non-response in this approach;
- The choice of methods and strategies for editing raw data (from primary data collection or from administrative sources), for imputing missing or for correcting erroneous information, for classifying open-ended questions, and for combining various sources in the best possible ways (either at unit or aggregate level);
- The choice of the aggregates to be compiled from the census to be disseminated as results of official statistics, including the terminology used for these aggregates and the ways of compiling them;
- The ways in which these results are disseminated in full respect of the relevant fundamental principles, including the timing of the release;
- The standards, methods and processes of quality control for the various steps of the operation, and the decisions whether certain aggregates cannot be released because of insufficient quality;
- The ways in which census data are used for improving other outputs or activities of official statistics (benchmarking of time series, use as sampling frame); and
- The way in which edited unit-level data from the census are organised, documented and stored to facilitate additional tabulation on request according to specifications of individual users (statistical services) and for any later use in official statistics (analytical studies).

737. Two general qualifications concerning the professional autonomy in deciding about the “how” part have to be made, e.g. the final decision can remain legitimately at the political level without this being a contradiction to the fundamental principles. The first issue is linked to another fundamental principle: the issue of response burden in primary data collection (5th principle). This includes response obligations, the consideration whether certain questions, especially in the context of a census, may be considered as too much of an intrusion into privacy, and the issue of penalties for respondents who refuse to comply with response obligations. The second issue is about the division of work and the allocation of responsibilities between the various actors and bodies of the statistical system of a country for the various parts of a statistical programme in a country, assuming that all of them are subject to the statistical legislation. For a basic operation like the census (at least for a census that is exclusively for statistical purposes), the overall responsibility is normally allocated with the

NSO as major producer of official statistics and coordinator of the statistical system, even though certain elements may be assigned to other actors in the statistical system.

738. In the context of a traditional population census, the details that will be enshrined by law and secondary legislation based on this law are often of a more detailed character than for other primary data collections for official statistics such as sample surveys. There is therefore a certain risk that political bodies get involved in decisions that are listed above as being the core of professional independence. Such legal texts should not go beyond listing the characteristics to be covered by the census in a general way, but the exact wording of questions in the questionnaire has to be left to the statistical system. Legal texts about census should not contain an exhaustive list of tables as outputs, but if any specification of the output at legal level is considered to be unavoidable, it should be in general terms, leaving the exact definitions and the methods of aggregation entirely to the statistical system. The most important aspects of output specification in legal terms refer to impartiality (see below) and possibly timeliness.

739. For the choices to be made under professional independence, the responsible actors of the statistical system “need to decide according to strictly professional considerations, including scientific principles and professional ethics” (2nd principle), so that the results of official statistics are an as reliable picture of the characteristics of a society in a given moment or period as possible. In most cases, such decisions are not made in the void; there is a recognised stock of international and national professional standards and good professional practices of official statistics for many of the decisions listed above; they can and in most cases should be considered as a valid option at national level, not only because they facilitate international comparisons, but mainly because they offer an impartial and professionally sound solution about methodological issues.

740. A specific problem of professional independence in the context of a census may arise from the pressure from certain ministries and outside interest groups to include certain characteristics, although professional considerations, based on earlier experience in the same country or in other countries, may lead to suggest other forms of primary data collection such as sample surveys not linked to an exhaustive census with response obligations, as superior in providing more reliable results, or in providing results in a less costly way. It seems that for such users, inclusion in the census is a kind of recognition of high importance compared to inclusion in a sample survey of official statistics only. This is a typical example of a non-professional consideration that should be kept outside the decision-making process. If at a political level it is decided that such characteristics have to be included in spite of the methodological advice by the NSO to the opposite, the dissemination of the results for this characteristics is still subject to a the minimum quality level reached that is defined by the statistical system.

Impartiality

741. Impartiality is an important consideration for all phases of the statistical production and dissemination process. It implies, among others, the use of factual and stable terminology for the results to be disseminated, the use of understandable, non-offensive terminology in questionnaires, and the avoidance/correction of any biasing factors in collecting, processing and presenting results, such as the complete omission of certain groups of the population. The most important aspect, however, is the impartiality in making results of official statistics available to all users.

742. Impartiality in dissemination has several aspects: all results declared as official results have to be publicly accessible, and the dissemination of these results has to be simultaneous for all users, including government users, at dates determined by the statistical system, and

not by the government. Therefore, it is good practice for statistical offices to have an advance release calendar from which it can be seen what results will be released at what moment. Results may be released in more than one vintage (provisional and final) in order to respond to the request for timeliness, but the principle of impartiality in dissemination has to be respected in all cases. In the case of the census as a very complex operation that stretches over a longer period than other production of official statistics, such an advance release calendar has to be a rolling one, where the release dates become gradually more precise over time.

743. As with other issues falling under professional independence, the selection of results, and the choice of the dates of release, have to be based strictly on professional considerations. Once checked for quality and consistency, results have to be released as soon as possible so as to maximise timeliness. Concerns that certain results may be unwelcome or untimely from the point of view of the government or other important stakeholders should never be taken into account, whether these concerns are expressed implicitly or mere second-guessing from the part of statisticians; this would be an infringement of the fundamental principles. Dissemination is the part of official statistics where attempts to undermine strict adherence to integrity are most likely; therefore, it is very important that the NSO has acquired a clear record, and a reputation for being strict in this respect, in all areas of official statistics, so that there is no room for deviation from an established standard in the case of the population census. If there is not a clear history in this respect, the population census, through its high visibility in the public, is an excellent opportunity to build up and promote a new standard of integrity to be applicable throughout official statistics during and after the census.

744. The IMF specification of integrity mentions that advance information to certain government departments can be given under embargo, but this practice should be made public. The purpose of this advance information is that the key users in the government can prepare themselves for confronting questions of the media with respect to policy implications of these results; it is not to invite them to comment on the way the NSO disseminates the results. Therefore, this advance information, if used at all, has to be limited in time to the maximum (not exceeding one day), because the greater the time, the greater the risk of a selective breach of the embargo, or of attempts to interfere with the dissemination by the NSO.

745. An often neglected, but essential part of both professional independence and impartiality is the choice of terminology for the results to be disseminated. It is very important to underline that decisions about this terminology are entirely within the statistical system (i.e. they cannot be imposed from outside), and have to observe impartiality. There is therefore a limit to the use of catchwords, or the language of advocacy for certain policies, in releases by official statisticians.

746. Countries differ in their practice about what impartiality implies for the provision of explanatory comments together with the release of new results. The minimum is to add the definitions and other technical explanations about the coverage and accuracy of the results, so that at least expert users can receive guidance on the correct use. In view of the dissemination at large to media and the public, this is not sufficient however, especially for benchmark results such as the census; explanations have to be added that help media, and through them the public, to grasp the most significant elements of this new information, and to transform the quantitative information into everyday language that can be easily understood and put into relation to other, non-statistical information, but without coming into conflict with impartiality. As a minimum, it is the duty of NSOs to distinguish, in quantitative terms, between parts in developments/differences that are due to changes in methodology when they occurred, and parts that correspond to “real” changes or differences.

747. The selection of the most important elements among the many aspects of the new results for the so-called “story-telling”⁵⁷ is not always easy, but marked differences over time, across space (both within and between countries), and between population groups are certainly a first promising approach. The message for media and then public is certainly enriched by comments that allow pointing to causal factors of a development or of differences between groups and cross space that show up in the results; but in order not to be in conflict with impartiality, comments of this nature made by official statisticians have to be backed by facts and should never be policy-prescriptive. The DQAF of the IMF insists that “products of statistical agencies/units are clearly identified as such”, or, with other words, that comments by other units than the NSO, whether they contain policy-prescriptive comments or not, are clearly separated from NSO products and releases. The art of adding relevant comments to statistical releases is gained with experience and feedback from users, and should be based on a general policy of the NSO applicable to all areas. The principle of impartiality has to be kept very much in presence so as to avoid any bias or partisan jargon; the risk of biasing the information is especially present when using charts or maps, where the first instinctive impression is the prevailing one for most non-expert users.

748. Whereas the strict application of the principle of simultaneous dissemination to all users is standards for economic statistics, it is sometimes less strictly applied in demographic and social statistics. There is no professional reason why such a difference between subject areas should persist. One argument is that, because of the low periodicity of certain results in demographic and social statistics, these results have to be discussed and verified with the assistance of outside experts before they are released. However, quality management is an integral part of statistical processes whatever the subject area and the periodicity, and where quality management includes the assistance of outside experts, statistical producers have to make sure that no leakage to ministries or interest groups can arise as by-product of the quality assurance process in this specific case. It is evident that this risk is minimised when the necessary expertise for quality control is within the statistical office, or at least within the national statistical system.

749. A special problem in the context of impartiality arises from the use of aggregate census results for what can be called allocation purposes. This term covers uses like the allocation of seats in the Parliament or other bodies proportional to the benchmark population, or the funding of local governments from the national budget on the basis of certain statistical parameters, one of which being the benchmark population. It also covers schemes where funding is tied to eligibility criteria for local or regional entities, one of them being a population (or population ratio) threshold. When the benchmark is renewed through a new census round, fears that the outcome would be unfavourable to somebody or be inequitable might therefore be presented to the NSO so as to influence its choice of methods in a way that would introduce biases and deviations from good professional practice and standards. In doing so, the principle of impartiality of official statistics would be violated, since the choice of methods should not be influenced by such considerations (nor by considerations of how the country’s ranking in an international league table would be influenced).

750. An answer to these concerns that is fully compatible with integrity considerations is to clarify the responsibilities of official statisticians, and those responsible for these allocation processes, in the light of the fundamental principles. It is the decision of the latter, and not of official statisticians, to use certain statistical parameters (and certain subjective weights to aggregate them) as key for their decisions on allocation or eligibility. However, their choice is not constrained by the results of official statistics published by the NSO; other options may be a subset of the official overall results (i.e. excluding certain components), or “adding in” some other elements that are measured separately (provided that sufficiently reliable statistics are available for these elements). The NSO would certainly be willing to compile any key

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according to user specification, however, this would not replace the officially released benchmark result as defined by statisticians, but rather be an additional product with a clearly distinct status. The distinction between the two is that the NSO the full responsibility for the official results in all its aspects, whereas for the user-specified concept, it is only responsible for the accuracy, whereas the responsibility for the concept and the terminology lies with someone outside the statistical system.

Institutional Safeguards for the NSO following from Professional Independence and Impartiality

751. Professional independence and impartiality are the key ingredients for the integrity of the NSO and the whole statistical system from the point of view of users. It is not sufficient that these principles are mentioned in laws; they have to be associated by institutional and organisational safeguards for the NSO and its head. For building and keeping trust in the eyes of the media, the public, and all users, both the existence (and respect) of these safeguards and the clear implementation of all fundamental principles in everyday practice by the NSO are essential.

752. First and foremost, the NSO has to be free of non-statistical assignments that may create conflict of interests with its core task of producing unbiased statistics about relevant phenomena in the society, or with its obligation to use individual data exclusively for statistical purposes. Any such assignments would prevent the NSO to be perceived as impartial, and it would risk to be equated with an advocacy instrument for government policies.

753. Secondly, it is essential that there is no official or unofficial clearance process involving government bodies outside the statistical system for the release of results, for whatever area of official statistics. The census is no exception to this. NSOs must have the right to communicate directly with media for their dissemination function, without being forced to channel their messages through intermediate government bodies.

754. Thirdly, as a corollary of professional independence, the head of the NSO bears the full responsibility for the professional quality of the results and for the integrity of the whole chain of processes leading to these results. The process of selecting and appointing the head of the NSO and other senior staff, and the legal and other means of protecting the head against any interference from government or pressure from other interest groups in matters falling under professional independence, or affecting impartiality or confidentiality, is crucial for integrity and the perception of integrity into official statistics.

755. In the context of the census, a special organisational issue with implication for integrity may arise through the involvement of government bodies in the data collection process of traditional censuses that are not considered part of the statistical system, notably bodies at local and regional level. Such bodies have other assignments than official statistics that may create conflicts of interest. It is therefore important that, in addition to stipulating in the law that they are fully subject to the fundamental principles, notably for the confidentiality part, for all activities in the context of the census, ways to check their compliance are set up and implemented as part of the quality control processes. In view of the eligibility (or non-eligibility) criteria mentioned above, local administrations may also be tempted to influence the overall results for their entity in order to increase (or reduce) the prospects of falling under a certain government scheme (e.g. introducing bilingual administration if the linguistic minority reaches a certain percentage of the total population). In such cases, special organisational measures that ensure checks and balances at local level may have to be set up on a mandatory basis through the census legislation in addition to the quality control measures of the NSO.

756. In the case where certain parts of activities of official statistics are sub-contracted to private operators (which can be a cost-effective solution for a large and infrequent operation like the census, depending on national circumstances), the respective contracts have to specify the obligations of the contractors in the same way as if the same activity were carried out within the NSO. Any data processed by such contractors have to be used by a private contractor exclusively in the limits of the contract, excluding any other purposes, be they statistical or other. The census law should foresee that penalty provisions are applicable also to staff from such contractors working for the census in the case of violations, e.g. of confidentiality provisions. It is in the self-interest of all private contractors to strictly respect these terms of reference, because otherwise they would not be considered for any other future contract by the NSO.

757. Any form of delegation of parts of the census activity to either public or private organisations does not in anyway diminish the full responsibility of the NSO for the integrity of the whole process from the beginning to the end, and for the official results.

Transparency

758. The principle of transparency (3rd fundamental principle) is the necessary counterpart to professional independence. It ensures that official statisticians have to be fully accountable to the community of users, respondents and taxpayers for their decisions under the umbrella of professional independence. All methods used in the production and dissemination process have to be made transparent, so that critical users can question the choices made and ask for the reasons. The IMF DQAF asks that for major changes in methodologies advance notice be given before results are disseminated. All dissemination of results has to be accompanied by the necessary, and more detailed information on sources and methods have to be easily accessible for anybody. If results do not reach predefined quality levels, they have to be marked accordingly, or not released at all, with the reasons explained publicly, and the background material for this decision being open to scrutiny. Any quality assessment of census operations, or parts of it, should also be publicly accessible.

759. If this principle of transparency seems to impose a great burden on NSOs, it is necessary to prevent and counter any accusation of unaccountable “black box” behaviour, which are frequently the first step in accusing statisticians to give in to interference or pressure aimed at shaping results in a certain direction. Transparency is more necessary in today’s official statistics, since even in the case of exhaustive operations like censuses results are not any more compiled exclusively as frequency counts, sums or averages, but as a complex and iterative sequence of algorithms including components of “estimation” based on editing, imputing, extrapolating and combining different sources. Transparency is also the prerequisite of making use of the 4th principle, which entitles all statistical producers to comment on erroneous interpretation and misuse of statistics by a third party (including government users of statistics). The decisions of when to make use of this right falls under professional independence, or with other words lies with statisticians without the need of approval from anybody outside the statistical system.

760. Another element of transparency is the 7th principle, by which the “laws, regulations and measures under which the statistical system operate are to be made public”. Censuses have a particularly voluminous range of regulations, instructions and manuals, given the large number of staff used for most types of censuses, especially traditional ones. Such material has to be available to anybody either on request, or made generally accessible through the web.

Relationship to respondents

761. According to the 5th principle, burden on respondents is a mandatory consideration for all decisions regarding the choice between primary and secondary data collection, and the design of primary data collection. The way this principle is made reality is the essence of the integrity aspect as it applies to the relation between the NSO and respondents. This is especially relevant for a primary data collection in form of a traditional census where all persons in a country are subject to a response obligation.

762. The elements of integrity in the relationship to respondents are:

- A very strict selection of questions, based on relevance and the proven inadequacy of less burdensome forms of data collection such as sample surveys;
- A serious effort of testing questionnaires in various local environments through pilot surveys, and of drawing the necessary conclusions by dropping problematic items from the census and directing them towards other forms of data collection;
- A well designed information campaign, starting well ahead of the census date;
- A clear information to each household, at the latest when the data are collected, about the purposes of the census, the legal basis, the use of the data and the public authorities that have access to individual data, the confidentiality measures, the obligations for respondents and the possible consequences of non-compliance, combined with information where and how additional information about the census can be obtained;
- A way of contacting households and persons at the moment of data collection that is proportionate, non-intrusive, and takes into account the sensitivities of special population groups. This implies that field staff is well instructed and trained, and selected so as not to increase resistance from respondents;
- A carefully designed stepwise policy of reminder/re-contact, and a clearly stated policy when to make use of penalty provisions for non-compliance and for starting infringement procedure.

763. A key issue in the relationship between the NSO and respondents is the guarantee of statistical confidentiality in its dual sense of the 6th principle, i.e. non-disclosure on individual information where the persons concerned can be identified either directly or indirectly, and the exclusive use of such information for statistical purposes.

Appendix IV: Quality Assurance Framework and Implementation

764. In the following paragraphs a quality assurance management framework is outlined, including brief comments on each specific dimension of quality. Finally, with a focus somewhat on accuracy, this is followed by discussion of techniques and implementation for a number of specific activities in census taking.

Management framework

765. Quality must be managed in an integrated fashion within the broader context of undertaking the entire census programme. Census management will require input and support from numerous functional areas and it is within such a team that the many decisions and trade-offs necessary to ensure an appropriate balance between quality and concerns of cost, response burden and other factors will be made. The team needs to be adequately staffed with people able to speak with expertise and authority while being sensitive to the need to weigh competing pressures regarding dimensions of quality and other factors to reach consensus. Sub-teams responsible for each of the many aspects of the census work must similarly be equipped with appropriate expertise. Each of these will develop and implement strategies addressing many aspects of quality. In doing so they must be sensitive not only to their local quality concerns but also to their interactions with quality concerns of other sub-teams. Strategies to facilitate the necessary information sharing and joint consideration of cross-cutting quality issues are vital.

766. Quality concerns need to receive appropriate attention during design, implementation and assessment. Subject matter experts will bring knowledge of content, client needs, relevance and coherence. Statistical methodologists bring their expertise on statistical methods and data quality trade-offs, especially with respect to accuracy, timeliness and cost. Operations experts bring experience in operational methods, and concerns for practicality, efficiency, field staff, respondents and operational quality assurance and control. The systems experts bring knowledge of technology standards and tools that will help facilitate achievement of quality, particularly in the timeliness and accuracy dimensions. In collaboration with subject matter experts, dissemination experts will bring a focus to accessibility and interpretability.

767. The following subsections discuss each dimension of quality. Some emphasis is placed on the accuracy dimension.

Managing relevance

768. The programs and outputs of a National Statistical Office must reflect the country's most important information needs. Relevance for the census must therefore be managed taking account of this broader context. This then is done through processes to assess the relevance of previous census content and to identify new or emerging information gaps that would be appropriately filled via the census. Major processes to achieve this can be described as: client and stakeholder feedback mechanisms; program review and data analysis. Information from these three can then be used to ensure the relevance of census content and outputs.

769. Important feedback mechanisms might include consultations with key government departments and agencies, advice from professional advisory committees in major subject matter areas; user feedback and market research; ad hoc consultations with interested groups; and liaison with foreign statistical offices.

770. While the primary purpose of data analysis is to advance understanding of phenomena, it also provides feedback on the adequacy and completeness of the data used in the analysis. By identifying questions the census data cannot answer it can pinpoint gaps and weaknesses. This must be taken in the context of the analytic potential of other data holdings of the Statistical Office.

Managing accuracy

771. Management of accuracy requires attention during three key stages of the census process: design, implementation and evaluation.

772. Design parameters and decisions will have a direct impact on accuracy and the accuracy achieved – as well as the degree of timeliness and coherence – will depend on the explicit methods put in place and the quality assurance processes built in to identify and control potential errors at the various stages of the census. A number of key aspects of design must be considered in every census to ensure that accuracy concerns are given appropriate attention:

- Explicit consideration of overall trade-offs between accuracy, cost, timeliness and respondent burden during the design phase;
- Adequate justification for each question asked and appropriate pre-testing of questions and questionnaires in each mode of collection, while also ensuring that the set of questions is sufficient to meet the requirements;
- Assessment of the coverage of the target population by the planned frame. This relates to the adequacy of the geographic infrastructure upon which collection and dissemination geography will be based. It may also relate to the adequacy of address lists to be used in areas where mail out of census questionnaires takes place;
- Proper consideration of sampling and estimation options. For example, sampling could be used at the collection stage through the use of short and long form questionnaires in order to reduce respondent burden and collection costs. Alternatively, sampling could be introduced after collection, by processing only a sample of records, at least for a subset of characteristics, in order to produce more timely results or to control processing costs. In either case, careful consideration must be given to the size and design of the sample and to the weighting and other estimation procedures needed;
- Adequate measures in place for facilitating and encouraging accurate response, following up non-response and dealing with missing data;
- Proper consideration of the need for quality control and other quality assurance processes for all stages of collection and processing; and
- Appropriate internal and external consistency checking of data.

773. While individual program managers have considerable flexibility in implementing specific practices and methods, it must be done in an integrated fashion within the overall management of census data quality.

774. A good design will always contain protection against implementation errors through for example adequate selection and training of staff; suitable supervisory structures, carefully written and tested procedures and systems and quality assurance and quality control procedures. Mechanisms for monitoring implementation should be built into all processes as

part of the design. First, information is needed to monitor and correct problems arising during implementation and operations. This requires a timely information system that provides managers with the information they need to adjust or correct problems while work is in progress. Second, information is needed to assess whether the design was carried out as planned, identify problem areas and lessons learned from operations to aid design for future censuses. Some examples of activities that could be undertaken to manage and monitor accuracy during implementation and operations are:

- Regular reporting and analysis of response rates and completion rates during collection;
- Monitoring non-response follow-up rates;
- Monitoring interviewer feedback;
- Monitoring coverage checks and controls;
- Monitoring of edit failure rates and the progress of corrective actions;
- Monitoring of results of quality control procedures during collection and processing;
- Monitoring of expenditures against progress; and
- Development, implementation and monitoring of contingency plans.

775. Where applicable, these activities should be at various geographic levels or aggregations useful for each level of management, including those suitable for supervising and correcting the actions of groups or individuals involved.

776. Though described last, assessment of accuracy needs to be a consideration at the design phase since the measurement of accuracy often requires information to be recorded as the census collection and processing is under way.

777. Accuracy is multidimensional. Indicators may touch on many aspects of census collection, processing and estimation. Primary areas of assessment include the following:

- Assessment of coverage error, both under-coverage and over-coverage. In most countries this is done via a post-censal coverage survey and dual system estimation methods. Comparisons to official population estimates, typically projections from the previous census, are often also used as an assessment tool;
- Non-response rates and imputation rates;
- Data capture error rates, coding error rates;
- Measures of sampling error, where applicable; and
- Any other serious accuracy or consistency problems with the results. This relates closely to coherence and allows for the possibility that problems were experienced with a particular aspect of the census resulting in a need for caution in using results.

Managing timeliness

778. Planned timeliness is a design decision, often based on trade-offs with accuracy and relevance. More timely information may be more relevant but less accurate. So, although timeliness is important it is not an unconditional objective. Many of the factors described under accuracy apply equally here. Timeliness is also directly affected by fundamental time requirements to collect and process census data with an adequate degree of quality in the other dimensions.

779. Major information releases should have release dates announced well in advance. This helps users plan and provides internal discipline in working towards these important dates.

780. For customized information retrieval services, the appropriate timeliness measure is the elapsed time between the receipt of a clear request and the delivery of the information product to the client. Service standards should be in place for such services.

Managing accessibility

781. Census information must be readily accessible to users. Statistical information that users don't know about, can't locate, can't access or can't afford, is of no value to them. In most statistical offices, corporate-wide dissemination policies and delivery systems will determine most aspects of accessibility.

782. In determining information product definition and design, managers must take careful account of client demands. Market research and client liaison will help determine this.

783. In today's world the Internet has the potential to play a role as the primary dissemination vehicle. It should include not only the data released but also information about the data (metadata) such as data quality statements and descriptions of the concepts and methods used. Appropriate links or use should be made of statistical office corporate dissemination vehicles.

784. Finally, client feedback must be monitored on the content of information products and on the mode of dissemination with a view to future improvements.

785. The information needs of the analytic community present some particular requirements. Analysts often need access to microdata records to facilitate analyses. This presents special challenges in order to continue to respect requirements for confidentiality of census data. A number of means could be used to address these needs. Public use microdata files, typically a sample of census records, that have been pre-screened to protect confidentiality can be valuable for analysts. Custom retrieval services where specific analyses, designed by external analysts, can be conducted by staff of the statistical office may meet the needs of some analysts.

Managing interpretability

786. Managing interpretability is primarily concerned with providing metadata. Information needed by users to understand census information falls under three broad headings: the concepts and classifications that underlie the data; the methods used to collect and process the data; and measures of data quality. The first of these also relates to coherence.

787. A further aid to users is interpretation of census information as it is released. Commentary on the primary messages that the new information contains can assist users in initial understanding of the information.

Managing coherence

788. Coherence is multidimensional. Objectives for coherence of census data include: coherence of census data within itself; coherence with data and information from prior

censuses; coherence with other statistical information available from the statistical office on the same or related phenomena; coherence with information from censuses of other countries.

789. The first element is the development and use of standard frameworks, concepts, variables, classifications and nomenclature for all subject matters that are measured. This aims to ensure measurement is standard across programs and, for international standards, between countries.

790. Second, the census must ensure that the process of measurement does not introduce inconsistency between its data and that from other sources. Managers for other statistical programs are of course equally responsible for this aspect of coherence.

791. Third, validation, evaluation and analysis of census data that focuses on the comparison and integration of information from the census and other sources will illuminate the degree to which quality is achieved in coherence. Special teams of subject matter experts should be constituted to conduct this work. The census data should be analyzed for domains and aggregations, both large and small, that are considered important. Such analysis should consider totals, distributions, relations between variables or sets of variables, relations between domains, growth rates, etc. as appropriate. Comparisons should be made to data from prior censuses and to comparable survey data. The analysis should be done with some reference to planned tabulations.

Quality control techniques

792. Clearly a census quality assurance regime comprises a wide variety of mechanisms and processes acting at various levels throughout the census programme. An important technique applicable in many census operations is statistical quality control. It primarily addresses accuracy, although depending on the operation it may also address other elements of quality. What follows is a very brief outline of quality control basics. For a complete explanation of these methods, the reader should refer to a standard text or reference such as Duncan (1986), Hald (1981) or Schilling (1982).

793. The success of any quality control and improvement programme depends on: laying down quality standards or requirements; determining appropriate verification techniques; measuring quality; and providing for timely feedback from the results of the programme so that effective corrective action may be taken.

794. Sample verification, complete (or 100%) verification or spot checks are the usual quality control techniques adopted in censuses.

795. Verification can be dependent or independent. In dependent verification, a verifier assesses the work of a census worker by examining that work. However, the verifier may be influenced by the results obtained in the initial operation. In independent verification a job is verified independently by a verifier without reference to the original work. The original results and those of the verifier are compared; if the results agree then the work is considered correct; if not a third, often expert, verifier may resolve the difference.

796. Complete verification theoretically assures a complete check of the work in an operation. However, verifying all items can be time consuming and very costly. In many operations, complete verification is only used as the operation is starting up. Once it is shown that the quality is meeting the required standard, sample verification procedures may be implemented. Usually, this transition is managed on an employee by employee basis.

797. Sample verification reduces the cost and can yield results almost as reliable as 100% verification. Often verification is done by more experienced and skilled staff. To be effective

the sample must be selected on a scientific basis using probability sampling. It will be designed on the basis of the expected or observed error rates of workers, the outgoing quality to be achieved, the cost of the operation in question and the cost of operating the quality control plan. It will be adaptable to adjust as the quality of work may change. For example, as outgoing quality improves then a reduced rate of quality control sampling may be suitable. Two types of sampling procedures are commonly used: acceptance sampling and continuous sampling.

798. Acceptance sampling is a quality control technique that establishes a sample design and decision rules to determine which batches are acceptable or unacceptable and is usually used in jobs like manual editing, coding, and key entry data capture where work is assembled in lots or batches. Each batch is either accepted or rejected on the basis of the verification of a sample chosen from the batch based on probability methods. The sampling plan is designed so as to provide an outgoing error rate below a certain value, called the average outgoing quality limit.

799. When work is continuous and it may not be possible to group the output into batches for verification, a continuous sampling plan or process control approach may be used. This method is applicable to processes which are fairly predictable in terms of their outputs and which consistently produce output that meets the quality standard – the process is ‘in control’. Statistical process control is a methodology to ensure that such processes stay in control and to provide feedback for corrective action when not in control. Census operations where this may be applicable include: the printing of forms; automated data capture via intelligent character recognition (ICR) or optical mark recognition (OMR); and the scanning of forms for ICR/OMR.

Implementing a quality assurance and improvement programme

800. The programme of quality assurance will be implemented in an integrated fashion throughout the design, development and execution of the many steps in the census process. As examples, this section provides specific comments on quality assurance approaches applicable to a number of these steps.

801. The design of the census questionnaire(s) takes into account the statistical requirements of the data users, administrative requirements of the census, requirements for data processing as well as characteristics of the population. Because censuses often involve multiple collection methods, testing must be performed to ensure that questionnaires will work properly for all applicable methods. The questionnaire should include elements aimed at ensuring accurate coverage of the population (e.g. who to include, who not to include, where to be enumerated). Qualitative testing is required to check these issues and should cover an adequate variety of situations encountered in the population. In terms of content, quality assurance approaches for a census are similar to those for a sample-based survey. Qualitative tests and cognitive interviews should be planned to ensure that questions are clear and properly understood not only by the general population but also by special groups to whom certain questions are targeted or for whom there are particular issues of concern (e.g. the elderly, persons living alone, language difficulties).

802. With the advent of new technologies, introducing web-based questionnaires can provide options not available on their printed counterparts. These options can ensure greater quality in terms of question response and coverage. Such checks serve as opportunities for detecting inconsistencies and presenting them to respondents for correction or confirmation. The design and presentation of a web-based questionnaire to the respondent will differ from the paper version. This means that special care must be taken to minimize any potential mode effects arising from differences between the paper and electronic versions of the

questionnaire. Hence, this should be an important topic to be considered in the testing program for the questionnaire.

803. A particular challenge in questionnaire design is to concurrently design the questionnaire to be respondent friendly and to meet requirements for subsequent processing steps, especially for data capture and coding operations. The testing program must also ensure that these features are thoroughly tested prior to questionnaire finalization.

804. All of these factors should first be tested on a small scale (qualitative testing) and then on a large one with a significant number of respondents. A large-scale test can detect a variety of potential issues that qualitative testing cannot. As well such tests make it possible to compare different design and format possibilities via split sample designs. The large-scale test also facilitates assessing how well the questionnaire fits into other census operations (e.g. collection, data input, coding).

805. Coverage is a critical element of accuracy. It has a direct influence on the quality of population counts and an indirect impact on the quality of all other data produced by the census. Thus the coverage concerns should be taken into consideration in the design and implementation of most census activities and their quality assurance programmes. Enumeration area boundaries must be carefully defined and mapped to ensure no area is omitted or included twice. Instructions and training on dwelling coverage for staff engaged in dwelling listing and enumeration must be clear, explicit and easy to understand. The target population must be well defined and related instructions and questions for both interviewers and respondents need to be carefully developed and thoroughly tested. Clarity and simplicity of instructions concerning place of residence for enumeration is vital to help ensure people are enumerated exactly once and at the correct location. This is particularly important in minimizing overcoverage. Questionnaires should include guidance or questions to assist with situations where it may be unclear whether certain persons should be included or not. Special procedures should be developed for difficult to enumerate population groups (e.g. remote areas, collectives or group quarters, persons with literacy or language difficulties). Processing procedures should be developed with a view to minimizing the risk of erroneously cancelling, losing or artificially creating households. A well-crafted publicity campaign can play an important role in promoting census awareness and response, thus helping minimizing coverage error.

806. All of these steps, along with appropriate training, supervisory checks and quality assurance approaches during operations will help minimize coverage error. Nonetheless some coverage error is unavoidable. Hence it is important to measure, analyze and report on coverage error. This is best done via an independent post-census enumeration survey of a sample of census areas or via the Reverse Record Check methodology. Results of coverage studies provide an important evaluation of the current census and can also provide valuable guidance for the next census. Results in conjunction with the census counts themselves are a critical input for population estimation programmes. Analysis of census results vis-à-vis demographic projections of the population from the last census can also be informative.

807. A second cross cutting topic which can have a major impact on quality is that of systems development. In particular the related dimensions of quality are accuracy, timeliness and accessibility. A modern census makes use of numerous automated computer driven systems to operate, manage and control everything from payroll to data capture, edit and imputation, coding, dissemination and others. This pervasive influence makes it very important that an integrated view be taken in the design of the overall architecture as well as the individual design and implementation of systems.

808. A standard methodology for systems development should be implemented and should include steps like: overall system architecture design; design and analysis of individual

systems; programming or building of systems; functional testing of components and then of systems; testing of interfaces between systems; volume testing and user acceptance testing; system delivery and implementation; and evaluation. This should be done within a configuration management approach to: manage change; accommodate the reuse of standards and best practices; ensure that all requirements remain clear and valid; communicate each of these to developers and users promptly and precisely; and ensure that results conform to requirements.

809. Specifications must be well written and carefully analyzed to produce functional requirements. A standardized approach for change management is required. Ensuring the interoperability of different systems that must communicate with each other is particularly important. At each stage performance (timeliness) should be evaluated and outputs should be checked to conform to requirements. Many of the systems developed for a census will be used by numerous key entry, coding, editing and other clerical staff. Consequently it is very important that user interfaces be carefully designed and thoroughly tested. More generally, a well-developed standardized testing strategy should be applied throughout in an integrated fashion.

810. As well, there are a number of census processes that involve massive operations, either manual or automated. Examples of such operations include: dwelling listing operations, preparation of maps, printing of census materials, enumeration procedures, data capture and editing and coding (both manual and automated). Quality control procedures are particularly relevant and important for each of these.

811. Dwelling listing operations are commonly conducted by enumerators prior to or as questionnaires are dropped off at dwellings. It is particularly important at this stage to minimize both undercoverage and overcoverage of dwellings. To that end, enumerators' procedures must include quality checks to ensure the quality of their work. As well, supervisors should have planned spot checks as listing work starts and planned quality control procedures to be applied as work is completed.

812. When census questionnaires are mailed out, it is usually done on the basis of a list of addresses extracted from an address register. Address register maintenance itself will involve several steps of quality control. Nonetheless, prior to its use, the address list should be validated to confirm that each dwelling is included with correct address and geocoding information and that no non-dwellings are included. Allowance must be made for dwellings under construction that may be completed prior to the census. This validation is a large operation in the field and is subject to errors. Since this work must be parcelled out to individual employees in batches, acceptance sampling quality control procedures will be appropriate. Again, spot-checking and close communications with supervisors will be important quality assurance steps.

813. Enumeration, whether by interviewing or by collecting completed questionnaires from the dwellings on the list, is similar. Usually one enumerator is responsible for all work in an enumeration area and will be required to implement a number of quality checks on their own work. Further acceptance sampling procedures, implemented by supervisors, will ensure the quality of various aspects of the enumerators' work.

814. Data processing is one of the crucial steps by which raw census data are converted into a complete edited, and coded master file useable for tabulations. In some of these processes the data are being transformed (e.g. data capture, coding) while in others the data are being corrected (e.g. edit and imputation). New errors can occur in any of these operations and all three types of quality control techniques can be useful.

A first step where errors can occur is data capture. In conventional key entry data capture, where clerks read questionnaires and key in the data, range checks and certain consistency checks can be built into the data entry software so that when a potential error is identified the data entry clerk can be required to re-key the field. Data entry must be verified by another set of personnel. At this stage dependent or independent verification on a 100 per cent basis or acceptance sampling procedures can be adopted. Feedback of error rates and related information must be available operator-wise, batch-wise and field-wise.

815. In data capture operations involving scanning of questionnaires and data capture via ICR/OCR, quality control procedures will be necessary as well. First, operation of the scanning equipment will incorporate quality control procedures to ensure the equipment continues to work properly; this could take the form of process control. Such operations will typically also require a key entry step – with quality control steps as outlined above -for data capture of questionnaires that could not be scanned or where the image was unusable by the ICR/OCR software.

816. Manual editing and coding, including computer-assisted methods, should be thoroughly verified by another set of personnel. This verification can be dependent or independent. Depending on the resources available, verification may be done on a sample or 100 per cent basis or incorporate both approaches in an adaptive methodology. Again, a number of techniques are applicable and the resulting information must be made available operator-wise, batch-wise and field-wise to best facilitate corrective action and for post-hoc analysis.

817. Computer edits play an important role in error detection and correction. Detailed consistency and other checks can be laid out in consultation with subject matter experts. In some circumstances, errors may require follow-up with respondents for correction. More commonly errors can be corrected manually by reference to original questionnaires (or questionnaire images) or automatically. Careful control has to be exercised over the quality of incoming data. Batch statistics giving number and percentage of edits field-wise would give an idea of the kind of errors that the documents are subject to. Any particular problem areas should be thoroughly investigated.

References:

- Duncan, A.J. 1986. *Quality Control and Industrial Statistics*. Fifth edition. R.D. Irwin Inc., Illinois.
- Hald, A. 1981. *Statistical Theory of Sampling Inspection by Attributes*. Academic Press, New York.
- Schilling, E.G. 1982. *Acceptance Sampling in Quality Control*. Marcel Dekker, New York.

Appendix V: Methods of Census Evaluation

818. The choice of evaluation methods to be used depends upon the evaluation objectives. Both gross and net error must be taken into account in developing the overall evaluation plan. Gross coverage error in a census is defined as the total of all persons omitted, duplicated, or erroneously enumerated. Net coverage error takes into account the underestimates due to omissions and the overestimates due to duplications and erroneous inclusions. When omissions exceed the sum of duplications and erroneous inclusions, a net undercount is said to exist; otherwise, a net overcount results. Similarly, both gross and net content error have to be considered in the evaluation design.

819. Numerous methods are available to estimate the coverage and content error of censuses. These include:

- Quality control techniques such as internal consistency checks;
- Comparisons of results with other data sources including previous censuses, current household surveys, and/or administrative records;
- Record-checking, in which individual census records are matched against alternative sources and specific data items are checked for accuracy;
- Some evaluations analyze, interpret, and synthesize the effectiveness of census components and their impact on data quality or census coverage;
- Post-enumeration surveys are used to estimate census coverage error;
- Post-census surveys designed to measure content error are usually known as reinterview surveys; and
- Ethnographic and social network methods provide a way to study the effects of mobility on census coverage or to measure census coverage of specific sub-populations.

820. Other evaluation methods are also used. These include:

- Surveys to determine customer satisfaction with data collection instruments or questionnaire assistance; and
- Focus group interviews to learn how or why respondents behave in a certain way.

Designing an evaluation program

821. The following basic recommendations can be applied to any evaluation program:

- Begin planning the evaluation program early in the census cycle. Early planning and design of a structured evaluation program allows appropriate consideration and accommodation of evaluation and experiment needs during the census design;
- Decide the high-level scope and focus of research programs before developing research proposals. Define general selection guidelines or criteria, select research topics, and identify high-level research questions before designing the evaluations and experiments. Identify areas to meet the needs of external data users and internal census planners and set evaluation priorities accordingly;
- Develop study plans for each evaluation and experiment. These project-level plans become the designated baseline documentation for achieving program research goals;
- Develop a standardized Change Control Plan, which describes a protocol to initiate a change process. Recommendations for change (including the reasons for the change and critical implications) are submitted to a Change Control Board. The Change Control Board assesses implications of the change and approves or disapproves it;
- Develop a milestone schedule for planning, designing, and implementing the research program. Include in the milestone schedule dates for issuing results of the operational

assessments, evaluations, and experiments. Changes to the schedule should also go through the Change Control process;

- Anticipate delays or the need to cancel some planned evaluations. During a census, staff may become overburdened with either too much evaluation work or too much of a combination of evaluation and production work. Attrition of project managers is virtually inevitable and can also be a reason to delay or cancel evaluations;
- Explore ways to incorporate real-time evaluations during the course of the census; and
- Develop a Risk Management Plan which identifies potential risk events and their probability of occurring, provides measures of potential impact, offers strategies for dealing with risks if they occur, and identifies the area(s) responsible for addressing each risk event. The Risk Management Plan should be a “living” document where risks can be modified as needed.

822. For information on the U.S. Census 2000 testing, experimentation, and evaluation program, refer to the following web site: <http://www.census.gov/pred/www>. For information on the U.S. Census 2000 coverage measurement program, refer to the following two web sites: <http://www.census.gov/dmd/www/EscapRep.html> and <http://www.census.gov/dmd/www/EscapRep2.html>.

Appendix VI: Evaluation of Register-based Censuses

823. Studies to research and monitor the reliability of register-based data could be carried out well ahead of the decision to adopt a register-based census system. One approach is to compare the old questionnaire data to the register data at the same point of time. If the differences between the data produced using registers and questionnaires were small enough, the register-based census system could be given the go-ahead. If the country has used ID-numbers in census, these comparisons can be made at individual level. Then we know those persons who have not been counted in census, the under coverage. On the other side, there could be persons in census who have been counted, although they should not, which is census over coverage. If the country uses ID-numbers, double counting could be eliminated quite easily.

824. Longitudinal databases are the way to check coverage of censuses. If the ID-numbers have been used in censuses, we can compare persons in censuses at the individual level in consecutive censuses. The change in the amount of population has to be explained by the number of new-born children, deaths, immigrants and emigrants.

825. The best solution is, if the register keeper itself monitors the reliability of the register. For instance, the accuracy of address data recorded in the population information system is checked in the connection of some interview data. If somebody dies or gives birth, and this person cannot be found in the register, the register does not include all the persons it should include. In the same way there is under coverage in the register when somebody demands some public services like health, education, social services, but she/he is not included in the register. Or the person needs a passport or a driving license or even local bus tickets.

826. Assessments of the reliability of the population censuses were also based on comparisons with the labour force survey. Annual quality controls have emerged as the most important means of checking the reliability of regional employment statistics: these controls involve comparisons with the results of the labour force survey. Comparisons at the unit level are done by cross-tabulating the register data and the interview data from the sample of respondents in the labour force survey with data on main economic activity and branch of industry at the same point in time. Any cases where the deviation increases from the previous year will be scrutinised by checking the source material at the unit level. If it turns out that there has been an error in data processing, that error will be corrected; if, on the other hand, the explanation lies in changes made to the register source or to legislation, for instance, then the necessary changes will be made to the decision rules applied.

827. These comparisons with the labour force survey work at two different levels. On the one hand, their aim is to monitor the quality of the results produced by the two methods, and on the other hand to establish how accurately the methods produce information that is classified in the same way at the unit level.

828. Deviations are often explained by differences between the register system and the interview method, and it is not always possible unambiguously to say which of the two methods gives the right result: even information obtained from interviews is not necessarily absolutely accurate. In many cases the respondent or interviewer is confronted with the same kind of contradictory information for which there is a straightforward decision rule in the register method. The register method here has the advantage of logical consistency: presented with the same information, the computer will always make the same decision, whereas two different persons may well arrive at different conclusions.

829. The drawbacks and shortcomings of the register system are rather minor when compared to questionnaire surveys, which usually have reached response rates of somewhere between 90-99 per cent – after meticulous and expensive processes of sending out reminders.

As some of the forms returned will furthermore have incomplete and/or missing data, the quality of the information collected will rarely be of the same standard as that obtained from register sources.

Appendix VII: The Scope and Design of Consultation Programs

830. Consultation on a range of subject areas is an indispensable step in the preparations for the census and should be instigated early in the planning cycle. Consultations should cover (where necessary):

- Enumeration methodology;
- Census topics and questions;
- Definitions;
- Classifications;
- Sampling;
- Planned tabulations;
- Geographic boundaries;
- Processing;
- Edit and imputation;
- Confidentiality and disclosure control;
- Coverage and data quality; and
- Dissemination and conditions of use of the data.

831. Such consultations will assist the census authorities in planning for a census that is as responsive as possible to the needs of users, and can also serve to foster a wider and more informed understanding of, and support for, census plans and activities. The ultimate goal will be a greater participation in the census enumeration.

832. The user communities to be encompassed by such a programme of consultation should include (either individually or collectively):

- Central government departments and ministries;
- Local government authorities;
- Health service providers;
- Public and utility services, such as energy suppliers, water authorities, fire departments, the police, etc;
- Academics;
- Market researchers and other professional and/or private sector bodies; and
- Other organisations or individuals representing the economic, social, educational and cultural life of the country.

833. Consultation may be conducted through a variety of means and media. It can, for example, be carried out through formal and regular meetings of Advisory Groups or Working Groups comprising invited representatives of the user communities and census authorities, or more directly, by means of public consultation papers and questionnaires. The increasing accessibility and use of census authorities' websites enables such direct consultation to be carried out among a wide audience including individual organisations and members of the public alike. In addition, census authorities may wish to consider *ad hoc* public meetings or bilateral meetings as means of discussing either particular census issues or more general plans and developments.

834. It is often more useful to conduct consultation separately with different types of user with common interests and perspectives, such as administrators, planners, policy makers, finance controllers, demographers or market researchers etc, rather than adopting a strategy of holding simultaneous meetings for all data users. Such combined meetings often prove frustrating because there are substantial differences among users in their technical background and expertise and in the level of their interest in the detail of the census content and operation.

835. A particularly key area for consultation with users will be in establishing the requirements for statistical data on each census topic. Though there will likely be a set of core topics by means of which National Statistical Institutes will want to collect information to fulfil international obligations, many questions will be included to meet purely national and local requirements. To justify the inclusion of particular census topics, therefore, consultation with the user community should aim to ascertain the business cases for a range of topics to be considered. The criteria for accepting these topics should be that:

- There is a clearly demonstrated need;
- Users' requirements cannot adequately be met by information from other sources;
- Relevant questions should be shown, in tests, to have no significantly adverse effect on the census as a whole, particularly the level of public response; and that
- Practicable questions can be devised to collect data that is sufficiently accurate to meet users' requirements.

836. In order to complete the preparatory work for the census and to carry out the enumeration, the Census Office will have to expand its staff substantially and involve the co-operation of numerous government and non-governmental bodies to assist in providing personnel, equipment, supplies, accommodation, transportation or communication facilities to help in the census work. As a result, large numbers of temporary personnel will have to be trained and the contribution of a diverse group of national and local organisations will have to be effectively mobilised.

837. Because of the particular importance of the role that local government authorities can play in planning and assisting in carrying out the census, NSOs may wish to establish special working relationships with such bodies through separate liaison mechanisms. Areas in which such partnerships can be beneficial to both the national Census Office and local authorities themselves are in:

- Establishing mutually agreed address lists for enumeration (since local authorities may often have access to alternative address lists than those generally available to census takers, particularly if there is no standard national address register established);
- Local authorities appointing their own census liaison officer to act as a focus for ensuring that local needs and conditions are well understood by the census authority and that good communication with local census field staff is established;
- Advising on the characteristics of local populations, particularly the location of hard-to-count groups (such as the elderly or infirm) in order to determine the most effective means of carrying out the enumeration at the local area level; and
- Assisting with local recruitment of field staff, publicity and helpfulness.

Appendix VIII: Implementation of a Publicity and Information Campaign

838. The realization of a large-scale program on informational and expository work among the population is necessary. Implementation of the program is best done by experts in the field of public relations, advertising and sociology and should include:

- PR-campaign;
- Advertising campaign;
- Monitoring public opinion; and
- Monitoring mass media.

839. The realization of the post-census campaign on popularization and informational support of results of the completed population and housing census is necessary for formation of a positive attitude of the population of the country to the end of the national statistical activity and reception of the necessary data, as well as strengthening of the national statistical service image.

Before data collection

840. The realization of the before-census campaign is the main part of the program, which influences to the success of the population and housing censuses and quality of data.

841. At first it is necessary to define of the basic problems of population and housing censuses and to define of the target audiences.

842. The problems of the population and housing censuses should be defined on the basis of the existing situation of the country, taking into account the demographic, economic, ethnic and confessional structure of the population. At the same time, basic problems of the census are identical in the majority of countries:

- Refusal to participate in the census due to different sorts of fears; and
- Individuals providing unreliable information about themselves.

843. Specific problems can include the following:

- Presence of territories with unstable conditions;
- Presence of a socially passive population group (can amount up to 30%), its unwillingness to participate in public activities; and
- Desire from a party of citizens to express a protest towards the state in the form of refusal to take part in the census.

844. It is necessary to identify citizens' fears to define problematic audiences, as well as implementation methods on conducting informational and expository work among the population on population and housing census issues and main subjects of work on forming a positive attitude toward the census.

845. The list of basic "fears" and their carriers are given below:

Subject of fears	Groups of the population most subject to the given kinds of fears
The census has fiscal purposes	Persons with a high level of incomes, persons with several sources of income

The census is used to build a government database	Persons with a high level of incomes, persons with several sources of income, middle class, illegal migrants
The census will be used for national and religious oppression	National and religious minorities
The census will be used to reveal illegal migrants	Illegal migrants and people providing them with housing and workplaces
The census will be used to reveal “asocial elements”	Persons without certain residence, persons connected to the criminal world
Criminal elements will use the disguise of census-takers	Practically the whole population

846. Thus, target audiences are – the whole population of the country, separate social-demographic groups, as well as specific “problem groups.”

847. Social-demographic groups:

- Population by age groups (children of school age and teenagers, youth under 30 years, middle-aged persons, elderly people);
- Social groups by employment type (school children, students, employed and unemployed population);
- Professional groups (workers, businessmen, housewives); and
- Inhabitants of megalopolises, large, medium and small cities, village settlements, people living in remote areas.

848. “Problem groups”:

- Persons with high incomes;
- Illegal migrants;
- Persons without certain residence;
- Persons working far from their residence and family, or for which it is difficult to pass the census procedures due to long periods of stay on work; and
- Inhabitants of areas, where national or confessional conflicts take place.

849. There are a wide variety of potential issues that can affect a census publicity campaign, and identifying them is an important part of the before-census campaign, for example:

- Privacy and confidentiality of information given;
- Whether the information provided was actually put to good use;
- Cost of the census;
- Potential use of census information for non-statistical purposes;
- Requirement that name and address be included on the census form; and
- Concerns about potential government intrusion into private affairs.

850. There are several main messages that census agencies will need to communicate to the public in order maximize outcomes for the census, for example:

- Privacy and confidentiality will be honored;
- The census is for the good of the all because it is the best way to plan for the future;
- Filling in the form is a patriotic duty of citizens;
- Cooperation is mandatory; and
- There are penalties for enumerators and other staff who misuse information.

851. Many countries successfully develop a census logo and slogan. A simple but effective slogan and distinct logo can be used in all national and local advertising campaign and in all types of media, booklets, posters, brochures and souvenir production. The slogan and logo have to be memorable and positively perceived by people.

Examples of slogan:

United Kingdom in 2001 – “*Count me in Census 2001*”

Russian Federation in 2002 – “*Write down yourself in the history of Russia*”

852. *The PR-campaign* represents interaction with: federal and regional mass-medias; territorial bodies of statistics; municipal formations, public and other organizations. It is possible to foresee the realization of the following activities:

Organization and advertisement of press conferences, round tables, briefings (including internet press-conferences), scientific conferences	Participants can be heads of national statistical services and their territorial bodies; members of Government and Parliament; parliamentarians and regional officials; important public and political leaders, scientists- demographers, economists, politicians, leaders of religious confessions and national communities, famous people. ⁵⁸
Organization of interviews	Use of distribution of official position of authorities or personal position of public opinion leaders. ⁵⁹
Meeting with journalists, informational support, organization and advertising of press-rounds	Use of discussions and training of journalists on issues of organization and realization of the census with orientation on excluding of negative sides in the publications; creation of journalistic pool; organization of visits of the journalists to various objects connected to census realization; preparation of information press releases and letters on the course of preparation to the census and mass dissemination to mass-media.
Organization and advertisement of special projects for separate target audiences	Concerts, competitions, exhibitions with the purpose of attraction of youth and national minorities; organization of a “children census” to attract adults to the census through children; other creative measures; organization of “direct phone lines” and websites, realization of internet-voting,

⁵⁸ Reports on the implemented activities are to be included in the TV and radio newscasts, as well as bulletins.

⁵⁹ Organization of speeches of high ranking government officials of the federal and regional level in support of the census and reports of them passing through census procedures.

	quizzes; passage of thematic programs on radio and TV, including in playing kind.
Dispatching messages to public opinion leaders	Direct dispatch of letters to public opinion leaders with the appeal to act in support of the participation in the census.
Direct propaganda	Use of leaflets, booklets, posters, brochures, souvenir production as the traditional form of attracting public attention to the issue.

853. *The advertising campaign* ensures the greatest possible coverage of the audience through the use of central and regional TV, radio, printing of outdoor advertising on boards established in cities and highways.

854. The advertising campaign should be based on a specially developed creative concept. All advertising production should be produced based on results of expert testing and special sociological researches on focus groups, in view of mentality of various target groups and regional features.

855. The advertising campaign on radio and TV can be carried out in multiple stages:

- The first stage of advertising campaign should have a motivational character;
- The second stage can be directed on the explanation of necessity of participation in the census; and
- The third stage - on strengthening of conviction to participate in the census, illumination of the census procedure, and removal of remaining fears.

856. Introduction of central TV and radio channels and regional channels at different stages depends on the developed concept. It is not essential to film professional actors in advertising clips. For more persuasion, it is possible to use non-actors in advertising clips.

857. At the last stage, directly before the census, placement of direct propaganda is possible - outdoor advertisement boards, posters, distribution of leaflets, souvenir production.

858. *Monitoring public opinion* foresees the implementation of sociological surveys - mass interviewing of the population by a representative sample. Mass interviewing must be carried out with increasing intensity: from once per three months - up to weekly surveys. The basic tasks of sociological support:

- Monitoring of dynamics of public opinion attitude to the census;
- Testing of advertising production; and
- Use of results of mass sociological surveys as informational motives, with calls of press conferences, press releases, publication of various comments.

859. *Monitoring of mass media* envisages an analysis of mass-media publications concerning the issues of the census. It is an ongoing accumulation of urgent information, prevention of mass negative publications, and preparation of adequate answers to negative information.

During data collection

860. During the census, the publicity and information campaign could be realized by the next methods:

- The advertising campaign (the third stage) in central and regional television, radio, newspapers, outdoor advertising on billboards and posters;
- Organization of press conferences, round tables, briefings with participating of the influential people and census staff; and
- The advertisement in mass-media of the census operation procedure with politicians including national and local government politicians, local community leaders, religious leaders.

Post-census campaign

861. The basic methods of realization of a post-census program on informational support of results of the population and housing census can be the same as those of the preparation campaign:

PR-measures	Organization of press conferences, briefings, round tables; publications in the mass-media, organization of thematic TV and radio programs; availability of the information on a specially developed Web-site, organization of special creative competitions;
Direct advertising	Distribution of popular brochures and booklets with the basic results of the census; accommodation of brief results on stands located on the central streets of cities; organization of radio and video clips; dissemination of means of direct propaganda with brief results - on calendars, bookmarks, souvenirs;
Monitoring of public opinion	Implementation of population interviewing on sources of collecting the information on results of the past census and trust towards the results

862. The cost of realization of the Program should be included in the budget of the population and housing census.

863. Attraction of financial resources is possible within the framework of the so-called “program of partnership as sponsor’s help” - large firms, enterprises, banks, insurance companies etc. These can help, for example, in implementing motivational measures, manufacturing souvenir production with logo of the census, measures of direct propaganda (posters, leaflets, booklets), video and video-clips, etc.

Appendix IX Classification of population by socio-economic groups

864. The following classification of the population by socio-economic group is suggested (see paragraphs 301-303):

- 1.0 Self-employed persons (and unpaid family workers) with agricultural occupations
 - 1.1 Employers
 - 1.2 Own-account workers
- 2.0 Members of producers' cooperatives (and unpaid family workers) with agricultural occupations
- 3.0 Employees with agricultural occupations
 - 3.1 Farm managers and supervisors
 - 3.2 Other agricultural workers
- 4.0 Self-employed persons (and unpaid family workers) in liberal and related professions
- 5.0 Other self-employed persons (and unpaid family workers)
 - 5.1 Employers
 - 5.2 Own-account workers
- 6.0 Members of producers' cooperatives (and unpaid family workers) with non-agricultural occupations
- 7.0 Employees with administrative, managerial, professional and related occupations
 - 7.1 Managers, legislative officials and government administrators
 - 7.2 Employees in liberal and related professions
- 8.0 Other non-manual employees
 - 8.1 Supervisors of clerical, sales and service workers; government executive officials
 - 8.2 Clerical, sales and service workers
 - 8.2.1 Clerical and sales workers
 - 8.2.2 Service workers
- 9.0 Other manual workers
 - 9.1 Foremen and supervisors of manual workers
 - 9.2 Skilled and semi-skilled manual workers
 - 9.3 Labourers
- 10.0 Economically active persons not elsewhere classified
 - 10.1 Members of the armed forces
 - 10.2 Persons seeking their first job
 - 10.3 Others
- 11.0 Not economically active persons
 - 11.1 Persons relying on an income from pensions of all types, property or other investments
 - 11.2 Dependants supported by other persons
 - 11.3 Other not economically active persons

Appendix X - Main concepts, terms and definitions of the International Classification of Functioning, Disability and Health

865. The main concepts, terms and definitions of the ICF are:

Body functions	are the physiological functions of body systems (including psychological functions).
Body structures	are anatomical parts of the body such as organs, limbs and their components
Impairments	are problems in body function or structure such as a significant deviation or loss
Activity	is the execution of a task or action by an individual
Activity limitations	are difficulties an individual may have in executing activities
Participation	is involvement in a life situation
Participation restrictions	are problems an individual may experience in involvement in life situations
Functioning	is the umbrella term for body function, structure, activity and participation
Disability	is the umbrella term for impairment, activity limitation and participation restriction
Environmental factors	make up the physical, social and attitudinal environment in which people live and conduct their life
Personal factors	are the particular background of an individual's life and living and comprise features of the individual that are not part of a health condition or health states, such as gender, race, age, fitness, lifestyle habits, coping styles, social background, education, profession, etc. The ICF does not include a classification of personal factors
Contextual factors	represent the complete background of an individual's life and living including two components, being environmental factors and personal factors which may have an impact on the individual with a health condition and that individual's health and health related states.

One level classification

866. In order to get a better idea of the content of the ICF we mention the first-level or parent categories of classification (chapter headings) of each of the classifications included in the ICF.

Body functions:

- 1 Mental functions
- 2 Sensory functions and pain
- 3 Voice and speech functions
- 4 Functions of the cardiovascular, haematological, immunological and respiratory systems
- 5 Functions of digestive, metabolic and endocrine systems
- 6 Genitoury and reproductive functions
- 7 Neuromusculoskeletal and movement related structures
- 8 Functions of the skin and related structures

Body structures:

- 1 Structures of the nervous system

- 2 The eye, ear and related structures
- 3 Structures involved in voice and speech
- 4 Structures of the cardiovascular, immunological and respiratory systems
- 5 Structures related to the digestive, metabolic and endocrine systems
- 6 Structures related to the genitourinary and reproductive systems
- 7 Structures related to movement
- 8 Skin and related structures

Activity and Participation⁶⁰:

- (1.0) Learning and applying knowledge
- (2.0) General tasks and demands
- (3.0) Communication
- (4.0) Mobility
- (5.0) Self-care
- (6.0) Domestic life
- (7.0) Interpersonal interactions and relationships
- (8.0) Major life areas (such as education, work and employment, economic life)
- (9.0) Community, social and civic life

Environmental factors

- 1 Products and technology
- 2 Natural environment and human-made changes to environment
- 3 Support and relationships
- 4 Attitudes
- 5 Services, systems and policies

867. Personal factors are mentioned as important factors but are not classified in the ICF. For health conditions (disorder, disease, injuries and congenital causes of disability) reference is made to the ICD-10⁶¹ and the ICECI⁶².

868. In order to specify the functioning and disability situation of a person, qualifiers are available to indicate the extent and level of functioning/disability and the environmental factors as being facilitators or barriers. The advantage of the ICF is the broad spectrum offered from the body function/structure (impairment) point of view up to the participation one including the influence of environmental factors. It is recommended to use this broad spectrum as often as possible.

⁶⁰ At the time the revision process of the ICIDH was in a final stage it seemed to be possible to distinguish activity and participation at the level of definitions. However it was not possible to reach agreement about the related classifications. For this reason there is one classification for activity and participation (domains) with four suggestions how to use this in an activity or participation mode

⁶¹ International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Vols. 1-3, Geneva, World Health Organization, 1992-1994.

⁶² International Classification of External Causes of Injuries, Geneva World Health Organization, 2004.