

TOTAL FERTILITY RATE		
Demographics	Population Change	

1. **INDICATOR**

- (a) **Name:** Total fertility
- (b) **Brief Definition:** The average number of live births a woman would have by age 50 if she were subject, throughout her life, to the age-specific fertility rates observed in a given year. Its calculation assumes that there is no mortality.
- (c) **Unit of Measurement:** Children per woman.
- (d) **Placement in the CSD Indicator Set:** /Demographics/Population

2. **POLICY RELEVANCE**

- (a) **Purpose:** Total fertility refers to the average number of children per woman.
- (b) **Relevance to Sustainable/ Unsustainable development (theme/sub-theme):** Family size and the number of children per woman fell substantially in many countries over the twentieth century, especially after 1960, a trend that is broadly favourable for sustainable development. High fertility is associated with increased risk of maternal morbidity and mortality. In most settings, women who have several children find it more difficult to work outside the home, thus having fewer opportunities to improve their economic and social status and that of their families. Low income households with many children often find it more difficult to get out of poverty than those with less children, and high fertility societies face greater demands for services from their youthful populations.

The changes in the population age distribution resulting from declining fertility are, for a period, beneficial for economic growth. As fertility declines, the proportion of children in the population falls and the proportion of the population of working age increases, resulting in a lower dependency ratio (defined as the number of children and older persons per 100 persons of working age). Provided jobs are available for the increasing population of working age, a country can reap the benefits of increased production and lower the costs associated with the decreasing proportion of dependants. This “demographic bonus” can thus contribute significantly to economic growth and poverty reduction.

Over the long run, however, especially if fertility continues decline, the share of the population of working age also declines and that of older persons increases, leading to rising dependency ratios. In countries experiencing below-replacement fertility (lower than 2.1 children per women), population ageing accelerates and the fact that a generation does not produce enough children to replace itself eventually leads to

outright reductions in population. It is not yet clear to what extent declining and ageing populations may have beneficial effects on sustainable development.

**(c) International Conventions and Agreements:** None

**(d) International Targets/Recommended Standards:** International agreements do not establish national or global targets. However, the Programme of Action adopted by the International Conference on Population and Development (ICPD) recognizes the usefulness of reducing population growth by lowering fertility levels as early as possible. It notes that, in many countries, slower population growth has bought more time to adjust to future population increases, improving the ability of those countries to combat poverty, protect and repair the environment, and set the conditions for sustainable development (para. 3.14). In 2005, only 36 per cent of national Governments considered their total fertility to be satisfactory. In 2005, 54 per cent of developing countries considered that their fertility was too high and over four-fifths of the least developed countries did so. Conversely, about two-thirds of the countries in Europe considered that their fertility levels were too low and more than three-quarters of these countries had policies to boost fertility.

**(e) Linkages to Others Indicators:** There are close linkages between total fertility and other demographic and social indicators. Fertility change directly affects population growth and dependency ratios. In fact, during the past century fertility has been the most important determinant of population growth, far exceeding the contributions of migration and mortality. Increased infant and child survival, greater access to education and health services, especially for women, together with the advances made in empowering women and improving their participation in the labour force have contributed to postpone childbearing and to reduce number of children women have over their lifetimes. Decreasing fertility has also contributed to improve maternal health, reduce child mortality, combat poverty and enhance economic growth.

### **3. METHODOLOGICAL DESCRIPTION**

**(a) Underlying Definitions and Measurements Methods:** Total fertility refers to the average number of children that a hypothetical cohort of women would bear over the course of their reproductive life if they were subject to the age-specific fertility rates estimated over a given period and were not subject to mortality. Total fertility is therefore a period measure constructed by summing the age-specific fertility rates (ASFR) and multiplying by the length of the age groups used.

Age-specific fertility rate: Annual number of births per woman in a particular age group expressed per 1000 women in that age group.

High fertility: Total fertility levels above 5 children per woman.

Replacement-level fertility: Total fertility levels of about 2.1 children per woman. This value represents the average number of children a woman would need to have to reproduce herself by bearing a daughter who survives to childbearing age. If

replacement level fertility is sustained over a sufficiently long period, each generation will exactly replace itself in the absence of migration.

Below-replacement fertility: Total fertility levels below 2.1 children per woman.

Very low fertility: Total fertility levels below 1.3 children per woman.

**(b) Limitations of the Indicators:** Data allowing the estimation of total fertility has become widely available thanks to demographic surveys that gather retrospective information on the fertility histories of women. The number of countries lacking current information on total fertility has been decreasing over time.

**(c) Status of the Methodology:** Well developed and widely employed.

**(d) Alternative Definitions/Indicators:** The underlying age-specific fertility rates used to calculate total fertility provide useful information about the level and timing of childbearing among women in particular age groups. In particular, it is possible to assess the level of adolescent fertility (births to women age 15 to 19 years), which is of special concern for Governments because women who start having children at very young ages are the more likely curtail their education and less likely to join the labour force. Early childbearing (before age 18) entails greater risks of maternal death and children born to very young mothers have higher levels of morbidity and mortality.

#### 4. ASSESSMENT OF DATA

**(a) Data needed to compile the Indicator:** The basic information to calculate age-specific fertility rates is the number of births by age of mother and the number of women of childbearing age classified by five-year age groups. In all developed countries and in several developing countries, the information on births is obtained from a civil registration system and that on women from censuses. In developing countries, the necessary data are generally collected by representative sample surveys or censuses.

**(b) National and International Data Availability and Sources:** Particularly important sources of information are the annual editions of the Demographic Yearbook as produced by the Statistics Division of the Department of Economic and Social Affairs of the United Nations Secretariat, which collects demographic data on a regular basis from the national statistics offices. Estimates derived from census data and from surveys are commonly used. Important sources are the surveys conducted in the 1970s and early 1980s under the World Fertility Survey (WFS) programme, the surveys conducted since the late 1980s under the Demographic and Health Surveys (DHS) programme, the Center for Disease Control (CDC) Reproductive Health Surveys and other regional programmes such as the Arab-Gulf PAPFAM and PAPCHILD surveys. In addition, information as produced by other United Nations entities, such as ECLAC, UNICEF or WHO, as well as by regional organizations such as EUROSTAT and the Council of Europe are consulted. For all countries, the available data are evaluated and, if necessary, adjusted by the Population Division of DESA in preparing the official United Nations population estimates and projections.

(c) **Data references:** Past, current and projected total fertility estimates are calculated for all countries by the Population Division of the Department of Economic and Social Affairs and appear in the biennial United Nations publication *World Population Prospects*. A compilation of estimates derived directly from the sources available is presented in the publication *World Fertility Report*, prepared by the Population Division.

## 5. AGENCIES INVOLVED IN THE DEVELOPMENT OF THE INDICATOR

(a) **Lead Agency:** The lead agency is the United Nations Department of Economic and Social Affairs (DESA). The contact point is the Director, Population Division, DESA; fax no. (1 212) 963 2147.

(b) **Other Contributing Organizations:** None

## 6. REFERENCES

(a) **Reading:**

United Nations, *World Population Prospects: The 2006 Revision*.  
<http://www.un.org/esa/population/publications/wpp2006/wpp2006.htm>

United Nations, *Manual X: Indirect Techniques for Demographic Estimation*. (United Nations publication, Sales No.E.83.XIII.2, New York, 1983).

United Nations, *World Fertility Report 2003*. (United Nations publication, Sales No. E.04.XIII.6, New York, 2004).

United Nations, Statistics Division, *Demographic Yearbook*. (United Nations publication, various years).

United Nations, *Programme of Action adopted at the International Conference on Population and Development, Cairo, 5-13 September 1994*. (United Nations publication, Sales No. E.95.XIII.7, New York, 1995).

**For information about government policies regarding this indicator, see:**

United Nations, Population Division, *World Population Policies 2005* (United Nations publication, Sales No. E.06.XIII.5, New York, 2006).

(b) **Internet site:** <http://www.un.org/esa/population/unpop.htm>