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## **Report of the Task Team on Population Estimates**

Prepared by the United Nations Population Division



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***UNITED NATIONS TASK TEAM ON POPULATION ESTIMATES***

Population Division

Department of Economic and Social Affairs

United Nations, New York

**Report of the Task Team on Population Estimates**

## A. PROCESS

In September 2007, the Committee for the Coordination of Statistical Activities (CCSA) decided to establish a Task Team on Population Estimates led by the Population Division of the Department of Economic and Social Affairs (DESA) of the United Nations Secretariat that would:

1. Review and recommend ways to improve consultations with countries in the process of producing national estimates;
2. Indicate to agencies how to factor in changes in the population figures from one revision to the next;
3. Discuss ways to address the concern that there are no internationally agreed standards for annual population statistics.

The task team was constituted by 12 members:

- African Development Bank (AfDB)
- Economic Commission for Africa (ECA)
- Economic Commission for Europe (ECE)
- Economic Commission for Latin America and the Caribbean (ECLAC)
- Economic and Social Commission for Asia and the Pacific (ESCAP)
- Economic and Social Commission for Western Asia (ESCWA)
- UNESCO Institute for Statistics (UIS)
- United Nations Population Division/DESA (UNPD)
- United Nations Population Fund (UNFPA)
- United Nations Statistics Division/DESA (UNSD)
- World Bank
- World Health Organization (WHO)

The Pan-American Health Organization (PAHO) and the South Pacific Communities (SPC) joined the Task Team at a later stage.

In September 2008, CCSA reviewed the report prepared by the Task Team addressing the first two objectives. CCSA agreed with the proposal of the Task Team to continue work for a second year to address the last objective. This report contains the Task Team's recommendations regarding the third objective.

The Task Team held two meetings in 2009. At the first meeting, held in February 2009 at United Nations Headquarters, members of the Task Team based their discussion on a concept note prepared by the Population Division/DESA. The issue of establishing standards for the preparation of population estimates was considered and the Task Team concluded that it was premature to attempt to establish those standards for the following reasons: (a) a variety of demographic techniques for the preparation of population estimates with different degree of detail were available and were well documented in the demographic literature, so there was no need to repeat that literature; (b) the type of data available in each country and their quality determined to a large extent the type of techniques that could be used in each case; and (c) in the presentation of national population estimates compiled by the Statistics Division/DESA on the

basis of reports by National Statistical Offices there was few information on how the estimates were derived so it was not possible to make an assessment of whether further guidance was required or what the parameters for establishing standards might be. For those reasons, Task Team members thought that the first order of business was to improve the information obtained from National Statistical Offices regarding the data and methods underlying the population estimates they reported. Hence, the focus of the Task Team's work centered on the discussion of the minimum set of metadata required to assess the coverage, timeliness and quality of the population estimates reported. The concept note prepared by the Population Division/DESA proposed a set of "dimensions" that were thought to be relevant in describing and documenting the data and the methodology used in preparing population estimates. During the discussion of the dimensions proposed, Task Team members made a number of suggestions and agreed to focus on the type of structured metadata that would be desirable in order to evaluate and assess the quality and comparability of annual population estimates within countries across time and across countries. The representative of the Statistics Division/DESA noted that the Division had been collecting similar metadata on population estimates and acknowledged that the suggestions of the Task Team would be helpful in revising the questionnaire that was currently used for that purpose. Nevertheless, it was highlighted by the representative of the Statistics Division/DESA that the main problem was the response rate from countries rather than the type of metadata requested.

The second meeting of the Task Team took place at UN Headquarters on 26 May 2009. At that meeting, the Task Team reviewed the set of metadata presented in a paper prepared by the Population Division which had taken into account the comments and suggestions made by members of the Task Team at the first meeting and in the interim period. There was general agreement that the revised set of dimensions provided the basic guidance needed to improve the collection of metadata and, at the suggestion of the representative of the Statistics Division/DESA, agreed that the next step would be for the Statistics Division in collaboration with the Population Division/DESA to revise the questionnaire on metadata on population estimates that was being used in gathering the data for the preparation of the Demographic Yearbook.

A final report on the type of metadata required was prepared by the Population Division and circulated among the members of the Task Team. It summarizes the information and views expressed at the two meetings of the Task Team and the written comments received as of 30 July 2009. It is presented as Annex I of this report.

## B. DELIBERATIONS

According to the Task Team, annual population estimates could be regarded as one of the chief accomplishments of National Statistical Offices. Their production requires a well-functioning vital registration system that provides complete, accurate and uninterrupted counts of the main demographic components of change for the years between censuses. The significant efforts necessary to generate annual population estimates are justified because the population estimates themselves are not only a key statistical indicator, they are also the basis for many other key statistical indicators.

With population censuses conducted every decade or so in most countries, the preparation of current population estimates was necessary to provide up-to-date information on population dynamics between censuses. Starting with a given population count, usually from a population census, the population estimates for subsequent years could be calculated by adding the number of births, subtracting the number of deaths and adding the difference between immigrants and emigrants. If population estimates by age and sex were required, the well known but more complex method of cohort component change could be used to derive them provided the basic information was also available by sex and age. When, as in the case of most countries currently, data on births or deaths were deficient, a battery of methods of estimation existed to calculate the necessary components of change and to derive population estimates for the years succeeding a census.

Noting the gap between the increasing need for accurate and timely population estimates and the weak capacity in many countries to produce them, the Task Team on Population Estimates felt it should not repeat attempts to create inventories of data gaps. Instead, the Task Team decided to concentrate on improving the metadata on the preparation of population estimates. In general, metadata informed users about the quality and reliability of a particular indicator, including, in the case of population estimates, the methods used to generate them and possible limitations of those methods. Metadata provided valuable guidance to the user regarding the strengths and limitations of a particular statistic.

In order to develop a minimum set of metadata relevant for understanding the quality and validity of population estimates, the Task Team focused on five dimensions, namely: primary data sources, capacity, methodology, coverage and policies regarding the production of updated series (annex 1).

Noting that the Statistics Division/DESA had been collecting some of the relevant metadata in the process of preparation of the Demographic Yearbook, the Task Team suggested that the tools used to collect the relevant information on population estimates be revised so as to incorporate all the metadata items considered to have priority (see annex 1). The Statistics Division/DESA could carry out such revisions in collaboration with the Population Division/DESA to ensure that the latter would get the information needed to assess the comparability of national estimates with the ones it produced. The Task Team considered that the process of revision would take some time and that the revised tools would need to be tested over two or three cycles of production of the Demographic Yearbook before their usefulness could be assessed.

The Task Team also noted that the guidelines on metadata included in annex 1 would be useful to guide the ongoing efforts by the Population Division/DESA to provide timely metadata

on the official United Nations population estimates and projections it produced. The Population Division/DESA had been making available on the web a set of metadata for each country and would review its procedures in this regard to follow the suggestions provided by the Task Team.

The Task Team underscored the importance of documenting discontinuities, that is, instances in which significant changes in the population estimates occurred because of the availability of new data or changes in methodology. In that respect, it encouraged the Population Division/DESA to provide users with succinct information on the reasons for major changes in population estimates from one Revision to the next.

### C. CONCLUSIONS AND RECOMMENDATIONS

The Task Team considered that a necessary step in order to assess whether setting general standards for population estimates was advisable was to get a better sense of how existing estimates were being prepared. To that end, the Task Team established a set of metadata that it considered necessary to accompany every set of population estimates (see annex 1) and proposed that it serve as guidance for a revision of the tools used by the Statistics Division/DESA to gather such information. Collaboration with the Population Division/DESA in making those revisions was thought useful to strengthen the synergies between the work of both Divisions. In addition, the Task Team recommended that the Population Division review the set of metadata it disseminated in regard to the official United Nations population estimates to ensure it was in line with the set of metadata recommended by the Task Team.

With these recommendations, the Task Team considered that it had fully met the objectives of its work. Revision of the tools to gather the suggested metadata would take a few months and a few years were required for testing those tools and gathering enough metadata to permit a reassessment of whether a set of standards was required. The Task Team therefore concluded that a review of this matter should not be considered before 2013.

## *Annex 1*

### *Proposal for a Structured Set of Meta-information on Annual Population Estimates*

*The Task Team on Population Estimates is invited to consider the issue of standards of annual population estimates (see the Terms of Reference for the Task Team in the minutes of the CCSA meeting held in Tunis, Tunisia, in September 2008). The Task Team had a first meeting in February 2009 to decide on a work plan to address the issue of standards for annual population estimates. At that meeting, a proposal on a Structured Set of Meta-information on Annual Population Estimates was distributed and discussed. The second meeting in May focused on the type of structured metadata that would be desirable in order to evaluate and assess the quality and comparability of annual population estimates. This paper contains a revised proposal in accordance with the comments and suggestions received during and after the meetings in February and May.*

Highlighted items constitute a minimum set of meta-information for annual population estimates that should be systematically compiled and disseminated in all statistical publications, such as statistical yearbooks and online statistical reports. This information should be included in technical or methodological notes accompanying the population estimates or in appendices to relevant statistical table(s) published in statistical reports or yearbooks. Additional meta-information (shown in parenthesis) would be useful, but does not need to be provided systematically for each series of annual population estimates.

In setting standards for the preparation of annual population estimates, one has to take into account the differences existing among countries with respect to:

#### *A. Primary data source*

- 1. Type of data source:** Indicates the data generating process, such as population register, dual-registration system, population census, sample surveys or other.
- 2. Accuracy:** Indicated as either a numerical measure of accuracy or precision (e.g. sampling error), or in terms of a qualitative assessment that could include a description of response error, sources of bias and other non-sampling errors.
- 3. Concepts or definitions:** De-facto or de-jure, resident-only, other.
- 4. Content:** Sub-categories reflected in estimates produced, such as national/sub-national; total/by sex/by age.
- 5. Timeliness:** Includes date when estimates were computed and reference dates of the sources of the latest data used to derive estimates.
- 6. Periodicity:** Calendar for the production of estimates (e.g., annually produced, after each census, at the midpoint of the intercensal period).
- 7. Status:** Provisional, provisional revised, final, final revised.

## ***B. Capacity***

1. **Author:** Unit in charge of producing the estimates.
2. **Professional capacity:** Availability of staff with the required skills (demographic training).
3. [Priority accorded to the production of estimates]

## ***C. Methodology***

1. **Estimation method:** Direct (using population registers) or indirect, including using:
  - (a) Latest census, annual vital statistics and data on migration;
  - (b) Latest census and using assumptions on fertility, mortality and migration;
  - (c) Using intercensal growth rate(s).
2. **Adjustment procedures:** If adjustments are made provide description of method, assumptions made and data used.
3. **Continuity:** Information about changes in methodology that can cause a lack of comparability over time.
4. **Quality:** Indicator of quality.
5. **Consistency:** Description of consistency checks used.

## ***D. Coverage***

1. **Time period:** Period covered by time series of population estimates.
2. **Territorial coverage:** National, national with the exception of certain areas (indicate which), by state or province, only a part of the country's territory (indicate which).
3. **Excluded groups:** Use the UNDY list of sub-populations that are often excluded from population counts or population estimates.

## ***E. Policies regarding the production of updated series***

1. Period for which consistent time series are produced
2. Availability of a long time series of consistent population estimates
3. Methodological and significant quantitative changes from the previously released estimates