

# POPULATION, ENVIRONMENT AND DEVELOPMENT • 2001

**Total population.** The twentieth century witnessed an extraordinary growth of world population from 1.6 billion in 1900 to 6.1 billion in 2001, with almost 80 per cent of that increase having occurred since 1950. It took only 19 years (1987 to 1999) for the world to add the most recent billion people, the shortest period in world history for a billion people to be added. The less developed regions account for 80 per cent of the world's inhabitants.

**Population density.** World population density increased from 15 persons per square kilometre in 1900 to 19 persons per square kilometre in 1950 to its current level of 45 persons per square kilometre. Sharp differences distinguish the more developed regions—with 23 persons per square kilometre—from the less developed regions, where density is almost three times higher at 60 persons per square kilometre. Historically, humans have significantly transformed the natural landscape in areas of high population density through agricultural conversion, water diversion and extraction, urbanization and industrialization.

**Total population growth.** As a consequence of declining fertility rates in most of the world, the global rate of population growth has been decreasing since having peaked at 2.0 per cent per year in 1965-1970. The world's population is currently growing at 1.2 per cent annually. Ninety-five per cent of current population growth is taking place in the less developed regions. Whereas more developed regions are barely growing at 0.2 per cent annually, less developed regions are growing at an annual rate of 1.5 per cent. In the least developed countries, which are still at an early stage in the demographic transition, population growth is estimated at 2.5 per cent per year, which yields a population doubling time of 29 years.

**Urban population growth.** The world is becoming increasingly urbanized. Except for Africa, virtually all urban population growth is now concentrated in urban areas. Urban population growth for the period 2000-2005 is estimated at 2.0 per cent per year. The proportion of urban-dwellers climbed from 30 per cent of total population in 1950 to 47 per cent in 2000. The population of urban-dwellers is projected to equal the population of rural-dwellers by 2007. The process of urbanization is very advanced in more developed regions, where 76 per cent of the population lives in urban areas. Although the level of urbanization is considerably lower in less developed regions (40 per cent), urban areas in less developed regions are growing much more rapidly (2.7 per cent per year) than in more developed regions (0.5 per cent per year).

**Rural population growth.** The population residing in rural areas fell from 70 per cent in 1950 to 53 per cent in 2000. On a global basis, rural populations are growing at a rate of only 0.4 per cent a year, while in more developed regions, the rural population is shrinking at a rate of 0.8 per cent annually. Reductions in the rural population will take place after 2010 in all major areas except Africa and Oceania, as a result of the expansion of the urbanized territory, the flow of migrants from rural to urban areas, and overall declines in population growth.

**Average annual internal renewable water resources available per capita.** Demand for fresh water has steadily risen with increasing population and socio-economic development. Consequently, the per capita availability of fresh water on a global basis has fallen to nearly one third of its 1950 level. At present, agricultural accounts for some 70 per cent of freshwater consumption worldwide. Globally, fresh water is abundant, but is unevenly distributed among and within countries.

**Water stress.** Chronic water shortages exist in many areas where precipitation is low or unreliable and/or where withdrawals have significantly increased to meet additional demand from expanding irrigation, industry or urban populations. Assessments of the world's water resources are commonly measured in terms of the ratio of water withdrawals to water supply (see the report of the Secretary-General (E/CN.17/1997/9) on the comprehensive assessment of the freshwater resources of the world). A ratio of less than 10 per cent indicates few water resource management problems; a ratio of between 10 and 19 per cent points to water availability becoming a limiting factor. When water withdrawals are in the range of 20 to 40 per cent, management of both supply and demand will be needed to guarantee sustainability. Use in excess of 40 per cent of available water indicates serious scarcity and usually an increasing dependence on desalination and a situation where groundwater is being used faster than it is being replenished. Water use has been growing at more than twice the rate of the population increase during the twentieth century. About one third of the world's population lives in countries that are experiencing medium-high to high levels of water stress.

**Forest cover.** Up to half of the forests that originally covered the Earth have been cleared. Although some 90 million hectares of forest were lost between 1990 and 2000, the pace of deforestation is estimated to have been lower in the 1990s than during the 1980s. Deforestation has been arrested and even reversed in

Europe and North America. Forests are critical because they house indigenous cultures, shelter global biodiversity, provide ecosystem services, store carbon, contribute to economic growth and meet recreational needs.

**Cropland per capita.** The amount of cropland available per capita is decreasing in all world regions, as population increases. The global availability of cropland has fallen by some 25 per cent over two decades. Farmers have traditionally satisfied increasing demand by ploughing new land, but in many regions opportunities for expansion are now limited. Boosting productivity has therefore become crucial for increased food production. While the rates of growth of agricultural yields have been declining since the 1980s, per capita food production of the global level has continued to rise.

**Percentage undernourished.** Although the percentage of the population that is undernourished has been halved since 1970, some 792 million people in developing countries and 34 million in developed countries and with whom in transition are still undernourished, inadequate access to food results from poverty, political instability, economic inefficiency and social inequity. Almost two thirds of the undernourished live in Asia and Oceania, while about one quarter are in sub-Saharan Africa. The problem is most severe in Central, Eastern and Southern Africa, where almost one half of the population is undernourished.

**Poverty rate.** The percentage of the world's population living in absolute poverty (living on less than one United States dollar per day) has declined since the mid-1980s. However, the decline is below the pace needed to achieve the international development goal of reducing extreme poverty by one half by 2015, and the total number of the poor in 1998 was greater than it had been a decade earlier. Almost one fourth of the population is most pervasive in sub-Saharan Africa and South-central Asia and is related to a wide range of factors, including income, health, education, gender and ethnicity.

**Gross domestic product per capita.** The two defining characteristics of global economic growth in the latter half of the twentieth century have been its unprecedented pace and its unequal distribution between countries and regions. Even though population increased more rapidly during the twentieth century than ever before, economic output grew even faster, owing to the accelerating tempo of technological progress. Gross

domestic product per capita—the total amount of goods and services produced per person within the domestic territory of a country—increased almost threefold over the century, but for the poorest quarter of world population, per capita income grew less than threefold.

**Commercial energy consumption per capita.** Energy consumption is a function of economic growth and level of development and is therefore very unevenly distributed in the world. Although the share has fallen slightly in recent years as the rest of the world progresses along the path to development, developed market economies, comprising some one fifth of the world's population, consume almost three fifths of the world's primary energy. As a consequence of development and the rapid replacement of traditional energy sources by commercial (mainly fossil) sources, some developed countries, particularly in Asia, have consumption patterns similar to those of developed market economies. Nevertheless, per capita consumption in developing countries still lags far behind that of developed market economies.

**Number of motor vehicles per 1,000 population.** During the twentieth century, there was a major shift from rail and water transport to road and air transport. Since the 1940s, the number of vehicles on the road has grown from some 40 million to 680 million. The most rapid percentage increase in the number of motor vehicles is now in less developed regions, where automobile ownership is still low. Transport now accounts for one quarter of world energy use and one half of the world's oil consumption and is a major contributor to greenhouse gas emissions, urban air pollution, urban congestion and health hazards.

**Carbon dioxide emissions per capita.** The intensive use of fossil fuels has led to substantial growth in global emissions of carbon dioxide (CO<sub>2</sub>) and the build-up of greenhouse effects, a contributing factor in global warming. It is estimated that since 1751, or 265 billion tons of carbon have been released to the atmosphere, one half of these emissions having occurred since the mid-1970s. Annual global emissions of CO<sub>2</sub> from the burning of fossil fuels have been steadily rising and have quadrupled since 1950. The highest per capita emissions are in North America. Europe's per capita emissions levels are less than one half as high. Continuation of these upward trends in emissions may pose serious risks of climate change, especially global warming, possibly inducing surges in sea levels, flooding of low-lying coastal areas, migration of ecosystems, the spread of vector-borne diseases and reductions in agricultural yields.

Country or area	Population					Water resources per capita (average annual cubic metres)					Forest cover: average annual change (percentage)					Energy consumption per capita (kilograms)					Motor vehicles per 1,000 people					Carbon dioxide emissions per capita (metric tons)
	Total		Urban (percentage)		Rural	1990s	1990-2000	1996-1998	1996-1998	1996-1998	1990s	1990s	1990s	1990s	1990s	1990s	1990s	1990s	1990s	1990s	1990s	1990s				
	(1)	(2)	(3)	(4)																			(5)	(6)	(7)	
<b>World total</b>	<b>6 134 135</b>	<b>45</b>	<b>12</b>	<b>2.0</b>	<b>0.4</b>	<b>7 113</b>	<b>LOW</b>	<b>-0.2</b>	<b>0.26</b>	<b>-</b>	<b>6 380</b>	<b>1 771</b>	<b>124</b>	<b>4.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>More developed regions</b>	<b>1 193 861</b>	<b>23</b>	<b>0.2</b>	<b>0.5</b>	<b>-0.8</b>	<b>10 852</b>	<b>LOW</b>	<b>-0.1</b>	<b>0.51</b>	<b>-</b>	<b>19 069</b>	<b>4 741</b>	<b>473</b>	<b>11.3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Less developed regions</b>	<b>4 940 274</b>	<b>40</b>	<b>1.5</b>	<b>2.7</b>	<b>0.6</b>	<b>6 196</b>	<b>LOW</b>	<b>-0.3</b>	<b>0.20</b>	<b>18</b>	<b>4 321</b>	<b>1 830</b>	<b>30</b>	<b>2.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Least developed countries</b>	<b>674 954</b>	<b>33</b>	<b>2.5</b>	<b>4.5</b>	<b>1.6</b>	<b>7 065</b>	<b>LOW</b>	<b>-0.8</b>	<b>0.22</b>	<b>39</b>	<b>1 017</b>	<b>300</b>	<b>5</b>	<b>0.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Africa</b>	<b>612 603</b>	<b>27</b>	<b>2.3</b>	<b>4.7</b>	<b>1.2</b>	<b>5 157</b>	<b>LOW</b>	<b>-0.8</b>	<b>0.28</b>	<b>27</b>	<b>1 905</b>	<b>733</b>	<b>26</b>	<b>1.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Eastern Africa</b>	<b>256 673</b>	<b>24</b>	<b>2.4</b>	<b>4.6</b>	<b>1.4</b>	<b>3 351</b>	<b>LOW</b>	<b>-1.0</b>	<b>0.21</b>	<b>46</b>	<b>857</b>	<b>442</b>	<b>7</b>	<b>0.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Western Africa</b>	<b>6 502</b>	<b>23</b>	<b>2.0</b>	<b>5.9</b>	<b>2.2</b>	<b>538</b>	<b>LOW</b>	<b>-0.8</b>	<b>0.19</b>	<b>68</b>	<b>1 041</b>	<b>30</b>	<b>2.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Comoros</b>	<b>727</b>	<b>325</b>	<b>2.9</b>	<b>4.4</b>	<b>1.7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1 398</b>	<b>-</b>	<b>10<sup>1</sup></b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Djibouti</b>	<b>644</b>	<b>28</b>	<b>1.0</b>	<b>2.4</b>	<b>0.8</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>28</b>	<b>0.6</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Eritrea</b>	<b>3 816</b>	<b>32</b>	<b>4.2</b>	<b>4.6</b>	<b>2.0</b>	<b>727</b>	<b>LOW</b>	<b>-0.3</b>	<b>0.12</b>	<b>65</b>	<b>833</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Ethiopia</b>	<b>64 459</b>	<b>58</b>	<b>2.4</b>	<b>5.0</b>	<b>1.8</b>	<b>1 791</b>	<b>LOW</b>	<b>-0.8</b>	<b>0.18</b>	<b>49</b>	<b>31 374</b>	<b>574</b>	<b>294</b>	<b>2</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Kenya</b>	<b>31 293</b>	<b>54</b>	<b>1.9</b>	<b>4.1</b>	<b>0.3</b>	<b>672</b>	<b>MED</b>	<b>-0.5</b>	<b>0.16</b>	<b>42</b>	<b>265</b>	<b>980</b>	<b>497</b>	<b>14</b>	<b>0.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Madagascar</b>	<b>16 437</b>	<b>28</b>	<b>2.8</b>	<b>4.8</b>	<b>1.7</b>	<b>2139</b>	<b>LOW</b>	<b>-0.9</b>	<b>0.21</b>	<b>40</b>	<b>60.2</b>	<b>756</b>	<b>-</b>	<b>5</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Malawi</b>	<b>11 572</b>	<b>28</b>	<b>2.2</b>	<b>7.3</b>	<b>0.5</b>	<b>1 605</b>	<b>LOW</b>	<b>-2.4</b>	<b>0.20</b>	<b>32</b>	<b>-</b>	<b>523</b>	<b>-</b>	<b>5</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Mauritius</b>	<b>1 171</b>	<b>574</b>	<b>0.8</b>	<b>1.6</b>	<b>0.3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8 312</b>	<b>-</b>	<b>92</b>	<b>1.5</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Mozambique</b>	<b>18 644</b>	<b>23</b>	<b>1.8</b>	<b>4.1</b>	<b>0.0</b>	<b>5 081</b>	<b>LOW</b>	<b>-0.2</b>	<b>0.19</b>	<b>58</b>	<b>379</b>	<b>782</b>	<b>416</b>	<b>1</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Rwanda</b>	<b>732</b>	<b>292</b>	<b>1.3</b>	<b>1.9</b>	<b>0.0</b>	<b>292</b>	<b>LOW</b>	<b>-0.6</b>	<b>0.19</b>	<b>40</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>322</b>	<b>2.3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Senegal</b>	<b>7 949</b>	<b>302</b>	<b>2.1</b>	<b>4.2</b>	<b>2.0</b>	<b>815</b>	<b>MED</b>	<b>-3.9</b>	<b>0.17</b>	<b>39</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Sierra Leone</b>	<b>81</b>	<b>179</b>	<b>1.3</b>	<b>2.2</b>	<b>-1.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>118</b>	<b>2.6</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>South Africa</b>	<b>9 157</b>	<b>104</b>	<b>4.2</b>	<b>5.2</b>	<b>3.0</b>	<b>594</b>	<b>MED</b>	<b>-1.0</b>	<b>0.12</b>	<b>75</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Uganda</b>	<b>24 233</b>	<b>102</b>	<b>3.2</b>	<b>5.7</b>	<b>2.8</b>	<b>1 791</b>	<b>LOW</b>	<b>-2.0</b>	<b>0.34</b>	<b>30</b>	<b>36.7</b>	<b>1 074</b>	<b>-</b>	<b>4</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>United Republic of Tanzania</b>	<b>38 126</b>	<b>38</b>	<b>2.1</b>	<b>2.8</b>	<b>0.7</b>	<b>2 867</b>	<b>LOW</b>	<b>-0.2</b>	<b>0.15</b>	<b>41</b>	<b>193</b>	<b>454</b>	<b>-</b>	<b>5</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Zambia</b>	<b>10 649</b>	<b>14</b>	<b>2.1</b>	<b>2.6</b>	<b>1.7</b>	<b>8 747</b>	<b>LOW</b>	<b>-2.4</b>	<b>0.61</b>	<b>45</b>	<b>72.6</b>	<b>719</b>	<b>497</b>	<b>23</b>	<b>0.3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Zimbabwe</b>	<b>12 852</b>	<b>33</b>	<b>1.7</b>	<b>2.9</b>	<b>-0.2</b>	<b>1 208</b>	<b>LOW</b>	<b>-1.5</b>	<b>0.30</b>	<b>37</b>	<b>36.0</b>	<b>2 669</b>	<b>885</b>	<b>31</b>	<b>1.6</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Middle Africa</b>	<b>98 151</b>	<b>15</b>	<b>3.0</b>	<b>4.3</b>	<b>2.0</b>	<b>20 889</b>	<b>LOW</b>	<b>-0.3</b>	<b>0.28</b>	<b>50</b>	<b>-</b>	<b>1 154</b>	<b>388</b>	<b>9</b>	<b>0.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Angola</b>	<b>13 527</b>	<b>11</b>	<b>3.0</b>	<b>4.9</b>	<b>2.1</b>	<b>14 288</b>	<b>LOW</b>	<b>-0.2</b>	<b>0.30</b>	<b>43</b>	<b>527</b>	<b>1 521</b>	<b>585</b>	<b>20</b>	<b>0.2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Central African Republic</b>	<b>3 782</b>	<b>6</b>	<b>1.6</b>	<b>3.0</b>	<b>0.9</b>	<b>39 001</b>	<b>LOW</b>	<b>-0.1</b>	<b>0.59</b>	<b>41</b>	<b>66.6</b>	<b>1 118</b>	<b>-</b>	<b>1</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Chad</b>	<b>8 135</b>	<b>6</b>	<b>3.1</b>	<b>4.2</b>	<b>2.1</b>	<b>1 961</b>	<b>LOW</b>	<b>-0.6</b>	<b>0.50</b>	<b>38</b>	<b>-</b>	<b>856</b>	<b>-</b>	<b>8</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Congo</b>	<b>3 110</b>	<b>9</b>	<b>3.0</b>	<b>3.7</b>	<b>0.9</b>	<b>75 387</b>	<b>LOW</b>	<b>0.0</b>	<b>0.08</b>	<b>32</b>	<b>-</b>	<b>955</b>	<b>459</b>	<b>20</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Dem. Republic of the Congo</b>	<b>52 522</b>	<b>22</b>	<b>3.3</b>	<b>4.5</b>	<b>2.3</b>	<b>18 101</b>	<b>LOW</b>	<b>-0.4</b>	<b>0.16</b>	<b>61</b>	<b>-</b>	<b>822</b>	<b>303</b>	<b>6</b>	<b>0.0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>			
<b>Equatorial Guinea</b>	<b>4 700</b>	<b>17</b>	<b>2.8</b>	<b>4.5</b>	<b>0.5</b>	<b>155</b>	<b>LOW</b>	<b>-0.5</b>	<b>0.55</b>	<b>45</b>	<b>-</b>	<b>135</b>	<b>-</b>	<b>1</b>	<b>0.0</b>	<b>-</b>										