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Population bases and Geographic characteristics

Population bases and geographic characteristics - Draft text for the Conference of European Statisticians Recommendations for the 2020 census round

Note by the UNECE Task Force on population to be enumerated and geographic characteristics*

Summary

This document presents the draft text on population bases and geographic characteristics for the Conference of European Statisticians (CES) Recommendations for the 2020 Round of Censuses. It was prepared by the UNECE Task Force on population to be enumerated and geographic characteristics, based on the first proposal discussed at the September 2013 meeting of the UNECE-Eurostat Group of Experts on Population and Housing Censuses, and on further discussion within the Task Force and with the UNECE Steering Group on Censuses. The proposed text on population bases focusses almost exclusively on the recommended concept of usually resident population. The text also clarifies some issues related to specific group of persons, such as students and cross-border workers.

NOTE: The present version of the document shows, using the “track changes” function, the changes between the text of the CES Recommendations for the 2010 census round, and the draft text of the CES Recommendations for the 2020 census round.

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I. Population ~~to be enumerated~~ bases

[NOTE: In the CES Recommendations for the 2010 census round, this text was presented in Chapter III. Population to be enumerated]

A. General definitions

1457. 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 stricter. The following paragraphs provide definitions applied in the context of census exercises.

2. 'Enumeration' means the act of collecting data about a person (or household), irrespective of whether this occurs with the direct participation of that person (or household).

3. 'Population' is a set of persons attributed to a geographic entity who meet defined criteria at the census reference time; these criteria should help to identify qualifying adjectives (labels) which clarify which population is being referred to.

4. To meet national purposes, a country may have an interest in various populations. It is recommended that the qualifying adjectives (labels) attributed to the national populations are as close as possible to the meaning given in the international context.

5. A country may wish to enumerate all persons present in their territory and/or supposedly belonging to the population of interest. 'Population to be enumerated' is the set of persons whom the country decides should be covered by the census, regardless of their later inclusion in a specific population count, as defined below. The 'enumerated population' is composed of those persons who have actually been enumerated. This may or may not equate to the target population (the population to be enumerated), that is, the coverage of the census may represent either an under-count or over-count.

6. 'Population base' is the population used for the compilation of aggregates for statistical purposes. This may be a subset from - or the whole of - the population to be enumerated. A country may adopt more than one population base (for different statistical purposes), but one should always be the population base used for international comparisons purposes.

7. 'Population count' is the aggregate obtained by the simple addition of individual records from the enumerated population base. 'Population estimate' is the aggregate obtained as outcome of a statistical method of estimation. Therefore, both the population count and the population estimate refer to a specific population base and are empirical measures. Figure clarifies the relation between the general population concepts given above, while Figure shows an example of application¹.

¹To clarify the difference between the various concepts here presented, the following example may be useful: in a country the theoretical populations of interest (the *population bases*) are the 'usually resident' and the 'present' populations. The *population to be enumerated* is then the theoretical set of persons belonging to at least one population base (thus usually resident plus temporary present persons) which should be covered by the census

Figure 1
Relation between population concepts

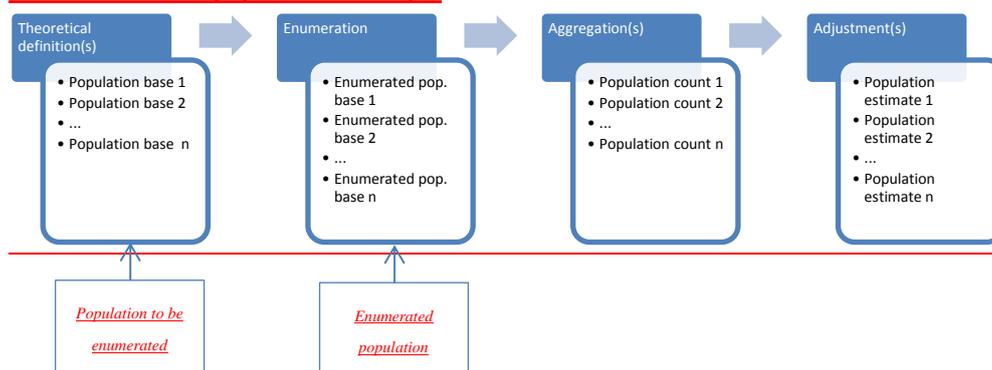
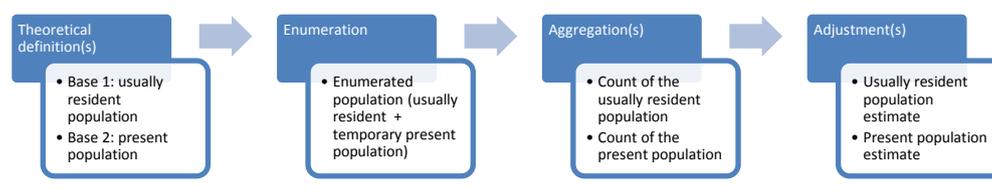


Figure 2
Example of application



8. The ‘census reference time’ is the time to which any information collected in a census refers. It can be either a precise moment of a day, usually the midnight (census reference moment), or a period of time (census reference period), or a day selected as indicative of a period (census reference average day). Some topics must refer to a moment (stock data), others to a period (flow data) and usually the census reference period includes the census reference time. The ‘census day/period’ is instead the day/period in which a census is carried out and it should not be confused with the census reference time.

B. Recommended population base

residence (core topic)

158.—9. ‘Place of usual ~~Place of usual residence~~residence’ is the geographic place where the enumerated person usually resides. This may be: spends their daily rest, assessed over a defined period of time including the census reference time.

— a) 10. The place where he/she actually ‘usually resident population’ of a country is at the time composed of the Census; or

— b) His/her legal residence; or

operation. These two concepts apply before the census enumeration. After that, there is the set of persons who have actually been enumerated, which is the *enumerated population* and it may not make a distinction between population bases (thus includes both usually resident and temporary present enumerated persons). Two measures (population *count* and *estimate*) follow then for each population base, the latter possibly including post-census adjustments (e.g., based on information from the post-enumeration survey).

~~e) His/her residence for voting or other administrative purposes.~~

~~159.— Only those persons:~~

~~a) who have lived in their place of usual residence for in the country at the census reference time and have lived or intend to live there for a continuous period of time of at least~~

~~twelve 12 months before Census Day; or~~

~~b) who have arrived in their. A 'continuous period of time' means that absences (from the place of usual residence) whose durations are shorter than 12 months do not affect the place of usual residence during the twelve months before Census Day with the intention of staying there for at least one year~~

~~should be considered as usual residents of the. The same criteria apply for any 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. Persons who have been temporarily absent for a short period from their place of usual residence over the previous twelve months for reasons such as work or holiday travel should be included territorial division of the country.~~

~~160.— 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, however, this concept may be difficult to understand. The definition and recommendations¹¹. The population base to be used for international migrants are discussed in Chapter VIII.~~

~~161.— For short term international migrants² the country of departure should continue to be the country of usual residence of the international migrant during his/her stays abroad. For long term migrants³ the country of destination should become the country of usual residence of the migrant.~~

~~162.— 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: comparisons purposes a) — 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;~~

~~b) 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;~~

²—Short term migrants are those who move to a country other than their country of usual residence for a period of at least three months but less than a year. Excluded 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.

³—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 year⁷

- e) ~~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 abroad⁴. As an exceptional measure, where the place of education is within the country, the place of usual residence may be considered to be the family home;~~
- d) ~~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;~~
- e) ~~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;~~
- f) ~~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;~~
- g) ~~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;~~
- h) ~~A child who alternates between two households (for instance after his or her parents have divorced) should consider the household where he or she spends the majority of the time as his or her place of usual residence. Where an equal amount of time is spent with both parents the place of usual residence should be the place where the child is found at the time on census night.~~

163. ~~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.~~

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

165. ~~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:~~

- a) ~~Persons population'. If a country cannot adopt as (one of) its population base(s) the 'usually resident and present at the time of the census; population', it should put all possible efforts into producing estimates that are as close to it as possible using its own population base(s).~~
- b) ~~Persons usually resident but temporarily absent at the time of the census; and~~
- e) ~~Persons temporarily present at the time of the census that are usually resident elsewhere (including their address of usual residence).~~

166. ~~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.~~

⁴ ~~Note that for National Accounts purposes third level students living away from home while at college or university are included at their home address and not their term time address.~~

Temporarily absent persons

~~167~~¹². As part of the estimation process in registers-based censuses, whenever reference is made to actual geographic places for the usually resident population base, it could be replaced by the registered place of residence, where the criterion of residence is similarly defined with reference to a qualification period of 12 months.

13. 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.

~~168~~.— 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 the length of visits that these persons may pay to their families from time to time⁵.

14¹⁴. 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 levels of emigration. Some countries try to estimate emigration in the census by collecting data on these persons, for instance using an “emigration module”. Previous experiences have shown that the census can hardly provide an accurate count of the total number of emigrants residing abroad. However, such an approach may provide some information on sub-sets of emigrants, such as those who emigrated recently and/or on those who have close family ties in the country. If data on absent persons living abroad is for one year or more are to be collected through the census, their information (in terms of counting and characteristics) should be distinguished from the information collected for the ~~total~~usually resident population.

Temporarily present persons

~~170~~.— Persons enumerated but not meeting the criteria for usual residence in the enumeration place, that is 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 and should therefore not be counted in the totally usual resident population. The census may not be the best vehicle to identify short-term migrants. However, in situations where countries use the census to measure short-term migrants, they will need to determine their country of usual residence, reason for migration and duration of stay.

Total population (derived core topic)

15¹⁵. A total usually resident population count for each territorial division would normally be compiled by adding persons who are usually resident and present and persons who are usually resident but 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~~;~~, using information about their place of residence.

⁵ These persons differ from those specified in paragraph 162a).

172.— ~~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 158–160) regardless of their legal status.~~

173.— ~~The total usually resident population should usually include the following groups of persons:~~

- ~~a) — Nomads;~~
- ~~b) — Vagrants;~~
- ~~c) — Persons living in remote areas;~~
- ~~d) — Military, naval and diplomatic personnel and their families, located outside the country;~~
- ~~e) — 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);~~
- ~~f) — Civilian residents temporarily working in another country provided they have not been living abroad for one year or more;~~
- ~~g) — Civilian residents who cross a frontier daily to work in another country;~~
- ~~h) — Civilian residents (other than those in categories (d) to (g)) temporarily absent from the country provided they are not long-term immigrants of the destination country.~~

174.— ~~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. The intention is not to distinguish these persons separately, but rather to ensure that they are not missed from the enumeration. In this context it is important that the usually resident 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.~~

175.— ~~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. As in the previous paragraph, the intention is not to distinguish these persons separately, but rather to ensure that they are not missed from the enumeration.~~

176.— ~~The following categories of temporarily present persons should not normally be considered part of the total usually resident population. However, countries may wish to collect data on them to produce alternative counts of the population for whom services will have to be provided:~~

- ~~a) — foreign military, naval and diplomatic personnel and their families, temporarily located in the country;~~

- ~~b) foreign civilians temporarily working in the country;~~
- ~~e) foreign civilians who cross a frontier daily to work in the country;~~
- ~~d) foreign civilians other than those in groups (b) and (c) temporarily in the country for example tourists.~~

~~177. If feasible, the magnitude of groups in paragraphs 173 and 176 should be shown.~~

~~178~~16. 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~~adjusted for under- or over-~~enumeration~~ (usually measured by use of a post-~~enumeration~~ survey or by comparison with other sources), both the enumerated figure (the population count) and the ~~estimated~~estimated ~~corrected~~adjusted population figure (the population estimate) should be shown and described. The detailed tabulations ~~will~~may, however, ~~normally~~ be based only on the population that was actually enumerated.

~~179. Some countries may wish to compile figures for national purposes on one or more additional population bases such as 17. The composition of the total present in area population, the legally usually resident population, the day time 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 regardless of their legal status.~~

C. Particular cases

18. There are various population groups for which some uncertainty may arise about their inclusion in the usually resident population of a country. The following persons should be included:

(a) Persons present at the census reference time to whom the concept of usual residence does not apply (nomads, vagrants, etc.), irrespective of whether or not they meet the 12-month criterion.

(b) Persons who regularly live in more than one country during a year, if they live in the reporting country most of the time, irrespective of whether or ~~the~~not they are present in the reporting country at the census reference time.

(c) National military, naval and diplomatic personnel and their families, located outside the country, irrespective of their duration of stay abroad.

(d) Foreign persons working within the country for international organisations (not including foreign diplomats or military forces) and their families, provided that they meet the criteria for the usual residence in the country.

(e) Merchant seamen and fishermen usually 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).

(f) Persons who may be illegal, irregular or undocumented migrants, as well as asylum seekers and persons who have applied for or been granted refugee status or similar types of international protections, provided that they meet the criteria for the usual residence in the country. The intention is not to distinguish these persons separately, but rather to ensure that they are not missed from the enumeration.

(g) Children born in the twelve months before the census reference time and whose families are usually resident in the country at the census reference time.

(h) Persons whose stay in the country (actual and/or intended) is exactly one year.

19. The following persons should instead be excluded from the usually resident population of a country:

(a) Persons who regularly live in more than one country during a year, if they do not live in the reporting country for most of the time, irrespective of whether or not they are present in the reporting country at the census reference time.

(b) Foreign military, naval and diplomatic personnel and their families, located in the country, regardless of their duration of stay.

(c) Persons whose stay in the country (actual and/or intended) is less than one year, even if for a single day.

20. For short-term international migrants⁶ - those whose stay abroad is at least 3 months but less than 12 months - the previous country of residence should continue to be their country of usual residence. For long-term migrants – whose stay abroad is 12 months or longer - the country of destination should become the country of usual residence of the migrant.

21. 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. ~~working in the area. The present in area~~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.

22. Persons who work/study away from home may be particularly problematic to classify as for their inclusion in the population of the country and/or their allocation to a place of usual residence within the country.

⁶ For the definitions of long-term and short-term migrants, see Recommendations on Statistics of International Migration – Revision 1, United Nations Statistics Division, 1998, paragraphs 36-37.

Table summarises the rules of classification for students and workers.

Table 1
Rules for usual residence of workers and students living away from family home

<u>Category</u>	<u>Place of work/study</u>	<u>Regular* return to family home</u>	<u>Inclusion in the usually resident population of the country</u>	<u>Place of usual residence within the country</u>
<u>Workers</u>	<u>In the country</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>Yes</u>	<u>Term time address</u>
	<u>Abroad</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>No</u>	<u>None</u>
<u>Children in a family nucleus in primary or secondary education (**)</u>	<u>In the country</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>Yes</u>	<u>Family home</u>
	<u>Abroad</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>Yes</u>	<u>Family home</u>
<u>Adults in a family nucleus in primary or secondary education (**)</u>	<u>In the country</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>Yes</u>	<u>Term time address</u>
	<u>Abroad</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>No</u>	<u>None</u>
<u>Persons with no family nucleus in primary or secondary education (**)</u>	<u>In the country</u>	<u>Not applicable</u>	<u>According to usual rules</u>	<u>According to usual rules</u>
	<u>Abroad</u>	<u>Not applicable</u>	<u>According to usual rules</u>	<u>According to usual rules</u>
<u>Students in tertiary education (***)</u>	<u>In the country</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>Yes</u>	<u>Term time address</u>
	<u>Abroad</u>	<u>Yes</u>	<u>Yes</u>	<u>Family home</u>
		<u>No</u>	<u>No</u>	<u>None</u>
<u>Students-workers</u>	<u>Persons who study and work at the same time will be allocated to the pertinent country/geographic division according to the rules for students or workers depending on which one between work and study is considered the main activity.</u>			

^(*) Regular is to be understood as more than twice each month (e.g., twice a week, weekly, etc.).

^(**) ISCED 2011 levels 0-4.

^(***) ISCED 2011 levels 5-8.

23. There are other population groups for which some uncertainty may arise in defining their place of usual residence within the country. The recommended conventional treatment of these cases is as follows:

(sometimes referred to as the de facto population) can be classified- (a) The place of enumeration should be taken as the place of usual residence of persons with no concept of usual residence, such as homeless or roofless persons, nomads and vagrants.

(b) When a person regularly lives in more than one residence within the country during the year, the place of usual residence is the place where the person spends most of their time, irrespective of whether or not the person is present in that place at the census reference time.

(c) A child who alternates between two households within the country (for instance after his or her parents have divorced) should consider the household where he or she spends the majority of the year before the census as his or her place of usual residence. Where an equal amount of time is spent with both parents, the place of usual residence

should be the same of that of the parent/household with whom the child is living at the census reference time.

24. For the national military, naval and diplomatic personnel and their families located outside the country the following classification rules should be applied:

(a) If they are residing abroad for less than 12 months and they are intending to return to the place of departure, they should be allocated within the country in accordance with the rules for usual residence. In particular, they could be allocated to (by the relevant geographic or administrative subdivision in decreasing order of priority):

(i) The family home address within the country, if any.

(ii) The duty station within the country to which they were enumerated during the census operation attached before leaving.

(b) If they are residing abroad for at least 12 months or if they are not intending to return to the place of departure (although returning in the country within a 12-month period), they should be attributed to a 'virtual place' (extra-region) of the country of departure.

II. ~~Chapter IV.~~ Geographic characteristics

A. Introduction

25. One of the distinguishing features of Censuses of Population and Housing is the extent to which a comprehensive classification of geographic characteristics can be undertaken. Once the population base has been determined it is then possible to examine how this population is geographically located. This aspect is considered in this chapter.

Location of place of residence (core topic)

26. The location of place of residence is the precise location of the 'usual place of residence' as defined in paragraph xxx in Chapter xxx [NOTE: The cross-references will be updated at the time of the finalization of the recommendations]. If a country cannot adopt as population base the 'usually resident population', an estimate as close to it as possible should be used. The location should be coded to the smallest possible civil division and geo-referenced to geographical coordinates.

27. The place of usual residence should be geo-referenced to a pair of precise geographical coordinates⁷ of the address point, or in the absence of such coordinates, to a precise and complete postal address for geocoding purposes. The purpose is to enable tabulations and spatial aggregations to be made to any small geographic or administrative subdivisions including population grids. This is required to meet users' needs for information and spatial analysis. The link between the census information and the location of the place of usual residence should form a permanent and integrated part of the census information at individual record level.

⁷ In the EU and continental Europe the geographic coordinates should refer to the European Terrestrial Reference System 1989 (ETRS89, EPSG 4258). In regions outside continental Europe the geographic coordinates may also refer to the global coordinate reference system WGS-84 (EPSG code 4326)

Locality (derived core topic)

~~18128~~. For census purposes, a locality is defined as a distinct population cluster or settlement, that is, the area defined by population ~~living~~with place of residence located in neighbouring or contiguous buildings.

~~18229~~. Such buildings may either:

- (a) Form a continuous built-up area with a clearly recognizable street formation; or
- (b) Though not part of such a built-up area, comprise a group of buildings to which a locally recognized place name is uniquely attached; or
- (c) Though not coming within either of the above two requirements constitute a group of buildings, none of which is separated from its nearest neighbour by more than 200 metres.

~~18330~~. 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.

~~18431~~. 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 and or metadata.

~~18532~~. 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 as sub-divisions of a single locality rather than as separate localities.

~~18633~~. A large locality of a country (that is to say, a city or a town) is often part of an urban agglomeration, which comprises the city or town proper and also the suburban fringe or thickly settled territory lying outside, but adjacent to, its boundaries. The urban agglomeration is therefore not identical with the locality but is an additional geographical unit, which may include more than one locality. In some cases, a single large urban agglomeration may comprise several cities or towns and their suburban fringes. The components of such large agglomerations should be specified in the census results.

~~34~~. 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 ~~190xxx~~ below). [NOTE: Cross-reference to the relevant text in the "Urban and rural areas" topic to be updated at the time of the finalization of the recommendations]

~~18735~~. 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

~~188~~36. This classification could also be applied to other relevant ~~areas~~ population bases such as the economically active population, households, families and dwellings- (though it may be necessary to adopt different scales).

Urban and rural areas (derived non-core topic)

~~189~~37. 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 ~~181-182-xxx-xxx~~ [NOTE: Cross-reference to the relevant text in the "Locality" topic to be updated at the time of the finalization of the recommendations]. However, it is left to countries to decide whether to use the locality or the smallest civil division as the unit of classification.

~~190~~38. It is recommended 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 (for example 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 relevant census report and/or metadata.

~~191~~39. 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 that~~ 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 the~~ average number of inhabitants) are relatively small 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 (that is 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.

~~19240.~~ The situation is different, however, in the case of countries in which the smallest civil divisions ~~are relatively large in area (and in the~~ average number of inhabitants) ~~are relatively large~~ 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, for example 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.

~~19341.~~ It is recommended that localities or similar units be grouped into the following ~~five~~~~seven~~ categories:

- (1.0) Less than 2,000 inhabitants
- (2.0) 2,000 to 9,999 inhabitants
- (3.0) 10,000 to ~~49,999 inhabitants~~
- ~~(4.0) 50,000 to~~ 99,999 inhabitants
- ~~(45.0) 100,000 to~~ ~~99924,~~999 inhabitants
- ~~(56.0) 250,000 to 999,999 inhabitants~~
- ~~(7.0) 1,000,000 or more inhabitants~~

~~19442.~~ 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 (1.0) (and in some cases category (2.0) 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 (4.0) ~~and (5 to (7.0)~~ to distinguish various types of central and suburban areas. Extensions of the classification in these and other ways would enhance its analytical usefulness.

Population grid (derived core topic)

[NOTE: Point for discussion: shall this be a core or non-core topic?]

43. For census purposes, a population grid is defined as a geo-referencing framework for population in the form of a grid net with fixed and unambiguously defined locations of equal-area grid cells.

44. Each grid cell contains the aggregated number of persons where the location of place of residence, as described in paragraph xxx [NOTE: Cross-reference to the relevant text in the "Location of place of residence" topic to be updated at the time of the finalization of the recommendations], is geo-referenced to a point located in this grid cell. In countries where

such aggregation is not possible, the population grid could be disaggregated from the smallest civil division using auxiliary information such as land use maps, built-up area detection or cadastral information.

45. In addition to assigning usual residents to a grid net the same grid net can be used to assign people to their place of work or location of school, college or university. The same grid net could also be used for households, families and dwellings.

46. The size of each grid cell should be 1km² to ensure cross-border interoperability. To meet national requirements, countries may wish to create other grid cell sizes in addition.

47. In continental Europe the grid system should be defined in line with the INSPIRE legal framework⁸. In regions outside of continental Europe countries may define their own grid based on a geodetic coordinate reference system compliant with ITRS and a Lambert Azimuthal Equal Area projection, following the same principles as laid down for the INSPIRE grid. In this case, an identifier for the coordinate reference system shall be created and included in the metadata of the population grid.

48. Census statistics are traditionally reported on administrative areas or specific census output areas. Population grids are very useful complementary output systems offering several advantages. Grid cells are all of the same size, making them perfect for area or distance based comparisons (e.g. accessibility to services). Grids are stable over time and hence independent of changes in civil divisions. Furthermore, grids integrate easily with other scientific data (e.g. climate data). Grid cells are flexible as they can be assembled to form areas reflecting a specific purpose and study area. Grid systems can be constructed hierarchically in terms of cell size, thus matching study areas from local to global level. In a census context it is important to notice that grids are very powerful for spatial analysis in an international and cross-border context as they are not affected by variation in municipality size between countries. However, grid statistics may give rise to concerns over confidentiality in thinly populated areas. Therefore the topics for which grid statistics will be produced have to be carefully selected and the choice will always represent a compromise between data protection concerns and demand for detailed and flexible statistics.

Degree of urbanisation (derived non-core topic)

49. Degree of urbanisation⁹ classifies the areas where persons have their usual place of residence as thinly populated areas, intermediate density areas and densely populated areas. The classification is based on a combination of geographical contiguity and minimum population thresholds applied to 1 km² population grid cells (see paragraph 43) [NOTE: Cross-reference to the relevant text in the “Population grid” topic to be updated at the time of the finalization of the recommendations]. These grid cells all have the same shape and size, which avoids distortions caused by units varying in size.

49. The Degree of urbanisation creates a classification of local administrative units/municipalities as follows:

(a) Thinly populated area has more than 50 per cent of their population living in rural grid cells

⁸ COMMISSION REGULATION (EU) No 1253/2013 of 21 October 2013 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC as regards interoperability of spatial data sets and services

⁹ The Degree of urbanisation (DEGURBA) classification is developed by the OECD and the European Commission; see Directorates General Regional Policy and Urban Development, Agriculture, Eurostat and the Joint Research Centre.

(b) Intermediate density area have more than 50 per cent of their population living in urban clusters, but are not densely populated areas

(c) Densely populated area have more than 50 per cent of their population living in high-density clusters¹⁰ (urban centres)

50. 'Degree of urbanization' may also be used to create an alternative classification of areas as 'urban' and 'rural'. Thinly populated areas are then classified as 'rural areas' and intermediate and densely populated areas are classified as 'urban areas'.

51. In the above classification of local administrative units/municipalities, the following definitions, population and density¹¹ thresholds are used:

(a) Rural grid cells are grid cells which do not belong to an urban cluster

(b) Urban clusters are clusters of contiguous grid cells of 1 km² with a density of at least 300 inhabitants per km² and a minimum population of 5 000. Contiguity for urban clusters does include the diagonal (i.e. cells with only the corners touching). Gaps in the urban cluster are not filled (i.e. cells surrounded by urban cells).

(c) High-density clusters (urban centres) are clusters of contiguous grid cells of 1 km² with a density of at least 1 500 inhabitants per km² and a minimum population of 50 000. Contiguity for high-density clusters does not include the diagonal (i.e. cells with only the corners touching) and gaps in the cluster are filled (i.e. cells surrounded by high-density cells).

52. As local administrative units/municipalities vary considerably in area, this methodology will lead to a closer match between high-density clusters and densely populated local administrative units/municipalities in countries with small local administrative units/municipalities than in those with large local administrative units/municipalities. To take this difference into account, the classification can be adjusted as following:

53. A densely populated local administrative unit/municipality can be classified intermediate as long as 75 per cent of its high-density cluster population remains in densely populated local administrative units/municipalities.

54. A thinly populated or intermediate density local administrative unit/municipality can be classified as densely populated if it belongs to a group of local administrative units/municipalities with a political function and if the majority of population of this group of local administrative units/municipalities lives in a high-density cluster.

Commuting

4955. 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.

¹⁰ Each high-density cluster should have at least 75% of its population in densely populated local administrative units/municipalities. This also ensures that all high-density clusters are part of at least one densely populated local administrative unit/municipality, even when this cluster represents less than 50% of the population of the local administrative units/municipalities.

¹¹ In Europe, the same threshold has been used in all countries. In other regions of the world, however, the two density thresholds may need adjusting up or downward.

Location of place of work (core topic)

~~19656~~. The location of place of work is the precise location in which a "currently employed" person performs his/her job, and where a "usually employed" person currently performs or last performed the job¹². The location should preferably be coded to the precise address and/or geographic coordinates¹³ or, if this is not possible, to the smallest possible civil division¹⁴.

~~19757~~. 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 precise address or 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 (for example 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. It may not be possible to allocate the place of work of some persons (such as sailors, fishermen and offshore workers). Such persons should be coded as having no fixed place of work.~~

58. In order to monitor commuter flows, a classification comparing location of place of work and location of place of residence is recommended. Commuting should be measured between place of origin and place of destination of the daily journey. For some persons in employment the place of origin may not be their usual place of residence if they have a separate week-day address from which they usually travel to work.

59. The following classification is recommended:

[NOTE: Point for discussion: two alternatives are proposed]

Alternative 1

- (1.0) Same minor civil division as place of residence
 - (1.1) Working at home
 - (1.2) Working elsewhere within the same minor civil division
- (2.0) Neighbouring minor civil division
- (3.0) Other minor civil division

¹² This topic relates to all the categories distinguished in paragraph ~~300xx~~ relating to type of place of work.

¹³ In the EU and continental Europe the geographic coordinates should refer to the European Terrestrial Reference System 1989 (ETRS89, EPSG 4258). In regions outside continental Europe the geographic coordinates may also refer to global coordinate reference system WGS-84 (EPSG code 4326).

¹⁴ It is recognised that where the location of place of work is outside the country it may not be possible is generally only necessary to code it to the ~~smallest possible civil division of the~~ country concerned.

- _____ (3.1) In same major civil division
- _____ (3.2) In some other major civil division
- _____ (4.0) Abroad
- _____ (5.0) Other place of work
- _____ (5.1) Offshore installation
- _____ (5.2) No fixed place of work
- _____ (6.0) Location of place of work not determined.

Alternative 2

- _____ (1.0) Same minor civil division as place of residence
- _____ (2.0) Other minor civil division in same major civil division as place of residence
- _____ (3.0) Other major civil division
- _____ (4.0) Abroad
- _____ (5.0) Other place of work
- _____ (5.1) Offshore installation
- _____ (5.2) No fixed place of work
- _____ (6.0) Location of place of work not determined.

60. Minor civil division refers to the lowest level of geography for which commuter flows should be measured. Depending on national circumstances this could be small areas (such as wards or communes) or areas at a higher level (such as municipalities or districts). Major civil division refers to a higher level of geography such as municipalities (if minor division is small areas) or counties/departments (if minor division is municipalities or districts).

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

19861. 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 employed provided by place of work. In order to maintain comparability with the place of work variabletopic, the location of school, college or university should be coded to precise address/geographic coordinates or, if this is not possible, to the smallest possible civil division.

Mode of transport to work (non-core topic)

[NOTE: Point for discussion: this topic could be merged with the following “Mode of transport to school, college or university” into one topic “Mode of Mode of transport to work or place of education”]

62. 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 daily journey should be indicated. People not traveling to work should be classified as having no journey.

20063. The following classification is suggested:

- (1.0) Rail
 - (1.1) National/international rail network

- (1.2) Metro/Underground
- (1.3) Tram/Light railway
- ~~(2.0)~~20.) Bus, minibus or coach
- (3.0) Car or van¹⁵
 - (3.1) Driver
 - (3.2) Passenger
- (4.0) Other
 - (4.1) Motorcycle
 - (4.2) Pedal cycle
 - (4.3) Walk
 - (4.4) Boat or ferry
 - (4.5) Other

(5.0) No journey made or mode of transport not determined

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

~~20164.~~ As for the mode of travel to work topic the mode of transport to school, college or university 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 ~~20063~~ above applies in this case also. [NOTE: Cross-reference to the previous paragraph to be updated at the time of the finalization of the recommendations]

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

[NOTE: Point for discussion: this topic could be merged with the following “Distance travelled to school, college or university and time taken” into one topic “Distanced travelled to work or place of education and time taken”]

~~65.~~ Countries may wish to collect information on the distance travelled to work on a daily basis 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. When collecting this information, consideration should be given to the address from which the journey commenced.

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

~~20366.~~ 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 on a daily basis with consequent increases in the time taken to undertake these journeys. When collecting this information, consideration should be given to the address from which the journey commenced.

¹⁵ At the two digit level countries may wish to distinguish persons who drive alone and those who go in cars or vans containing 2, 3, 4, 5, 6 etc. persons. Such a classification would enable the extent of car-pooling to be monitored.