Economic & Social Affairs

World Population Prospects
The 2004 Revision

Volume III
Analytical Report

United Nations

ST/ESA/SER.A/246

Department of Economic and Social Affairs
Population Division

World Population Prospects
The 2004 Revision

Volume III
Analytical Report

United Nations
New York, 2006

DESA

The Department of Economic and Social Affairs of the United Nations Secretariat is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which States Members of the United Nations draw to review common problems and take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

Note

The designations employed in this report and the material presented in it do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Symbols of United Nations documents are composed of capital letters combined with figures.

This publication has been issued without formal editing.

ST/ESA/SER.A/246
ISBN 92-1-151409-6

UNITED NATIONS PUBLICATION
Sales No. E.05.XIII.7

PREFACE

The *2004 Revision* of *World Population Prospects* represents the global demographic estimates and projections prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. This third, and last, volume of the *2004 Revision* presents the analytical report of the official United Nations world population estimates and projectionss. It provides a detailed analysis of the results of the *World Population Prospects 2004*. It also documents data sources used and methods applied in the preparation of the *2006 Revision*. The report is accompanied by an executive summary of the results and the assumptions underlying the *2004 Revision*. The executive summary and the assumptions have been translated into the six official United Nations languages.

The full results of the *2004 Revision* are presented in a series of three volumes. In addition to the present volume, the first volume[1] provides the comprehensive tables displaying demographic profiles and major demographic indicators for each development group, major area, region and country for 1950-2050; and the second volume[2] contains the age and sex distributions of populations for the period 1950-2050. Summary findings of the *2004 Revision* are also shown in a wall chart[3].

Selected output from the *2004 Revision* as well as other population information may be accessed on the website of the Population Division at *www.unpopulation.org*. In addition, data are distributed in digital form. Interested users can purchase three different CD-ROMs[4] containing the major results of the *2004 Revision* in different amount of details. A description of the data provided on the CD-ROMs and an order form are presented on pages 181-190 of this publication and are also posted on the Population Division's web site (*www.unpopulation.org*).

Responsibility for the *2004 Revision* rests with the Population Division. Preparation of the *2004 Revision* was facilitated by the collaboration of the regional commissions, the specialized agencies and other relevant bodies of the United Nations with the Population Division. The Population Division is also grateful to the Statistics Division of the Department of Economic and Social Affairs for its continuing cooperation. For further information about the *2004 Revision*, please contact the Director, Population Division, Department of Economic and Social Affairs, United Nations, New York, NY 10017, USA (fax: 1-212-963-2147).

---

[1] *World Population Prospects: The 2004 Revision*, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.05.XIII.5).

[2] *World Population Prospects: The 2004 Revision*, vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.05.XIII.6).

[3] *World Population Prospects: The 2004 Revision*, *Wall Chart* (United Nations publication, Sales No. E.05.XIII.4).

[4] *World Population Prospects: The 2004 Revision, CD-ROM Edition* (United Nations publication, Basic Dataset, Sales No. E.05.XIII.10; Comprehensive Dataset, Sales No. E.05.XIII.11; Extended Dataset, Sales No. E.05.XIII.12).

CONTENTS

TABLES

FIGURES

BOXES

Explanatory notes

The following symbols have been used in the tables throughout this report:

Two dots (..) indicate that data are not available or are not separately reported.
A hyphen (-) indicates that the item is not applicable.
A minus sign (-) before a figure indicates a decrease.
A full stop (.) is used to indicate decimals.
Years given start on 1 July.
Use of a hyphen (-) between years, for example, 1995-2000, signifies the full period involved, from 1 July of the first year to 1 July of the second year.

References to countries, territories and areas

The designations employed and the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The designation "more developed" and "less developed" regions are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. The term "country" as used in this publication also refers, as appropriate, to territories or areas.

More developed regions comprise all regions of Europe plus Northern America, Australia/New Zealand and Japan.

Less developed regions comprise all regions of Africa, Asia (excluding Japan) and Latin America and the Caribbean, as well as Melanesia, Micronesia and Polynesia.

The group of least developed countries, as defined by the United Nations General Assembly in 2003, comprises 50 countries, of which 34 are in Africa, 10 in Asia, 1 in Latin America and the Caribbean, and 5 in Oceania.

Names and compositions of geographical areas follow those of "Standard country or area codes for statistical use" (ST/ESA/STAT/SER.M/49/Rev.3), available at http://unstats.un.org/unsd/methods/m49/m49.htm.

Data sources

Figures cited in the text that are not followed by a reference to a table, figure or an outside source are from the the complete body of figures available on CD-ROMs and in the first two volumes of the *2004 Revision*[5].

The following abbreviations have been used

abcDIM	Demographic Impact Model
AIDS	Acquired immunodeficiency syndrome
ART	Antiretroviral therapy
BMMS	Bangladesh Maternal Health Services and Maternal Mortality Survey
CERPOD	Centre d'Études et de Recherche sur la Population et le Développement
CIS	Commonwealth of Independent States
DESA	Department of Economic and Social Affairs
DHS	Demographic and Health Surveys Programme
DISEP	Direction des Statistiques et des Études de Population, Djibouti
ECLAC	Economic Commission for Latin America and the Caribbean
ENDEMAIN	Encuesta Demográfica y de Salud Materna e Infantil
ENDESA/DHS	Encuesta Demográfica y de Salud

ENESF	Encuesta Nacional de Epidemiología y Salud Familiar
ENPV	Encuesta Nacional de Población y Vivienda
ENSD	Encuestas Nacionales Socio-demográficas
ENSMI	Encuestas Nacionales de Salud Materno Infantil
ENPOFAM	Encuesta de Población y Familia
EPP	Epidemiological Program Package
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
EUROSTAT	Statistical Office of the European Communities
GFHS	Gulf Family Health Survey
HIV	Human immunodeficiency virus
ICPD	International Conference on Population and Development
IDPs	Internally displaced persons
INSEE	Institut National de la Statistique et des Études Économiques
MICS	Multiple Indicator Cluster Surveys
MTCT	Mother-to-Child-Transmission
NRR	Net reproduction rate
PAPCHILD	Pan Arab Project for Child Development
PAPFAM	Pan Arab Project for Family Health
SAR	Special administrative region
TFR	Total fertility rate
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WFS	World Fertility Survey
WHO	World Health Organization

For analytical purposes, the following country groupings have been used:

CLASSIFICATION OF COUNTRIES, BY MAJOR AREA AND REGION OF THE WORLD

Africa

Eastern Africa

Burundi
Comoros[6]
Djibouti
Eritrea
Ethiopia
Kenya
Madagascar
Malawi
Mauritius[7]
Mozambique
Réunion
Rwanda
Seychelles*
Somalia
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

Middle Africa

Angola
Cameroon
Central African Republic
Chad
Congo
Democratic Republic of the Congo
Equatorial Guinea
Gabon
Sao Tome and Principe

Northern Africa

Algeria
Egypt
Libyan Arab Jamahiriya
Morocco
Sudan
Tunisia
Western Sahara

Southern Africa

Botswana
Lesotho
Namibia
South Africa
Swaziland

Western Africa

Benin
Burkina Faso
Cape Verde
Côte d'Ivoire
Gambia
Ghana
Guinea
Guinea-Bissau
Liberia
Mali
Mauritania
Niger
Nigeria
Saint Helena[8] *
Senegal
Sierra Leone
Togo

Asia

Eastern Asia

China
China, Hong Kong SAR
China, Macao SAR
Democratic People's Republic of Korea
Japan
Mongolia
Republic of Korea

South-central Asia[9]

Afghanistan
Bangladesh
Bhutan
India
Iran (Islamic Republic of)
Kazakhstan
Kyrgyzstan
Maldives
Nepal
Pakistan
Sri Lanka
Tajikistan
Turkmenistan
Uzbekistan

South-eastern Asia

Brunei Darussalam
Cambodia
Democratic Republic of Timor-Leste
Indonesia
Lao People's Democratic Republic
Malaysia
Myanmar
Philippines
Singapore
Thailand
Viet Nam

Western Asia

Armenia
Azerbaijan
Bahrain
Cyprus
Georgia
Iraq
Israel
Jordan
Kuwait
Lebanon
Occupied Palestinian Territory
Oman
Qatar
Saudi Arabia
Syrian Arab Republic
Turkey
United Arab Emirates
Yemen

Europe

Eastern Europe

Belarus
Bulgaria
Czech Republic
Hungary
Poland
Republic of Moldova
Romania
Russian Federation
Slovakia
Ukraine

Northern Europe

Channel Islands[10]
Denmark
Estonia
Faeroe Islands*
Finland[11]
Iceland
Ireland
Isle of Man*
Latvia
Lithuania
Norway[12]
Sweden
United Kingdom of Great Britain and Northern Ireland[13]

Southern Europe

Albania
Andorra*
Bosnia and Herzegovina
Croatia
Gibraltar*
Greece
Holy See*
Italy
Malta
Portugal
San Marino*
Serbia and Montenegro
Slovenia
Spain
The former Yugoslav Republic of Macedonia[14]

Western Europe

Austria
Belgium
France
Germany
Liechtenstein*
Luxembourg
Monaco*
Netherlands
Switzerland

Latin America and the Caribbean

Caribbean

Anguilla*
Antigua and Barbuda*
Aruba*
Bahamas
Barbados
British Virgin Islands*
Cayman Islands*
Cuba
Dominica*
Dominican Republic
Grenada*
Guadeloupe
Haiti
Jamaica
Martinique
Montserrat*
Netherlands Antilles
Puerto Rico
Saint Kitts and Nevis*
Saint Lucia
Saint Vincent and the Grenadines
Trinidad and Tobago
Turks and Caicos Islands*
United States Virgin Islands

Central America

Belize
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama

South America

Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Falkland Islands (Malvinas)*
French Guiana
Guyana
Paraguay
Peru
Suriname
Uruguay
Venezuela

Northern America

Bermuda*
Canada
Greenland*
Saint Pierre et Miquelon*
United States of America

Oceania

Australia/New Zealand

Australia[15]
New Zealand

Melanesia

Fiji
New Caledonia
Papua New Guinea
Solomon Islands
Vanuatu

Micronesia

Guam
Kiribati*
Marshall Islands*
Micronesia (Federated States of)
Nauru*
Northern Mariana Islands*
Palau*

Polynesia

American Samoa*
Cook Islands*
French Polynesia
Niue*
Pitcairn*
Samoa
Tokelau*
Tonga
Tuvalu*
Wallis and Futuna Islands*

Sub-Saharan Africa

Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African
Chad
Comoros
Congo
Côte d'Ivoire
Democratic Republic of the Congo
Djibouti
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mauritius
Mozambique
Namibia
Niger
Nigeria
Réunion
Rwanda
Saint Helena
Sao Tome and Principe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
Sudan
Swaziland
Togo
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

Least developed countries

Afghanistan	Ethiopia	Niger
Angola	Gambia	Rwanda
Bangladesh	Guinea	Samoa
Benin	Guinea-Bissau	Sao Tome and Principe
Bhutan	Haiti	Senegal
Burkina Faso	Kiribati	Sierra Leone
Burundi	Lao People's Democratic Republic	Solomon Islands
Cambodia	Lesotho	Somalia
Cape Verde	Liberia	Sudan
Central African Republic	Madagascar	Togo
Chad	Malawi	Tuvalu
Comoros	Maldives	Uganda
Democratic Republic of the Congo	Mali	United Republic of Tanzania
Democratic Republic of Timor-Leste	Mauritania	Vanuatu
Djibouti	Mozambique	Yemen
Equatorial Guinea	Myanmar	Zambia
Eritrea	Nepal	

Note: Countries with a population of less than 100,000 in 2000 are indicated by an asterisk (*).

NOTES

[5] *World Population Prospects: The 2004 Revision*, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.05.XIII.5); *World Population Prospects: The 2004 Revision*, vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.05.XIII.6); *World Population Prospects: The 2004 Revision, CD-ROM Edition* (United Nations publication, Basic Dataset, Sales No. E.05.XIII.10; Comprehensive Dataset, Sales No. E.05.XIII.11; Extended Dataset, Sales No. E.05.XIII.12).

[6] Including the island of Mayotte.

[7] Including the islands of Agalega, Rodrigues, and Saint Brandon.

[8] Including the islands of Ascension and Tristan da Cunha.

[9] The regions Southern Asia and Central Asia are combined into South-central Asia.

[10] Including the islands of Guernsey and Jersey.

[11] Including Åland Islands.

[12] Including Svalbard and Jan Mayen Islands.

[13] Also referred to as United Kingdom.

[14] Also referred to as TFYR Macedonia.

[15] Including Christmas Island, Cocos (Keeling) Islands, and Norfolk Island.

EXECUTIVE SUMMARY

The *2004 Revision* is the nineteenth round of official United Nations population estimates and projections prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. These are used throughout the United Nations system as the basis for activities requiring population information. The *2004 Revision* is the first to incorporate the full results of the 2000 round of national population censuses. It also takes into account the results of recent specialized surveys carried out in developing countries to provide both demographic and other information to assess the progress made in achieving the internationally agreed development goals, including the Millennium Development Goals (MDGs). The comprehensive review of past worldwide demographic trends and future prospects presented in the *2004 Revision* provides the population basis for the assessment of those goals.

The *2004 Revision* confirms the variety of demographic dynamics of our times. While the population at the global level continues to increase, that of the more developed regions as a whole is hardly changing and virtually all population growth is occurring in the less developed regions. Especially rapid population growth characterizes the group of 50 least developed countries.

Underlying these varied patterns of growth are distinct trends in fertility and mortality. Below-replacement fertility prevails in the more developed regions and is expected to continue to 2050. Fertility is still high in most least developed countries and, although it is expected to decline, it will remain higher than in the rest of the world. In the rest of the developing countries, fertility has declined markedly since the late 1960s and is expected to reach below-replacement levels by 2050 in most of these developing countries.

Mortality in the established market economies of the developed world is low and continues to decline, but it has been stagnant or even increasing in a number of countries with economies in transition, largely as a result of deteriorating social and economic conditions and, in some cases, because of the spread of HIV. Mortality is also decreasing in the majority of developing countries, but in those highly affected by the HIV/AIDS epidemic, mortality has been increasing. Given the ongoing efforts to provide antiretroviral treatment to 3 million AIDS patients by 2005 and the expectation of further expansion of that treatment thereafter, the *2004 Revision* assumes a longer average survivorship for people living with HIV than the *2002 Revision* did and therefore projects somewhat lower future mortality levels in HIV-affected countries than the previous *Revision*.

The HIV/AIDS epidemic continues to spread. The number of countries with a significant number of infected people in the *2004 Revision* is 60, up from 53 in the *2002 Revision*. Although HIV prevalence levels in some countries have been revised downward as better statistics become available. Nevertheless, the toll of the disease continues to be high and is expected to remain so, despite projected reductions in the prevalence of HIV/AIDS. Lower projected levels of HIV prevalence depend on the realization of the commitments made by Governments in the 2000 Millennium Declaration[1] and the 2001 United Nations Declaration of Commitment on HIV/AIDS[2].

[1] See General Assembly Resolution A/Res/55/2.
[2] See General Assembly Resolution A/Res/S-26/2.

The key findings from the *2004 Revision* can be summarized as follows:

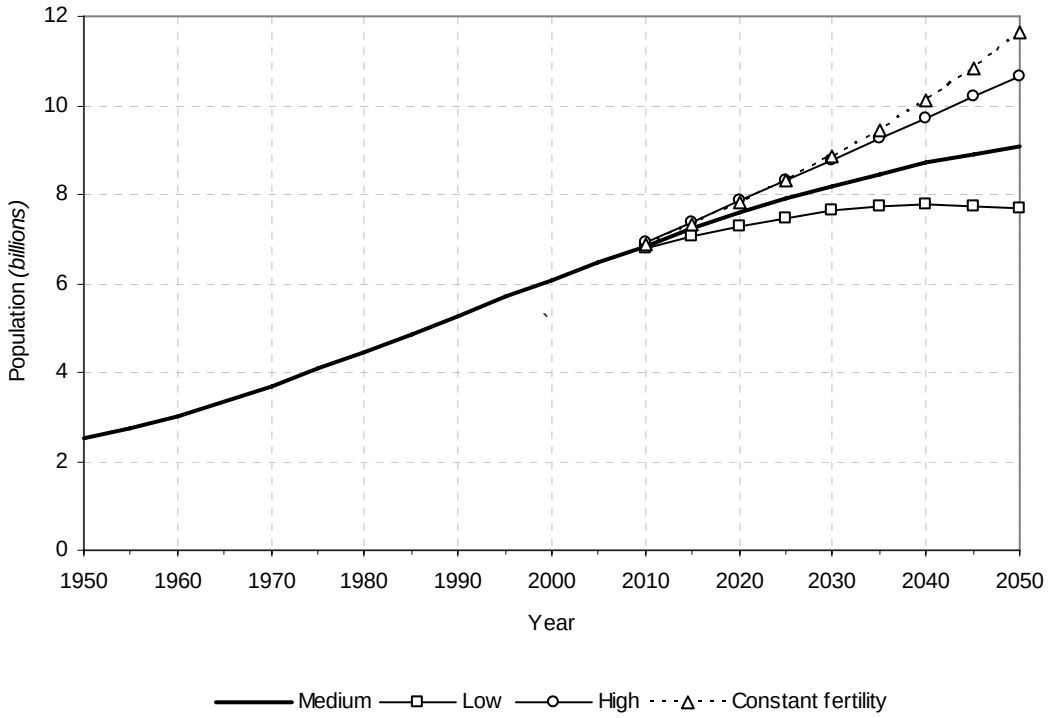
1. By July 2005, the world will have 6.5 billion inhabitants, 380 million more than in 2000 or a gain of 76 million annually. Despite the declining fertility levels projected over 2005-2050 the world population is expected to reach 9.1 billion according to the medium variant and will still be adding 34 million persons annually by mid-century.
2. Today, 95 per cent of all population growth is absorbed by the developing world and 5 per cent by the developed world. By 2050, according to the medium variant, the population of the more developed countries as a whole would be declining slowly by about 1 million persons a year and that of the developing world would be adding 35 million annually, 22 million of whom would be absorbed by the least developed countries.
3. Future population growth is highly dependent on the path that future fertility takes. In the medium variant, fertility is projected to decline from 2.6 children per woman today to slightly over 2 children per woman in 2050. If fertility were to remain about half a child above the levels projected in the medium variant, world population would reach 10.6 billion by 2050. A fertility path half a child below the medium would lead to a population of 7.6 billion by mid-century. That is, at the world level, continued population growth until 2050 is inevitable even if the decline of fertility accelerates.

TABLE 1. POPULATION OF THE WORLD, MAJOR DEVELOPMENT GROUPS AND MAJOR AREAS, 1950, 1975, 2005 AND 2050, BY PROJECTION VARIANTS

	Population (millions)			*Population in 2050 (millions)*			
Major area	*1950*	*1975*	*2005*	*Low*	*Medium*	*High*	*Constant*
World	2 519	4 074	6 465	7 680	9 076	10 646	11 658
More developed regions	813	1 047	1 211	1 057	1 236	1 440	1 195
Less developed regions	1 707	3 027	5 253	6 622	7 840	9 206	10 463
Least developed countries	201	356	759	1 497	1 735	1 994	2 744
Other less developed countries	1 506	2 671	4 494	5 126	6 104	7 213	7 719
Africa	224	416	906	1 666	1 937	2 228	3 100
Asia	1 396	2 395	3 905	4 388	5 217	6 161	6 487
Europe	547	676	728	557	653	764	606
Latin America and the Caribbean	167	322	561	653	783	930	957
Northern America	172	243	331	375	438	509	454
Oceania	13	21	33	41	48	55	55

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights*. New York: United Nations.

Figure 1. Population of the world, 1950-2050, by projection variants



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights.* New York: United Nations.

4. Because of its low and declining rate of growth, the population of developed countries as a whole is expected to remain virtually unchanged between 2005 and 2050, at about 1.2 billion. In contrast, the population of the 50 least developed countries is projected to more than double, passing from 0.8 billion in 2005 to 1.7 billion in 2050. Growth in the rest of the developing world is also projected to be robust, though less rapid, with its population rising from 4.5 billion to 6.1 billion between 2005 and 2050.

5. Very rapid population growth is expected to prevail in a number of developing countries, the majority of which are least developed. Between 2005 and 2050, the population is projected to at least triple in Afghanistan, Burkina Faso, Burundi, Chad, Congo, the Democratic Republic of Congo, the Democratic Republic of Timor-Leste, Guinea-Bissau, Liberia, Mali, Niger and Uganda.

6. The population of 51 countries or areas, including Germany, Italy, Japan, the Baltic States and most of the successor states of the former Soviet Union, is expected to be lower in 2050 than in 2005.

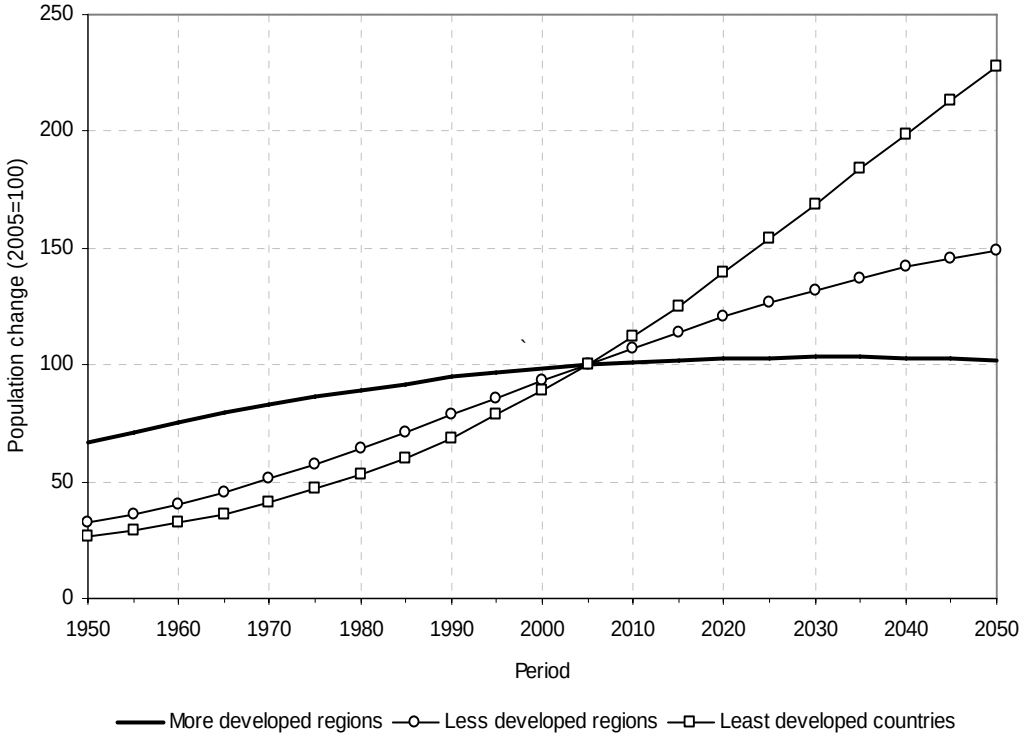
7. During 2005-2050, nine countries are expected to account for half of the world's projected population increase: India, Pakistan, Nigeria, the Democratic Republic of Congo, Bangladesh, Uganda, the United States of America, Ethiopia and China, listed according to the size of their contribution to population growth during that period.

TABLE 2. AVERAGE ANNUAL RATE OF CHANGE OF THE TOTAL POPULATION AND THE POPULATION IN BROAD AGE GROUPS, BY MAJOR AREA, 2005-2050 (MEDIUM VARIANT)

Major area	*0-14*	*15-59*	*60+*	*80+*	*Total population*
World	0.01	0.63	2.39	3.37	0.75
More developed regions	-0.14	-0.38	1.10	2.13	0.05
Less developed regions	0.03	0.82	2.88	4.19	0.89
Least developed countries	1.02	2.15	3.32	4.03	1.84
Other less developed countries	-0.29	0.54	2.84	4.21	0.68
Africa	0.87	2.00	3.12	3.86	1.69
Asia	-0.29	0.47	2.70	4.04	0.64
Europe	-0.36	-0.75	0.90	1.98	-0.24
Latin America and the Caribbean	-0.38	0.61	2.98	3.99	0.74
Northern America	0.23	0.37	1.67	2.30	0.62
Oceania	0.09	0.65	2.11	2.89	0.81

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights*. New York: United Nations.

Figure 2. Population dynamics by development groups, 1950-2050



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights*. New York: United Nations.

TABLE 3. TOTAL FERTILITY FOR THE WORLD, MAJOR DEVELOPMENT GROUPS AND MAJOR AREAS, 1970-1975, 2000-2005 AND 2045-2050, BY PROJECTION VARIANTS

	Total fertility (children per woman)					
			2045-2050			
Major area	*1970-1975*	*2000-2005*	*Low*	*Medium*	*High*	*Constant*
World	4.49	2.65	1.56	2.05	2.53	3.50
More developed regions	2.12	1.56	1.34	1.84	2.34	1.67
Less developed regions	5.44	2.90	1.59	2.07	2.56	3.69
Least developed countries	6.61	5.02	2.08	2.57	3.05	5.56
Other less developed countries	5.28	2.58	1.42	1.92	2.41	3.06
Africa	6.72	4.97	2.03	2.52	3.00	5.50
Asia	5.08	2.47	1.42	1.91	2.41	2.98
Europe	2.16	1.40	1.33	1.83	2.33	1.45
Latin America and the Caribbean	5.05	2.55	1.36	1.86	2.36	2.69
Northern America	2.01	1.99	1.35	1.85	2.35	1.99
Oceania	3.23	2.32	1.42	1.92	2.42	2.72

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights*. New York: United Nations.

8. In 2000-2005, fertility at the world level stood at 2.65 children per woman, about half the level it had in 1950-1955 (5 children per women). In the medium variant, global fertility is projected to decline further to 2.05 children per woman by 2045-2050. Average world levels result from quite different trends by major development group. In developed countries as a whole fertility is currently 1.56 children per woman and is projected to increase slowly to 1.84 children per woman in 2045-2050. In the least developed countries, fertility is 5 children per woman and is expected to drop by about half, to 2.57 children per woman by 2045-2050. In the rest of the developing world, fertility is already moderately low at 2.58 children per woman and is expected to decline further to 1.92 children per woman by mid-century, thus nearly converging to the fertility levels by then typical of the developed world. Realization of the fertility declines projected is contingent on access to family planning, especially in the least developed countries.

9. In 2000-2005, fertility remains above 5 children per woman in 35 of the 148 developing countries, 30 of which are least developed countries, while the pace of decline in several countries of sub-Saharan Africa and South-central Asia has been slower than anticipated. Overall, the countries with high fertility account for 10 per cent of the world population. In contrast, fertility has reached below-replacement levels in 23 developing countries accounting for 25 per cent of the world population. This group includes China whose fertility during 2000-2005 is estimated at 1.7 children per woman.

10. Fertility levels in the 44 developed countries, which account for 19 per cent of the world population, are currently very low. All except Albania have fertility below replacement level and 15, mostly located in Southern and Eastern Europe, have reached levels of fertility unprecedented in human history (below 1.3 children per woman). Since 1990-1995, fertility decline has been the rule among most developed countries. The few increases recorded, such as those in Belgium, France, Germany, the Netherlands and the United States, have been small.

TABLE 4. LIFE EXPECTANCY AT BIRTH FOR THE WORLD, MAJOR DEVELOPMENT GROUPS AND MAJOR AREAS, 2000-2005 AND 2045-2050

Major area	*2000-2005*	*2045-2050*
World	65.4	75.1
More developed regions	75.6	82.1
Less developed regions	63.4	74.0
Least developed countries	51.0	66.5
Other less developed countries	66.1	76.3
Africa	49.1	65.4
Asia	67.3	77.2
Europe	73.7	80.6
Latin America and Caribbean	71.5	79.5
Northern America	77.6	82.7
Oceania	74.0	81.2

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2005). *World Population Prospects: The 2004 Revision. Highlights*. New York: United Nations.

11. Global life expectancy at birth, which is estimated to have risen from 47 years in 1950-1955 to 65 years in 2000-2005, is expected to keep on rising to reach 75 years in 2045-2050. In the more developed regions, the projected increase is from 76 years today to 82 years by mid-century. Among the least developed countries, where life expectancy today is 51 years, it is expected to be 67 years in 2045-2050. Because many of these countries are highly affected by the HIV/AIDS epidemic, the projected increase in life expectancy is dependent on the implementation of effective programmes to prevent and treat HIV infection. In the rest of the developing world, under similar conditionalities, life expectancy is projected to rise from 66 years today to 76 years by mid-century.

12. Mortality in Eastern Europe has been increasing since the late 1980s. In 2000-2005 life expectancy in the region, at 67.9 years, was lower than it had been in 1960-1965 (68.6 years). The Russian Federation and the Ukraine are particularly affected by rises in mortality resulting partly from the spread of HIV.

13. Twenty-five years into the HIV/AIDS epidemic, the impact of the disease is evident in terms of increased morbidity and mortality and slower population growth. In Southern Africa, the region with the highest HIV/AIDS prevalence of the disease, life expectancy has fallen from 62 years in 1990-1995 to 48 years in 2000-2005, and is projected to decrease further to 43 years over the next decade before a slow recovery starts. As a consequence, population growth in the region is expected to stall between 2005 and 2020. In Botswana, Lesotho and Swaziland, the population is projected to decrease as deaths outnumber births. In most of the other developing countries affected by the epidemic, population growth will continue to be positive because their moderate or high fertility more than counterbalances the rise in mortality.

14. The primary consequence of fertility decline, especially if combined with increases in life expectancy, is population ageing, whereby the share of older persons in a population grows relative to that of younger persons. Globally, the number of persons aged 60 years or over is expected almost to triple, increasing from 672 million in 2005 to nearly 1.9 billion by 2050. Whereas 6 out of every 10 of those older persons live today in developing countries, by 2050, 8 out of every 10 will do so. An even more

marked increase is expected in the number of the oldest-old (persons aged 80 years or over): from 86 million in 2005 to 394 million in 2050. In developing countries, the rise will be from 42 million to 278 million, implying that by 2050 most oldest-old will live in the developing world.

15. In developed countries, 20 per cent of today's population is aged 60 years or over and by 2050 that proportion is projected to be 32 per cent. The elderly population in developed countries has already surpassed the number of children (persons aged 0-14) and by 2050 there will be 2 elderly persons for every child. In the developing world, the proportion of the population aged 60 or over is expected to rise from 8 per cent in 2005 to close to 20 per cent by 2050.

16. Increases in the median age, the age at which 50 per cent of the population is older and 50 per cent younger than that age, are indicative of population ageing. Today, just 11 developed countries have a median age above 40 years. By 2050, there will be 89 countries in that group, 45 in the developing world. Population aging, which is becoming a pervasive reality in developed countries, is also inevitable in the developing world and will occur faster in developing countries.

17. Countries where fertility remains high and has declined only moderately will experience the slowest population ageing. By 2050, about one in five countries is still projected to have a median age equal or less than 30 years. The youngest populations will be found in least developed countries, 11 of which are projected to have median ages equal to or less than 23 years in 2050, including Afghanistan, Angola, Burundi, Chad, the Democratic Republic of Congo, Equatorial Guinea, Guinea-Bissau, Liberia, Mali, Niger and Uganda.

18. During 2005-2050, the net number of international migrants to more developed regions is projected to be 98 million or an average of 2.2 million annually. The same number will leave the less developed regions. For the developed world, such a level of net migration will largely offset the expected excess of deaths over births during 2005-2050, which amounts to a loss of 73 million people. For the developing world, the 98 million emigrants represent scarcely less than 4 per cent of expected population growth.

19. Over the period 2000-2005, 74 countries were net receivers of migrants. In 64 of these countries, the net migration projected reinforces population growth and in 7 countries, it reverses the trend of population decline (Austria, Croatia, Germany, Greece, Italy, Slovakia and Slovenia) In three countries, the migration slows down population decline but does not reverse it (Czech Republic, Hungary and the Russian Federation).

20. In terms of annual averages for the period 2005-2050, the major net receivers of international migrants are projected to be the United States (1.1 million annually), Germany (202,000), Canada (200,000), the United Kingdom (130,000), Italy (120,000) and Australia (100,000). The major countries of net emigration are projected to be China (-327,000 annually), Mexico (-293,000), India (-241,000), the Philippines (-180,000), Indonesia (-164,000), Pakistan (-154,000) and the Ukraine (-100,000).

ASSUMPTIONS UNDERLYING THE *2004 REVISION*

To project population until 2050, the United Nations Population Division applies assumptions regarding future trends in fertility, mortality, and migration. Because future trends cannot be known with certainty, a number of projection variants are produced. The Highlights focus on the medium variant of the *2004 Revision*. The assumptions of the medium variant are outlined in detail in section A of this chapter.

The *2004 Revision* includes five additional variants: the high, low, constant-fertility, constant-mortality, and zero-migration variants. The assumptions that differentiate these variants from the medium variant are described in section B. Detailed results of these variants will be made available in forthcoming publications.

The future population of each country is projected from an estimated population for 1 July 2005. Because actual population data for 2005 are not yet available, the 2005 estimate is based upon the most recent population data available for each country, derived usually from a census or population register, updated to 2005 using all available data on fertility, mortality and international migration. In cases where very recent data are not available, estimated demographic trends are short term projections from the most recent available data. Population data from all sources are evaluated for completeness, accuracy and consistency, and adjusted where necessary.[3]

A. ASSUMPTIONS OF THE MEDIUM VARIANT

1. Fertility assumptions: Convergence toward total fertility below replacement

Total fertility in all countries is assumed to converge eventually toward a level of 1.85 children per woman. However, not all countries reach this level during the projection period, that is, by 2050. The basic principle of fertility projection is the same for all countries, but projection procedures are slightly different depending on whether countries had a total fertility above or below 1.85 children per woman in 2000-2005.

For those countries with total fertility above 1.85 children per woman, fertility is assumed to follow a path derived from models of fertility decline established by the United Nations Population Division on the basis of the past experience of all countries with declining fertility during 1950-2000. The models relate the level of total fertility during a period to the average expected decline in total fertility during the next period. If the total fertility projected by a model for a country falls to 1.85 children per woman before 2050, total fertility is held constant at that level for the remainder of the projection period (that is, until 2050).

In all cases, the projected fertility paths yielded by the models are checked against recent trends in fertility for each country. When a country's recent fertility trends deviate considerably from those consistent with the models, fertility is projected over an initial period of 5 or 10 years in such a way that it follows recent experience. The model projection takes over after that transition period. For instance, in countries where fertility has stalled or where there is no evidence of fertility decline, fertility is projected to remain constant for several more years before a declining path sets in.

[3] For a general description of the procedures used in revising estimates of population dynamics, see *World Population Prospects: The 2002 Revision, Volume III: Analytical Report*, pp. 180-182.

For countries where total fertility was below 1.85 children per woman in 2000-2005, it is assumed that over the first 5 or 10 years of the projection period fertility will follow the recently observed trends in each country. After that transition period, fertility is assumed to increase linearly at a rate of 0.07 children per woman per quinquennium. Thus, countries whose fertility is currently very low need not reach a level of 1.85 children per woman by 2050.

2. Mortality assumptions: Increasing life expectancy except when affected by HIV/AIDS

a. Normal mortality assumptions

Mortality is projected on the basis of models of change of life expectancy produced by the United Nations Population Division. These models produce smaller gains the higher the life expectancy already reached. The selection of a model for each country is based on recent trends in life expectancy by sex. For countries highly affected by the HIV/AIDS epidemic, the model incorporating a slow pace of mortality decline has generally been used to project the reduction of general mortality risks not related to HIV/AIDS.

b. The impact of HIV/AIDS on mortality

For the 60 countries highly affected by the HIV/AIDS epidemic (listed in table VIII.21), estimates of the impact of HIV/AIDS are made by explicitly modelling the course of the epidemic and by projecting the yearly incidence of HIV infection. The model developed by the UNAIDS Reference Group on Estimates, Modelling and Projections[4] is used to fit past estimates of HIV prevalence provided by UNAIDS so as to derive the parameters determining the past dynamics of the epidemic. For most countries, the model is fitted assuming that the relevant parameters have remained constant in the past. Beginning in 2005, the parameter PHI, which reflects the rate of recruitment of new individuals into the high-risk or susceptible group, is projected to decline by half every thirty years. The parameter R, which represents the force of infection, is projected to decline in the same manner. The reduction in R reflects the assumption that changes in behaviour among those subject to the risk of infection, along with increases in access to treatment for those infected, will reduce the chances of transmitting the virus. The rate of mother-to-child transmission is projected to decline at varying rates, depending on each country's progress in increasing access to treatment. In addition, the component of the Reference Group model relative to the survivorship of infected children has been updated: in the *2004 Revision* it is assumed that 50 per cent of children infected through mother-to-child transmission will survive to age two.

The *2004 Revision* incorporates for the first time a longer survival for persons receiving treatment with highly active antiretroviral therapy (ART). The proportion of the HIV-positive population receiving treatment in each country is consistent with estimates prepared by the World Health Organization for the end of 2004[5]. Coverage is projected to reach between 40 percent and 85 per cent by 2015, depending on the current level of coverage. It is assumed that, on average, annual survival probabilities increase to at least 80 per cent for individuals receiving ART. Under this assumption, mean survival from the initiation of therapy is 3.1 years (median 4.5 years). In contrast, in the absence of treatment mean survival after progression to AIDS is assumed to be just one year.

[4] Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. AIDS, vol. 16, pp. W1-W14 (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002).

[5] World Health Organization. "3 by 5" Progress Report, December 2004/WHO and UNAIDS.

3. International migration assumptions

The future path of international migration is set on the basis of past international migration estimates and an assessment of the policy stance of countries with regard to future international migration flows.

B. PROJECTION VARIANTS

The *2004 Revision* includes five projection variants in addition to the medium variant. Three variants—high, low and constant-fertility—differ from the medium variant only in the projected level of total fertility. In the high variant, total fertility is projected to remain 0.5 children above the total fertility in the medium variant over most of the projection period. For example, countries reaching a total fertility of 1.85 in the medium variant reach a total fertility of 2.35 in the high variant. In the low variant, total fertility is projected to remain 0.5 children below the total fertility in the medium variant. In the constant-fertility variant, total fertility remains constant at the level estimated for 2000-2005.

A constant-mortality variant and a zero-migration variant have also been prepared. They both have the same fertility assumption as the medium variant. Furthermore, the constant-mortality variant has the same international migration assumption as the medium variant. Consequently, the results of the constant-mortality variant can be compared with those of the medium variant to assess the effect that changing mortality has on other demographic parameters. Similarly, the zero-migration variant differs from the medium variant only with respect to the underlying assumption regarding international migration. Therefore, the zero-migration variant allows an assessment of the effect that non-zero migration has on other demographic parameters.

C. METHODOLOGICAL CHANGES MADE FOR THE *2004 REVISION*

- In the medium variant, the fertility of countries with a total fertility below 1.85 children per woman in 2000-2005 is projected first by continuing recent trends and then by increasing fertility linearly at a rate of 0.07 children per woman per quinquennium. These countries do not necessarily reach a level of 1.85 children per woman by 2050.

- In the *2004 Revision*, additional models of mortality change have been used to capture the diversity of historical experience in the rise of life expectancy. Specifically, very slow and very fast models of change have been developed and added to the previously existing slow, medium and fast models.

- The impact of HIV/AIDS on mortality is modelled explicitly for all countries that had adult HIV prevalence of one per cent or greater in 2003.

- Treatment with antiretroviral therapy is explicitly incorporated into the projection of HIV/AIDS for affected countries. In addition, the rate of mother-to-child transmission of HIV is projected to decline at a rate consistent with projected progress in expanding access to treatment.

تصدير

يقدم هذا التقرير موجزا للنتائج التي توصل إليها *تنقيح عام ٢٠٠٤* بشأن التقديرات والتوقعات السكانية الرسمية في العالم التي أعدتها شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة. وبالإضافة إلى ذلك، يورد هذا التقرير استعراضا عاما للافتراضات المتعلقة بالخصوبة ومعدل الوفيات والهجرة، التي تستند إليها التوقعات، فضلا عن تقديم موجز للتغيرات والتعديلات التي أدخلت على *تنقيح عام ٢٠٠٤*، فيما يخص الإجراءات المتبعة في *تنقيح عام ٢٠٠٢*. ويمثّل *تنقيح عام ٢٠٠٤* الجولة التاسعة عشرة للتقديرات والتوقعات الديموغرافية العالمية التي دأبت شعبة السكان على إعدادها منذ عام ١٩٥٠.

وسترد النتائج الكاملة *للتنقيح لعام ٢٠٠٤* في سلسلة من ثلاثة مجلدات. فيحتوي المجلد الأول[١] جداول شاملة تتضمن المؤشرات الديموغرافية الرئيسية لكل بلد خلال الفترة ١٩٥٠-٢٠٥٠. ويحتوي المجلد الثاني[٢] على التوزيع السكاني لكل بلد حسب العمر ونوع الجنس خلال الفترة ١٩٥٠-٢٠٥٠. أما المجلد الثالث[٣] فسيخصص لتحليل النتائج التي يتم التوصل إليها.

وستوزع البيانات أيضا في شكل رقمي. ويمكن للمستعملين المهتمين شراء قرص حاسوبي مدمج CD-ROM يتضمن النتائج الرئيسية *لتنقيح عام ٢٠٠٤*. ويتوافر بموقع شعبة السكان على الشبكة www.unpopulation.org وصف للبيانات التي يحتوي عليها القرص الحاسوبي المدمج واستمارة طلب شراء.

وشعبة السكان هي المسؤولة عن *تنقيح عام ٢٠٠٤*. ولقد سهّل من عملية إعداد *تنقيح عام ٢٠٠٤* تعاون اللجان الإقليمية والوكالات المتخصصة، وغيرها من هيئات الأمم المتحدة المعنية، مع شعبة السكان.

وعلى وجه الخصوص، فقد شكلت الحولية الديموغرافية للأمم المتحدة مع قواعد بياناتها التي تعدها وتستكملها شعبة الأمم المتحدة للإحصاءات التابعة لإدارة الشؤون

---

(١) ''التوقعات السكانية في العالم:: تنقيح عام ٢٠٠٤''، المجلد الأول، ''جداول شاملة'' (منشورات الأمم المتحدة، No Sales.E .٠٥.XIII.٥).

(٢) ''التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤''، المجلد الثاني، ''توزيع سكان العالم حسب نوع الجنس والسن'' (منشورات الأمم المتحدة، No Sales.E .٠٥.XIII.٦).

(٣) ''التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤''، المجلد الثالث، ''تقرير تحليلي'' (منشورات الأمم المتحدة، سيصدر عما قريب).

الاقتصادية والاجتماعية، أحد المصادر الرئيسية للإحصاءات السكانية الوطنية الرسمية التي استخدمت في إعداد هذه التقديرات والتوقعات. وتُعرب شعبة السكان عن امتنانها لشعبة الإحصاءات لتعاونها المستمر.

ويمكن الوصول إلى نواتج منتقاة من *تنقيح عام ٢٠٠٤*، فضلا عن معلومات أخرى تتعلق بالسكان، على موقع شعبة السكان على الشبكة العالمية www.unpopulation.org. وللحصول على مزيد من المعلومات عن *تنقيح عام ٢٠٠٤* يرجى الاتصال على العنوان التالي: Ms. Hania Zlotnik, Director, Population Division, United Nations, New York, NY 10017, USA (fax: 1 212 963 2147).

موجز

يمثل *تنقيح عام ٢٠٠٤* الجولة التاسعة عشرة للتقديرات والتوقعات السكانية الرسمية للأمم المتحدة التي أعدتها شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة. وتُستخدم هذه التقديرات والتوقعات في كامل منظومة الأمم المتحدة أساسا للأنشطة التي تتطلب معلومات سكانية. وتنقيح عام ٢٠٠٤ هو أول تنقيح يضم كل نتائج جولة الإحصاءات السكانية الوطنية لعام ٢٠٠٠. ويضم بالمثل نتائج الدراسات الاستقصائية المتخصصة التي أجريت مؤخرا في البلدان النامية لتوفير المعلومات الديموغرافية وغيرها من المعلومات لتقييم التقدم المحرز في تحقيق الأهداف الإنمائية المتفق عليها دوليا، بما في ذلك الأهداف الإنمائية للألفية. ويوفر الاستعراض الشامل للاتجاهات الديموغرافية على نطاق العالم في الماضي، وكذلك التوقعات في المستقبل المعروضة في تنقيح عام ٢٠٠٤، الأساس السكاني لتقييم هذه الأهداف.

ويؤكد *تنقيح عام ٢٠٠٤* تباين الديناميات الديموغرافية السائدة في عصرنا هذا. ففي الوقت الذي يستمر فيه حاليا تزايد السكان على مستوى العالم، فإن التزايد في المناطق الأكثر تقدما ككل لا يكاد يطرأ عليه تغيير، فيما يحدث كل النمو السكاني تقريبا في المناطق الأقل تقدما. وبوجه خاص، فإن مجموعة أقل البلدان نموا وعددها ٥٠ بلدا يغلب عليها النمو السكاني السريع.

وتستند هذه الأنماط المتباينة في النمو إلى اتجاهات مختلفة في معدلات الخصوبة والوفيات. فتسود في المناطق الأكثر تقدما معدلات خصوبة دون مستوى الإحلال، ويتوقع أن تستمر هذه المعدلات حتى عام ٢٠٥٠. وما تزال معدلات الخصوبة عالية في معظم أقل البلدان نموا؛ وبالرغم من توقع انخفاض هذه المعدلات، فستظل أعلى من معدلات بقية العالم. وفي بقية البلدان النامية، انخفضت معدلات الخصوبة انخفاضا ملحوظا منذ أواخر الستينيات، ومن المتوقع أن تصل إلى ما دون مستوى الإحلال مع مقدم عام ٢٠٥٠ في معظم هذه البلدان النامية.

ويلاحظ انخفاض معدلات الوفيات في اقتصادات السوق الراسخة في البلدان المتقدمة النمو ولا تزال آخذة في الانخفاض، لكنها ظلت ثابتة بل وفي ازدياد في عدد من البلدان التي تمر اقتصاداتها بمرحلة انتقالية، وذلك إلى حد كبير نتيجة لتدهور الأوضاع الاجتماعية والاقتصادية وفي بعض الحالات بسبب انتشار فيروس نقص المناعة البشرية.كما تتناقص معدلات الوفيات في أكثرية البلدان النامية، غير أن معدلات الوفيات لا تزال في ازدياد في البلدان المتأثرة بوباء فيروس نقص المناعة البشرية/متلازمة نقص المناعة المكتسب (الإيدز).

ونظرا للجهود المبذولة حاليا لتوفير علاجات مضادة للفيروسات الرجعية لثلاثة ملايين من مرضى الإيدز بحلول عام ٢٠٠٥ ، وتوقع زيادة توسيع نطاق هذا العلاج فيما بعد، يفترض تنقيح ٢٠٠٤ متوسط بقاء على قيد الحياة للمصابين بالفيروس يزيد عما افترضه تنقيح ٢٠٠٢، وبالتالي فهو يفترض انخفاض معدلات الوفيات في المستقبل إلى حد ما في البلدان المتضررة بالفيروس مقارنة بنظيرتها في التنقيح السابق.

ويستمر وباء الفيروس/الإيدز في الانتشار. فقد ارتفع عدد البلدان التي بها عدد كبير من المصابين في تنقيح عام ٢٠٠٤ إلى ٦٠ بلدا من ٥٣ بلدا في تنقيح عام ٢٠٠٢، بالرغم من تنقيح معدلات انتشار الفيروس وتخفيضها في بعض البلدان مع توافر إحصاءات أفضل. ومع ذلك، فإن نسبة الإصابة بالمرض لا تزال عالية ومن المتوقع أن تظل كذلك، بالرغم من توقع حدوث انخفاض في انتشار الفيروس/الإيدز. ويتوقف انخفاض المعدلات المتوقعة لانتشار الفيروس على تحقيق الالتزامات التي قطعتها الحكومات في إعلان الألفية لعام ٢٠٠٠[٤] وإعلان الأمم المتحدة بشأن الفيروس/الإيدز[٥].

ويمكن إيجاز النتائج الرئيسية المستخلصة من *تنقيح عام ٢٠٠٤* على النحو التالي:

١ - مع حلول تموز/يوليه ٢٠٠٥، سيبلغ عدد سكان العالم ٦,٥ بلايين نسمة، أي بزيادة قدرها ٣٨٠ مليون نسمة مقارنة بعام ٢٠٠٠ أو بزيادة ٧٦ مليون نسمة كل عام. وعلى الرغم من الانخفاض المتوقع في معدلات الخصوبة للفترة ٢٠٠٥-٢٠٥٠، يتوقع أن يبلغ عدد سكان العالم ٩,١ بلايين نسمة حسب متغير الخصوبة المتوسط، وأن ينضاف رغم ذلك ٣٤ مليون نسمة كل عام مع حلول منتصف القرن.

٢ - واليوم، يستوعب العالم النامي ٩٥ في المائة من مجموع النمو السكاني فيما يمثل العالم المتقدم ٥ في المائة في المجموع. وبحلول ٢٠٥٠، يشير متغير الخصوبة المتوسط إلى أن عدد سكان البلدان الأكثر تقدما ككل سيتناقص تدريجيا بحوالي مليون نسمة في العام، فيما سيضيف العالم النامي ٣٥ مليون نسمة في العام، منها ٢٢ مليون نسمة تضيفها أقل البلدان نموا.

٣ - ويتوقف النمو السكاني في المستقبل بدرجة كبيرة على المنحى الذي سيتخذه معدل الخصوبة في المستقبل. وبحسب متغير الخصوبة المتوسط، يتوقع أن ينخفض معدل الخصوبة من ٢,٦ طفل لكل امرأة اليوم إلى ما يربو بقليل على طفلين لكل امرأة في عام ٢٠٥٠. وإذا

---

(٤) انظر قرار الجمعية العامة ٥٥/٢.

(٥) انظر قرار الجمعية العامة د إ ٢٦/٢.

استقر معدل الخصوبة عند نحو ٠,٥ طفل فوق المعدلات المتوقعة بحسب المتغير المتوسط، فقد يبلغ عدد سكان العالم ١٠,٦ بلايين نسمة بحلول عام ٢٠٥٠ . وسوف يؤدي اتجاه الخصوبة إذا تحدد بـ ٠,٥ طفل دون المتوسط إلى بلوغ عدد السكان ٧,٦ بلايين نسمة بحلول منتصف القرن. وهذا يعني على مستوى العالم أن اطراد النمو السكاني إلى غاية عام ٢٠٥٠ أمر حتمي حتى وإن تسارع انخفاض معدل الخصوبة.

الجدول ١

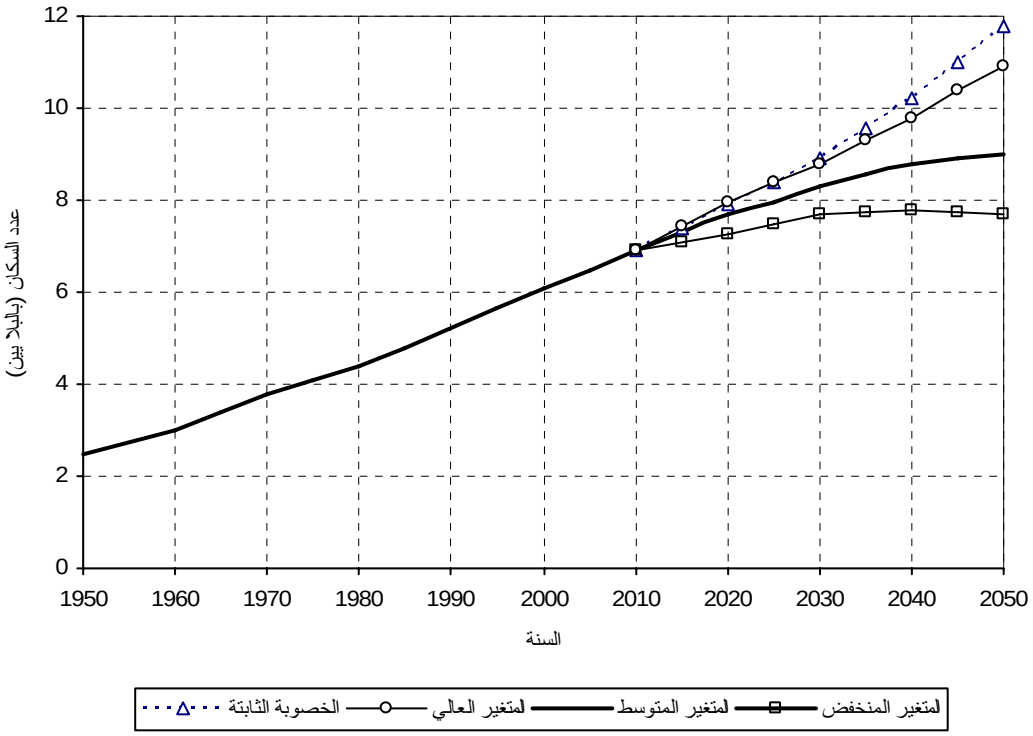
عدد سكان العالم وسكان المجموعات الإنمائية الرئيسية والمناطق الرئيسية في الأعوام ١٩٥٠ و ١٩٧٥ و ٢٠٠٥ و٢٠٥٠ حسب متغيرات الإسقاط

	عدد السكان (بالملايين)			*عدد السكان في سنة ٢٠٥٠ (بالملايين)*			
				متغير			
المنطقة الرئيسية	*١٩٥٠*	*١٩٧٥*	*٢٠٠٥*	*الخصوبة المنخفض*	*متغير الخصوبة المتوسط*	*متغير الخصوبة العالي*	*الخصوبة الثابتة*
العالم	٢ ٥١٩	٤ ٠٧٤	٦ ٤٦٥	٧ ٦٨٠	٩ ٠٧٦	١٠ ٦٤٦	١١ ٦٥٨
المناطق الأكثر تقدما	٨١٣	١ ٠٤٧	١ ٢١١	١ ٠٥٧	١ ٢٣٦	١ ٤٤٠	١ ١٩٥
المناطق الأقل تقدما	١ ٧٠٧	٣ ٠٢٧	٥ ٢٥٣	٦ ٦٢٢	٧ ٨٤٠	٩ ٢٠٦	١٠ ٤٦٣
أقل البلدان نموا	٢٠١	٣٥٦	٧٥٩	١ ٤٩٧	١ ٧٣٥	١ ٩٩٤	٢ ٧٤٤
البلدان الأخرى الأقل تقدما	١ ٥٠٦	٢ ٦٧١	٤ ٤٩٤	٥ ١٢٦	٦ ١٠٤	٧ ٢١٣	٧ ٧١٩
أفريقيا	٢٢٤	٤١٦	٩٠٦	١ ٦٦٦	١ ٩٣٧	٢ ٢٢٨	٣ ١٠٠
آسيا	١ ٣٩٦	٢ ٣٩٥	٣ ٩٠٥	٤ ٣٨٨	٥ ٢١٧	٦ ١٦١	٦ ٤٨٧
أوروبا	٥٤٧	٦٧٦	٧٢٨	٥٥٧	٦٥٣	٧٦٤	٦٠٦
أمريكا اللاتينية ومنطقة البحر الكاريبي	١٦٧	٣٢٢	٥٦١	٦٥٣	٧٨٣	٩٣٠	٩٥٧
أمريكا الشمالية	١٧٢	٢٤٣	٣٣١	٣٧٥	٤٣٨	٥٠٩	٤٥٤
أوقيانوسيا	١٣	٢١	٣٣	٤١	٤٨	٥٥	٥٥

المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٥). *التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤ . الملامح الرئيسية*. نيويورك، الأمم المتحدة.

الشكل الأول

سكان العالم ، ١٩٥٠–٢٠٥٠ ، حسب متغيرات الإسقاط



المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٥). التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤. الملامح الرئيسية. نيويورك، الأمم المتحدة.

٤ - ومن المتوقع أن يظل عدد سكان البلدان المتقدمة ككل دون تغيير يذكر في الفترة بين ٢٠٠٥ و ٢٠٥٠ عند حوالي ١,٢ بليون نسمة، وذلك بسبب معدل النمو المتدني المستمر في الانخفاض. وفي المقابل، يُتوقع أن يرتفع عدد سكان أقل البلدان نموا، وعددها ٥٠ بلدا، إلى أكثر من الضعف، من ٠,٨ بليون نسمة في عام ٢٠٠٥ إلى ١,٧ بليون نسمة في عام ٢٠٥٠. ويتوقع أيضا أن يكون النمو قويا في باقي بلدان العالم النامي وإن كان أقل سرعة، بحيث يرتفع عدد سكانها من ٤,٥ بلايين نسمة إلى ٦,١ بلايين نسمة بين عامي ٢٠٠٥ و ٢٠٥٠.

٥ - ويُتوقع أن يزيد النمو السكاني بوتيرة سريعة جدا في عدد من البلدان النامية، معظمها من أقل البلدان نموا. وفي الفترة بين عامي ٢٠٠٥ و٢٠٥٠، يُتوقع أن يتضاعف

عدد السكان ثلاث مرات على الأقل في أفغانستان وأوغندا وبوركينا فاسو وبوروندي وتشاد وجمهورية تيمور - ليشتي الديمقراطية وجمهورية الكونغو الديمقراطية وغينيا - بيساو والكونغو وليبريا ومالي والنيجر.

٦ - ومن المتوقع أن ينخفض عدد السكان في عام ٢٠٥٠ مقارنة بعام ٢٠٠٥، في ٥١ بلدا أو منطقة، بما في ذلك ألمانيا وإيطاليا واليابان ودول البلطيق ومعظم الدول التي خلفت الاتحاد السوفياتي السابق.

٧ - وخلال الفترة ٢٠٠٥ - ٢٠٥٠، يُتوقع أن تكون تسعة بلدان مسؤولة عن نصف الزيادة المتوقعة في عدد سكان العالم، وهي: الهند وباكستان ونيجيريا وجمهورية الكونغو الديمقراطية وبنغلاديش وأوغندا والولايات المتحدة الأمريكية وإثيوبيا والصين؛ وهي مرتبة هنا حسب حجم مساهمتها في النمو السكاني خلال الفترة المذكورة.

الجدول ٢

متوسط معدل النمو السنوي لمجموع السكان والفئات العمرية العريضة للسكان، حسب المناطق الرئيسية، ٢٠٠٥-٢٠٥٠ (*متغير الخصوبة المتوسط*)

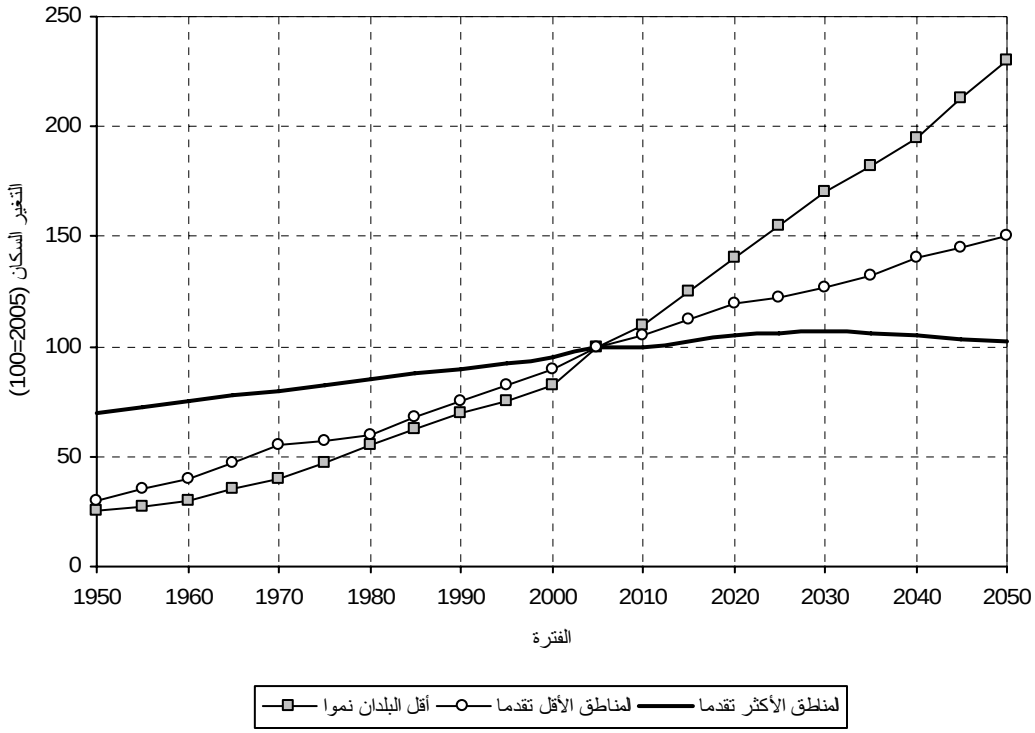
(نسبة مئوية)

المنطقة الرئيسية	*صفر-١٤*	*١٥-٥٩*	*٦٠+*	*٨٠+*	*مجموع السكان*
العالم	٠,٠١	٠,٦٣	٢,٣٩	٣,٣٧	٠,٧٥
المناطق الأكثر تقدما	-٠,١٤	-٠,٣٨	١,١٠	٢,١٣	٠,٠٥
المناطق الأقل تقدما	٠,٠٣	٠,٨٢	٢,٨٨	٤,١٩	٠,٨٩
أقل البلدان نموا	١,٠٢	٢,١٥	٣,٣٢	٤,٠٣	١,٨٤
البلدان الأخرى الأقل تقدما	-٠,٢٩	٠,٥٤	٢,٨٤	٤,٢١	٠,٦٨
أفريقيا	٠,٨٧	٢,٠٠	٣,١٢	٣,٨٦	١,٦٩
آسيا	-٠,٢٩	٠,٤٧	٢,٧٠	٤,٠٤	٠,٦٤
أوروبا	-٠,٣٦	-٠,٧٥	٠,٩٠	١,٩٨	-٠,٢٤
أمريكا اللاتينية ومنطقة البحر الكاريبي	-٠,٣٨	٠,٦١	٢,٩٨	٣,٩٩	٠,٧٤
أمريكا الشمالية	٠,٢٣	٠,٣٧	١,٦٧	٢,٣٠	٠,٦٢
أوقيانوسيا	٠,٠٩	٠,٦٥	٢,١١	٢,٨٩	٠,٨١

المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٥). *التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤. الملامح الرئيسية*. نيويورك، الأمم المتحدة.

الشكل الثاني

ديناميات السكان حسب المجموعات الإنمائية، ١٩٥٠–٢٠٥٠



المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٥). التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤. الملامح الرئيسية. نيويورك، الأمم المتحدة.

الجدول ٣

الخصوبة الكلية في العالم وفي المجموعات الإنمائية الرئيسية وللمناطق الرئيسية في الفترات ١٩٧٠-١٩٧٥ و ٢٠٠٠-٢٠٠٥ و٢٠٤٥-٢٠٥٠ حسب متغيِّرات الإسقاطات

			الخصوبة الكلية (متوسط عدد الأطفال لكل امرأة) ٢٠٤٥-٢٠٥٠			
المنطقة الرئيسية	*١٩٧٠-١٩٧٥*	*٢٠٠٠-٢٠٠٥*	*متغير الخصوبة المنخفض*	*متغير الخصوبة المتوسط*	*متغير الخصوبة العالي*	*الخصوبة الثابتة*
العالم	٤,٤٩	٢,٦٥	١,٥٦	٢,٠٥	٢,٥٣	٣,٥٠
المناطق الأكثر تقدما	٢,١٢	١,٥٦	١,٣٤	١,٨٤	٢,٣٤	١,٦٧
المناطق الأقل تقدما	٥,٤٤	٢,٩٠	١,٥٩	٢,٠٧	٢,٥٦	٣,٦٩
أقل البلدان نموا	٦,٦١	٥,٠٢	٢,٠٨	٢,٥٧	٣,٠٥	٥,٥٦
البلدان الأخرى الأقل تقدما	٥,٢٨	٢,٥٨	١,٤٢	١,٩٢	٢,٤١	٣,٠٦
أفريقيا	٦,٧٢	٤,٩٧	٢,٠٣	٢,٥٢	٣,٠٠	٥,٥٠
آسيا	٥,٠٨	٢,٤٧	١,٤٢	١,٩١	٢,٤١	٢,٩٨
أوروبا	٢,١٦	١,٤٠	١,٣٣	١,٨٣	٢,٣٣	١,٤٥
أمريكا اللاتينية ومنطقة البحر الكاريبي	٥,٠٥	٢,٥٥	١,٣٦	١,٨٦	٢,٣٦	٢,٦٩
أمريكا الشمالية	٢,٠١	١,٩٩	١,٣٥	١,٨٥	٢,٣٥	١,٩٩
أوقيانوسيا	٣,٢٣	٢,٣٢	١,٤٢	١,٩٢	٢,٤٢	٢,٧٢

المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٥). *التوقعات السكانية في العالم: تنقيح عام ٢٠٠٤. الملامح الرئيسية*. نيويورك، الأمم المتحدة.

٨ - في الفترة ٢٠٠٠ -٢٠٠٥، بلغ معدل الخصوبة على مستوى العالم ٢,٦٥ طفل لكل امرأة، أي حوالي نصف معدلها المسجل للفترة ١٩٥٠-١٩٥٥ (٥ أطفال لكل امرأة). وبحسب متغير الخصوبة المتوسط، يتوقع أن يستمر انخفاض معدل الخصوبة الكلي في العالم إلى ٢,٠٥ طفل لكل امرأة بحلول ٢٠٤٥ - ٢٠٥٠. وتأتي متوسطات المعدلات العالمية نتيجة اتجاهات متباينة تماما فيما بين المجموعات الإنمائية الرئيسية. ففي البلدان المتقدمة ككل، يبلغ معدل الخصوبة حاليا ١,٥٦ طفل لكل امرأة، ويتوقع أن يشهد ارتفاعا بطيئا ليبلغ ١,٨٤ طفل لكل امرأة في الفترة ٢٠٤٥-٢٠٥٠. وفي أقل البلدان نموا، يبلغ معدل الخصوبة ٥ أطفال لكل امرأة، ويتوقع أن ينخفض بحوالي النصف إلى ٢,٥٧ طفل لكل امرأة بحلول الفترة ٢٠٤٥-٢٠٥٠. وفي باقي بلدان العالم النامي، انخفض معدل الخصوبة فعلا بصورة معقولة، إذ يبلغ ٢,٥٨ طفل لكل امرأة، ومن المتوقع أن يستمر في الانخفاض إلى ١,٩٢ طفل لكل امرأة بحلول منتصف القرن، بحيث يناهز معدلات الخصوبة التي ستغلب على العالم المتقدم في تلك الفترة. ويبقى تحقق توقعات الانخفاض في معدل الخصوبة رهنا بانتشار تنظيم الأسرة، لا سيما في أقل البلدان نموا.

٩ - وفي الفترة ٢٠٠٠-٢٠٠٥، يظل معدل الخصوبة فوق ٥ أطفال لكل امرأة في ٣٥ من بين ١٤٨ بلدا ناميا، منها ٣٠ بلدا من أقل البلدان نموا، فيما كانت وتيرة الانخفاض في العديد من بلدان أفريقيا جنوب الصحراء الكبرى وجنوب آسيا الوسطى أكثر بطئا من المتوقع. وإجمالا، تمثل البلدان التي تتسم بخصوبة عالية ١٠ في المائة من سكان العالم. وفي المقابل، فقد انخفض معدل الخصوبة دون مستويات الإحلال في ٢٣ من البلدان النامية تمثل ٢٥ في المائة من سكان العالم. وتشمل هذه المجموعة الصين التي يقدر معدل الخصوبة فيها خلال الفترة ٢٠٠٠-٢٠٠٥ بما نسبته ١,٧ طفل لكل امرأة.

١٠ - أما مستويات الخصوبة الحالية في البلدان المتقدمة، وعددها ٤٤ بلدا تمثل ١٩ في المائة من سكان العالم، فإنها تتسم بالانخفاض الشديد، ومعدل الخصوبة فيها جميعها، باستثناء ألبانيا، دون مستوى الإحلال و ١٥ منها، معظمها يقع في جنوب وشرق أوروبا، بلغت معدلات خصوبة لم يسبق لها مثيل في تاريخ البشرية (أقل من ١,٣ طفل لكل امرأة). ومنذ ١٩٩٠-١٩٩٥، أصبح انخفاض معدل الخصوبة هو القاعدة في معظم البلدان المتقدمة. والارتفاعات القليلة التي سُجلت، كما هو الحال في ألمانيا وبلجيكا وفرنسا وهولندا والولايات المتحدة الأمريكية، ارتفاعات ضئيلة.

الجدول ٤

متوسط العمر المتوقع عند الولادة في العالم والمجموعات الإنمائية الرئيسية والمناطق الرئيسية، ٢٠٠٠-٢٠٠٥ و ٢٠٤٥-٢٠٥٠

المنطقة الرئيسية	٢٠٠٠-٢٠٠٥	٢٠٤٥-٢٠٥٠
العالم	٦٥,٤	٧٥,١
المناطق الأكثر تقدما	٧٥,٦	٨٢,١
المناطق الأقل تقدما	٦٣,٤	٧٤,٠
أقل البلدان نموا	٥١,٠	٦٦,٥
البلدان الأقل تقدما الأخرى	٦٦,١	٧٦,٣
أفريقيا	٤٩,١	٦٥,٤
آسيا	٦٧,٣	٧٧,٢
أوروبا	٧٣,٧	٨٠,٦
أمريكا اللاتينية ومنطقة البحر الكاريبي	٧١,٥	٧٩,٥
أمريكا الشمالية	٧٧,٦	٨٢,٧
أوقيانوسيا	٧٤,٠	٨١,٢

المصدر: شعبة السكان التابعة لإدارة الشؤون الاقتصادية والاجتماعية بالأمانة العامة للأمم المتحدة (٢٠٠٥). *التوقعات السكانية العالمية: تنقيح عام ٢٠٠٤، الملامح الرئيسية*. نيويورك: الأمم المتحدة.

١١ - يتوقع أن يستمر ارتفاع متوسط العمر المتوقع عند الولادة، الذي يُقدر أنه ارتفع على الصعيد العالمي من ٤٧ سنة في الفترة ١٩٥٠-١٩٥٥ إلى ٦٥ سنة في الفترة ٢٠٠٠-٢٠٠٥، فيصل إلى ٧٥ سنة في الفترة ٢٠٤٥-٢٠٥٠. وفي المناطق الأكثر تقدما، يتوقع ارتفاع متوسط العمر من ٧٦ سنة حاليا إلى ٨٢ سنة بحلول منتصف القرن. ويتوقع في البلدان الأقل نموا، حيث يبلغ متوسط العمر المتوقع حاليا ٥١ سنة، أن يرتفع المتوسط إلى ٦٧ سنة في الفترة ٢٠٤٥-٢٠٥٠. وبما أن العديد من هذه البلدان يتأثر كثيرا بوباء الفيروس/الإيدز، فإن الارتفاع المتوقع في متوسط العمر يتوقف على تنفيذ البرامج الفعالة للوقاية من الإصابة بفيروس نقص المناعة البشرية والعلاج منه. أما في باقي بلدان العالم النامي ذات الظروف المشابهة، فمن المنتظر أن يرتفع متوسط العمر المتوقع من ٦٦ سنة حاليا إلى ٧٦ سنة في منتصف القرن.

١٢ - وقد أخذت تزداد الوفيات في أوروبا الشرقية منذ أواخر الثمانينات. وأصبح متوسط العمر المتوقع في الفترة ٢٠٠٠-٢٠٠٥ في المنطقة، ٦٧,٩ سنة، أقل مما كان عليه في الفترة ١٩٦٠-١٩٦٥ عندما بلغ ٦٨,٦ سنة. وتأثر الاتحاد الروسي وأوكرانيا على نحو خاص بالارتفاع في الوفيات الناجم جزئيا عن انتشار فيروس نقص المناعة البشرية.

١٣ - وبعد خمس وعشرين سنة من بدء انتشار وباء الفيروس/الإيدز، يبدو تأثير المرض جليا من حيث زيادة الاعتلال والوفيات وتباطؤ النمو السكاني. ففي الجنوب الأفريقي، وهو المنطقة التي تعرف أعلى معدل لانتشار وباء الفيروس/الإيدز، انخفض متوسط العمر المتوقع من ٦٢ سنة في الفترة ١٩٩٠-١٩٩٥ إلى ٤٨ سنة في الفترة ٢٠٠٠-٢٠٠٥، ويتوقع أن ينخفض أكثر إلى ٤٣ سنة خلال العقد المقبل قبل أن يبدأ تحسن بطيء. ونتيجة لذلك، يتوقع أن يتوقف النمو السكاني في المنطقة بين عامي ٢٠٠٠ و ٢٠٢٠. وفي بوتسوانا وليسوتو وسوازيلند، يتوقع أن ينخفض عدد السكان نظرا لزيادة عدد الوفيات على عدد المواليد. وفي أغلب البلدان النامية الأخرى المتأثرة بالوباء، سيواصل النمو السكاني اتجاهه الإيجابي ذلك أن معدل الخصوبة بها، معتدلا كان أم عاليا، يتجاوز الزيادة في الوفيات.

١٤ - وأولى نتائج تراجع الخصوبة، وخاصة مع زيادة متوسط العمر المتوقع، هي شيوخة السكان، حيث يزداد عدد كبار السن من السكان مقارنا بعدد الشباب. وعلى الصعيد العالمي، يتوقع أن يبلغ عدد الأشخاص ٦٠ سنة أو أكثر ثلاثة أضعافه تقريبا، فيزداد عددهم من ٦٧٢ مليون نسمة سنة ٢٠٠٥ إلى قرابة ١,٩ بليون نسمة مع حلول سنة ٢٠٥٠. وفي حين أن ٦ من كل ١٠ من هؤلاء المسنين يعيشون حاليا في البلدان النامية، فإن عددهم في تلك المناطق سيكون ٨ من كل ١٠ مع حلول سنة ٢٠٥٠. بل يتوقع حدوث زيادة

ملحوظة بصورة أكبر في عدد أكبر المسنين سنا (٨٠ سنة فأكثر)، من ٨٦ مليون نسمة عام ٢٠٠٥ إلى ٣٩٤ مليون نسمة عام ٢٠٠٥. وفي البلدان النامية، سيزداد العدد من ٤٢ مليون نسمة إلى ٢٧٨ مليون نسمة، مما يعني أن العالم النامي سيكون به معظم أكبر المسنين سنا مع حلول عام ٢٠٥٠.

١٥ - وفي البلدان المتقدمة، يبلغ عمر ٢٠ في المائة من السكان حاليا ٦٠ سنة أو أكثر ويتوقع أن تصل هذه النسبة مع حلول ٢٠٥٠ إلى ٣٢ في المائة. وبالفعل فقد تجاوز عدد المسنين في البلدان المتقدمة عدد الأطفال (ممن تتراوح أعمارهم بين صفر و ١٤ سنة)، ومع حلول عام ٢٠٥٠ سيكون هناك مسنان لكل طفل واحد. وفي العالم النامي، يتوقع أن ترتفع نسبة السكان البالغة أعمارهم ٦٠ سنة أو أكثر من ٨ في المائة سنة ٢٠٠٥ إلى قرابة ٢٠ في المائة مع حلول ٢٠٥٠.

١٦ - وتعد الزيادات في العمر المتوسط، أي العمر الذي يزيد عنه ٥٠ في المائة من السكان ويقل عنده الـ ٥٠ في المائة الآخرون، مؤشرا على شيوخة السكان. واليوم لا يزيد عن ١١ بلدا عدد البلدان المتقدمة التي يربو فيها العمر المتوسط على ٤٠ سنة. ومع حلول عام ٢٠٥٠، سيبلغ عدد بلدان هذه المجموعة ٨٩ بلدا، ٤٥ منها في العالم النامي. فشيوخة السكان التي اتسعت وازدادت في البلدان المتقدمة أمر لا مفر منه في العالم النامي أيضا. وستحل هذه الشيوخة بوتيرة أسرع في البلدان النامية.

١٧ - وستشهد البلدان، التي تبقى الخصوبة عالية فيها ولم تتراجع إلا بشكل معتدل، أبطأ معدل لشيوخة السكان. وما زال يتوقع أن يظل هناك بحلول عام ٢٠٥٠ بلد من كل خمسة بلدان يبلغ فيه العمر المتوسط ٣٠ سنة أو يقل عن ٣٠ سنة. وسنجد أقل السكان سنا يعيشون في أقل البلدان نموا، حيث يتوقع أن يبلغ العمر المتوسط في ١١ بلدا منها ٢٣ سنة أو أقل عام ٢٠٥٠، ومن بين هذه البلدان أفغانستان وأنغولا وأوغندا وبوروندي وتشاد وجمهورية الكونغو الديمقراطية وغينيا الاستوائية وغينيا - بيساو وليبريا ومالي والنيجر.

١٨ - ويتوقع، خلال الفترة ٢٠٠٥-٢٠٥٠، أن يبلغ صافي عدد المهاجرين على الصعيد الدولي إلى المناطق الأكثر تقدما ٩٨ مليون مهاجر أو ما متوسطه ٢,٢ مليون مهاجر في السنة. وسيغادر هذا العدد نفسه المناطق الأقل تقدما. وفيما يتعلق بالعالم المتقدم، فإن من شأن هذا المعدل الصافي للهجرة أن يعوض الزيادة المتوقعة في الوفيات على المواليد خلال الفترة ٢٠٠٥-٢٠٥٠، وهي تعادل فقدان ٧٣ مليون نسمة. وبالنسبة للعالم النامي، يمثل ٩٨ مليون مهاجر بالكاد أقل من ٤ في المائة من النمو المتوقع للسكان.

١٩ - وخلال الفترة ٢٠٠٠-٢٠٠٥، بلغ عدد البلدان المستقبلة الصافية للمهاجرين ٧٤ بلدا. وفي ٦٤ بلدا من هذه البلدان، يضيف صافي الهجرة المتوقع إلى النمو السكاني ويؤدي في ٧ بلدان إلى عكس اتجاه الانخفاض السكاني (ألمانيا وإيطاليا وكرواتيا والنمسا وسلوفاكيا وسلوفينيا واليونان). وفي ثلاثة بلدان، تبطئ الهجرة معدل الانخفاض السكاني لكنها لا تعكس اتجاهه (الاتحاد الروسي والجمهورية التشيكية وهنغاريا).

٢٠ - وفيما يتعلق بالمتوسطات السنوية للفترة ٢٠٠٥-٢٠٥٠، يتوقع أن يكون أكبر البلدان المتلقية الصافية للمهاجرين الدوليين هي الولايات المتحدة (١,١ مليون مهاجر سنويا) وألمانيا (٢٠٢ ٠٠٠) وكندا (٢٠٠ ٠٠٠) والمملكة المتحدة (١٣٠ ٠٠٠) وإيطاليا (١٢٠ ٠٠٠) وأستراليا (١٠٠ ٠٠٠). ويتوقع أن تكون البلدان الرئيسية الموفدة الصافية للمهاجرين هي الصين (- ٣٢٧ ٠٠٠ مهاجر سنويا) والمكسيك (- ٢٩٣ ٠٠٠) والهند (- ٢٤١ ٠٠٠) والفلبين (- ١٨٠ ٠٠٠) وإندونيسيا (- ١٦٤ ٠٠٠) وباكستان (- ١٥٤ ٠٠٠) وأوكرانيا (- ١٠٠ ٠٠٠).

الافتراضات التي يرتكز عليها تنقيح ٢٠٠٤

لإعداد التوقعات السكانية لغاية ٢٠٥٠، تطبق شعبة السكان بالأمم المتحدة افتراضات تتعلق بالاتجاهات المستقبلية للخصوبة والوفيات والهجرة. وبما أنه لا يمكن معرفة الاتجاهات المستقبلية على وجه اليقين، يوضع عدد من متغيرات الإسقاطات. وتركز الملامح الرئيسية لتنقيح ٢٠٠٤ على متغير الخصوبة المتوسط للتنقيح. وترد الافتراضات المتعلقة بالمتغير المتوسط موضحة بتفصيل في القسم ألف من هذا الفصل.

ويتضمن تنقيح ٢٠٠٤ خمسة متغيرات إضافية: متغيرات الخصوبة العالية والمنخفضة والثابتة والوفيات الثابتة والهجرة الصفرية. وترد الافتراضات التي تميز هذه المتغيرات عن المتغير المتوسط موضحة في القسم باء. وستقدم النتائج المفصلة لهذه المتغيرات في المنشورات المقبلة.

وقد أعدت الإسقاطات السكانية المستقبلية لكل بلد انطلاقا من تقديرات عدد السكان في ١ تموز/يوليه ٢٠٠٥. وبما أن البيانات السكانية الفعلية لسنة ٢٠٠٥ ليست متاحة بعد، فإن تقديرات ٢٠٠٥ تقوم على أحدث البيانات السكانية المتاحة عن كل بلد والتي تشتق عادة من تعداد سكاني أو سجل سكاني تم استكماله لسنة ٢٠٠٥ باستخدام كل البيانات المتاحة عن الخصوبة والوفيات والهجرة الدولية. وفي الحالات التي لا تتوافر فيها بيانات حديثة جدا، تكون الاتجاهات الديمغرافية المقدرة عبارة عن إسقاطات قصيرة الأجل

لأحدث البيانات المتاحة. وتُقيَّم البيانات السكانية من كل المصادر من حيث التمام والدقة والاتساق وتعدل حيثما تدعو الضرورة[٦].

ألف – افتراضات المتغير المتوسط

١ – *افتراضات الخصوبة: الاقتراب نحو خصوبة كلية أقل من مستوى الإحلال*

يُفترض في النهاية أن تقترب الخصوبة الكلية في البلدان كافة من معدل ١,٨٥ طفل لكل امرأة. ومع ذلك، لا تبلغ كل البلدان هذا المعدل خلال فترة الإسقاط، أي، مع حلول ٢٠٥٠. فالمبدأ الأساسي لإسقاط الخصوبة لا يتغير بالنسبة لكل البلدان، لكن إجراءات الإسقاط تختلف بعض الشيء بحسب المعدل الكلي للخصوبة في البلدان وما إذا كان هذا المعدل أعلى أو أقل من ١,٨٥ طفل لكل امرأة في الفترة ٢٠٠٠-٢٠٠٥.

فبالنسبة للبلدان التي يزيد فيها معدل الخصوبة الكلية على ١,٨٥ طفل لكل امرأة، يُقدر أن تتبع الخصوبة مسارا من مسارات نماذج انخفاض الخصوبة التي وضعتها شعبة السكان بالأمم المتحدة على أساس المشهد الماضي لكل البلدان التي انخفضت فيها الخصوبة خلال الفترة ١٩٥٠-٢٠٠٠. وتربط هذه النماذج معدل الخصوبة الكلية خلال كل فترة بمتوسط الانخفاض المتوقع في الخصوبة الكلية خلال الفترة التالية. فإذا انخفضت الخصوبة الكلية المسقطة بحسب نموذج البلد إلى ١,٨٥ طفل لكل امرأة قبل ٢٠٥٠، فإنه يُحتفظ بالخصوبة الكلية ثابتة عند هذا المعدل خلال ما تبقى من فترة الإسقاط (أي، إلى غاية ٢٠٥٠).

وفي كل الحالات، يُتحقق من مسارات الخصوبة المسقطة المستقاة من النماذج بمقارنتها مع الاتجاهات الحديثة للخصوبة في كل بلد. وعندما تحيد اتجاهات الخصوبة الحديثة بدرجة كبيرة في بلد ما عن الاتجاهات التي تتفق وهذه النماذج، تُعد إسقاطات الخصوبة على مدى فترة أولية من ٥ سنوات أو ١٠ سنوات بحيث تراعي ما استجد حديثا. ويحذو نموذج الإسقاط حذو تلك الفترة الانتقالية. فعلى سبيل المثال، يتوقع أن تبقى الخصوبة، في البلدان التي توقفت فيها الخصوبة أو التي لا توجد فيها دلائل على انخفاض الخصوبة، ثابتة لعدة سنوات أخرى قبل أن تبدأ في التناقص.

وفيما يتعلق بالبلدان التي تبلغ فيها الخصوبة الكلية أقل من ١,٨٥ طفل لكل امرأة في الفترة ٢٠٠٠-٢٠٥٠، يُفترض أن يتبع إسقاط الخصوبة خلال فترة الإسقاط الأولى من

---

(٦) للإطلاع على وصف عام للإجراءات المتبعة في تنقيح تقديرات الدينامية السكانية، انظر *توقعات سكان العالم: تنقيح سنة ٢٠٠٢، المجلد الثالث، التقرير التحليلي*، الصفحات ١٨٠-١٨٢ (من النص الانكليزي).

٥ أو ١٠ سنوات الاتجاهات الملاحظة حديثا في كل بلد. وبعد تلك الفترة الانتقالية، يفترض أن ترتفع الخصوبة خطيا بمعدل ٠,٠٧ طفل لكل امرأة كل خمس سنوات.

٢ - *افتراضات الوفيات: زيادة العمر المتوقع باستثناء أثر الإصابة بفيروس نقص المناعة البشرية/الإيدز*

أ - *افتراضات الوفيات العادية*

تقوم إسقاطات الوفيات على أساس نماذج تغير متوسط الزيادة في العمر المتوقع عند الولادة التي صاغتها شعبة السكان بالأمم المتحدة. وتكشف هذه النماذج عن تناقص معدل الزيادة من هذه الناحية كلما كان متوسط العمر المتوقع عاليا بالفعل من قبل. ويقوم اختيار النموذج لكل بلد على الاتجاهات الحديثة للعمر المتوقع حسب نوع الجنس. فبالنسبة للبلدان المتأثرة كثيرا بالفيروس/الإيدز، يستخدم عموما نموذج الانخفاض البطيء في الوفيات لإعداد إسقاطات الوفيات العامة غير المرتبطة بالفيروس/الإيدز، وهذه تكون مائلة إلى الانخفاض.

ب - *تأثير الفيروس/الإيدز*

فيما يتعلق بالـ ٦٠ بلدا المتضررة بصورة كبيرة من وباء الفيروس/الإيدز (ترد قائمة بأسمائها في الجدول الثامن - ٢١)، تُعد تقديرات أثر هذا الوباء من خلال وضع نماذج واضحة لمسار الوباء وحساب المعدل السنوي المتوقع للإصابة بالفيروس. ويستخدم النموذج الذي وضعه فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز[٧] بما يتمشى والتقديرات الماضية لانتشار الفيروس التي قدمها برنامج الأمم المتحدة المشترك المعني بالإيدز بغية استقاء المحددات التي تظهر من خلالها دينامية الوباء في السابق. وفيما يتعلق بمعظم البلدان، يكيف النموذج على افتراض أن المحددات ذات الصلة ظلت ثابتة في الماضي. وانطلاقا من ٢٠٠٥، يتوقع أن ينخفض المحدد المتعلق بنسبة الانتشار المرتفعة للوباء PHI، الذي يبين معدل دخول أفراد جدد إلى المجموعات المعرضة لخطر كبير أو السريعة التأثر، بواقع النصف كل ثلاثين سنة. كما يتوقع أن ينخفض المحدد R، الذي يمثل شدة خطر الإصابة، بالطريقة نفسها. ويعكس الانخفاض في المحدد المتعلق بشدة خطر الإصابة R افتراضا مؤداه أن التغيرات التي تطرأ على سلوك الأشخاص المعرضين لخطر الإصابة، إضافة إلى زيادة توفير العلاج للمصابين، ستقلل

(٧) أساليب وافتراضات محسنة للتقديرات المتعلقة بوباء فيروس نقص المناعة البشرية/الإيدز وآثاره: توصيات فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المعني بالإيدز. الإيدز، المجلد ١٦، الصفحات W1-W14 من النص الانكليزي (فريق الإحالة المعني بالتقديرات ووضع النماذج والإسقاطات التابع لبرنامج الأمم المتحدة المعني بالإيدز، ٢٠٠٢).

من فرص انتقال الفيروس. كما يتوقع أن تنخفض نسبة انتقال المرض من الأم إلى الطفل بمعدلات مختلفة حسب تقدم كل بلد في مجال توفير العلاج. وإضافة إلى ذلك، استُكمل مكون نموذج فريق الإحالة المتعلق ببقاء الأطفال المصابين: ففي تنقيح ٢٠٠٤ يُفترض أن ٥٠ في المائة من الأطفال المصابين نتيجة انتقال المرض من الأم إلى الطفل سيعيشون حتى السنة الثانية من العمر.

ويشير *تنقيح ٢٠٠٤* لأول مرة إلى زيادة أعمار الأشخاص الذين يتلقون علاجا مضادا للفيروسات الرجعية شديد الفعالية. وتتوافق نسبة السكان المصابين بالفيروس الذين يتلقون علاجا في كل بلد مع التقديرات التي أعدتها منظمة الصحة العالمية لنهاية سنة ٢٠٠٤[٨]. ويتوقع أن يصل معدل التغطية بالعلاج إلى ما بين ٤٠ و ٨٥ في المائة مع حلول سنة ٢٠١٥، استنادا إلى المعدل الحالي للتغطية. ومن المفترض أن تزداد احتمالات البقاء على قيد الحياة سنويا، في المتوسط، إلى ما لا يقل عن ٨٠ في المائة بالنسبة للأشخاص الذين يتلقون العلاج المضاد للفيروسات الرجعية. وحسب هذا الافتراض، فإن متوسط البقاء بعد الشروع في العلاج هو ٣,١ سنوات (العمر المتوسط هو ٤,٥ سنوات). وبالمقابل يُفترض أن متوسط البقاء في غياب العلاج بعد تقدم الإصابة نحو الإيدز يكون سنة واحدة فحسب.

٣ - *الافتراضات المتعلقة بالهجرة الدولية*

يحدد المسار المستقبلي للهجرة الدولية استنادا إلى تقديرات الهجرة الدولية السابقة وإلى تقييم الموقف السياسي للبلدان تجاه التدفقات المستقبلية للهجرة الدولية.

باء - متغيرات الإسقاط

يتضمن *تنقيح ٢٠٠٤* خمسة متغيرات إسقاط إضافة إلى المتغير المتوسط. ولا تختلف ثلاثة متغيرات - الخصوبة المرتفعة والمنخفضة والثابتة - عن المتغير المتوسط إلا فيما يتعلق بالمعدل المسقط للخصوبة الكلية. ففي إطار المتغير المرتفع، يتوقع أن تظل الخصوبة الكلية أعلى بمعدل ٠,٥ طفل عن الخصوبة الكلية في المتغير المتوسط خلال معظم فترة الإسقاط. وعلى سبيل المثال، فإن البلدان التي تبلغ فيها الخصوبة الكلية ١,٨٥ طفل لكل امرأة في إطار المتغير المتوسط تبلغ معدل خصوبة كليا قدره ٢,٣٥ طفل في إطار المتغير المرتفع. وفي إطار المتغير المنخفض، يتوقع أن تظل الخصوبة الكلية أدنى بنسبة ٠,٥ طفل من الخصوبة الكلية في

(٨) منظمة الصحة العالمية. التقرير المرحلي "معالجة ٣ ملايين شخص بحلول عام ٢٠٠٥"، كانون الأول/ديسمبر ٢٠٠٤/منظمة الصحة العالمية وبرنامج الأمم المتحدة المشترك المعني بفيروس نقص المناعة البشرية/الإيدز.

إطار المتغير المتوسط. وفي إطار متغير الخصوبة الثابت، تظل الخصوبة الكلية ثابتة عند المعدل المقدر للفترة ٢٠٠٠-٢٠٥٠.

كما تم إعداد متغير وفيات ثابت ومتغير هجرة صغرى. وكلاهما له ذات الافتراض المتعلق بالخصوبة الذي يقوم عليه متغير الخصوبة المتوسط. وعلاوة على ذلك، فلمتغير الوفيات الثابت ذات الافتراض المتعلق بالهجرة الدولية الذي يقوم عليه متغير الخصوبة المتوسط. ونتيجة لذلك، يمكن مقارنة نتائج متغير الوفيات الثابت مع نتائج متغير الخصوبة المتوسط لتقييم الأثر الذي يحدثه تغير الوفيات على المحددات الديمغرافية الأخرى. وعلى هذا النحو، لا يختلف متغير الهجرة الصفري عن متغير الخصوبة المتوسط إلا فيما يتعلق بالافتراض الأساسي بخصوص الهجرة الدولية. وبالتالي، يتيح متغير الهجرة الصفري تقييما للأثر الذي يحدثه متغير الهجرة غير الصفري على المحددات الديمغرافية الأخرى.

جيم – التغييرات المنهجية التي أُدخلت من أجل تنقيح ٢٠٠٤

- في إطار متغير الخصوبة المتوسط، يتوقع أن تستمر خصوبة البلدان ذات الخصوبة الكلية الأقل من ١,٨٥ طفل لكل امرأة في الفترة ٢٠٠٠-٢٠٠٥، وذلك في البداية بتواصل الاتجاهات الحديثة، ثم بتزايد الخصوبة خطيا بمعدل ٠,٠٧ طفل لكل امرأة كل خمس سنوات. ولا تصل هذه البلدان بالضرورة إلى معدل ١,٨٥ طفل لكل امرأة مع حلول ٢٠٥٠.

- وفي تنقيح ٢٠٠٤، استُخدمت نماذج إضافية لتغير الوفيات لبيان تنوع الواقع التاريخي من حيث زيادة العمر المتوقع. وعلى وجه التحديد، وضعت نماذج تغيير بطيئة جدا وسريعة جدا أُضيفت إلى النماذج البطيئة والمتوسطة السرعة والسريعة الموجودة بالفعل.

- ووضعت نماذج واضحة لتأثير الفيروس/الإيدز على الوفيات لكل البلدان التي كان معدل انتشار الفيروس لديها بين البالغين ١ في المائة أو أكثر سنة ٢٠٠٣.

- وأُدمج العلاج المضاد للفيروسات الرجعية صراحة في الإسقاطات المتعلقة بالبلدان المتأثرة بالفيروس/الإيدز. وإضافة إلى ذلك، يتوقع أن يتراجع معدل انتقال الإصابة من الأم إلى الطفل بمعدل يتناسب والتقدم المتوقع في زيادة توفير العلاج.

前言

本报告是联合国秘书处经济和社会事务部人口司编制的世界人口正式估算和预测《2004 年修订本》的结果执行摘要。此外，本报告概述了据以作出人口预测的生育力、死亡率和移徙的各种假设和《2004 年修订本》对《2002 年修订本》采用的程序作出的改动和调整。《2004 年修订本》是人口司自 1950 年以来进行的第十九回合的全球人口估算和预测。

《2004 年修订本》的全部结果将分三卷印发。第一卷[1] 为综合表，列出了 1950-2050 年每个国家的主要人口指标；第二卷[2] 是按年龄和性别分列的 1950-2050 年期间每个国家的人口分布情况；第三卷[3] 对得到的有关结果进行了分析。

还将用数字形式分发有关数据。感兴趣的用户可购买内有《2004 年修订本》主要结果的光盘。人口司的网址（www.unpopulation.org）上会有光盘数据的说明和订购单。

人口司对《2004 年修订本》负责。人口司同联合国各区域委员会、专门机构和其他有关机构的合作有助于《2004 年修订本》的编写工作。

尤其是用于编制这些估算和预测的正式国家人口统计主要来源为联合国经济和社会事务部统计司编制和保有的《联合国人口统计年鉴》及其有关数据库。人口司感谢统计司继续给予合作。

可从人口司的网址(www.unpopulation.org)查阅《2004 年修订本》的一些内容和其他人口信息。如需《2004 年修订本》的进一步资料，请接洽 Ms. Hania Zlotnik，Director, Population Division, United Nations, New York, NY 10017, USA(传真：1 212 963 2147)。

---

[1] 《世界人口前景：2004 年修订本》第一卷，《综合表》（联合国出版物，Sales No. E.05.XIII.5）。

[2] 《世界人口前景：2004 年修订本》第二卷，《世界人口的性别和年龄分布情况》（联合国出版物，Sales No. E.05.XIII.6）。

[3] 《世界人口前景：2004 年修订本》第三卷，《分析报告》（联合国出版物，即将发行）。

执行摘要

《2004 年修订本》是联合国秘书处经济和社会事务部人口司编制的第十九次联合国正式人口估算和预测。整个联合国系统根据这些估算和预测来开展那些利用人口资料的活动。《2004 年修订本》首度将 2000 年回合的国家人口普查全部结果纳入。其中也考虑到了最近在发展中国家进行的专门调查的结果，提供人口统计资料和其他资料，以供评估在实现国际商定的发展目标，包括实现《千年发展目标》方面所取得的进展。《2004 年修订本》中对过去的世界人口趋势和未来前景所作的全面审查为评估这些目标提供了人口基础。

《2004 年修订本》确认了我们当代的各种人口动态。虽然全球一级的人口继续增加，但较发达区域整体几乎没有改变，实际上所有人口增长都是出现在较不发达区域。50 个最不发达国家的群组呈现了人口尤其快速增长的特点。

在这些不同类型的增长之下是不同的生育力和死亡率趋势。较发达区域存在生育力未达更替生育率的情况，这种情况预期将持续到 2050 年。多数最不发达国家的生育力仍然偏高，虽预期会下降，但仍预期高出世界其他国家。从 1960 年代末期以来，其余发展中国家的生育力显著下降，预期到 2050 年，这些国家的多数的生育力将达到低于更替生育率的水平。

拥有市场经济的发达世界死亡率偏低，并持续下降，但若干转型经济国家的死亡率出现停滞甚至上升的情况，这主要是由于社会和经济状况日益恶化，有时是由于艾滋病毒蔓延。多数发展中国家的死亡率也日益下降，但是在深受艾滋病毒/艾滋病流行病困扰的国家，死亡率则在上升。由于不断努力在 2005 年之前向 300 万名艾滋病人提供抗逆转录病毒疗法和在 2005 年之后进一步扩大这种治疗，《2004 年修订本》对带有艾滋病毒者的平均存活率的假设较《2002 年修订本》为高，因此对受到艾滋病毒之害国家的未来死亡率的预测比前一个修订本的预测要低一些。

艾滋病毒/艾滋病流行病继续扩散。《2004 年修订本》中有相当人数受到感染的国家有 60 个，多于《2002 年修订本》中的 53 个。不过有些国家艾滋病毒流行率因采用了更好的统计方法而有所下降。然而，尽管预测艾滋病毒/艾滋病流行率会下降，染病人数仍然且将继续很高。艾滋病毒流行率的下降取决于各国政府是否履行《2000 年千年宣言》[4] 和《2001 年联合国关于艾滋病毒/艾滋病问题的承诺宣言》[5] 的承诺。

[4] 见大会第 A/RES/55/2 号决议。

[5] 见大会第 A/RES/S-26/2 号决议。

以下摘述《2004 年修订本》的主要结论：

1. 到 2005 年 7 月，世界居民将达 65 亿人，比 2000 年多出 3.8 亿人，每年增加 7 600 万人。尽管 2005-2050 年生育力预测继续下降，但按中变式计算，至本世纪中期，世界人口预期达到 91 亿人，每年增加 3 400 万人。

2. 今天有 95%人口增长出现在发展中世界，5%出现在发达世界。按中变式计算，到 2050 年，较发达世界整体每年将缓慢减少人口约 100 万人，发展中世界每年增加 3 500 万人，其中 2 200 万人出现在最不发达国家。

3. 进一步的人口增长高度取决于未来生育力的走向。按中变式计算，预测生育力将由今天的每一妇女生 2.6 个子女降至 2050 年每一妇女生育略多于 2 个子女。如果生育力停留在比按中变式计算的预测人数多出约半个子女，到 2050 年世界人口将达 106 亿人。如生育力走向为比中变数低半个子女，到本世纪中期人口将达 76 亿人。也就是说，即使生育力的下降速度加快，到 2050 年世界人口将持续增长的趋势仍不可避免。

表 1

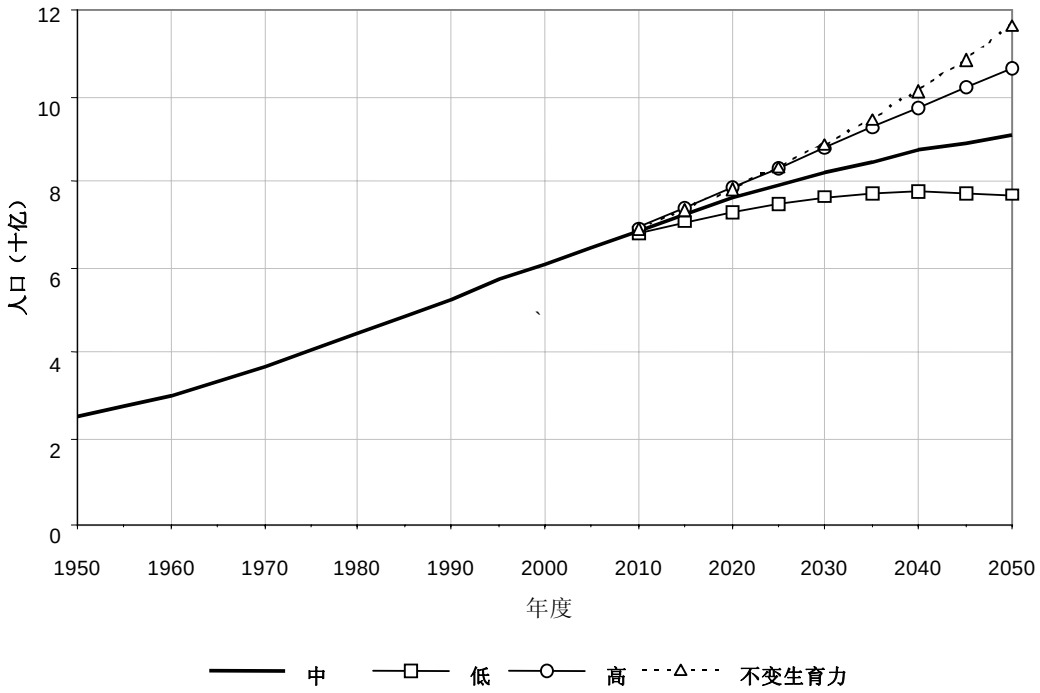
1950、1975、2005 和 2050 年按预测变式计算的世界、主要发展群组和主要地区人口

	人口（百万）			人口 2050（百万）			
主要地区	1950	1975	2005	低	中	高	不变
世界.....	2 519	4 074	6 465	7 680	9 076	10 646	11 658
较发达区域.....	813	1 047	1 211	1 057	1 236	1 440	1 195
较不发达区域.....	1 707	3 027	5 253	6 622	7 840	9 206	10 463
最不发达国家.....	201	356	759	1 497	1 735	1 994	2 744
其他较不发达国家...	1 506	2 671	4 494	5 126	6 104	7 213	7 719
非洲.....	224	416	906	1 666	1 937	2 228	3 100
亚洲.....	1 396	2 395	3 905	4 388	5 217	6 161	6 487
欧洲.....	547	676	728	557	653	764	606
拉丁美洲和加勒比.....	167	322	561	653	783	930	957
北美洲.....	172	243	331	375	438	509	454
大洋洲.....	13	21	33	41	48	55	55

资料来源：联合国秘书处经济和社会事务部人口司（2005 年）。《世界人口前景：2004 年修订本》概要，纽约：联合国。

图 1

1950-2050 年按预测变式计算的世界人口



资料来源：联合国秘书处经济和社会事务部人口司（2005 年）。《世界人口前景：2004 年修订本》概要，纽约：联合国。

4. 发达国家整体的人口由于增长率低且不断下降，预期 2005 至 2050 年期间实际上将保持不变，约为 12 亿人。相对的，50 个最不发达国家的人口预测将增加一倍以上，由 2005 年的超出 8 亿人增加到 2050 年的 17 亿人。发展中世界其余国家的增长虽预测不那么快，仍增加很多，从 2005 年的 45 亿人增加到 2050 年的 61 亿人。

5. 若干发展中国家的人口预期增长非常快速，主要是在最不发达国家。2005 年至 2050 年期间，阿富汗、布基纳法索、布隆迪、乍得、刚果、刚果民主共和国、东帝汶民主共和国、几内亚比绍、利比里亚、马里、尼日尔和乌干达的人口预测增长两倍。

6. 有 51 个国家或地区，包括德国、意大利、日本、波罗的海国家和前苏联的多数继承国家 2050 年的人口预期将低于 2005 年。

7. 2005 年至 2050 年期间，世界人口的增加预测有一半出现在九个国家，按其这一期间人口增长的多少排列，这些国家为：印度、巴基斯坦、尼日利亚、刚果民主共和国、孟加拉国、乌干达、美利坚合众国、埃塞俄比亚和中国。

表 2

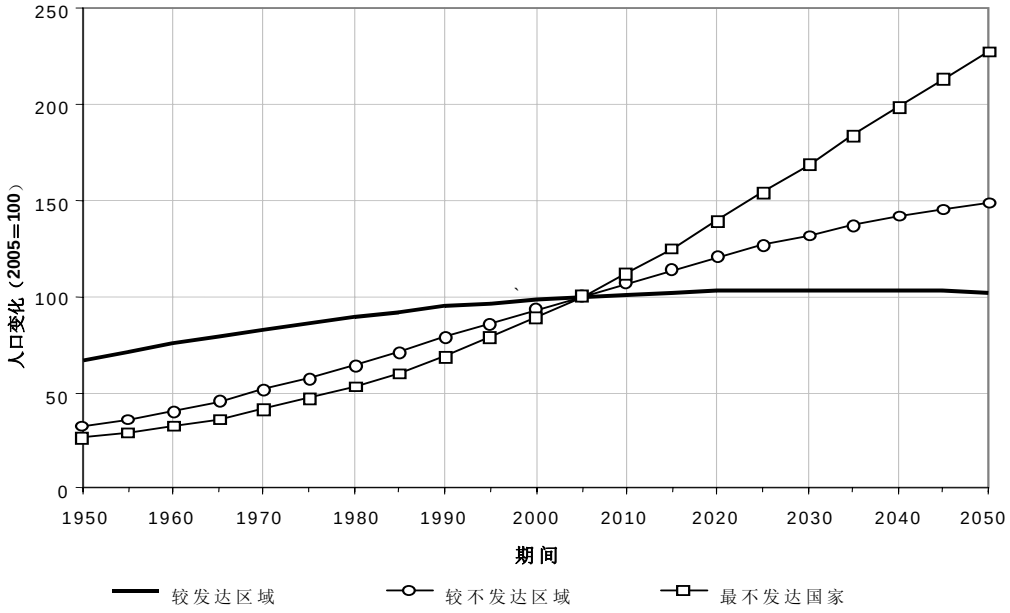
2005-2050 年按主要地区计算的总人口和广泛年龄群体年平均变动率(按中变式)

主要地区	0-14	15-59	60+	80+	人口总数
世界.....	0.01	0.63	2.39	3.37	0.75
较发达区域.....	-0.14	-0.38	1.10	2.13	0.05
较不发达区域.....	0.03	0.82	2.88	4.19	0.89
最不发达国家.....	1.02	2.15	3.32	4.03	1.84
其他较不发达国家...	-0.29	0.54	2.84	4.21	0.68
非洲.....	0.87	2.00	3.12	3.86	1.69
亚洲.....	-0.29	0.47	2.70	4.04	0.64
欧洲.....	-0.36	-0.75	0.90	1.98	-0.24
拉丁美洲和加勒比.....	-0.38	0.61	2.98	3.99	0.74
北美洲.....	0.23	0.37	1.67	2.30	0.62
大洋洲.....	0.09	0.65	2.11	2.89	0.81

资料来源：联合国秘书处经济和社会事务部人口司（2005 年）。《世界人口前景：2004 年修订本》概要，纽约：联合国。

图 2

1950-2050 年按发展群组计算的世界人口动态



资料来源：联合国秘书处经济和社会事务部人口司（2005 年）。《世界人口前景：2004 年修订本》概要，纽约：联合国。

表 3

1970-1975、2000-2005 和 2045-2050 年按预测变式计算的世界、主要发展群组和主要地区的总生育力

	总生育力（每一妇女所生子女数）					
			2045-2050			
主要地区	1970-1975	2000-2005	低	中	高	不变
世界.....	4.49	2.65	1.56	2.05	2.53	3.50
较发达区域.....	2.12	1.56	1.34	1.84	2.34	1.67
较不发达区域.....	5.44	2.90	1.59	2.07	2.56	3.69
最不发达国家.....	6.61	5.02	2.08	2.57	3.05	5.56
其他较不发达国家...	5.28	2.58	1.42	1.92	2.41	3.06
非洲.....	6.72	4.97	2.03	2.52	3.00	5.50
亚洲.....	5.08	2.47	1.42	1.91	2.41	2.98
欧洲.....	2.16	1.40	1.33	1.83	2.33	1.45
拉丁美洲和加勒比.....	5.05	2.55	1.36	1.86	2.36	2.69
北美洲.....	2.01	1.99	1.35	1.85	2.35	1.99
大洋洲.....	3.23	2.32	1.42	1.92	2.42	2.72

资料来源：联合国秘书处经济和社会事务部人口司（2005 年）。《世界人口前景：2004 年修订本》概要，纽约：联合国。

8. 在 2000-2005 年期间，世界生育力水平为每一妇女生 2.65 个子女，约为 1950-1955 年的半数（每一妇女生 5 个子女）。按中变式计算，到 2045-2050 年全球生育力预测将进一步下降到每一妇女生 2.05 个子女。按主要发展群组计算，世界平均生育力水平呈现极为不同的趋势。在发达国家整体，目前的生育力为每一妇女生 1.56 个子女，到 2045-2050 年期间预测将缓慢增加到每一妇女生 1.84 个子女。在最不发达国家，生育力为每一妇女生 5 个子女，到 2045-2050 年预测将下降一半，为每一妇女生 2.57 个子女。在发展中世界其余国家，生育力已经较低，为每一妇女生 2.58 个子女，预期到本世纪中期将进一步降到每一妇女生 1.92 个子女，因此几乎与发达世界到时的典型生育力水平趋同。要实现所预测的生育力下降取决于是否能获得计划生育，尤其是在最不发达国家。

9. 在 2000-2005 年期间，148 个发展中国家中有 35 个国家的生育力仍为每一妇女生 5 个子女以上，其中 30 个国家为最不发达国家，而撒哈拉以南非洲国家和南-中亚国家中有数个国家的下降速度比预期的低。总体来说，生育力高的国家占世界人口的 10%。相对来说，有 23 个发展中国家的生育力低于更替生育水平，

它们的人口占世界人口的 25%。这一群组包括中国，2000-2005 年期间其生育力估计为每一妇女生 1.7 个子女。

10. 占世界人口 19%的 44 个发达国家目前的生育力水平很低。除阿尔巴尼亚外，这所有国家的生育力都低于更替生育水平，其中主要是在南欧和东欧的 15 个国家已达到了人类史上前所未有的生育力水平（每一妇女生 1.3 个子女）。从 1990-1995 年以来，多数发达国家的生育力都在下降。少数国家象比利时、法国、德国、荷兰和美国的生育力有增加，但增加不多。

表 4

2000-2005 和 2045-2050 年世界、主要发展群组和主要地区的预期寿命

主要地区	2000-2005	2045-2050
世界	65.4	75.1
较发达区域	75.6	82.1
较不发达区域	63.4	74.0
最不发达国家	51.0	66.5
其他较不发达国家	66.1	76.3
非洲	49.1	65.4
亚洲	67.3	77.2
欧洲	73.7	80.6
拉丁美洲和加勒比	71.5	79.5
北美洲	77.6	82.7
大洋洲	74.0	81.2

资料来源：联合国秘书处经济和社会事务部人口司（2005 年）。《世界人口前景：2004 年修订本》概要，纽约：联合国。

11. 全球出生时预期寿命估计从 1950-1955 年的 47 岁上升到 2000-2005 年的 65 岁，预期将升到 2045-2050 年的 75 岁。在较发达区域，预期从今天的 76 岁上升到本世纪中期的 82 岁。最不发达国家今天的预期寿命为 51 岁，预计将升到 2045-2050 年的 67 岁。由于这许多国家高度受到艾滋病毒/艾滋病流行病之害，预期寿命的预计增长取决于能否执行有效的艾滋病毒感染预防和治疗方案。在具有类似条件的其余发展中世界，预计预期寿命将从今天的 66 岁增加到本世纪中期的 76 岁。

12. 从 1980 年代末期以来东欧的死亡率一直在上升。2000-2005 年该区域的预期寿命为 67.9 岁，比 1960-1965 年（68.6 岁为低）。俄罗斯联邦和乌克兰特别受到部分由于艾滋病毒扩散所造成的死亡率上升的影响。

13. 艾滋病毒/艾滋病流行病已经存在了二十五年，在增加发病率和死亡率并减缓人口增长方面，这一疾病的影响非常明显。南部非洲是艾滋病毒/艾滋病最猖獗的区域，预期寿命从 1990-1995 年的 62 岁减到了 2000-2005 年的 48 岁，预期在缓慢回升之前，下一个十年还会进一步减到 43 岁。因此，在 2005 至 2020 年之间，该区域的人口增长预期会停滞。在博茨瓦纳、莱索托和斯威士兰，因死亡人数超过出生人数，人口预计会减少。在受到上述流行病影响的其他发展中国家，因其略高或很高的生育力足以抵销死亡率的上升，人口将继续呈现正数增长。

14. 生育力下降，尤其是预期寿命也同时增加时，就会造成人口老化的主要结果，人口当中的老人比例随着年轻人增长。全球 60 岁以上的人数预期会增加两倍，从 2005 年的 6.27 亿人增加到 2050 年的将近 19 亿人。今天每 10 个老人当中有 6 个人是住在发展中国家，到 2050 年时则每 10 个有 8 人是住在发展中国家。预期更明显增加的是最老的老人（80 岁以上）：从 2005 年的 8 600 万人增加到 2050 年的 3.94 亿人。在发展中国家，将从 4 200 万人增加到 2.78 亿人，意味着到 2050 年时，多数最老的老人将住在发展中国家。

15. 在发达国家，今天有 20%的人口是在 60 岁以上，到 2050 年这一部分的人口预测达到 32%。发达国家的老年人口已经超过了儿童人数（0-14 岁的人口），到 2050 年时每两个老人对 1 个儿童。在发展中世界，60 岁以上人口的比例预期从 2005 年的 8%增加到 2050 年的 20%。

16. 中位年龄（即有 50%的人口已经高出和有 50%的人口尚未达到的年龄）的增加是人口老化的迹象。今天只有 11 个发达国家的中位年龄为 40 岁以上。到 2050 年时将有 89 个国家属于这一群组，其中有 45 个在发展中世界。人口老化已日益成为发达国家的当前现实，发展中世界也不可避免，而且在发展中国家会出现得更快。

17. 生育力仍旧很高而且只略有下跌的国家将经历最缓慢的人口老化。到 2050 年，每五个国家中约有一个仍预测保有等于或少于 30 岁的中位年龄。最不发达国家将拥有最年轻的人口，预测其中 11 个国家到 2050 年时将保有等于或少于 23 岁的中位年龄，其中包括以下国家：阿富汗、安哥拉、布隆迪、乍得、刚果民主共和国、赤道几内亚、几内亚比绍、利比里亚、马里、尼日尔和乌干达。

18. 在 2005-2050 年期间，预测移往发达区域的国际移民净人数达 9 800 万人，平均每年 220 万人。同等人数将离开较不发达区域。对发达世界而言，这一数目的净移徙将因 2005-2050 年预期死亡人数超过出生人数所造成的 7 300 万人损失而大部分得到抵销。对发展中世界而言，9 800 万的外移人数只占预期人口增长的 4%不到。

19. 在 2005-2050 年期间，有 74 个国家为净移入国。预测其中 64 个国家的净移入加强了人口的增长，另 7 个国家有助于扭转人口下降的趋势（奥地利、克罗地亚、德国、希腊、意大利、斯洛伐克和斯洛文尼亚）。有三个国家的人口移入减缓了人口的下降，但未扭转其下降趋势（捷克共和国、匈牙利和俄罗斯联邦）。

20. 就 2005-2050 年的年平均数而言，预测净接收国际移民的主要国家为：美国（每年 110 万人）、德国（202 000 人）、加拿大（200 000 人）、联合王国（130 000 人）、意大利（120 000 人）和澳大利亚（100 000 人）。预测主要净移出国为中国（每年减 327 000 人）、墨西哥（减 293 000 人）、印度（减 241 000 人）、菲律宾（减 180 000 人）、印度尼西亚（减 164 000 人）、巴基斯坦（减 154 000 人）和乌克兰（减 100 000 人）。

《2004 年修订本》的基本假设

为预测到 2050 年的人口，联合国人口司运用了关于未来生育力、死亡率和人口移徙趋势的一些假设。由于未来的趋势无法确知，因此采用了若干预测变式。本摘要着重于《2004 年修订本》的中变式。本章 A 节细述了中变式的各种假设。

《2004 年修订本》列有五种另外的变式：高、低、不变生育力、不变死亡率和零移徙变式。B 节说明了区分这些变式与中变式的各种不同假设。将要出版的出版物中将提供这些变式的详细结果。

每个国家的未来人口是从 2005 年 7 月 1 日的估算人口去预测。由于 2005 年的实际人口数据尚未出来，2005 年的人口估算是依据通常取自人口普查或人口登记并利用关于生育力、死亡率和国际移徙的所有现有数据修订到 2005 年的最新各国现有最近人口数据计算得出。如无法取得最新的数据，估算的人口数据则采用利用可取得的最近数据作出的短期预测。所有来源的人口数据都要评价其完整性、正确性和一致性，必要时加以调整。[6]

A. 中变式的假设

1. 生育力假设：共同走向总生育力低于更替生育水平

所有国家的总生育力是假设最后会共同走向每一妇女生 1.85 个子女的水平。但是，并非所有国家在这一预测期间，即到 2050 年会达到这个水平。生育力预测的基本原则同样适用于所有国家，但预测程序视各国在 2000-2005 年期间的总生育力是否高于或低于每个妇女生 1.85 个子女而略有不同。

对于总生育力高于每个妇女生 1.85 个子女的国家来说，其生育力是假设遵循联合国人口司依据 1950-2000 年生育力下降的所有国家的过去经验建立的生育力下降模式得出的走向而加以计算。这些模式将某一期间的总生育力水平联系到下一期间总生育力的预期平均下降值。如果某一模式预测某一国家 2050 年之前的总生育力下降到每一妇女生 1.85 个子女，则剩余预测期间（即到 2050 年为止）的总生育力维持在这一不变的水平上。

[6] 关于人口动态订正估算所用程序的一般说明，见《世界人口前景：2002 年修订本》，第三卷：分析报告，英文本第 180-182 页。

在所有情况中，这些模式得出的预测生育力走向将与每个国家最近的趋势核对。当一国最近的趋势偏离符合这些模式的趋势甚多时，头 5 或 10 年的生育力预测是按最近的经验进行。过了这一过渡期间后，则采用模式预测方式。举例来说，在生育力停滞或无生育力下降证据的国家，在定出下降走向之前多年，生育力预测是按保持不变进行。

对于 2000-2005 年总生育力低于每一妇女生 1.85 个子女的国家，是假设预测期头 5 或 10 年的生育力将遵循每一国家最近呈现的趋势。过了过渡期间后，生育力是假设按每五年每一妇女生 0.07 个子女的线性增长增加。因此，目前生育力极低的国家无需在 2050 年之前达到每一妇女生 1.85 个子女的水平。

2. 死亡率假设：除受到艾滋病毒/艾滋病影响外预期寿命会增加

a. 正常死亡率假设

死亡率假设是根据联合国人口司建立的预期寿命变化模式来预测的。预期寿命越高，这些模式建立的增长越小。一国模式的选择是根据按性别区分的最近预期寿命趋势。对于高度受到艾滋病毒/艾滋病流行病影响的国家，通常是采用采纳了较缓慢死亡率下降速度的模式来预测与艾滋病毒/艾滋病无关的一般死亡率风险的减少情况。

b. 艾滋病毒/艾滋病对死亡率的影响

对于受到艾滋病毒/艾滋病流行病高度影响的 60 个国家（在表八.21 列出），艾滋病毒/艾滋病影响估算是以明确定出流行病过程模式和预测每年发生艾滋病毒感染人数的方式进行。联合国艾滋病毒/艾滋病联合规划署(艾滋病规划署)估计、模式和预测咨商小组制作的模式[7] 是用于切入艾滋病规划署过去提供的艾滋病毒流行估算，以得出确定这一流行病的过去动态的参数。对大部分国家来说，切入的模式是假设有关的参数在过去保持不变。从 2005 年起，反映将新人纳入高危险群体或易感染群体的比例的 PHI 参数是按每三十年下降一半预测。代表感染力量的 R 参数也按同样方式预测。R 的减少反映了会受感染者的行为变化和受感染者治疗途径的增加会减少病毒传染机会的假设。视每一国家治疗途径增加的进展情况而定，按不同比率预测，母婴传播比率会降低。此外，咨商小组关于受感染儿童的成活率的部分已经更新：《2004 年修订本》假设母婴传播的受感染儿童有 50%可活到两岁。

《2004 年修订本》首度指出接受积极抗逆转录病毒疗法的病人可成活较久。每一国家接受抗逆转录病毒疗法的艾滋病毒抗体阳性人口比例，符合世界卫生组

[7] 评估艾滋病毒/艾滋病流行病及其影响的改良方法和假设：艾滋病规划署估计、模式和预测咨商小组的建议。艾滋病，第 16 卷，英文本第 W1-W14 页（艾滋病规划署估计、模式和预测咨商小组，2002 年）。

织 2004 年年底的估算。[8] 视目前的治疗人数而定，到 2015 年治疗面预测将达 40-85%之间。接受抗逆转录病毒疗法的病人每年的成活机率假设为至少 80%。根据这一假设，从开始接受治疗算起的平均成活期为 3.1 年。相对的，艾滋病开始出现后不接受治疗的成活期仅假设为一年。

3. 国际移徙假设

在估算以往国际移徙人数和评估各国对今后国际移民流动的政策立场的基础上，设定了今后的国际移徙走向。

B. 预测变式

《2004 年修订本》除中变式外，还列有五种预测变式。生育力高、低和不变三种变式仅在预测的总生育力上与中变式有别。按高变式，预计在预测期间的大部分时间，总生育力保持在比中变式的总生育力多出 0.5 个子女的水平上。举例来说，按中变式总生育力达到 1.85 个子女的国家，按高变式则为 2.35 个子女。低变式的总生育力预测比中变式的总生育力少 0.5 个子女。不变生育力变式的总生育力与 2000-2005 年的估算水平保持不变。

也计算了不变死亡率变式和零移徙变式。两者都采用与中变式相同的假设。另外，不变死亡率变式与中变式有相同的国际移徙假设。因此，不变死亡率变式的结果可与中变式的结果对比，以评估不断改变的死亡率对其他人口统计参数的影响。同样的，零移徙变式与中变式的差别仅在于对国际移徙的根本假设。因此，零移徙变式可供评估非零移徙对其他人口统计参数的影响。

C. 就《2004 年修订本》所作方法改变

- 在中变式中，2000-2005 年总生育力低于每一妇女生 1.85 个子女的国家的生育力首先是按持续最近的趋势预测，而后按每五年每一妇女增生 0.07 个子女的比例线性增加生育力。这些国家不一定会在 2050 年之前达到每一妇女生 1.85 个子女的水平。
- 在《2004 年修订本》中使用了另外的死亡率变化模式以了解预期寿命上升的历史经验的多样性。具体来说，制作了极缓慢和极快速的变化模式，加入先前存在的缓慢、中等和快速变化模式。
- 对 2003 年成人艾滋病毒流行率为 1%以上的所有国家明确采用艾滋病毒/艾滋病对死亡率的影响模式。

[8] 世界卫生组织，“三五”进度报告，2004 年 12 月/卫生组织和艾滋病规划署。

- 抗逆转录病毒疗法明确纳入对受到影响国家的艾滋病毒/艾滋病预测。此外，预测母婴传播艾滋病毒的比率将按照符合扩大该治疗途径的预测进展度而降低。

Préface

On trouvera dans le présent rapport le résumé des résultats de la *Révision de 2004* des estimations et projections officielles concernant la population mondiale établies par la Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU. En outre, le rapport donne un aperçu des hypothèses concernant la fécondité, la mortalité et les migrations utilisées pour l'établissement des projections ainsi qu'un résumé des modifications et ajustements introduits dans la *Révision de 2004* par rapport aux procédures suivies dans la *Révision de 2002*. La *Révision de 2004* est fondée sur les résultats de la dix-neuvième série d'estimations et projections démographiques mondiales entreprises par la Division de la population depuis 1950.

Les résultats complets de la *Révision de 2004* seront publiés dans une série de trois volumes. Le premier volume[1] contiendra les tableaux détaillés relatifs aux principaux indicateurs démographiques pour chaque pays, de 1950 à 2050; le deuxième volume[2] présentera la répartition par âge et par sexe de la population de chaque pays au cours de la période 1950-2050; et le troisième volume[3] sera consacré à une analyse des résultats obtenus.

Les données seront également disponibles sous forme numérique. Les utilisateurs intéressés peuvent acheter un CD-ROM contenant les principaux résultats de la *Révision de 2004*. Une description des données contenues dans le CD-ROM et un formulaire de commande seront affichés sur le site Web de la Division de la population à l'adresse <www.unpopulation.org>.

La responsabilité de la *Révision de 2004* incombe à la Division de la population. L'élaboration de la *Révision de 2004* a été facilitée par la collaboration offerte à la Division de la population par les commissions régionales, les institutions spécialisées et d'autres organes pertinents des Nations Unies.

En particulier, il a été fait appel pour l'établissement de ces estimations et projections à une source essentielle de statistiques officielles nationales sur la population, l'*Annuaire démographique des Nations Unies* et ses bases de données, élaborées et tenues à jour par la Division de statistique du Département des affaires économiques et sociales de l'ONU. La Division de la population remercie la Division de statistique de la coopération qu'elle ne cesse de lui apporter.

On trouvera certains résultats de la *Révision de 2004* ainsi que d'autres informations démographiques sur le site Web de la Division de la population à l'adresse <www.unpopulation.org>. Pour tout complément d'information au sujet de la *Révision de 2004*, veuillez entrer en contact avec M^me^ Hania Zlotnik, Directrice de la Division de la population, Nations Unies, New York, NY 10017, États-Unis (télécopie : 1 (212) 963-2147).

---

[1] *World Population Prospects: The 2004 Revision*, vol. I, *Comprehensive Tables* (publication des Nations Unies, Sales No. E.05.XIII.5).

[2] *World Population Prospects: The 2004 Revision*, vol. II, *Sex and Age Distribution of the World Population* (publication des Nations Unies, Sales No. E.05.XIII.6).

[3] *World Population Prospects: The 2004 Revision*, vol. III, *Analytical Report* (publication des Nations Unies, à paraître).

Résumé

La *Révision de 2004* est fondée sur les résultats de la dix-neuvième série d'estimations et projections démographiques officielles de l'ONU établies par la Division de la population du Département des affaires économiques et sociales du Secrétariat de l'Organisation. Ces estimations et projections sont utilisées dans l'ensemble du système des Nations Unies où elles servent de base aux activités pour lesquelles des informations démographiques sont nécessaires. La *Révision de 2004* est la première qui intègre les résultats complets de la série des recensements nationaux de la population de 2000. Elle tient également compte des résultats d'enquêtes spécialisées effectuées récemment dans des pays moins développés pour recueillir des données démographiques et autres permettant d'évaluer les progrès réalisés en vue des objectifs de développement convenus sur le plan international, y compris les objectifs du Millénaire pour le développement (OMD). L'inventaire détaillé des tendances passées et futures de la population mondiale présenté dans la *Révision de 2004* constitue la base de données démographiques indispensable pour une évaluation des progrès accomplis dans cette voie.

La *Révision de 2004* confirme la diversité de la dynamique démographique de notre époque. S'il est vrai que la population mondiale continue d'augmenter, il n'y a guère de changements dans la population des régions développées du monde, et la croissance de la population a lieu en quasi-totalité dans les régions moins développées. Le groupe des 50 pays les moins avancés connaît une croissance démographique particulièrement rapide.

Ces différents schémas de croissance s'expliquent par les tendances différentes de la fécondité et de la mortalité. Des niveaux de fécondité inférieurs au seuil de remplacement s'observent dans les régions développées et cette tendance devrait se poursuivre jusqu'en 2050. La fécondité est encore élevée dans la plupart des pays les moins avancés et, même s'il faut s'attendre à une baisse, elle restera plus élevée dans ces pays que dans le reste du monde. Dans les autres pays moins développés, la fécondité a nettement diminué depuis la fin des années 60 et, pour la plupart des pays inclus dans ce groupe, la fécondité devrait tomber en dessous du seuil de remplacement d'ici à 2050.

Dans les économies de marché traditionnelles du monde développé, la mortalité est faible et continue à baisser, mais elle a été stationnaire ou a même augmenté dans bon nombre de pays à économie en transition, en grande partie sous l'effet de la dégradation des conditions sociales et économiques et, dans certains cas, en raison de la propagation du VIH. La mortalité diminue également dans la plupart des pays moins développés, mais elle a augmenté dans ceux qui sont gravement touchés par l'épidémie de VIH/sida. Étant donné les efforts entrepris actuellement pour dispenser d'ici à 2005 un traitement antirétroviral à trois millions de patients atteints du sida et compte tenu de l'expansion de ce traitement attendue par la suite, la *Révision de 2004* part de l'hypothèse d'une période de survie plus longue pour les personnes vivant avec le VIH que ce n'était le cas dans la *Révision de 2002* et indique en conséquence pour les pays touchés par le VIH des niveaux de mortalité futurs qui sont inférieurs aux niveaux prévus dans la *Révision* précédente.

L'épidémie de VIH/sida continue de s'étendre. Le nombre de pays comptant un effectif important de personnes atteintes est de 60 dans la *Révision de 2004*, alors qu'il était de 53 dans la *Révision de 2002*. Bien que les taux de prévalence du VIH dans quelques pays aient été révisés en baisse à mesure que les statistiques améliorées devenaient disponibles, le tribut payé à la maladie est encore très lourd et le restera probablement, malgré les réductions prévues de la prévalence du VIH/sida. La baisse attendue des taux de prévalence du VIH dépend de l'exécution par les gouvernements des engagements qu'ils ont pris dans la Déclaration du Millénaire[4] et dans la Déclaration d'engagement des Nations Unies de 2001 sur le VIH/sida[5].

Les principales conclusions de la *Révision de 2004* peuvent se résumer comme suit :

1. En juillet 2005, le monde comptera 6,5 milliards d'habitants, 380 millions de plus qu'en 2000, ce qui représente un accroissement annuel de 76 millions d'êtres humains. Malgré la baisse de fécondité prévue pour la période 2005-2050, la population mondiale devrait atteindre 9,1 milliards de personnes d'après la variante moyenne et s'accroîtra encore de 34 millions de personnes par an au milieu du siècle.

2. Aujourd'hui, 95 % de toute la croissance démographique mondiale est absorbée par les régions moins développées et 5 % par les régions développées. D'ici à 2050, d'après la variante moyenne, la population de l'ensemble des pays développés devrait diminuer lentement, d'environ 1 million de personnes par an, et les régions moins développées devraient augmenter chaque année de 35 millions d'habitants, dont 22 millions seraient absorbés par les pays les moins avancés.

3. La croissance future de la population est largement liée aux tendances futures de la fécondité. La variante moyenne anticipe une baisse de fécondité, allant de 2,6 enfants par femme aujourd'hui à un peu plus de 2 enfants par femme en 2050. Si la fécondité demeurait à un niveau supérieur d'environ 0,5 enfant par femme aux niveaux prévus dans la variante moyenne, le monde compterait 10,6 milliards d'habitants en 2050. Une évolution de la fécondité se traduisant par un niveau inférieur de 0,5 enfant par femme aux niveaux de la variante moyenne se traduirait par une population mondiale de 7,7 milliards au milieu du siècle. Cela veut dire qu'au niveau mondial la poursuite de la croissance démographique est inévitable jusqu'en 2050 même si la baisse de la fécondité s'accélère.

---

[4] Voir la résolution A/Res/55/2 de l'Assemblée générale.

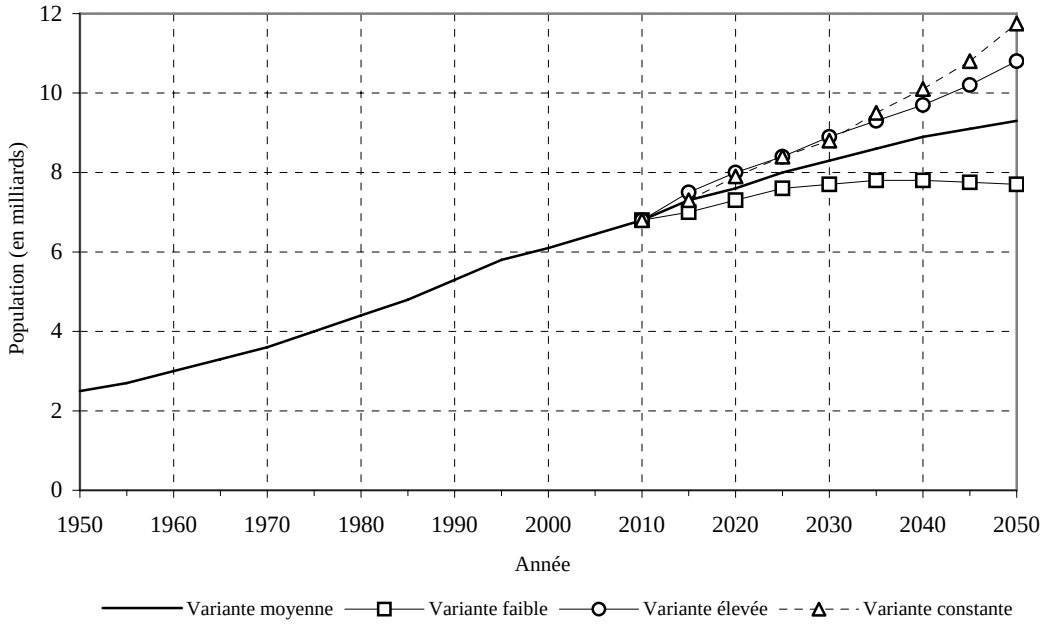
[5] Voir la résolution A/Res/S-26/2 de l'Assemblée générale.

Tableau 1
Population mondiale selon les différentes variantes de la projection, par grande région, 1950, 1975, 2005 et 2050

	Population (millions)			*Population en 2050 (millions)*			
Grande région	*1950*	*1975*	*2005*	*Variante faible*	*Variante moyenne*	*Variante élevée*	*Variante constante*
Ensemble du monde	2 519	4 074	6 465	7 680	9 076	10 646	11 658
Régions développées	813	1 047	1 211	1 057	1 236	1 440	1 195
Régions moins développées	1 707	3 027	5 253	6 622	7 840	9 206	10 463
Pays les moins avancés	201	356	759	1 497	1 735	1 994	2 744
Autres pays moins développés	1 506	2 671	4 494	5 126	6 104	7 213	7 719
Afrique	224	416	906	1 666	1 937	2 228	3 100
Asie	1 396	2 395	3 905	4 388	5 217	6 161	6 487
Europe	547	676	728	557	653	764	606
Amérique latine et Caraïbes	167	322	561	653	783	930	957
Amérique du Nord	172	243	331	375	438	509	454
Océanie	13	21	33	41	48	55	55

Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2005). *World Population Prospects: The 2004 Revision Highlights*. New York: Nations Unies.

Figure 1
Population mondiale selon les différentes variantes de la projection, 1950-2050



Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2005). *World Population Prospects: The 2004 Revision Highlights*. New York: Nations Unies.

4. En raison de son taux de croissance relativement faible et en déclin, la population de l'ensemble des pays développés devrait rester pratiquement inchangée entre 2005 et 2050, avec environ 1,2 milliard d'habitants. En revanche, la population des 50 pays les moins avancés devrait plus que doubler, d'après les projections, passant de 0,8 milliard en 2005 à 1,7 milliard en 2050. Les prévisions font également apparaître une croissance vigoureuse, mais moins rapide, pour les autres pays moins développés, dont la population devrait passer de 4,5 milliards à 6,1 milliards entre 2005 et 2050.

5. Une très forte croissance démographique est anticipée dans un certain nombre de pays moins développés, dont la plupart sont parmi les pays les moins avancés. Entre 2005 et 2050, la population devrait au moins tripler en Afghanistan, au Burkina Faso, au Burundi, au Congo, en Guinée-Bissau, au Libéria, au Mali, au Niger, en Ouganda, en République démocratique du Congo, en République démocratique du Timor-Leste et au Tchad.

6. La population de 51 pays ou régions, y compris l'Allemagne, l'Italie, le Japon, les États baltes et la plupart des États successeurs de l'ex-Union soviétique, sera probablement moins nombreuse en 2050 qu'en 2005.

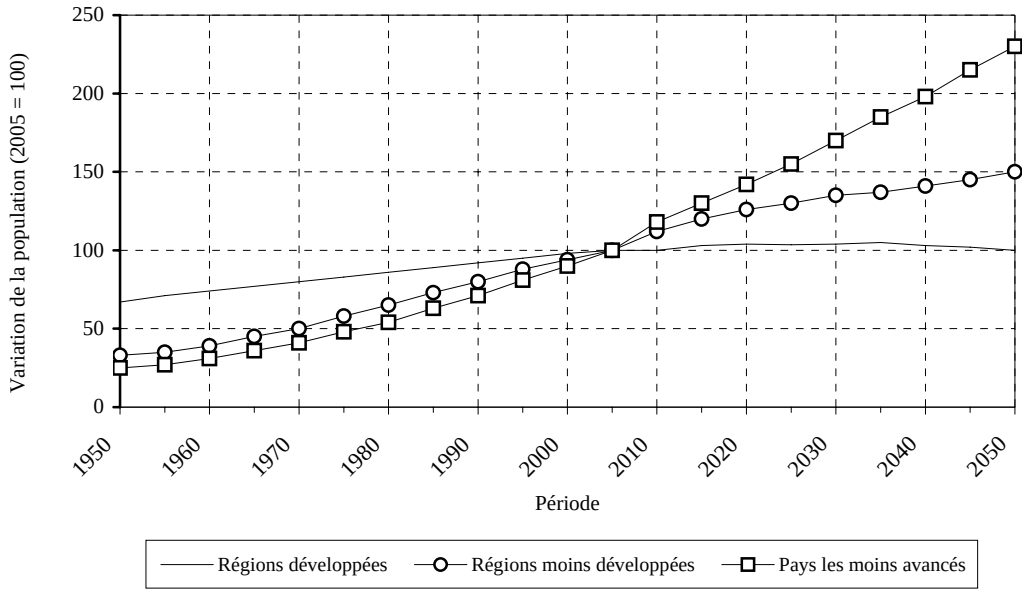
7. En 2005-2050, neuf pays devraient être à l'origine de la moitié de l'augmentation prévue de la population mondiale : l'Inde, le Pakistan, le Nigeria, la République démocratique du Congo, le Bangladesh, l'Ouganda, les États-Unis d'Amérique, l'Éthiopie et la Chine, énumérés dans l'ordre selon l'ampleur de leur contribution à la croissance de la population au cours de cette période.

Tableau 2
Taux annuel de variation de la population selon les grands groupes d'âge, par grande région, 2005-2050 (variante moyenne)

Grande région	*0-14*	*15-59*	*60+*	*80+*	*Population totale*
Ensemble du monde	- 0,01	0,63	2,39	3,37	0,75
Régions développées	- 0,14	- 0,38	1,10	2,13	0,05
Régions moins développées	0,03	0,82	2,88	4,19	0,89
Pays les moins avancés	1,02	2,15	3,32	4,03	1,84
Autres pays moins développés	- 0,29	0,54	2,84	4,21	0,68
Afrique	0,87	2,00	3,12	3,86	1,69
Asie	- 0,29	0,47	2,70	4,04	0,64
Europe	- 0,36	- 0,75	0,90	1,98	- 0,24
Amérique latine et Caraïbes	- 0,38	0,61	2,98	3,99	0,74
Amérique du Nord	0,23	0,37	1,67	2,30	0,62
Océanie	0,09	0,65	2,11	2,89	0,81

Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2005). *World Population Prospects: The 2004 Revision Highlights*. New York: Nations Unies.

Figure 2
Dynamique de la population, par grande région, 1950-2050 (variante moyenne)



Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2005). *World Population Prospects: The 2004 Revision Highlights*. New York: Nations Unies.

Tableau 3
Indice synthétique de fécondité selon les différentes variantes de la projection, par grande région, 1970-1975, 2000-2005 et 2045-2050

	Indice synthétique de fécondité (nombre d'enfants par femme)					
			2045-2050			
Grande région	*1970-1975*	*2000-2005*	*Variante faible*	*Variante moyenne*	*Variante élevée*	*Variante constante*
Ensemble du monde	4,49	2,65	1,56	2,05	2,53	3,50
Régions développées	2,12	1,56	1,34	1,84	2,34	1,67
Régions moins développées	5,44	2,90	1,59	2,07	2,56	3,69
Pays les moins avancés	6,61	5,02	2,08	2,57	3,05	5,56
Autres pays moins développés	5,28	2,58	1,42	1,92	2,41	3,06
Afrique	6,72	4,97	2,03	2,52	3,00	5,50
Asie	5,08	2,47	1,42	1,91	2,41	2,98
Europe	2,16	1,40	1,33	1,83	2,33	1,45
Amérique latine et Caraïbes	5,05	2,55	1,36	1,86	2,36	2,69
Amérique du Nord	2,01	1,99	1,35	1,85	2,35	1,99
Océanie	3,23	2,32	1,42	1,92	2,42	2,72

Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2005). *World Population Prospects: The 2004 Revision Highlights*. New York: Nations Unies.

8. En 2000-2005, la fécondité à l'échelle mondiale était de 2,65 enfants par femme, soit environ la moitié du niveau des années 1950-1955 (5 enfants par femme). Dans la variante moyenne, les projections indiquent que la fécondité mondiale atteindra 2,05 enfants par femme en 2045-2050. Les niveaux de fécondité à l'échelle mondiale résultent d'évolutions très différentes parmi les pays développés et les pays moins développés. Dans l'ensemble des pays développés, la fécondité est aujourd'hui de 1,56 enfant par femme et devrait progresser lentement pour atteindre 1,84 enfant par femme en 2045-2050. Dans les pays les moins avancés, la fécondité est de 5 enfants par femme et devrait diminuer environ de moitié, pour tomber à 2,57 enfants par femme en 2045-2050. Pour les autres pays moins développés, la fécondité est déjà relativement faible, avec 2,58 enfants par femme, et devrait diminuer davantage pour atteindre 1,92 enfant par femme d'ici le milieu du siècle, ce qui la ferait pratiquement converger avec les niveaux de fécondité typiques observés à cette date dans les régions développées. Cette baisse anticipée de la fécondité présuppose un accès continu aux services de planification familiale, d'autant plus dans les pays les moins avancés.

9. En 2000-2005, la fécondité est encore supérieure à 5 enfants par femme dans 35 des 148 pays moins développés, dont 30 font partie des pays les moins avancés, et la baisse observée dans plusieurs pays d'Afrique subsaharienne et d'Asie méridionale et centrale a été plus lente que prévue. Dans l'ensemble, les pays à forte fécondité représentent 10 % de la population mondiale. En revanche, la fécondité a atteint des taux inférieurs au seuil de remplacement dans 23 pays moins développés où vit 25 % de la population mondiale. Ce groupe comprend la Chine, où la fécondité pour la période 2000-2005 est estimée à 1,7 enfant par femme.

10. Les niveaux de fécondité dans les 44 pays développés, où vit 19 % de la population mondiale, sont aujourd'hui très bas. Tous, à l'exception de l'Albanie, ont des niveaux de fécondité inférieurs au seuil de remplacement et 15, situés pour la plupart en Europe méridionale et orientale, ont atteint un niveau de fécondité sans précédent dans l'histoire humaine (moins de 1,3 enfant par femme). Depuis 1990-1995, la baisse de la fécondité a été la règle dans la plupart des pays développés. Les quelques augmentations enregistrées, par exemple en Allemagne, en Belgique, aux États-Unis, en France et aux Pays-Bas, ont été minimes.

11. Pour l'ensemble du monde, l'espérance de vie à la naissance a augmenté de 47 ans en 1950-1955 à 65 ans en 2000-2005, et devrait continuer de progresser pour atteindre 75 ans en 2045-2050. Dans les régions développées, l'accroissement prévu amènerait l'espérance de vie de 76 ans aujourd'hui à 82 ans au milieu du siècle. Dans les pays les moins avancés, l'espérance de vie est aujourd'hui de 51 ans; elle devrait atteindre 67 ans en 2045-2050. Étant donné que bon nombre de ces pays sont gravement touchés par l'épidémie du VIH/sida, l'accroissement de l'espérance de vie indiquée par les projections dépend de la mise en œuvre de programmes efficaces de prévention et de traitement de l'infection à VIH. Pour les autres pays moins développés, et compte tenu des mêmes réserves, l'espérance de vie devrait passer de 66 ans aujourd'hui à 76 ans au milieu du siècle.

Tableau 4
Espérance de vie à la naissance, par grande région, 2000-2005 et 2045-2050

Grande région	*2000-2005*	*2045-2050*
Ensemble du monde	65,4	75,1
Régions développées	75,6	82,1
Régions moins développées	63,4	74,0
Pays les moins avancés	51,0	66,5
Autres pays moins développés	66,1	76,3
Afrique	49,1	65,4
Asie	67,3	77,2
Europe	73,7	80,6
Amérique latine et Caraïbes	71,5	79,5
Amérique du Nord	77,6	82,7
Océanie	74,0	81,2

Source : Division de la population du Département des affaires économiques et sociales du Secrétariat de l'ONU (2005). *World Population Prospects: The 2004 Revision. Highlights*. New York: Nations Unies.

12. La mortalité a augmenté en Europe orientale depuis la fin des années 80. En 2000-2005, l'espérance de vie, qui est de 67,9 ans dans la région, avait diminué par rapport au niveau de la période 1960-1965 (68,6 ans). La Fédération de Russie et l'Ukraine sont particulièrement touchées par l'augmentation de la mortalité qui résulte en partie de la propagation du VIH.

13. Vingt-cinq ans après le déclenchement de l'épidémie du VIH/sida, l'impact de la maladie ressort clairement de l'accroissement de la morbidité et de la mortalité et du ralentissement de la croissance démographique. En Afrique australe, région qui connaît le niveau le plus élevé de prévalence du VIH/sida, l'espérance de vie a diminué, tombant de 62 ans en 1990-1995 à 48 ans en 2000-2005, et devrait encore se réduire pour tomber à 43 ans au cours de la prochaine décennie avant d'amorcer une lente reprise. En conséquence, la croissance démographique de la région sera probablement nulle entre 2005 et 2020. Pour le Botswana, le Lesotho et le Swaziland, les projections indiquent une diminution de la population, avec des décès plus nombreux que les naissances. Dans la plupart des autres pays moins développés touchés par l'épidémie, la population devrait continuer à croître car les taux de natalité modérés ou dynamiques compensent pour l'augmentation de la mortalité.

14. La principale conséquence d'une baisse de la fécondité, surtout lorsqu'elle s'accompagne d'un accroissement de l'espérance de vie, est le vieillissement de la population, selon lequel la proportion de personnes âgées dans une population augmente par rapport à la proportion de jeunes. À l'échelle mondiale, l'effectif de personnes âgées de 60 ans ou plus devrait pratiquement tripler, passant de 672 millions de personnes en 2005 à près de 1,9 milliard en 2050. Alors que 6 sur 10 de ces personnes âgées vivent aujourd'hui dans les régions moins développées, en 2050, on en comptera 8 sur 10. Les prévisions indiquent une augmentation plus forte encore du nombre des personnes très âgées (80 ans ou plus) : de 86 millions en 2005 à 394 millions en 2050. Dans les pays moins développés, leur nombre passera

de 42 millions à 278 millions, ce qui signifie qu'en 2050 la plupart des personnes très âgées vivront dans les régions moins développées.

15. Dans les pays développés, 20 % de la population d'aujourd'hui est âgée de 60 ans ou davantage et en 2050 cette proportion devrait être de 32 % d'après les projections. La population âgée des pays développés est déjà plus nombreuse que les enfants (personnes âgées de 0 à 14 ans), et en 2050 il y aura 2 personnes âgées pour 1 enfant. Dans les régions moins développées, la proportion de la population âgée de 60 ans ou plus devrait augmenter, passant de 8 % en 2005 à près de 20 % en 2050.

16. L'augmentation de l'âge médian, c'est-à-dire l'âge qui constitue la limite entre les 50 % de la population qui ont plus que cet âge et les 50 % qui ont moins que cet âge, est un signe de vieillissement de la population. Aujourd'hui, l'âge médian est supérieur à 40 ans dans seulement 11 pays développés. En 2050, il est prévu que 89 pays auront un âge médian de cet ordre, dont 45 pays moins développés. Le vieillissement de la population, phénomène qui prend actuellement beaucoup d'ampleur dans les pays développés, est également inévitable dans les pays moins développés, où, dans l'ensemble, il se manifestera à un rythme plus accéléré.

17. Les pays où la fécondité demeure élevée et n'a diminué que modérément sont ceux où le vieillissement de la population se produira le plus lentement. En 2050, d'après les projections, il devrait y avoir encore un pays sur cinq où l'âge médian sera égal ou inférieur à 30 ans. Les populations les plus jeunes se trouveront dans les pays les moins avancés, dont 11 devraient enregistrer, d'après les prévisions, un âge médian égal ou inférieur à 23 ans en 2050, notamment l'Afghanistan, l'Angola, le Burundi, la Guinée-Bissau, la Guinée équatoriale, le Libéria, le Mali, le Niger, l'Ouganda, la République démocratique du Congo et le Tchad.

18. Pendant la période 2005-2050, le solde migratoire des régions développées devrait être de 98 millions, soit en moyenne 2,2 millions par an. Un nombre égal de personnes quittera les régions moins développées. Pour le monde développé, un tel niveau de migrations nettes compensera largement l'excédent des décès par rapport aux naissances prévisibles pour la période 2005-2050, qui représente une perte de 73 millions de personnes. Pour les régions moins développées, les 98 millions d'émigrants représentent moins de 4 % de l'accroissement anticipé de la population.

19. Au cours de la période 2000-2005, 74 pays ont été, en termes de migration nette, des pays d'accueil de migrants. Dans 64 de ces pays, la migration nette renforce la croissance de la population, et dans 7 autres, elle inverse la tendance au déclin démographique (Allemagne, Autriche, Croatie, Grèce, Italie, Slovaquie et Slovénie). Dans trois pays, les migrations ralentissent le déclin de la population mais ne l'inversent pas (Fédération de Russie, Hongrie et République tchèque).

20. Sur la base des moyennes annuelles pour la période 2005-2050, les principaux pays d'accueil de migrants internationaux devraient être, en chiffres nets, les États-Unis (1,1 million par an), l'Allemagne (202 000), le Canada (200 000), le Royaume-Uni (130 000), l'Italie (120 000) et l'Australie (100 000). Les principaux pays d'émigration nette seront, d'après les projections, la Chine (- 327 000 par an), le Mexique (- 293 000), l'Inde (- 241 000), les Philippines (- 180 000), l'Indonésie (- 164 000), le Pakistan (- 154 000) et l'Ukraine (- 100 000).

Hypothèses sur lesquelles la *Révision de 2004* est fondée

Pour établir ces projections de la population jusqu'en 2050, la Division de la population de l'Organisation des Nations Unies applique des hypothèses concernant les tendances futures de la fécondité, de la mortalité et des migrations. Parce que les tendances futures ne peuvent pas être connues avec certitude, les projections comportent plusieurs variantes. Le document met l'accent sur la variante moyenne de la *Révision de 2004*. Les hypothèses sur lesquelles la variante moyenne repose sont décrites en détail à la section A du présent chapitre.

La *Révision de 2004* comporte cinq variantes supplémentaires : les variantes fondées sur l'hypothèse d'une fécondité élevée, faible ou constante, d'une mortalité constante et de migrations nulles. Les hypothèses qui font que ces variantes diffèrent de la variante moyenne sont décrites à la section B. Les résultats détaillés de ces variantes feront l'objet de publications futures.

Les projections concernant la population future de chaque pays sont établies à partir du chiffre de la population estimée à la date du 1er juillet 2005. Étant donné que les données relatives à la population réelle pour 2005 ne sont pas encore disponibles, l'estimation de la population repose sur les données démographiques les plus récentes disponibles pour chaque pays, tirées généralement d'un recensement ou d'un registre de la population, mis à jour jusqu'en 2005 en utilisant toutes les données disponibles concernant la fécondité, la mortalité et les migrations internationales. Lorsqu'il n'y a pas de données vraiment récentes disponibles, les données démographiques estimées sont des projections à court terme établies sur la base des données disponibles les plus récentes. Les données démographiques de toutes sources sont évaluées du point de vue de leur exhaustivité, de leur exactitude et de leur cohérence, et ajustées si nécessaire[6].

A. Hypothèses sur lesquelles la variante moyenne repose

1. Hypothèses concernant la fécondité : convergence vers un niveau de fécondité inférieur au seuil de remplacement

L'hypothèse retenue pour tous les pays est que l'indice synthétique de fécondité converge finalement vers un niveau de 1,85 enfant par femme. Cependant, tous les pays n'atteignent pas ce niveau au cours de la période de la projection, c'est-à-dire d'ici à 2050. Le principe de base de la projection concernant la fécondité est le même pour tous les pays, mais les méthodes de projection sont légèrement différentes lorsque les pays ont un indice synthétique de fécondité soit supérieur ou inférieur à 1,85 enfant par femme dans la période 2000-2005.

Pour les pays dont l'indice synthétique de fécondité est supérieur à 1,85 enfant par femme, on suppose que la fécondité baissera en suivant une trajectoire tirée des modèles de la baisse de la fécondité mis au point par la Division de la population des Nations Unies, sur la base de l'expérience passée de tous les pays où la fécondité a diminué de 1950 à 2000. Les modèles établissent un lien entre le niveau de fécondité au cours d'une période et la baisse moyenne prévue de la fécondité au cours de la période suivante. Lorsque la fécondité projetée par un modèle pour un

---

[6] Pour une description générale des procédures utilisées pour réviser les estimations de la dynamique de la population, voir *World Population Prospects: The 2002 Revision, Volume III: Analytical Report*, p. 180 à 182.

pays atteint 1,85 enfant par femme avant 2050, la fécondité est présumée constante à ce niveau pour le reste de la période couverte par la projection (c'est-à-dire jusqu'en 2050). Dans tous les cas, l'évolution prévue de la fécondité indiquée par les modèles est comparée aux tendances récentes de la fécondité dans chaque pays. Lorsque les tendances récentes de la fécondité dans un pays donné s'écartent considérablement des tendances compatibles avec les modèles, il est établi pour une période initiale de cinq à 10 ans une projection de la fécondité qui reflète l'expérience de la période récente. La projection du modèle prend ensuite le relais après cette période de transition. Par exemple, dans les pays où la fécondité a été stationnaire ou dans les pays pour lesquels il n'y a pas d'indications d'une baisse de la fécondité, on présume que la fécondité demeure constante pendant quelques années avant d'amorcer un déclin.

Pour les pays dont l'indice synthétique de fécondité était inférieur à 1,85 enfant par femme dans la période 2000-2005, on suppose qu'au cours des cinq ou 10 dernières années de la période de la projection, la fécondité suivra l'évolution récemment observée dans chaque pays. Après cette période de transition, on suppose que la fécondité suivra une progression linéaire au rythme de 0,07 enfant par femme tous les cinq ans. Ainsi, les pays où la fécondité est actuellement très faible n'atteindront pas nécessairement un niveau de 1,85 enfant par femme en 2050.

2. Hypothèses concernant la mortalité : l'espérance de vie progresse, sauf dans les pays touchés par le VIH/sida

a) Hypothèses fondées sur un taux de mortalité normal

Les projections concernant la mortalité sont fondées sur des modèles de l'évolution de l'espérance de vie élaborés par la Division de la population du Secrétariat de l'ONU. Ces modèles indiquent des progrès d'autant plus modestes que l'espérance de vie déjà atteinte est plus élevée. Le choix d'un modèle pour un pays quelconque est réalisé en fonction des tendances récentes de l'espérance de vie à la naissance pour chaque sexe. Dans le cas des pays fortement touchés par l'épidémie de VIH/sida, le modèle qui invoque un rythme lent de la baisse de la mortalité a généralement été utilisé pour les projections concernant la réduction des risques généraux de mortalité qui ne sont pas liés au VIH/sida.

b) L'impact du VIH/sida sur la mortalité

Pour les 60 pays fortement touchés par l'épidémie de VIH/sida (dont la liste figure au tableau VIII.21), les estimations de l'impact du VIH/sida sont effectuées explicitement sur la base d'hypothèses concernant l'évolution de l'épidémie – c'est-à-dire en établissant des projections concernant le nombre annuel de nouveaux cas d'infection à VIH. Le modèle élaboré par le Groupe de référence d'ONUSIDA sur les estimations, les modèles et les projections[7] a été utilisé pour ajuster les estimations d'ONUSIDA sur la prévalence du VIH afin de dégager les paramètres déterminants de la dynamique passée de l'épidémie. Pour la plupart des pays, le modèle est ajusté en partant de l'hypothèse que les paramètres pertinents sont restés constants dans le passé. À partir de 2005, le paramètre PHI, qui rend compte du taux de recrutement de nouveaux individus dans le groupe à haut risque ou vulnérable,

[7] Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. AIDS, vol. 16, p. W1 à W14 (Groupe de référence d'ONUSIDA sur les estimations, les modèles et les projections, 2002).

devrait diminuer de moitié tous les 30 ans. Le paramètre R, qui représente la force de l'infection, devrait diminuer dans la même proportion. La réduction du paramètre R se fonde sur l'hypothèse que les changements de comportement parmi les sujets exposés aux risques d'infection, parallèlement à l'amélioration de l'accès au traitement pour les personnes infectées, réduiront les risques de transmission du virus. Le taux de transmission de la mère à l'enfant devrait diminuer dans des proportions variables, selon les progrès réalisés dans chaque pays en ce qui concerne l'amélioration de l'accès au traitement. De plus, l'élément du modèle de référence qui a trait à la survie des enfants infectés a été mis à jour : la *Révision de 2004* se fonde sur l'hypothèse que 50 % des enfants infectés à la suite d'une transmission de la mère à l'enfant survivront jusqu'à l'âge de 2 ans.

La *Révision de 2004* considère pour la première fois une période de survie plus longue pour les personnes recevant un traitement de trithérapie antirétrovirale (ART). La proportion de la population séropositive bénéficiant d'un traitement dans chaque pays est compatible avec les estimations établies par l'Organisation mondiale de la santé pour la fin de 2004[8]. Il est prévu que les taux de couverture atteindront des niveaux allant de 40 % à 85 % en 2015 selon le taux de couverture actuel. Les projections partent de l'hypothèse que les probabilités annuelles de survie augmentent en moyenne d'au moins 80 % pour les sujets recevant un traitement de trithérapie antirétrovirale. Sur la base de cette hypothèse, la survie moyenne à partir du début du traitement est de 3,1 ans (avec une survie médiane de 4,5 ans). En revanche, la projection se fonde sur l'hypothèse d'une survie moyenne d'un an seulement après le passage au sida en l'absence de traitement.

3. Hypothèses concernant les migrations internationales

L'évolution future des migrations internationales est déterminée sur la base des estimations passées des migrations internationales et d'une évaluation de la politique des pays en ce qui concerne les flux migratoires internationaux futurs.

B. Variantes de la projection

La *Révision 2004* comporte, en plus de la variante moyenne, cinq variantes de la projection. Trois variantes – fécondité élevée, faible et constante – ne diffèrent de la variante moyenne que par l'indice synthétique de fécondité retenu. Dans le cadre de la variante élevée, le niveau de fécondité demeure supérieur de 0,5 enfant au niveau utilisé dans la variante moyenne, pour pratiquement toute la période de la projection. Par exemple, les pays qui atteignent un indice synthétique de fécondité de 1,85 dans la variante moyenne ont également un niveau de fécondité de 2,35 dans la variante élevée. Dans le cas de la variante faible, la fécondité reste inférieure de 0,5 enfant à la fécondité retenue dans la variante moyenne. Dans la variante à fécondité constante, la fécondité demeure constante tout au long de la période de projection au niveau estimé pour la période 2000-2005.

Une variante avec mortalité constante et une variante avec migrations nulles ont également été élaborées. Dans ces deux variantes, l'hypothèse retenue en ce qui concerne la fécondité est la même que dans la variante moyenne. En outre, dans la variante à mortalité constante, l'hypothèse retenue en ce qui concerne les migrations

---

[8] Organisation mondiale de la santé. "3 by 5" Progress Report, December 2004/WHO and UNAIDS.

internationales est la même que dans la variante moyenne. Ainsi, les résultats de la variante avec mortalité constante peuvent être comparés avec ceux de la variante moyenne pour évaluer l'effet d'une variation du taux de mortalité sur les autres paramètres démographiques. De même, la variante avec migrations nulles ne diffère de la variante moyenne que par l'hypothèse retenue en ce qui concerne les migrations internationales. En conséquence, la variante avec migrations nulles permet d'évaluer l'effet de migrations nulles sur les autres paramètres démographiques.

C. Modifications méthodologiques introduites dans la *Révision 2004*

- Dans la variante moyenne, la fécondité des pays dont la fécondité est inférieure à 1,85 enfant par femme en 2000-2005 est projetée, dans un premier temps, en fonction des tendances récentes et amorce ensuite une progression linéaire au taux de 0,07 enfant par femme tous les cinq ans. Ces pays n'atteignent pas nécessairement un niveau de 1,85 enfant par femme en 2050.
- Dans la *Révision 2004*, des modèles supplémentaires de l'évolution de la mortalité ont été utilisés pour tenir compte de la diversité de l'expérience historique en ce qui concerne l'accroissement de l'espérance de vie. Plus précisément, des modèles à taux de variation très lent et très rapide ont été élaborés et ajoutés aux modèles à taux lent, moyen et rapide existant précédemment.
- L'impact du VIH/sida sur la mortalité a été expressément incorporé aux modèles pour tous les pays où la prévalence du VIH dans la population adulte était égale ou supérieure à 1 % en 2003.
- Le traitement par trithérapie antirétrovirale est expressément pris en compte dans la projection du VIH/sida pour les pays touchés. De plus, les projections se fondent sur l'hypothèse que le taux de transmission du VIH de la mère à l'enfant diminue à un rythme compatible avec les progrès prévus en ce qui concerne l'accès au traitement.

Резюме

Обзор 2004 года основан на результатах девятнадцатого раунда официальных демографических оценок и прогнозов Организации Объединенных Наций, которые были подготовлены Отделом народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций. Эти данные используются в рамках всей системы Организации Объединенных Наций в качестве основы для проведения мероприятий, которые требуют демографической информации. В *Обзор 2004 года* впервые включена полная информация о результатах цикла национальных переписей населения 2000 года. В нем также учтены результаты специализированных обследований, недавно проведенных в развивающихся странах в целях сбора как демографических, так и других данных для оценки прогресса, достигнутого в деле достижения согласованных на международном уровне целей в области развития, включая цели, сформулированные в Декларации тысячелетия. Всеобъемлющий обзор мировых демографических тенденций прошлых лет и перспектив на будущее, представленный в *Обзоре 2004 года*, обеспечивает демографическую основу для проведения оценки этих целей.

Обзор 2004 года подтверждает разнообразие современных демографических процессов. Хотя численность населения мира продолжает расти, в более развитых регионах в целом она почти не меняется, а весь прирост населения мира происходит за счет менее развитых регионов. Особенно быстрый прирост населения характерен для группы 50 наименее развитых стран.

В основе таких разнообразных моделей роста лежат различные тенденции в области рождаемости и смертности. В более развитых регионах показатели рождаемости ниже уровня воспроизводства населения, и ожидается, что эта тенденция сохранится до 2050 года. По-прежнему высокие показатели рождаемости наблюдаются в наименее развитых странах, и, хотя ожидается их снижение, рождаемость в этих странах сохранится на более высоком уровне, чем в других странах мира. В остальных развивающихся странах, начиная с конца 60-х годов, наблюдалось заметное снижение показателей рождаемости, и ожидается, что к 2050 году уровень рождаемости в этих странах будет ниже уровня воспроизводства населения.

Показатели смертности в развитых странах с рыночной экономикой остаются на низком уровне и продолжают снижаться, однако в некоторых странах с переходной экономикой они оставались на том же уровне или даже росли, главным образом в результате ухудшения социально-экономических условий и в некоторых случаях из-за распространения ВИЧ. В большинстве развивающихся стран также наблюдается снижение показателей смертности, однако в странах, наиболее пострадавших от эпидемии ВИЧ/СПИДа, показатели смертности повышаются. Учитывая предпринимаемые в настоящее время усилия по охвату к 2005 году антиретровирусной терапией 3 млн. больных СПИДом и ожидания, связанные с дальнейшим расширением сферы охвата, в *Обзоре 2004 года*, предполагается рост среднего показателя доживаемости для людей, живущих с ВИЧ-инфекцией, по сравнению с оценкой, содержащейся в *Обзоре 2002 года*, и в этой связи в затронутых ВИЧ-инфекцией странах прогнозируются несколько более низкие показатели смертности в будущем, чем в предыдущем *Обзоре*.

Эпидемия ВИЧ/СПИДа продолжает распространяться. Количество стран, в которых отмечается значительное число инфицированных людей, выросло с 53 согласно данным *Обзора 2002 года* до 60 согласно *Обзору 2004 года*. И это происходит несмотря на то, что благодаря повышению качества статистических данных показатели распространенности ВИЧ в некоторых странах были пересмотрены в сторону понижения. Тем не менее потери в результате этого заболевания остаются высокими, и ожидается, что такое положение сохранится, несмотря на прогнозируемое сокращение распространенности ВИЧ/ СПИДа. Более низкие прогнозируемые показатели распространенности ВИЧ зависят от выполнения обязательств, взятых на себя правительствами в Декларации тысячелетия 2000 года[1] и в Декларации о приверженности делу борьбы с ВИЧ/СПИДом 2001 года[2].

Ключевые выводы *Обзора 2004 года* можно суммировать следующим образом:

1. К июлю 2005 года население мира составит 6,5 миллиарда человек, т.е. на 380 миллионов человек больше, чем в 2000 году, что означает прирост населения в количестве 76 миллионов человек в год. Несмотря на снижение показателей рождаемости, прогнозируемых на период 2005–2050 годов, мировая численность населения при варианте со средним уровнем рождаемости достигнет, как ожидается, 9,1 миллиарда человек, и до середины века ежегодный прирост населения будет составлять 34 миллиона человек.

2. В настоящее время на развивающиеся страны приходится 95 процентов всего прироста населения, на развитые страны — 5 процентов. Согласно варианту со средним уровнем рождаемости к 2050 году население более развитых стран в целом будет медленно сокращаться приблизительно на 1 миллион человек в год, а прирост населения развивающихся стран будет ежегодно составлять 35 миллионов человек, из которых 22 миллиона человек будет приходиться на наименее развитые страны.

3. Рост численности населения в будущем в значительной степени зависит от тенденций в области рождаемости. Согласно варианту со средним уровнем рождаемости прогнозируется снижение показателей рождаемости с 2,6 ребенка на женщину сегодня до чуть больше двух детей на женщину в 2050 году. Если бы показатель рождаемости оставался хотя бы на половину пункта выше показателя, прогнозируемого в среднем варианте, то к 2050 году численность населения мира увеличилась бы до 10,6 миллиарда человек. При снижении этого показателя на половину пункта ниже среднего варианта численность населения к середине века составила бы 7,6 миллиарда человек. Это означает, что в мировом масштабе численность населения до 2050 года будет неизбежно увеличиваться, даже если падение рождаемости ускорится.

[1] См. резолюцию 55/2 Генеральной Ассамблеи.

[2] См. резолюцию S-26/2 Генеральной Ассамблеи.

Таблица 1

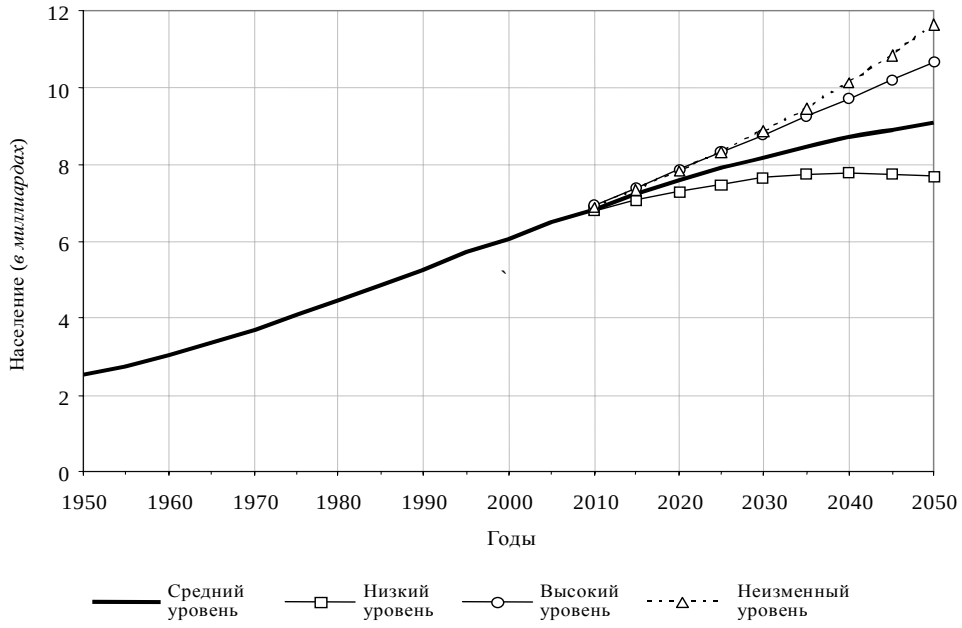
Численность населения мира, основных групп стран и основных регионов в 1950, 1975, 2005 и 2050 годах при разных вариантах прогнозирования

	Население (в млн. человек)			*Численность населения в 2050 году (в млн. человек)*			
Основной регион	*1950 год*	*1975 год*	*2005 год*	*Низкий уровень рождаемости*	*Средний уровень рождаемости*	*Высокий уровень рождаемости*	*Неизменный уровень рождаемости*
Весь мир	2 519	4 074	6 465	7 680	9 076	10 646	11 658
Более развитые регионы	813	1 047	1 211	1 057	1 236	1 440	1 195
Менее развитые регионы	1 707	3 027	5 253	6 622	7 840	9 206	10 463
Наименее развитые страны	201	356	759	1 497	1 735	1 994	2 744
Другие менее развитые страны	1 506	2 671	4 494	5 126	6 104	7 213	7 719
Африка	224	416	906	1 666	1 937	2 228	3 100
Азия	1 396	2 395	3 905	4 388	5 217	6 161	6 487
Европа	547	676	728	557	653	764	606
Латинская Америка и Карибский бассейн	167	322	561	653	783	930	957
Северная Америка	172	243	331	375	438	509	454
Океания	13	21	33	41	48	55	55

Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2005 год). *Мировые демографические перспективы: Обзор 2004 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

Рисунок 1

Численность населения в мире при разных вариантах прогнозирования (1950–2050 годы)



Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2005 год). *Мировые демографические перспективы: Обзор 2004 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

4. Численность населения развитых стран в целом в результате низких и сокращающихся темпов прироста в период 2005–2050 годов останется, как ожидается, фактически неизменной и будет составлять 1,2 миллиарда человек, тогда как численность населения 50 наименее развитых стран, напротив, согласно прогнозу, увеличится более чем в два раза — с 0,8 миллиарда человек в 2005 году до 1,7 миллиарда человек в 2050 году. В остальных развивающихся странах также прогнозируется рост численности населения, хотя и более медленными темпами, и в период 2005–2050 годов она увеличится с 4,5 миллиарда человек до 6,1 миллиарда человек.

5. Весьма быстрый рост численности населения ожидается в ряде развивающихся стран, большинство из которых составляют наименее развитые страны. Прогнозируется, что в период 2005–2050 годов численность населения увеличится по меньшей мере втрое в Афганистане, Буркина-Фасо, Бурунди, Гвинее-Бисау, Демократической Республике Конго, Демократической Республике Тимор-Лешти, Конго, Либерии, Мали, Нигере, Уганде и Чаде.

6. Ожидается, что численность населения 51 страны или районов, в том числе Германии, Италии, Японии, стран Балтии и большинства государств-преемников бывшего Советского Союза, будет в 2050 году ниже, чем в 2005 году.

7. В период 2005–2050 годов на девять стран, как ожидается, будет приходиться половина прогнозируемого увеличения численности населения: Индия, Пакистан, Нигерия, Демократическая Республика Конго, Бангладеш, Уганда, Соединенные Штаты Америки, Эфиопия и Китай, которые перечислены в порядке их вклада в рост населения в течение этого периода.

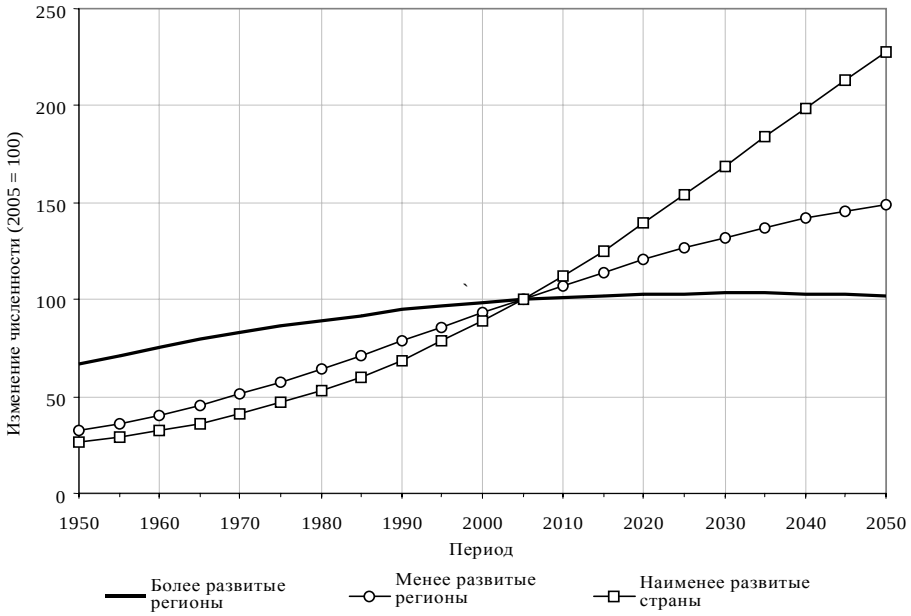
Таблица 2
Среднегодовые темпы изменения общей численности населения и численности населения в крупных возрастных группах в разбивке по основным регионам, 2005–2050 годы (средний вариант)

Основной район	*0–14*	*15–59*	*60+*	*80+*	*Общая численность населения*
Весь мир	0,01	0,63	2,39	3,37	0,75
Более развитые регионы	-0,14	-0,38	1,10	2,13	0,05
Менее развитые регионы	0,03	0,82	2,88	4,19	0,89
Наименее развитые страны	1,02	2,15	3,32	4,03	1,84
Другие менее развитые страны	-0,29	0,54	2,84	4,21	0,68
Африка	0,87	2,00	3,12	3,86	1,69
Азия	-0,29	0,47	2,70	4,04	0,64
Европа	-0,36	-0,75	0,90	1,98	-0,24
Латинская Америка и Карибский бассейн	-0,38	0,61	2,98	3,99	0,74
Северная Америка	0,23	0,37	1,67	2,30	0,62
Океания	0,09	0,65	2,11	2,89	0,81

Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2005 год). *Мировые демографические перспективы: Обзор 2004 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

Рисунок 2

Динамика роста численности населения по группам развития, 1950–2050 годы



Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2005 год). *Мировые демографические перспективы: Обзор 2004 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

Таблица 3

Суммарный коэффициент рождаемости во всем мире, по основным группам развития и основным районам в 1970–1975, 2000–2005 и 2045–2050 годах при различных вариантах прогноза

	Общий показатель рождаемости (число детей в расчете на одну женщину)					
			2045–2050 годы			
Основной район	*1970–1975 годы*	*2000–2005 годы*	*Низкий уровень*	*Средний уровень*	*Высокий уровень*	*Неизменный уровень*
Весь мир	4,49	2,65	1,56	2,05	2,53	3,50
Более развитые регионы	2,12	1,56	1,34	1,84	2,34	1,67
Менее развитые регионы	5,44	2,90	1,59	2,07	2,56	3,69
Наименее развитые страны	6,61	5,02	2,08	2,57	3,05	5,56
Другие менее развитые страны	5,28	2,58	1,42	1,92	2,41	3,06
Африка	6,72	4,97	2,03	2,52	3,00	5,50
Азия	5,08	2,47	1,42	1,91	2,41	2,98
Европа	2,16	1,40	1,33	1,83	2,33	1,45
Латинская Америка и Карибский бассейн	5,05	2,55	1,36	1,86	2,36	2,69
Северная Америка	2,01	1,99	1,35	1,85	2,35	1,99
Океания	3,23	2,32	1,42	1,92	2,42	2,72

Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2005 год). *Мировые демографические перспективы: Обзор 2004 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

8. В 2000–2005 годах среднемировой уровень рождаемости составлял 2,65 ребенка на женщину, что почти наполовину меньше уровня, зафиксированного в 1950–1955 годах (5 детей на женщину). По среднему варианту прогноза среднемировой уровень рождаемости к 2045–2050 годам сократится до 2,05 ребенка на женщину. Среднемировые показатели формируются в результате действия весьма различных тенденций в группах стран. В развитых странах в целом суммарный коэффициент рождаемости в настоящее время составляет 1,56 ребенка на женщину, а к 2045–2050 годам прогнозируется его медленное увеличение до 1,84 ребенка на женщину. В группе наименее развитых стран этот показатель составляет 5 детей на женщину, а к 2045–2050 годам снизится наполовину — т.е. до 2,57 ребенка на женщину. В группе остальных развивающихся стран этот показатель уже находится на довольно низком уровне и составляет 2,58 ребенка на женщину; ожидается его дальнейшее снижение до 1,92 ребенка на женщину к середине века — таким образом, он вплотную приблизится к уровню, прогнозируемому для того периода в развитых странах. Реализация этих прогнозов снижения рождаемости зависит от доступа к услугам по планированию семьи, особенно в наименее развитых странах.

9. В 2000–2005 годах уровень рождаемости превышал 5 детей на женщину в 35 из 148 развивающихся стран, 30 из которых являются наименее развитыми странами. Кроме того, в некоторых странах Африки к югу от Сахары и южной части Центральной Азии эти показатели снижались более медленными темпами, чем предполагалось. В итоге на страны с высокой рождаемостью приходится 10 процентов мирового населения. И наоборот, в 23 развивающихся странах, на долю которых приходится 25 процентов мирового населения, рождаемость упала ниже уровня, обеспечивающего воспроизводство населения. В эту группу стран входит Китай, где уровень рождаемости в 2000–2005 годах составляет, по оценкам, 1,7 ребенка на женщину.

10. Рождаемость в 44 развитых странах, на долю которых приходится 19 процентов мирового населения, в настоящее время очень низка. Во всех странах, за исключением Албании, рождаемость не обеспечивает воспроизводство населения, а в 15 странах, главным образом расположенных в Южной и Восточной Европе, уровни рождаемости достигли беспрецедентных за всю историю значений (ниже 1,3 ребенка на женщину). С периода 1990–1995 годов снижение рождаемости характерно для большинства развитых стран. Лишь в немногих странах, таких, как Бельгия, Германия, Нидерланды, Соединенные Штаты Америки и Франция, был зафиксирован их незначительный рост.

Таблица 4

Показатели ожидаемой продолжительности жизни при рождении во всем мире, основных группах развития и основных регионах в 2000–2005 годах и в 2045–2050 годах

Основной район	*2000–2005 годы*	*2045–2050 годы*
Весь мир	65,4	75,1
Более развитые регионы	75,6	82,1
Менее развитые регионы	63,4	74,0
Наименее развитые страны	51,0	66,5
Другие менее развитые страны	66,1	76,3
Африка	49,1	65,4
Азия	67,3	77,2
Европа	73,7	80,6
Латинская Америка и Карибский бассейн	71,5	79,5
Северная Америка	77,6	82,7
Океания	74,0	81,2

Источник: Отдел народонаселения Департамента по экономическим и социальным вопросам Секретариата Организации Объединенных Наций (2005 год). *Мировые демографические перспективы: Обзор 2004 года. Основные выводы*. Нью-Йорк: Организация Объединенных Наций.

11. Ожидается, что среднемировой показатель ожидаемой продолжительности жизни при рождении, который вырос с 47 лет в период 1950–1955 годов до 65 лет в период 2000–2005 годов, будет продолжать повышаться и в 2045–2050 годах достигнет 75 лет. В более развитых регионах прогнозируется рост продолжительности жизни с 76 лет в настоящее время до 82 лет в середине века. Среди наименее развитых стран продолжительность жизни составляет 51 год и, как ожидается, повысится в 2045–2050 годах до 67 лет. Поскольку во многих этих странах распространена эпидемия ВИЧ/СПИДа, прогнозируемый рост продолжительности жизни зависит от осуществления эффективных программ профилактики и лечения ВИЧ-инфекции. В остальных развивающихся странах, находящихся в подобных условиях, прогнозируется повышение этого показателя с 66 лет в настоящее время до 76 лет к середине века.

12. В Восточной Европе смертность росла начиная с конца 80-х годов. В 2000–2005 годах продолжительность жизни в этом регионе (67,9 года) была ниже, чем в 1960–1965 годах (68,6 года). Наиболее заметно смертность выросла в Российской Федерации и Украине, в том числе и в результате распространения ВИЧ.

13. Спустя 25 лет после начала эпидемии ВИЧ/СПИДа воздействие этой болезни наглядно проявляется в повышении уровней заболеваемости, смертности и в замедлении роста численности населения. В регионе южной части Африки, где наблюдается самый высокий показатель распространенности ВИЧ/СПИДа, продолжительность жизни сократилась с 62 лет в период 1990–1995 годов до 48 лет в период 2000–2005 годов; в течение следующего десятилетия ожидается ее дальнейшее сокращение до 43 лет и лишь затем начнется медленное восстановление. Поэтому предполагается, что

в период 2005–2020 годов роста численности населения в регионе не будет. В Ботсване, Лесото и Свазиленде прогнозируется сокращение численности населения, поскольку число умерших превысит число родившихся. В большинстве других развивающихся стран, затронутых эпидемией, население будет расти вследствие того, что фиксируемые в них умеренные или высокие показатели рождаемости более чем компенсируют рост смертности.

14. Главным следствием падения рождаемости, особенно в сочетании с ростом продолжительности жизни, является старение населения, при котором доля пожилых людей в общей численности населения возрастает по сравнению с долей более молодых людей. Ожидается, что на глобальном уровне число пожилых людей в возрасте 60 лет или старше почти утроится, увеличившись с 672 млн. в 2005 году почти до 1,9 млрд. в 2050 году. В настоящее время 6 из каждых 10 пожилых людей живут в развивающихся странах, а к 2050 году 8 из 10 пожилых будут жить в развивающихся странах. Число людей в возрасте 80 лет или старше будет расти еще быстрее: с 86 млн. в 2005 году до 394 млн. в 2050 году. В развивающихся странах их численность увеличится с 42 млн. до 278 млн., что означает, что к 2050 году в развивающихся странах будет сосредоточено большинство самых пожилых людей.

15. В развитых странах доля населения в возрасте 60 лет или старше составляет в настоящее время 20 процентов, а к 2050 году прогнозируется ее увеличение до 32 процентов. Численность пожилого населения в развитых странах уже превысила численность детей (лиц в возрасте от 0 до 14 лет), а к 2050 году на каждого ребенка будет приходиться по два пожилых человека. В развивающихся странах прогнозируется увеличение доли населения в возрасте 60 лет или старше с 8 процентов в 2005 году до примерно 20 процентов в 2050 году.

16. Увеличение медианного возраста, т.е. такого возраста, при котором 50 процентов населения его старше и 50 процентов моложе, означает старение населения. Сегодня лишь в 11 развитых странах медианный возраст превышает 40 лет. К 2050 году в эту группу войдут 89 стран, в том числе 45 развивающихся стран. Старение населения, которое становится в развитых странах повсеместно распространенным явлением, также неизбежно и в развивающихся странах, где оно будет происходить более высокими темпами.

17. В странах, где рождаемость снизилась лишь незначительно и сохраняется на высоком уровне, старение населения будет происходить самыми медленными темпами. Согласно прогнозам, к 2050 году примерно в каждой пятой стране медианный возраст не будет превышать 30 лет. В наименее развитых странах будет самое молодое население. В 2050 году медианный возраст не будет превышать 23 лет в 11 наименее развитых странах — Афганистане, Анголе, Бурунди, Гвинее-Бисау, Демократической Республике Конго, Либерии, Мали, Нигере, Чаде, Экваториальной Гвинее и Уганде.

18. В период 2005–2050 годов международная нетто-миграция в более развитые регионы прогнозируется на уровне 98 млн. человек, т.е. в среднем 2,2 млн. человек в год. Такое же количество людей покинет менее развитые регионы. В развитых странах мира такой показатель чистой миграции более чем компенсирует ожидаемое превышение числа смертей над числом рождений, которое составит 73 млн. в период 2005–2050 годов. Что касается развивающегося мира, то 98 млн. эмигрантов представляют собой чуть меньше 4 процентов ожидаемого прироста населения.

19. В период 2000–2005 годов нетто-миграция в 74 странах была положительной. В 64 из них нетто-миграция содействовала росту населения, а

в 7 странах изменила тенденцию к снижению численности населения на противоположную (Австрия, Германия, Греция, Италия, Словакия, Словения и Хорватия). В трех странах миграция замедлила, но не компенсировала, сокращение численности населения (Венгрия, Российская Федерация и Чешская Республика).

20. Что касается среднегодовых объемов нетто-миграции в 2005–2050 годах, то, согласно прогнозам, основными принимающими странами будут Соединенные Штаты Америки (1,1 млн. мигрантов в год), Германия (202 000), Канада (200 000), Соединенное Королевство (130 000), Италия (120 000) и Австралия (100 000), а основными поставщиками мигрантов будут Китай (-327 000 мигрантов в год), Мексика (-293 000), Индия (-241 000), Филиппины (-180 000), Индонезия (-164 000), Пакистан (-154 000) и Украина (-100 000).

Гипотезы, заложенные в *Обзор 2004 года*

Для прогнозирования численности населения до 2050 года Отдел народонаселения Организации Объединенных Наций применяет гипотезы в отношении будущих тенденций рождаемости, смертности и миграции. Поскольку достоверно определить будущие тенденции невозможно, подготавливается несколько вариантов прогноза. В Резюме рассматривается средний вариант прогноза. Гипотезы, заложенные в средний вариант прогноза, подробно рассматриваются в разделе A настоящей главы.

Обзор 2004 года включает пять дополнительных вариантов: вариант с высоким уровнем рождаемости, вариант с низким уровнем рождаемости, вариант с неизменным уровнем рождаемости, вариант с неизменным уровнем смертности и вариант с нулевой миграцией. Отличия соответствующих гипотез от среднего варианта изложены в разделе B. Подробная информация о результатах их применения будет опубликована в следующих изданиях.

Будущая численность населения каждой страны прогнозируется на основе оценок численности населения по состоянию на 1 июля 2005 года. Поскольку фактических данных по народонаселению за 2005 год пока еще нет, оценки за этот год основываются на самой последней демографической информации о каждой стране, источником которой является, как правило, перепись населения или регистр населения, скорректированные на 2005 год на основе всех имеющихся данных о рождаемости, смертности и международной миграции. В тех случаях, когда свежая информация отсутствует, используются краткосрочные прогнозы, составленные на основе самых последних имеющихся данных. Данные по народонаселению из всех источников оцениваются с точки зрения их полноты, точности и взаимосогласованности и при необходимости корректируются[3].

[3] Общее описание методик, применяемых при пересмотре оценок динамики народонаселения, см. *Мировые демографические перспективы: Обзор 2002 года, том III: Аналитический доклад*, стр. 180–182.

A. Гипотезы среднего варианта прогноза

1. Гипотезы в отношении рождаемости: сближение суммарных коэффициентов на уровне ниже воспроизводства населения

Предполагается, что коэффициенты суммарной рождаемости повсеместно достигнут 1,85 ребенка на женщину. Вместе с тем не все страны достигнут этого уровня в течение прогнозируемого периода, т.е. к 2050 году. Основной принцип прогнозирования рождаемости одинаков для всех стран, однако методики прогнозирования несколько различаются в зависимости от того, был ли суммарный коэффициент рождаемости выше или ниже 1,85 ребенка на женщину в 2000–2025 годах.

Предполагается, что в странах, где этот показатель в настоящее время выше 1,85 ребенка на женщину, будущая динамика рождаемости определяется моделями, разработанными Отделом народонаселения Организации Объединенных Наций на основе предыдущего опыта всех стран, где рождаемость снижалась в период 1950–2000 годов. Эти модели устанавливают зависимость между уровнем рождаемости в течение каждого периода времени и средней величиной ожидаемого снижения рождаемости в следующем периоде. Если прогнозируемый таким образом суммарный коэффициент рождаемости снижается до 1,85 ребенка на женщину до 2050 года, предполагается, что он останется на этом уровне вплоть до конца периода прогнозирования (то есть до 2050 года).

Для каждой страны прогнозируемые на основе моделей траектории рождаемости сопоставляются с последними тенденциями рождаемости. В тех случаях, когда последние тенденции рождаемости в стране значительно отклоняются от модельных траекторий, для первых 5 или 10 лет периода прогнозирования траектория рождаемости выбирается в соответствии с последними тенденциями. После такого переходного периода применяется прогнозная модель. Например, для стран, где снижение рождаемости прекратилось, или отсутствует информация, подтверждающая снижение рождаемости, прогнозируется ее сохранение на неизменном уровне в течение еще нескольких лет, прежде чем начнется снижение.

Для стран, в которых в 2000–2005 годах суммарный коэффициент рождаемости был рассчитан ниже 1,85 ребенка на женщину, допускается, что в течение первых 5 или 10 лет прогнозируемого периода этот показатель будет следовать наблюдаемым в последнее время тенденциям. Предполагается, что после этого переходного периода суммарный коэффициент рождаемости будет линейно расти на 0,07 ребенка на женщину за пятилетний период. Таким образом, страны с нынешним очень низким уровнем рождаемости не обязательно достигнут к 2050 году уровня 1,85 ребенка на одну женщину.

2. Гипотезы в отношении смертности: повышение средней продолжительности жизни, за исключением стран, пострадавших от эпидемии ВИЧ/СПИДа

a) Нормальная гипотеза в отношении смертности

Показатели смертности прогнозируются на основе моделей изменения продолжительности жизни, разработанных Отделом народонаселения Организации Объединенных Наций. В соответствии с этими моделями, прирост продолжительности жизни тем меньше, чем выше ее уже достигнутый уровень. Отбор моделей для каждой страны производится на основе последних тенденций в динамике продолжительности жизни по полу. Для стран, сильно

пострадавших от эпидемии ВИЧ/СПИДа, прогнозы общих рисков умереть от не связанных с ВИЧ/СПИДом причин обычно основываются на моделях медленного снижения смертности.

b) Воздействие ВИЧ/СПИДа на смертность

Для 60 стран, которые серьезно пострадали от эпидемии ВИЧ/СПИДа (они перечислены в таблице VIII.21), оценка воздействия ВИЧ/СПИДа проводится с использованием модели динамики эпидемии, а также путем прогнозирования годового числа новых случаев инфицирования ВИЧ-инфекцией в отношении к численности населения. Модель, разработанная методической группой по вопросам оценки, моделирования и прогнозирования[4] Объединенной программы Организации Объединенных Наций по ВИЧ/СПИДу (ЮНЭЙДС), применялась для расчета параметров динамики эпидемии в прошлом на основе осуществленных ЮНЭЙДС оценок распространенности ВИЧ. Для большинства стран эта модель пригодна при допущении, что полученные ранее соответствующие параметры оставались в прошлом неизменными. В соответствии с прогнозом параметр PHI, отражающий темп вовлечения новых лиц в группу высокого риска или восприимчивых к этой инфекции, будет, начиная с 2005 года, снижаться наполовину каждые 30 лет. Предполагается, что параметр R, который отражает интенсивность инфекции, будет снижаться по такой же схеме. Снижение показателя R основывается на том допущении, что изменения в поведении лиц, подверженных риску инфекции, наряду с расширением доступа инфицированных к лечению, приведут к снижению шансов передачи этого вируса. Предполагается также, что частота передачи вируса от матери к ребенку будет сокращаться различными темпами в зависимости от прогресса, достигнутого каждой страной в деле расширения доступа к лечению. Кроме того, был обновлен компонент разработанной методической группой модели, отражающий показатель дожития инфицированных детей: в *Обзоре 2004 года* предполагается, что 50 процентов детей, инфицированных в результате передачи вируса от матери к ребенку, доживут до двухлетнего возраста.

Впервые в *Обзор 2004 года* закладываются более высокие коэффициенты дожития лиц, получающих лечение с применением высокоактивной антиретровирусной терапии. Для каждой страны доля проходящего лечение ВИЧ-инфицированного населения соответствует оценкам, подготовленным Всемирной организацией здравоохранения по состоянию на конец 2004 года[5]. Предполагается, что к 2015 году охват ВИЧ-инфицированного населения лечением составит от 40 до 85 процентов, в зависимости от сегодняшнего уровня. Предполагается, что вероятность прожить по меньшей мере еще год для лиц, проходящих курс высокоактивного антиретровирусного терапевтического лечения, в среднем повышается по меньшей мере до 80 процентов. Согласно этому допущению, продолжительность жизни с момента начала терапевтического лечения составляет в среднем 3,1 года (медианное значение 4,5 года). И наоборот, в том случае, если курс терапевтического лечения не проводится, средняя продолжительность жизни с

---

[4] Усовершенствованные методы и допущения для оценки распространения эпидемии ВИЧ/СПИДа и ее последствий: рекомендации методической группы ЮНЭЙДС по вопросам оценки, моделирования и прогнозирования (AIDS, vol. 16, pp. W1-W14, UNAIDS Reference Group on Estimates, Modeling and Projections, 2002).

[5] World Health Organization. “3 by 5” Progress Report, December 2004/WHO and UNAIDS.

момента перехода инфицированности ВИЧ в стадию СПИДа, составляет, согласно допущениям, один год.

3. Гипотеза в отношении международной миграции

Будущая траектория международной миграции установлена на основе оценок международной миграции в прошлом и оценок позиций государств в отношении будущих миграционных потоков.

B. Варианты прогнозов

Помимо среднего варианта *Обзор 2004 года* включает пять вариантов прогноза. Три варианта — с высокой, низкой и неизменной рождаемостью — отличаются от среднего варианта лишь прогнозируемыми уровнями суммарного коэффициента рождаемости. Вариант с высоким уровнем рождаемости предполагает, что в течение большей части периода прогнозирования суммарный коэффициент рождаемости будет превышать рождаемость среднего варианта на 0,5 ребенка на одну женщину. Например, страны, достигающие рождаемости на уровне 1,85 ребенка на женщину в варианте со средним уровнем рождаемости, достигают уровня 2,35 ребенка на одну женщину. В варианте с низким уровнем рождаемости ее суммарный коэффициент будет на 0,5 ребенка на одну женщину меньше, чем в среднем варианте. превышать рождаемость среднего варианта на 0,5 ребенка на одну женщину. В варианте с неизменным уровнем рождаемости суммарный коэффициент остается постоянным на уровне 2000–2005 годов.

Подготовлены также варианты с неизменной смертностью и вариант с нулевой миграцией. В отношении рождаемости в них была заложена та же гипотеза, что и в среднем варианте. Помимо этого, вариант с неизменной смертностью использует ту же гипотезу в отношении миграции, что и средний вариант. Следовательно, результаты варианта с неизменной смертностью можно сравнивать с результатами среднего варианта для оценки воздействия меняющейся смертности на другие демографические параметры. Аналогичным образом, вариант с нулевой миграцией отличается от среднего варианта только гипотезой в отношении миграции. Поэтому этот вариант позволяет оценить воздействие миграции на другие демографические параметры.

C. Методологические изменения, сделанные в *Обзоре 2004 года*

- В среднем варианте траектория рождаемости в странах, где ее уровень в 2000–2005 годах ниже 1,85 ребенка на женщину, прогнозируется первоначально как продолжение последних тенденций, переходящих в линейный рост с добавлением 0,07 ребенка на женщину за каждый пятилетний период. Эти страны необязательно достигнут уровня 1,85 ребенка на женщину к 2050 году.
- В *Обзоре 2004 года* дополнительные модели изменения смертности использованы для того, чтобы отразить все разнообразие исторического опыта в деле увеличения продолжительности жизни. В частности, в дополнение к ранее созданным моделям медленных, средних и быстрых изменений были разработаны и внедрены модели очень медленных и очень быстрых темпов изменений.

- Воздействие эпидемии ВИЧ/СПИДа на смертность смоделировано для всех стран, где в 2003 году доля ВИЧ-инфицированных составляла не менее 1 процента взрослого населения.
- Лечение с использованием антиретровирусной терапии специально включено в прогноз распространения ВИЧ/СПИДа для этих стран. Кроме того, снижение частоты передачи ВИЧ-инфекции от матери к ребенку прогнозируется темпами, соответствующими предполагаемому прогрессу в деле расширения доступа к лечению.

Prefacio

El presente informe contiene el resumen ejecutivo de los resultados de la *Revisión de 2004* de las estimaciones y proyecciones oficiales de población en el mundo que prepara la División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas. En el informe se presenta, además, una perspectiva general de las hipótesis de fecundidad, mortalidad y migración en que se basan las proyecciones y un resumen de los cambios y ajustes introducidos en la *Revisión de 2004* en relación con los procedimientos seguidos en la *Revisión de 2002*. La *Revisión de 2004* es la 19ª serie de estimaciones y proyecciones demográficas mundiales que prepara la División de Población desde 1950.

Los resultados completos de la *Revisión de 2004* se publicarán en una serie de tres volúmenes. En el primer volumen[1] figurarán los cuadros completos en que se recogen los principales indicadores demográficos correspondientes a cada país respecto del período 1950-2050; en el segundo volumen[2] se presentará la distribución por edad y sexo de la población de cada país respecto del período 1950-2050, y en el tercero[3] se hará un análisis de los resultados obtenidos.

Los datos estarán también disponibles en formato digital. Los usuarios interesados podrán adquirir un CD-ROM con los principales resultados de la *Revisión de 2004*. En el sitio de la División de Población en la Web (*www.unpopulation.org*) se publicará una descripción de los datos que contiene el CD-ROM y un formulario para encargarlo.

La *Revisión de 2004* es responsabilidad de la División de Población. Las comisiones regionales, los organismos especializados y otros órganos pertinentes de las Naciones Unidas que colaboraron con la División de Población facilitaron su preparación.

Entre las fuentes más importantes de estadísticas de población nacionales oficiales consultadas para la preparación de las estimaciones y proyecciones destacan el *Demographic Yearbook* de las Naciones Unidas y sus bases de datos complementarias, preparadas y mantenidas por la División de Estadística del Departamento de Asuntos Económicos y Sociales de las Naciones Unidas. La División de Población agradece también a la División de Estadística del Departamento de Asuntos Económicos y Sociales su permanente cooperación.

En el sitio de la División de Población en la Web (*www.unpopulation.org*) se pueden consultar algunos resultados de la *Revisión de 2004*, así como información

---

[1] *World Population Prospects: The 2004 Revision,* vol. I, *Comprehensive Tables* (publicación de las Naciones Unidas, Sales No. E.05.XIII.5).

[2] *World Population Prospects: The 2004 Revision,* vol. II, *Sex and Age Distribution of the World Population* (publicación de las Naciones Unidas, Sales No. E.05.XIII.6).

[3] *World Population Prospects: The 2004 Revision,* vol. III, *Analytical Report* (publicación de las Naciones Unidas, de próxima aparición).

demográfica de diversa índole. Para más información acerca de la *Revisión de 2004*, se ruega dirigirse a la Sra. Hania Zlotnik, Directora de la División de Población, Naciones Unidas, Nueva York, NY 10017 (Estados Unidos de América) (fax: 1 212 963 2147).

Resumen ejecutivo

La *Revisión de 2004* es la 19ª serie de estimaciones y proyecciones demográficas oficiales de las Naciones Unidas que prepara la División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas. Esas estimaciones y proyecciones se utilizan en todo el sistema de las Naciones Unidas como base para actividades en que se precisa información demográfica. La *Revisión de 2004* es la primera en que se incorporan los resultados completos de la serie de censos de población nacionales de 2000. Además, en ella se tienen en cuenta los resultados de estudios especializados realizados recientemente en países en desarrollo, a fin de proporcionar información demográfica y de otra índole para determinar los avances realizados en el cumplimiento de los objetivos de desarrollo convenidos internacionalmente, incluidos los objetivos de desarrollo del Milenio. El examen exhaustivo de las tendencias demográficas mundiales hasta la fecha y las proyecciones para el futuro que se presentan en la *Revisión de 2004* ofrecen la información sobre población que se necesita para evaluar el cumplimiento de esos objetivos.

La *Revisión de 2004* confirma la variedad de dinámicas demográficas que existen en nuestros tiempos. Aunque la población mundial continúa aumentando, la del conjunto de las regiones más desarrolladas apenas varía y prácticamente todo el crecimiento demográfico se está produciendo en las regiones menos desarrolladas. El grupo de los 50 países menos adelantados se caracteriza por un crecimiento demográfico especialmente rápido.

Detrás de las distintas pautas de crecimiento hay tendencias diferenciadas de fecundidad y mortalidad. En las regiones más desarrolladas, predominan las tasas de fecundidad por debajo del nivel de reemplazo y se prevé que esa tendencia persista hasta 2050. La fecundidad sigue siendo alta en la mayoría de los países menos adelantados y, aunque está previsto que descienda, seguirá siendo mayor que en el resto del mundo. En los demás países en desarrollo, la fecundidad ha descendido notablemente desde finales de los años sesenta y se prevé que en 2050 la mayoría de esos países tendrán tasas de fecundidad por debajo del nivel de reemplazo.

La mortalidad en los países del mundo desarrollado con economías de mercado establecidas es baja y continúa descendiendo, pero se ha estancado e incluso está aumentando en algunos países con economías en transición, en buena parte como consecuencia del deterioro de las condiciones sociales y económicas y, en algunos casos, a causa de la propagación del virus de la inmunodeficiencia humana (VIH). La mortalidad está disminuyendo también en la mayoría de los países en desarrollo, pero ha aumentado en los países muy afectados por la epidemia del VIH y el síndrome de inmunodeficiencia adquirida (SIDA). Habida cuenta de los esfuerzos que se están realizando para suministrar tratamiento antirretroviral a 3 millones de enfermos de SIDA antes de que concluya 2005 y de la expectativa de que posteriormente el acceso al tratamiento se amplíe aún más, en la *Revisión de 2004* se presupone una supervivencia media de las personas que viven con el VIH mayor que en la *Revisión de 2002*; de ahí que en los países afectados por el VIH se prevean unos niveles de mortalidad futuros algo más bajos que en la *Revisión* anterior.

La epidemia del VIH/SIDA continúa propagándose. En la *Revisión de 2004* aparecen 60 países con un número considerable de personas infectadas, frente a 53 en la *Revisión de 2002*, aun cuando la prevalencia del VIH en algunos países se revisó a la baja después de que se reunieran mejores estadísticas. De todos modos, la enfermedad sigue cobrándose muchas víctimas y parece que continuará siendo así, a pesar de la disminución prevista de la prevalencia del VIH/SIDA. Esa disminución dependerá del cumplimiento de los compromisos contraídos por los gobiernos en la Declaración del Milenio[4], aprobada en 2000, y la Declaración de las Naciones Unidas de compromiso en la lucha contra el VIH/SIDA[5], aprobada en 2001.

A continuación se resumen las principales conclusiones de la *Revisión de 2004*:

1. En julio de 2005, el mundo tendrá 6.500 millones de habitantes, 380 millones más que en 2000, lo que supone un incremento de 76 millones al año. Pese a que, con arreglo a las proyecciones, los niveles de fecundidad descenderán entre 2005 y 2050, según la variante media, a mediados de siglo la población mundial alcanzará los 9.100 millones de personas y seguirá aumentando 34 millones al año.

2. Actualmente, el 95% del crecimiento demográfico mundial corresponde al mundo en desarrollo y el otro 5% al mundo desarrollado. Según la variante media, en 2050 la población del conjunto de los países más desarrollados estará descendiendo lentamente, esto es, disminuirá en 1 millón de personas al año, aproximadamente, y la del mundo en desarrollo se estará incrementando en 35 millones de personas al año, de los cuales 22 millones corresponderán a los países menos adelantados.

3. El crecimiento demográfico futuro dependerá en gran medida de la evolución de la fecundidad. En la variante media, se prevé que las tasas de fecundidad descenderán del nivel actual de 2,6 hijos por mujer a poco más de 2 hijos por mujer en 2050. Si la fecundidad se mantuviera aproximadamente medio hijo por encima de los niveles previstos en la variante media, la población mundial alcanzaría los 10.600 millones de personas en 2050. Si, en cambio, evolucionara medio hijo por debajo de los niveles de la variante media, la población mundial a mediados de siglo sería de 7.600 millones de personas. En otras palabras, aunque el descenso de la fecundidad se acelere, el crecimiento constante de la población mundial hasta 2050 es inevitable.

---

[4] Véase la resolución 55/2 de la Asamblea General.

[5] Véase la resolución S-26/2 de la Asamblea General.

Cuadro 1

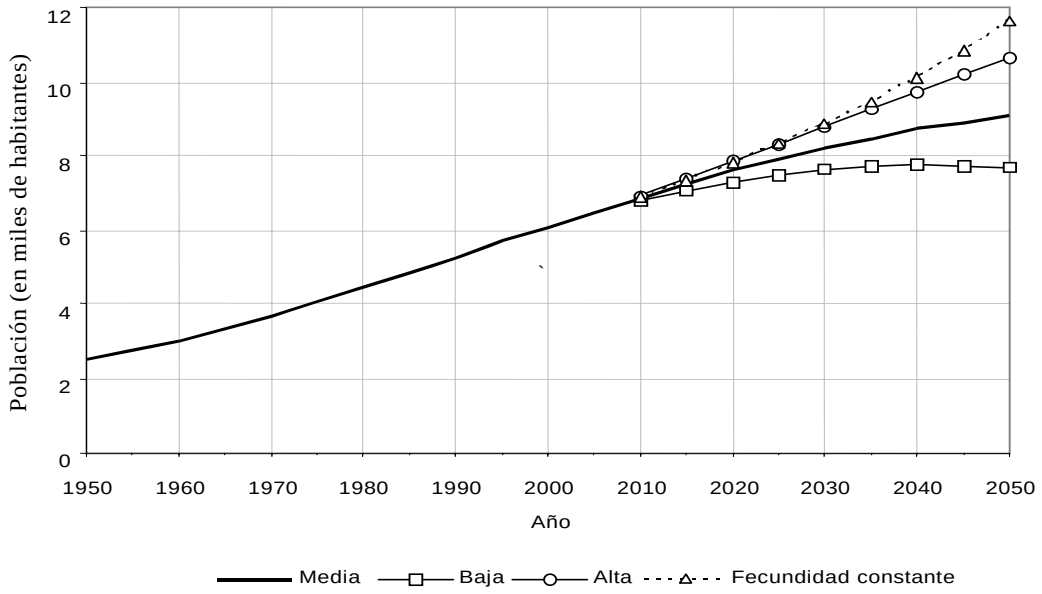
Población mundial, desglosada por principales grupos de desarrollo y zonas (1950, 1975 y 2005) y por variante de proyección (2050)

	Población (en millones de habitantes)			*Población en 2050 (en millones de habitantes)*			
Zonas principales	*1950*	*1975*	*2005*	*Baja*	*Media*	*Alta*	*Constante*
Mundo	2 519	4 074	6 465	7 680	9 076	10 646	11 658
Regiones más desarrolladas	813	1 047	1 211	1 057	1 236	1 440	1 195
Regiones menos desarrolladas	1 707	3 027	5 253	6 622	7 840	9 206	10 463
Países menos adelantados	201	356	759	1 497	1 735	1 994	2 744
Otros países menos adelantados	1 506	2 671	4 494	5 126	6 104	7 213	7 719
África	224	416	906	1 666	1 937	2 228	3 100
Asia	1 396	2 395	3 905	4 388	5 217	6 161	6 487
Europa	547	676	728	557	653	764	606
América Latina y el Caribe	167	322	561	653	783	930	957
América del Norte	172	243	331	375	438	509	454
Oceanía	13	21	33	41	48	55	55

Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2005). *World Population Prospects: The 2004 Revision. Highlights*. Nueva York, Naciones Unidas.

Gráfico 1

Población mundial, de 1950 a 2050, por variante de proyección



Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2005). *World Population Prospects: The 2004 Revision. Highlights*. Nueva York, Naciones Unidas.

4. La tasa de crecimiento de la población del conjunto de los países desarrollados es baja y está en disminución, por lo que se prevé que el número de habitantes de esos países apenas variará entre 2005 y 2050, y se mantendrá en unos 1.200 millones de personas. En cambio, según las proyecciones, la población de los 50 países menos adelantados aumentará más del doble, y pasará de 800 millones de personas en 2005 a 1.700 en 2050. En el resto del mundo en desarrollo también se prevé un crecimiento considerable, aunque menos rápido, ya que la población aumentará de 4.500 a 6.100 millones de habitantes entre 2005 y 2050.

5. Según las previsiones, se producirá un crecimiento demográfico muy rápido en algunos países en desarrollo, la mayoría de ellos del grupo de países menos adelantados. Se prevé que entre 2005 y 2050 la población del Afganistán, Burkina Faso, Burundi, el Chad, el Congo, Guinea-Bissau, Liberia, Malí, el Níger, la República Democrática del Congo, la República Democrática de Timor-Leste y Uganda como mínimo se triplicará.

6. Por otra parte, se prevé que en 2050 la población de 51 países o zonas, entre ellos Alemania, Italia, el Japón, los países bálticos y la mayoría de los Estados sucesores de la antigua Unión Soviética, habrá disminuido con respecto a 2005.

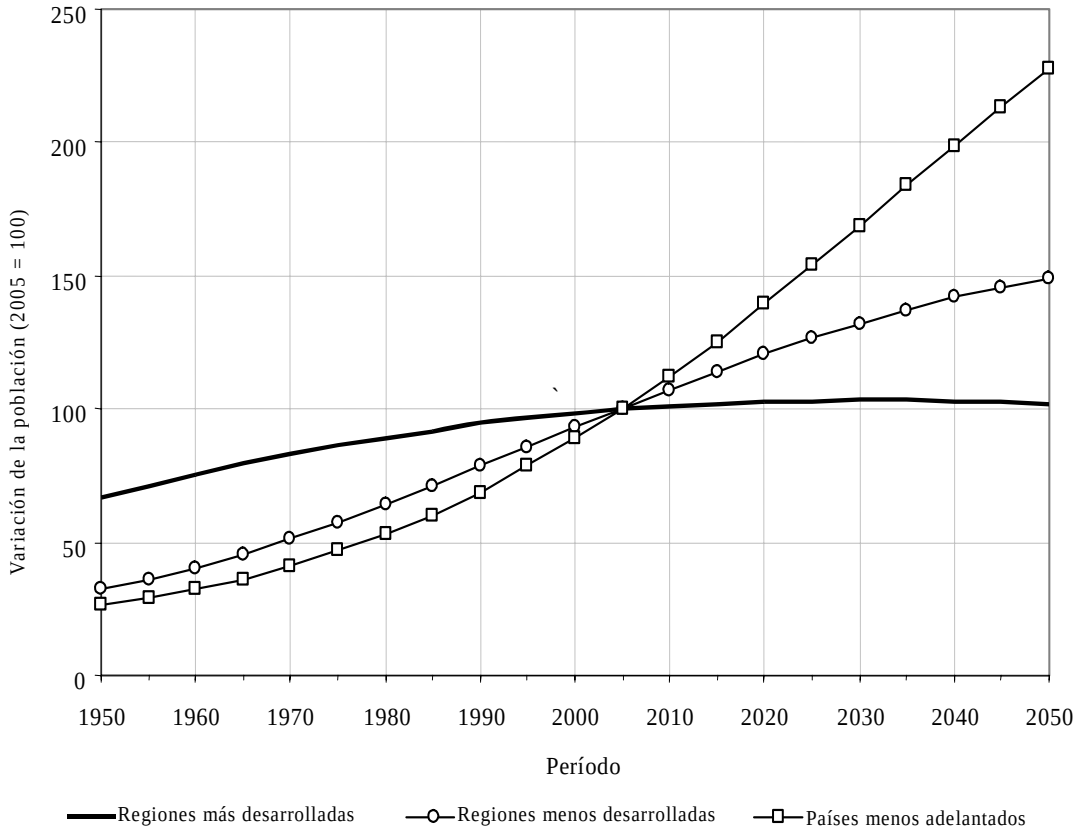
7. De acuerdo con las previsiones, entre 2005 y 2050, la mitad del aumento proyectado de la población mundial corresponderá a nueve países: la India, el Pakistán, Nigeria, la República Democrática del Congo, Bangladesh, Uganda, los Estados Unidos de América, Etiopía y China, por orden de contribución al crecimiento demográfico en ese período.

Cuadro 2
Tasa media anual de variación de la población total y de la población desglosada por grupos de edad y zonas principales, 2005-2050 (variante media)

Zonas principales	*0-14*	*15-59*	*60+*	*80+*	*Población total*
Mundo	0,01	0,63	2,39	3,37	0,75
Regiones más desarrolladas	-0,14	-0,38	1,10	2,13	0,05
Regiones menos desarrolladas	0,03	0,82	2,88	4,19	0,89
Países menos adelantados	1,02	2,15	3,32	4,03	1,84
Otros países menos desarrollados	-0,29	0,54	2,84	4,21	0,68
África	0,87	2,00	3,12	3,86	1,69
Asia	-0,29	0,47	2,70	4,04	0,64
Europa	-0,36	-0,75	0,90	1,98	-0,24
América Latina y el Caribe	-0,38	0,61	2,98	3,99	0,74
América del Norte	0,23	0,37	1,67	2,30	0,62
Oceanía	0,09	0,65	2,11	2,89	0,81

Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2005). *World Population Prospects: The 2004 Revision. Highlights*. Nueva York, Naciones Unidas.

Gráfico 2
Dinámica demográfica por grupo de desarrollo, 1950-2050



Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2005). *World Population Prospects: The 2004 Revision. Highlights*. Nueva York, Naciones Unidas.

Cuadro 3
Fecundidad mundial total, desglosada por principales grupos de desarrollo y zonas (1970-1975 y 2000-2005) y por variante de proyección (2045-2050)

	Fecundidad total (número de hijos por mujer)					
			2045-2050			
Zonas principales	*1970-1975*	*2000-2005*	*Baja*	*Media*	*Alta*	*Constante*
Mundo	4,49	2,65	1,56	2,05	2,53	3,50
Regiones más desarrolladas	2,12	1,56	1,34	1,84	2,34	1,67
Regiones menos desarrolladas	5,44	2,90	1,59	2,07	2,56	3,69
Países menos adelantados	6,61	5,02	2,08	2,57	3,05	5,56
Otros países menos desarrollados	5,28	2,58	1,42	1,92	2,41	3,06
África	6,72	4,97	2,03	2,52	3,00	5,50
Asia	5,08	2,47	1,42	1,91	2,41	2,98
Europa	2,16	1,40	1,33	1,83	2,33	1,45
América Latina y el Caribe	5,05	2,55	1,36	1,86	2,36	2,69
América del Norte	2,01	1,99	1,35	1,85	2,35	1,99
Oceanía	3,23	2,32	1,42	1,92	2,42	2,72

Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2005). *World Population Prospects: The 2004 Revision. Highlights*. Nueva York, Naciones Unidas.

8. Entre 2000 y 2005, la tasa de fecundidad mundial fue de 2,65 hijos por mujer, prácticamente la mitad de la registrada entre 1950 y 1955 (5 hijos por mujer). Según las proyecciones de la variante media, la tasa de fecundidad mundial continuará disminuyendo y será de 2,05 hijos por mujer en el período 2045-2050. Los niveles mundiales medios son resultado de tendencias muy diferentes en los distintos grupos de desarrollo principales. En el conjunto de los países desarrollados, la tasa de fecundidad actual es de 1,56 hijos por mujer y se prevé que aumentará lentamente a 1,84 hijos por mujer en el período 2045-2050. En los países menos adelantados, la tasa de fecundidad es de 5 hijos por mujer y está previsto que, en el período 2045-2050, se habrá reducido a casi la mitad, es decir, a 2,57 hijos por mujer. En el resto del mundo en desarrollo, la tasa de fecundidad es ya moderadamente baja, de 2,58 hijos por mujer, y se estima que seguirá descendiendo hasta situarse en 1,92 hijos por mujer a mediados de siglo, con lo cual prácticamente coincidirá con los niveles de fecundidad que se registrarán en ese momento en el mundo desarrollado. El descenso proyectado de la fecundidad dependerá de las posibilidades de acceso a la planificación familiar, en especial en los países menos adelantados.

9. En el período 2000-2005, la tasa de fecundidad ha seguido siendo superior a 5 hijos por mujer en 35 de los 148 países en desarrollo, de los cuales 30 se consideran países menos adelantados, mientras que en varios países del África subsahariana y el Asia centromeridional esa tasa ha disminuido a un ritmo más lento de lo previsto. En conjunto, los países con tasas de fecundidad altas reúnen el 10% de la población mundial. Por el contrario, la fecundidad se ha situado por debajo del nivel de reemplazo en 23 países en desarrollo en los que vive el 25% de la población

mundial. En este grupo está China, con una tasa de fecundidad estimada de 1,7 hijos por mujer durante el período 2000-2005.

10. Los 44 países desarrollados, a los que corresponde el 19% de la población mundial, tienen actualmente unos niveles de fecundidad muy bajos. Todos, excepto Albania, presentan tasas de fecundidad por debajo del nivel de reemplazo y en 15 de ellos, casi todos del sur y el este de Europa, se han registrado niveles de fecundidad sin precedentes en la historia de la humanidad (menos de 1,3 hijos por mujer). Desde el período 1990-1995, el descenso de la fecundidad ha sido generalizado en los países más desarrollados. Los contados aumentos que se han producido, por ejemplo, en Alemania, Bélgica, los Estados Unidos, Francia y los Países Bajos, han sido leves.

Cuadro 4
Esperanza de vida al nacer a nivel mundial, por principales grupos de desarrollo y zonas 2000-2005 y 2045-2050

Zonas principales	*2000-2005*	*2045-2050*
Mundo	65,4	75,1
Regiones más desarrolladas	75,6	82,1
Regiones menos desarrolladas	63,4	74,0
Países menos adelantados	51,0	66,5
Otros países menos desarrollados	66,1	76,3
África	49,1	65,4
Asia	67,3	77,2
Europa	73,7	80,6
América Latina y el Caribe	71,5	79,5
América del Norte	77,6	82,7
Oceanía	74,0	81,2

Fuente: División de Población del Departamento de Asuntos Económicos y Sociales de la Secretaría de las Naciones Unidas (2005). *World Population Prospects: The 2004 Revision. Highlights*. Nueva York, Naciones Unidas.

11. Según las previsiones, la esperanza de vida al nacer a nivel mundial, que se estima que ha pasado de 47 años en el período 1950-1955 a 65 años en el período 2000-2005, seguirá aumentando y se situará en 75 años en el período 2045-2050. En las regiones más desarrolladas se prevé que pase de los 76 años en que se sitúa ahora a 82 años a mediados de siglo. En los países menos adelantados, la esperanza de vida, que es actualmente de 51 años, será de 67 años en el período 2045-2050. Dado que muchos de esos países se ven gravemente afectados por la epidemia del VIH/SIDA, el incremento proyectado de la esperanza de vida dependerá de que se apliquen programas eficaces de prevención y tratamiento de la infección por VIH. En el resto del mundo en desarrollo, se prevé que la esperanza de vida aumente del nivel actual, que es de 66 años, a 76 a mediados de siglo, aunque ese incremento estará supeditado a condiciones similares.

12. La mortalidad en Europa oriental ha aumentado sin parar desde finales de los años ochenta. En el período 2000-2005, la esperanza de vida en la región era de 67,9 años, esto es, inferior a la del período 1960-1965 (68,6 años). La mortalidad ha aumentado especialmente en la Federación de Rusia y Ucrania, como consecuencia, en parte, de la propagación del VIH.

13. Tras 25 años de epidemia del VIH/SIDA, las repercusiones de la enfermedad se sienten en el aumento de la morbilidad y la mortalidad y la ralentización del crecimiento de la población. En el África meridional, la región con mayor prevalencia del VIH/SIDA, la esperanza de vida ha caído de 62 años en el período 1990-1995 a 48 años en el período 2000-2005 y, según las previsiones, seguirá descendiendo hasta situarse en 43 años en el próximo decenio, antes de empezar a repuntar lentamente. Como consecuencia, se prevé que el crecimiento demográfico en la región se estanque entre 2005 y 2020. En Botswana, Lesotho y Swazilandia está previsto que disminuya la población, debido a que el número de defunciones supera el de nacimientos. En la mayoría de los demás países en desarrollo afectados por la epidemia, el crecimiento demográfico seguirá siendo positivo, ya que las tasas de fecundidad son moderadas o altas y compensan sobradamente el aumento de la mortalidad.

14. La consecuencia principal del descenso de la fecundidad, especialmente si va unido a un incremento de la esperanza de vida, es el envejecimiento de la población, que hace que aumente el peso relativo de las personas de edad en el conjunto de la población. Se prevé que, a nivel mundial, el número de personas de 60 años o más casi se triplique y pase de 672 millones en 2005 a cerca de 1.900 millones en 2050. Si bien actualmente 6 de cada 10 personas de ese grupo de edad viven en países en desarrollo, en 2050 la proporción será de 8 de cada 10. Se prevé que el aumento del número de personas de edad muy avanzada (personas de 80 años o más) será aún más pronunciado: de 86 millones en 2005 a 394 millones en 2050. En los países en desarrollo, el número de personas de edad muy avanzada pasará de 42 a 278 millones, de manera que en 2050 la mayoría de esas personas vivirá en el mundo en desarrollo.

15. En los países desarrollados, la población de 60 años o más constituye actualmente el 20% de la población y se prevé que en 2050 constituirá el 32%. En los países desarrollados, la población anciana ha superado ya a la infantil (personas de 0 a 14 años) y en 2050 habrá dos personas ancianas por cada niño. Según las previsiones, en el mundo en desarrollo, la proporción de personas de 60 años o más aumentará de un 8% en 2005 a cerca de un 20% en 2050.

16. El aumento de la edad mediana, es decir, la edad con respecto a la cual la mitad de la población es mayor y la otra mitad menor, es sintomático del envejecimiento de la población. Actualmente, sólo en 11 países desarrollados la edad mediana es superior a los 40 años. En 2050 pertenecerán a ese grupo 89 países, 45 de ellos del mundo en desarrollo. El envejecimiento de la población, fenómeno cada vez más generalizado en los países desarrollados, es también inexorable en el mundo en desarrollo, donde se producirá con mayor rapidez.

17. En los países en que la fecundidad sigue siendo elevada y sólo ha bajado moderadamente, el envejecimiento de la población será más lento. Según las proyecciones, en 2050, la edad mediana será todavía igual o inferior a 30 años en aproximadamente uno de cada cinco países. Las poblaciones más jóvenes se encontrarán en los países menos adelantados; en 11 de esos países, a saber, el Afganistán, Angola, Burundi, el Chad, Guinea-Bissau, Guinea Ecuatorial, Liberia, Malí, el Níger, la

República Democrática del Congo y Uganda, se prevé que la edad mediana será igual o inferior a 23 años en 2050.

18. Según las proyecciones, en el período comprendido entre 2005 y 2050, el número neto de migrantes internacionales a las regiones más desarrolladas ascenderá a 98 millones, lo que representa un promedio de 2,2 millones al año. El mismo número de personas abandonará las regiones menos desarrolladas. En lo que respecta al mundo desarrollado, ese nivel de migración neta compensará sobradamente el crecimiento demográfico negativo previsto para el período 2005-2050, que es de -73 millones de personas. En lo que respecta al mundo en desarrollo, los 98 millones de emigrantes representarán algo menos del 4% del crecimiento demográfico previsto.

19. En el período 2000-2005, 74 países fueron receptores netos de migrantes. En 64 de ellos, la migración neta prevista reforzará el crecimiento de la población y en 7 países, invertirá la tendencia a la disminución de la población (Alemania, Austria, Croacia, Eslovaquia, Eslovenia, Grecia e Italia). En tres países, la migración ralentizará el descenso de la población, pero no llegará a invertir esa tendencia (Federación de Rusia, Hungría y República Checa).

20. Teniendo en cuenta las medias anuales previstas para el período 2005-2050, los principales receptores netos de migrantes internacionales serán los Estados Unidos (1,1 millones de personas por año), Alemania (202.000), el Canadá (200.000), el Reino Unido (130.000), Italia (120.000) y Australia (100.000). Se prevé que los países de los que saldrá el mayor número neto de emigrantes serán China (327.000 por año), México (293.000), la India (241.000), Filipinas (180.000), Indonesia (164.000), el Pakistán (154.000) y Ucrania (100.000).

Hipótesis en que se basa la *Revisión de 2004*

Para elaborar las proyecciones demográficas hasta 2050, la División de Población de las Naciones Unidas parte de la hipótesis sobre las tendencias futuras con respecto a la fecundidad, la mortalidad y la migración. Dado que las tendencias futuras no se pueden conocer con certeza, se preparan diversas variantes de proyección. Las proyecciones presentadas en *Highlights* se basan en la variante media de la *Revisión de 2004*. Las hipótesis de la variante media se exponen en detalle en la sección A de este capítulo.

La *Revisión de 2004* incluye otras cinco variantes: las variantes alta, baja, de fecundidad constante, de mortalidad constante y de migración cero. Las hipótesis que diferencian a estas variantes de la variante media se describen en la sección B. Los resultados pormenorizados de estas variantes se podrán consultar en publicaciones de próxima aparición.

Las proyecciones de la población de cada país se realizan a partir de la población estimada al 1º de julio de 2005. Como aún no se dispone de datos reales de la población en 2005, la estimación correspondiente a 2005 se basa en los últimos datos de población que se conocen de cada país, los cuales se obtienen normalmente de los censos o registros de población y se ajustan a 2005 aplicando todos los datos conocidos sobre fertilidad, mortalidad y migración internacional. Cuando no se dispone de datos muy recientes, las estimaciones de las tendencias demográficas son proyecciones a corto plazo realizadas a partir de los últimos datos conocidos. Los datos sobre población de todas las fuentes se analizan para determinar si son exhaustivos, exactos y coherentes, y se ajustan en caso necesario[6].

A. Hipótesis de la variante media

1. Hipótesis de fecundidad: convergencia hacia una fecundidad total inferior al nivel de reemplazo

Se parte del supuesto de que la fecundidad total en todos los países acabará por converger en una tasa de 1,85 hijos por mujer. No obstante, no todos los países alcanzarán ese nivel en el período de la proyección, es decir, de aquí a 2050. El principio en que se basan las proyecciones en materia de fecundidad es el mismo para todos los países, pero los procedimientos para hacer esas proyecciones son ligeramente diferentes, dependiendo de si los países han tenido una tasa de fecundidad total superior o inferior a 1,85 hijos por mujer en el período 2000-2005.

En lo que respecta a los países con una tasa de fecundidad total superior a 1,85 hijos por mujer, se supone que la fecundidad seguirá una trayectoria deducida de los modelos de disminución de la fecundidad establecidos por la División de Población de las Naciones Unidas sobre la base de lo ocurrido en todos los países en que la fecundidad se redujo entre 1950 y 2000. Los modelos relacionan el nivel de fecundidad total durante un período determinado con la disminución media prevista de la fecundidad total en el período siguiente. Si la fecundidad total prevista en un modelo para un país desciende por debajo de 1,85 hijos por mujer antes de 2050, la tasa

---

[6] Para una descripción general de los procedimientos empleados para examinar las estimaciones de la dinámica demográfica, véase *World Population Prospects: The 2002 Revision, Volume III: Analytical Report*, págs. 180 a 182.

de fecundidad total se mantiene constante a ese nivel en el resto del período de la proyección (es decir, hasta 2050).

En todos los casos, la evolución prevista de la fecundidad de acuerdo con los modelos se coteja con las tendencias recientes de la fecundidad en cada país. Cuando las tendencias recientes de la fecundidad de un país se desvían considerablemente de las definidas a partir de los modelos, se hace una proyección de la fecundidad para un período inicial de cinco o diez años de manera que se ajuste a lo observado recientemente. Las proyecciones a partir de los modelos vuelven a aplicarse después de ese período de transición. Por ejemplo, en los países en que la fecundidad se ha estancado o no hay indicios de un descenso de la fecundidad, se prevé que la fecundidad se mantenga constante unos años antes de empezar a disminuir.

En lo que respecta a los países con una tasa de fecundidad total inferior a 1,85 hijos por mujer en el período 2000-2005, se supone que en los primeros cinco o diez años del período de la proyección la fecundidad seguirá las tendencias más recientes observadas en cada país. Después de ese período de transición, se supone que la fecundidad aumentará de forma lineal a un ritmo de 0,07 hijos por mujer y quinquenio. Así pues, los países que actualmente tienen una fecundidad muy baja quizá no hayan alcanzado el nivel de 1,85 hijos por mujer en 2050.

2. Hipótesis de mortalidad: aumento de la esperanza de vida, excepto en los países afectados por el VIH/SIDA

a. Hipótesis de mortalidad normal

La proyección de la mortalidad se realiza partiendo de los modelos de evolución de la esperanza de vida preparados por la División de Población de las Naciones Unidas. Según esos modelos, cuanto más alta sea la esperanza de vida ya alcanzada, menor será el incremento. La elección del modelo adecuado para cada país se basa en las tendencias más recientes de la esperanza de vida por sexo. En el caso de los países muy afectados por la epidemia del VIH/SIDA, por lo general se ha utilizado el modelo que prevé un ritmo lento de disminución de la mortalidad para tener en cuenta la reducción de los riesgos de mortalidad general no relacionados con el VIH/SIDA.

b. Influencia del VIH/SIDA en la mortalidad

En lo que respecta a los 60 países muy afectados por la epidemia del VIH/SIDA (enumerados en el cuadro VIII.21), para estimar la influencia del VIH/SIDA se preparan modelos explícitos de la evolución futura de la epidemia y proyecciones de la incidencia anual de la infección por el VIH. El modelo desarrollado por el Grupo de Referencia del ONUSIDA sobre estimaciones, modelos y proyecciones[7] se utiliza para ajustar las estimaciones previas de la prevalencia del VIH obtenidas del ONUSIDA y deducir los parámetros que han determinado la dinámica de la epidemia hasta el momento. En el caso de la mayoría de los países, el modelo se ajusta partiendo del supuesto de que los parámetros pertinentes se han mantenido constantes en el pasado. A partir de 2005, las proyecciones indican que el parámetro

[7] Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. AIDS, vol. 16, págs. W1 a W14 (Grupo de Referencia del ONUSIDA sobre estimaciones, modelización y proyecciones, 2002).

FI[Φ], que representa la tasa de ingreso de nuevos individuos en el grupo de alto riesgo o vulnerable, se reducirá a la mitad cada 30 años. Según las proyecciones, el parámetro R, que representa la intensidad de la infección, registrará la misma disminución. La reducción del parámetro R se basa en la hipótesis de que los cambios de comportamiento entre quienes están expuestos al riesgo de infección, unidos a un mayor acceso de las personas infectadas al tratamiento, reducirán las posibilidades de transmisión del virus. Se prevé que la tasa de transmisión de la madre al niño se reducirá a distintos ritmos, en función de lo que avance cada país en la ampliación del acceso al tratamiento. Además, se ha actualizado el componente del modelo del Grupo de Referencia relativo a la supervivencia de los niños infectados: en la *Revisión de 2004* se presupone que el 50% de los niños infectados como consecuencia de la transmisión del VIH de la madre a hijo cumplirá los 2 años de edad.

En la *Revisión de 2004* se prevé por primera vez una supervivencia más larga para las personas que reciben terapia antirretroviral de gran actividad. La proporción de personas seropositivas que reciben tratamiento en cada país coincide con las estimaciones de la Organización Mundial de la Salud para finales de 2004[8]. Según las proyecciones, la proporción de personas con acceso a tratamiento oscilará entre un 40% y un 85% en 2015, dependiendo del actual nivel de acceso. Se supone que, por término medio, la probabilidad de supervivencia anual aumenta hasta al menos el 80% en el caso de los pacientes que reciben terapia antirretroviral. Con arreglo a esta hipótesis, la supervivencia media desde que se inicia la terapia es de 3,1 años (la supervivencia mediana es de 4,5 años). En cambio, se presupone que, sin tratamiento, la supervivencia media una vez que se manifiesta el SIDA es de solamente un año.

3. Hipótesis de migración internacional

La evolución futura de la migración internacional se determina sobre la base de las estimaciones pasadas de la migración internacional y de una evaluación de la orientación de las políticas de los países con respecto a las corrientes futuras de migración internacional.

B. Variantes de la proyección

La *Revisión de 2004* incluye cinco variantes de proyección, además de la variante media. Tres de ellas (alta, baja y de fecundidad constante) difieren de la variante media únicamente en lo que respecta a la tasa de fecundidad total prevista. De acuerdo con la variante alta, se prevé que la fecundidad total se mantendrá 0,5 hijos por encima de la fecundidad total de la variante media durante la mayor parte del período que abarca la proyección. Por ejemplo, que los países con una fecundidad total de 1,85 hijos por mujer en la variante media tienen en la variante alta una fecundidad total de 2,35 hijos por mujer. En la variante baja se prevé que la fecundidad total se mantendrá 0,5 hijos por debajo de la fecundidad total de la variante media. De acuerdo con la variante de fecundidad constante, la fecundidad total se mantiene constante en el nivel estimado para el período 2000-2005.

---

[8] Organización Mundial de la Salud. Informe sobre los progresos realizados en la aplicación de la iniciativa “3 por 5”, diciembre de 2004, OMS y ONUSIDA

También se han preparado una variante de mortalidad constante y una variante de migración cero. Ambas parten de la misma hipótesis de fecundidad que la variante media. La variante de mortalidad constante parte además de la misma hipótesis de migración internacional que la variante media. En consecuencia, los resultados de la variante de mortalidad constante se pueden comparar con los de la variante media para determinar la influencia que tienen los cambios de la mortalidad en otros parámetros demográficos. De igual manera, la variante de migración cero difiere de la variante media únicamente en la hipótesis de base relativa a la migración internacional. Por tanto, la variante de migración cero permite evaluar la influencia que una migración por encima o por debajo de cero tiene en otros parámetros demográficos.

C. Cambios metodológicos introducidos en la *Revisión de 2004*

- En la variante media, las proyecciones de la fecundidad de los países con una fecundidad total inferior a 1,85 hijos por mujer en el período 2000-2005 se han hecho partiendo del supuesto de que las tendencias más recientes se mantendrán en un primer momento e incrementando después la fecundidad de forma lineal a un ritmo de 0,07 hijos por mujer y quinquenio. En esos países no se habrá alcanzado necesariamente el nivel de 1,85 hijos por mujer en 2050.
- En la *Revisión de 2004*, se han utilizado nuevos modelos de variación de la mortalidad, a fin de tener en cuenta las distintas tendencias históricas en el aumento de la esperanza de vida. En concreto, se han preparado modelos de variaciones muy lentas y variaciones muy rápidas, como complemento de los modelos de variación lenta, media y rápida ya existentes.
- La influencia del VIH/SIDA en la mortalidad se determina mediante modelos explícitos en el caso de todos los países en que la prevalencia del VIH entre adultos era de un 1% o más en 2003.
- La terapia antirretroviral se ha incorporado explícitamente en las proyecciones relativas al VIH/SIDA en los países afectados. Además, se prevé que la tasa de transmisión del VIH de la madre al niño disminuya a un ritmo paralelo a los avances previstos en la ampliación del acceso al tratamiento.

INTRODUCTION

Timely and accurate information about population trends is in high demand. Knowledge about the current size and structure of a country's population is needed for the formulation and implementation of policies and programmes in almost all areas of public life. Because policies are aimed at achieving goals in the future, knowledge about future population trends is required. What is true for individual countries also holds for the international community. United Nations activities in areas as diverse as health and environment, poverty reduction and promoting social progress and economic growth rely on comprehensive and consistent demographic information. The population estimates and projections prepared by the Population Division of the United Nations Department of Economic and Social Affairs (DESA) provide that information.

The Population Division has been preparing the official United Nations estimates and projections of the world's population since 1951. The *2004 Revision* of *World Population Prospects* is the nineteenth set of global estimates and projections completed by the Population Division since that date. Until 1978, revisions of the global set of population projections were published every five years, but since that date the Population Division has issued revisions of the estimates and projections for all countries and areas of the world every two years (see bibliography below).

The data produced for each revision of *World Population Prospects* represent a unique set of comprehensive, consistent and internationally comparable estimates and projections of population by age and sex as well as estimates and projections of mortality and fertility schedules by age and sex and estimates of net international migration for each country. Such data serve as a basis for the calculation of sectoral estimates and projections produced by the various agencies and bodies of the United Nations system. Given the numerous uses of the Population Division's estimates and projections as well as the fact that future world population trends are inherently uncertain, it is important to ensure that the official set of population estimates and projections of the United Nations system are kept as up-to-date as possible. This goal is met by revising the official set of projections every two years and, in the process, incorporating the most recent demographic information available for each country of the world.

The results of the *2004 Revision* are published in three volumes. Volume I presents all major demographic indicators, for all countries and their aggregates, in the form of demographic profiles and indicator-specific data tables. Volume II presents detailed information about the composition of populations by age and sex. This third volume is devoted to the analysis of the results, the methodological underpinnings and the documentation of the data sources of the *2004 Revision*. In addition, the results of the *2004 Revision* are available in digital form on three CD-ROMs, as well as on the Population Division's website at *http://www.unpopulation.org*. A wall chart showing population estimates and projections for 2005, 2025 and 2050 for all countries of the world and corresponding demographic indicators has also been issued.

The *2004 Revision* provides estimates and projections for 228 countries. For 192 countries of the world that had an estimated population of 100,000 inhabitants or more in the year 2000, the projections are carried out using the cohort-component method, which requires explicit assumptions on future fertility, mortality and migration trends for each country. For 36 countries that in 2000 had fewer than 100,000 inhabitants, projections of the total population are made on the basis of assumptions about the future rate of population growth. Such methodology does not require or produce information on future fertility, mortality and migration levels.

Estimates and projections are made and presented for each country separately. The estimates cover the period 1950-2005 and the projections cover the period 2005-2050. Results are also presented for the world as a whole, its 21 regions and six major areas. In addition, countries are organized by level of development. The sets of coun-

tries that constitute each region, major area and development group are listed in the explanatory notes.

The *2004 Revision* includes seven projection variants and three AIDS scenarios. The seven variants are: low, medium, high, constant-fertility, instant-replacement-fertility, constant-mortality, and zero-migration. The first five variants, namely, low, medium, high, constant-fertility and instant-replacement-fertility, differ among themselves exclusively in the assumptions made regarding the future path of fertility. The sixth variant, named constant-mortality, differs from the medium variant with regard to the path followed by future mortality. The seventh variant, named zero-migration, differs from the medium variant only with regard to the path followed by future international migrations. Projection variants differ from each other only for the period 2005-2050. The low, medium and high variants constitute the core of the official projections. They encompass the likely future path of population growth for each country of the world. The low and high variants provide lower and upper bounds for that growth. The medium variant is a useful central reference for trends over the longer term. The constant-fertility, instant-replacement-fertility, constant-mortality, and zero-migration variants have been produced for illustrative purposes, to permit an assessment of the effects that future assumptions on fertility, mortality and international migration in the medium variant have in relation to these scenarios.

In addition, the *2004 Revision* includes three AIDS scenarios named No-AIDS, high-AIDS and AIDS-vaccine. These scenarios are variations of the medium variant and differ from each other and from that variant on the path of mortality because they are based on different assumptions regarding the course of the HIV/AIDS epidemic. Note that only 60 countries are considered to be significantly affected by the epidemic. Consequently, the AIDS scenarios produce different projections only for those countries.

The No-AIDS scenario applies the mortality likely to be exhibited by the non-infected population to the whole population, thus excluding the direct impacts of the epidemic. The high-AIDS scenario assumes that the AIDS modeling parameters determining the path of the HIV/AIDS epidemic remain constant at their 2005 level. The AIDS-vaccine scenario assumes that there are no new HIV infections starting in 2006. The estimates associated with the No-AIDS scenario (that is, the figures for 1980-2005) differ from the estimates of the other variants because AIDS started affecting the populations in the majority of the highly affected countries around 1980. By comparing these results with those of the estimates and medium variant that explicitly include the effects of the HIV/AIDS epidemic, the user can infer the impact of the epidemic. The two other AIDS scenarios (high-AIDS and AIDS-Vaccine) provide alternative bounds on the possible course of the epidemic.

Volumes I, II and III present results for the three main variants: medium, high and low. Additionally, projection results from the constant-fertility variant are shown in volume I. The results of the three additional variants, instant-replacement, constant-mortality and zero-migration, and of the three special HIV/AIDS scenarios are not included in the first two volumes. However, the results of these additional variants and scenarios are contained in the CD-ROMs entitled “Comprehensive” and “Extended” (see order form, chapter VIII).

This third volume of the *2004 Revision* of *World Population Prospects* combines analysis and documentation. It provides, in it first five chapters, a comprehensive overview about current settings and long-term trends of population size and its composition (chapters I and II), fertility (chapter III), mortality (chapter IV) and international migration (chapter V). The next two chapters present a description of the methodologies used and the assumptions made for the preparation of the *2004 Revision* (chapter VI) and documentation of country-specific data sources and estimation methods (chapter VII). The final chapter contains information about and a form for ordering the data from the *2004 Revision* on CD-ROM (chapter VIII).

This report includes an executive summary of the main results and a summary of the assumptions of the *2004 Revision* in all six official languages of the United Nations.

I. POPULATION SIZE, DISTRIBUTION AND GROWTH

Populations are dynamic entities. Over time they grow or decline, they become younger or older and their geographic distribution changes. Such changes are the cumulative effects of the events that people undergo during their lives, namely births, deaths and migrations. One of the concerns in demography is to trace out the consequence of changes in individual-level behaviour for aggregate processes (Preston, Heuveline and Guillot, 2001). The combination of these individual events shapes the population of each country, and, though partially predictable, the outcome is sometimes surprising. While no other century has witnessed such rapid and accelerating population growth as did the twentieth, population declines have been observed in several countries during the past decade or so. Such declines are foreseen to become the rule rather than the exception in some regions of the world, while in other regions the population will continue to grow, albeit at a more moderate pace.

A. POPULATION SIZE AND DISTRIBUTION

In the year 2005, the world population is estimated to have reached 6.5 billion, more than two and a half times the level in 1950; according to the medium-variant projection of the *2004 Revision*, it is expected to reach 9.1 billion in 2050 (table I.1). (See chapter VI for assumptions and methodology underlying the projections.) The less developed regions, with 5.3 billion people in 2005, account for the vast majority of the world population (81.3 per cent). The more developed regions have an estimated population of 1.2 billion, or 18.7 per cent of the world population. More and more of the world's inhabitants are coming to reside in the less developed regions, increasing from 67.7 per cent in 1950 to a projected 86.4 per cent in 2050. Within the less developed regions in 2005, the least developed countries account for about 0.8 billion and other less developed countries for 4.5 billion. The share of the least developed countries is projected to grow from 8.0 per cent in 1950 to 19.1 per cent in 2050.

Asia, with a population of 3.9 billion in 2005, is by far the most populous major area; its share of the world population stays fairly stable over time, rising and falling slightly in the neighborhood of 55-60 per cent between 1950 and 2050. The population shares of two other major areas, however, have shifted considerably since 1950, and this shifting is expected to continue. Europe's population represented 21.7 per cent of the world population in 1950, a figure that was reduced by almost half by 2005, to 11.3 per cent. Europe's

TABLE I.1. POPULATION, BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT, 1950, 2005 AND 2050

	Population (millions)			*Percentage distribution*		
Development group or major area	*1950*	*2005*	*2050*	*1950*	*2005*	*2050*
World	2 519	6 465	9 076	100.0	100.0	100.0
More developed regions	813	1 211	1 236	32.3	18.7	13.6
Less developed regions	1 707	5 253	7 840	67.7	81.3	86.4
Least developed countries	201	759	1 735	8.0	11.7	19.1
Other less developed countries	1 506	4 494	6 104	59.8	69.5	67.3
Africa	224	906	1 937	8.9	14.0	21.3
Asia	1 396	3 905	5 217	55.4	60.4	57.5
Europe	547	728	653	21.7	11.3	7.2
Latin America and the Caribbean	167	561	783	6.6	8.7	8.6
Northern America	172	331	438	6.8	5.1	4.8
Oceania	13	33	48	0.5	0.5	0.5

share of the world population is projected to decline furthermore, to 7.2 per cent in 2050. At the same time, Africa's share of the world population has been increasing, from 8.9 per cent in 1950 to 14.0 per cent in 2005, and is projected to reach 21.3 per cent in 2050, close to Europe's share in 1950.

The social and economic disadvantages afflicting least developed countries are often vividly expressed in basic demographic indicators. In assessing the challenges to international development that are presented by these countries, it should be remembered that they account for a relatively small share of the world population: 11.7 per cent in 2005. The other less developed countries, which include China and India, the two most populous countries collectively account for 69.5 per cent of the world population.

Most of the world's population is found in a small set of very populous countries. A mere 4.8 per cent of all countries, that is, the 11 largest countries, each with an estimated population of 100 million or more in the year 2005, lay claim to 60.9 per cent of the world population (figure I.1). The vast majority of the world's countries are actually relatively small in terms of their population size—of all countries, 77.2 per cent have populations under 20 million (with almost one third of all countries having fewer than 1 million). Taken as a group, these small countries account for only 11.6 per cent of the world population, while countries with populations from 20 million to 100 million include 18.0 per cent of all countries and 27.5 per cent of all population.

Taken together, the 11 largest countries are home to more than 3.9 billion people. Jointly, China and India account for more than 37 per cent of the world population in 2005, with estimated populations of 1.3 billion and 1.1 billion, respectively (table I.2). A further 9 countries account for almost a quarter of the earth's population, namely, the United States of America, Indonesia, Brazil, Pakistan, the Russian Federation, Bangladesh, Nigeria, Japan and

Figure I.1. Distribution of countries and areas, by percentage in each population size class and by percentage share of world population in each population size class, 2005

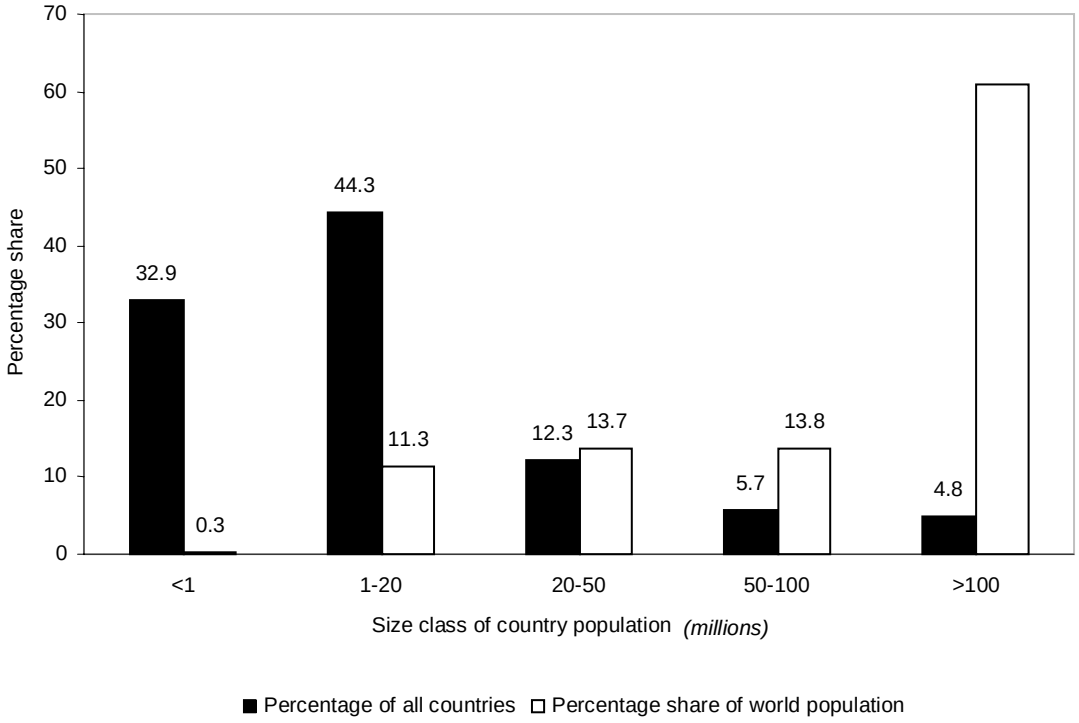


TABLE I.2. COUNTRIES AND AREAS ACCOUNTING FOR ABOUT 75 PER CENT OF THE WORLD POPULATION, ESTIMATES AND MEDIUM VARIANT, 1950, 2005 AND 2050

Rank	*Country or area*	*Population in 1950 (millions)*	*Cumulated percentage*	*Rank*	*Country or area*	*Population in 2005 (millions)*	*Cumulated percentage*	*Rank*	*Country or area*	*Population in 2050 (millions)*	*Cumulated percentage*
1	China	555	22.0	1	China	1 316	20.4	1	India	1 593	17.5
2	India	358	36.2	2	India	1 103	37.4	2	China	1 392	32.9
3	United States of America	158	42.5	3	United States of America	298	42.0	3	United States of America	395	37.2
4	Russian Federation	103	46.6	4	Indonesia	223	45.5	4	Pakistan	305	40.6
5	Japan	84	49.9	5	Brazil	186	48.4	5	Indonesia	285	43.7
6	Indonesia	80	53.0	6	Pakistan	158	50.8	6	Nigeria	258	46.6
7	Germany	68	55.7	7	Russian Federation	143	53.0	7	Brazil	253	49.4
8	Brazil	54	57.9	8	Bangladesh	142	55.2	8	Bangladesh	243	52.0
9	United Kingdom	50	59.9	9	Nigeria	132	57.3	9	Dem. Republic of the Congo	177	54.0
10	Italy	47	61.7	10	Japan	128	59.2	10	Ethiopia	170	55.9
11	France	42	63.4	11	Mexico	107	60.9	11	Mexico	139	57.4
12	Bangladesh	42	65.0	12	Viet Nam	84	62.2	12	Philippines	127	58.8
13	Ukraine	37	66.5	13	Philippines	83	63.5	13	Uganda	127	60.2
14	Pakistan	37	68.0	14	Germany	83	64.8	14	Egypt	126	61.6
15	Nigeria	33	69.3	15	Ethiopia	77	66.0	15	Viet Nam	117	62.9
16	Spain	28	70.4	16	Egypt	74	67.1	16	Japan	112	64.1
17	Mexico	28	71.5	17	Turkey	73	68.2	17	Russian Federation	112	65.3
18	Viet Nam	27	72.6	18	Iran (Islamic Republic of)	70	69.3	18	Iran (Islamic Republic of)	102	66.5
19	Poland	25	73.6	19	Thailand	64	70.3	19	Turkey	101	67.6
20	Egypt	22	74.4	20	France	60	71.2	20	Afghanistan	97	68.7
21	Turkey	21	75.3	21	United Kingdom	60	72.2	21	Kenya	83	69.6
				22	Italy	58	73.1	22	Germany	79	70.4
				23	Dem. Republic of the Congo	58	73.9	23	Thailand	75	71.3
				24	Myanmar	51	74.7	24	United Kingdom	67	72.0
								25	United Republic of Tanzania	67	72.7
								26	Sudan	67	73.5
								27	Colombia	66	74.2
								28	Iraq	64	74.9

NOTE: Countries are ranked by decreasing size of population.

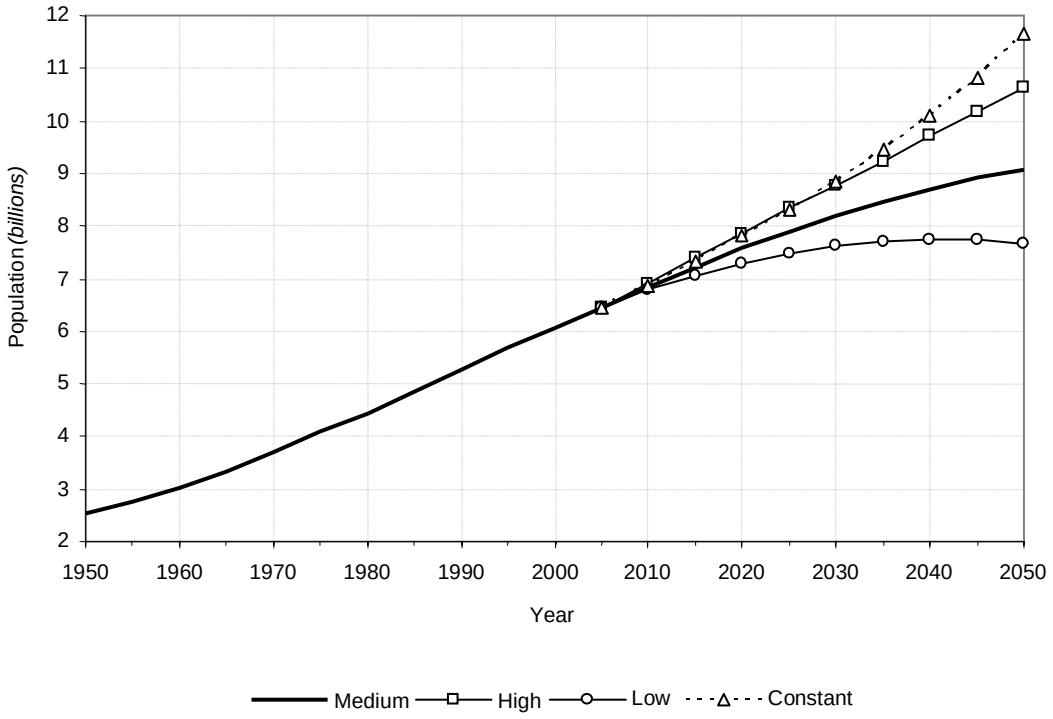
Mexico. Eight of the 11 most populous countries are considered to be less developed, leaving only 3 in the more developed regions (the United States of America, with a population of 298 million; the Russian Federation, with 143 million; and Japan, with 128 million). These large, more-developed countries account for almost 9 per cent of the world population, a considerable share but far below that of China and India.

The concentration of world population in large countries has been lessening, and this trend is projected to continue (table I.2). In 1950, the combined populations of some 21 countries accounted for three-quarters of the population of the globe, a number that increased to 24 countries in 2005. By 2050, according to the medium-variant projection, 28 countries will be needed to reach that same share. Inevitably, several countries are projected to change ranks over the next 45 years. India and China will likely trade places at the very top of the population rankings, Nigeria is expected to rise from 9th to 6th in rank, and the Russian Federation will likely fall from 7th to 17th. In addition, three least developed countries—Bangladesh, the Democratic Republic of the Congo and Ethiopia—will be among the ten most populous countries.

Population growth would be substantially greater in the absence of fertility decline (figure I.2). If fertility were to be held constant at its current level for every country, the world population would reach a total of 11.7 billion persons by the year 2050, almost doubling its present size. The extent of growth is all the more impressive when one considers that an assumed constant fertility fixes a number of countries at below-replacement fertility levels.

Alternatively, if total fertility were to adhere to the high-fertility variant (see chapter VI), usually half a child above what is assumed in the medium-variant projection but generally declining over time, the world total would reach 10.6 billion in 2050. Under the low-fertility assumption, by contrast, with total fertility rates usually set at half a child below the medium variant, world population would reach 7.7 billion, far lower but still representing an addition of 1.2 billion persons to the world's current total. Evidently, the pace and depth of fertility decline will continue to have

Figure I.2. World population, estimates and projection variants, 1950–2050



an important impact on world population levels and trends.

Anticipated mortality trends will also influence the overall population. The basic projection variants assume a single course of mortality change, usually a continuous decline, for each country. If mortality rates were held constant at their current levels, however, under the medium-fertility variant world population would rise to 8.1 billion persons in 2050, about 1 billion less than the projected levels. Although there are important differences across these projection variants, in one respect they all agree: an era of substantial world population growth lies ahead.

The estimated and projected world population levels are the product of divergent trends across the more developed and less developed regions. For the more developed regions, it seems that an era of population decline may not be too far into the future. According to the medium-variant projection, the aggregate population of this region will rise from the year 2005 estimate of 1.21 billion persons to a peak of 1.25 billion around 2030, and will then fall to 1.24 billion by the end of the projection period, yielding a net addition of only about 25 million (figure I.3A). Only the high fertility variant suggests continued growth in the populations of the more developed regions. Note that if current levels of fertility were to be maintained, as assumed in the constant fertility variant, the populations of the more developed regions would fall below the medium-variant projection. The anticipation of some fertility increases in the medium variant for the very low fertility countries accounts for this result.

For the less developed regions, the expected trajectories all involve substantial further population growth. For example, the medium-variant projection shows an increase from 5.3 billion in 2005 to 7.8 billion in 2050 (table I.1). The least developed countries, with populations totaling 759 million in 2005, will witness continued increases under all fertility variants, attaining a total of more than 1.7 billion persons by 2050 in the medium variant (figure I.3B). With continued current levels of fertility, that total would surpass 2.7 billion, and if fertility rates were to follow the high variant, the total population in the year 2050 would still reach close to 2 billion persons. Hence, the course for fertility decline remains of critical importance to the populations of the least developed countries (box I.1).

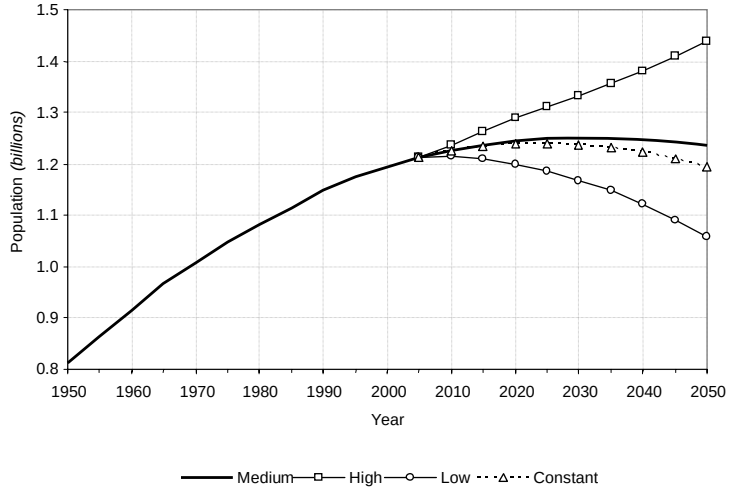
Likewise, the path of fertility decline will make an important difference to the futures of the other less developed countries, a group that includes China, India, Indonesia, Brazil, Pakistan and other populous nations. The medium-variant projection for these countries indicates continued population growth, with their total rising from 4.5 billion persons in 2005 to 6.1 billion in 2050 (figure I.3C). Continuation of current fertility rates would add an expected 1.6 billion persons to the total population of these countries (relative to the medium variant), whereas the expected total would be only 632 million above the current population if the low fertility variant were to prevail. To sum up, for all less developed regions combined, constant fertility would imply total populations of 10.5 billion in 2050, well above the 7.8 billion produced by the medium variant.

Under most projection scenarios, population decline will occur in the more developed regions at some point in the projection period (figure I.3A). The anticipated trend at the aggregate level, however, masks differences at the national and regional level. Some developed countries are expected to continue to grow, but others may experience population declines. Overall, among all countries with a population of at least 100,000 in the year 2000, according to the results of the medium variant, 44 countries are expected to experience a reduction in population between 2005 and 2050, the majority of them located in the more developed regions.

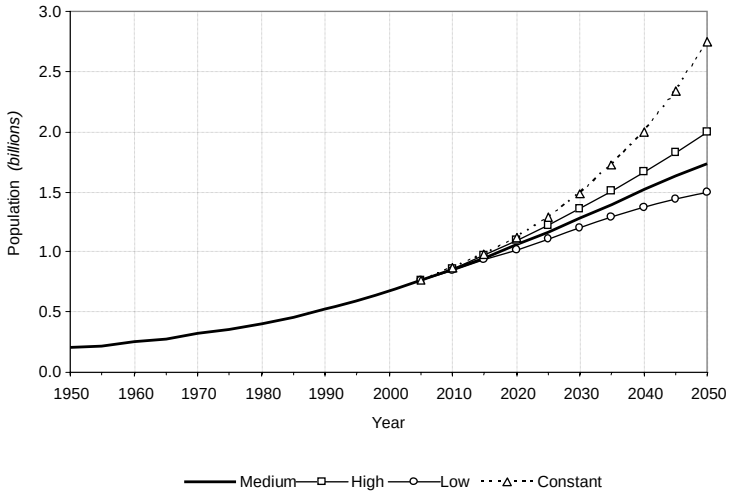
The prospects for population decline in selected countries and regions of the more developed world are quite striking (figure I.4). The most substantial population decline relative to present levels is likely to occur in Eastern Europe, which is projected to lose about 25 per cent of its current total population by 2050. The Russian Federation, which constitutes approximately 48 per cent of Eastern Europe's population in 2005, is projected to decline by some 22 per cent. Other Eastern European countries, such as Ukraine, Belarus and Bulgaria, are also expected to experience a substantial decline in their population size.

Figure I.3. Population, by development group, estimates and projection variants, 1950–2050

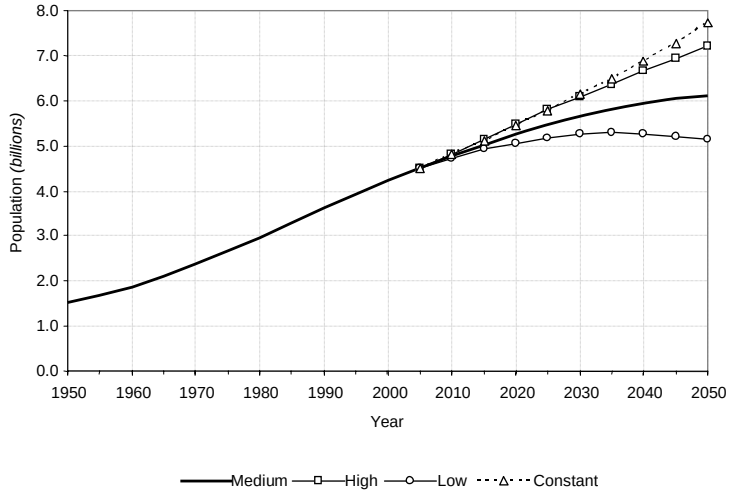
A. More developed regions



B. Least developed countries



C. Other less developed countries



BOX I.1. THE LEAST DEVELOPED COUNTRIES: ON THE RIGHT PATH, BUT STILL A WORLD APART

The least developed countries comprise 50 countries that are located mainly in Africa and Asia, plus small island developing States[1] from Oceania and the Caribbean. Jointly, these countries have recorded relatively higher fertility and mortality levels than the more developed regions and the other less developed countries, a trend that is expected to continue in the coming decades. Since the 1970s, the least developed countries have experienced, on average, the highest population growth rates in the world. Even though they represent a relatively small share of the world population, just under 12 per cent in 2005, it is expected that the overall population increment in those countries will account for 37 per cent of all world population growth during the period 2005-2050. Though fertility has been declining in most countries of this group, averaging on the whole about 5 children per woman in 2000-2005, mortality trends have not shown encouraging signs since the late 1980s. Continued population growth in already fragile economies will exacerbate problems of resource allocation for education and health care.

Southern Europe and Japan will likely see declines of about 7 and 12 per cent, respectively, by 2050. Little change is anticipated in the total populations of Western Europe, while an increase in the order of 10 per cent is projected for Northern Europe, even though some countries within that region will experience substantial declines (e.g., Latvia, Lithuania and Estonia). In both Northern and Western Europe, immigration is likely to play an important role in maintaining or slightly increasing the population size.

Population declines or only slight increases are also projected between 2005 and 2050 in some less developed countries, for example, those in the Southern Africa region, which are among the countries most highly affected by the HIV/AIDS epidemic (figure I.5). Among these countries, only Namibia is thought likely to experience substantial continued population growth, mainly because of its relatively high fertility. South Africa's population, which is by far the largest in the region, will increase slightly by about 3 per

Figure I.4. Projected population trends in European regions and selected countries, medium variant, 2005–2050

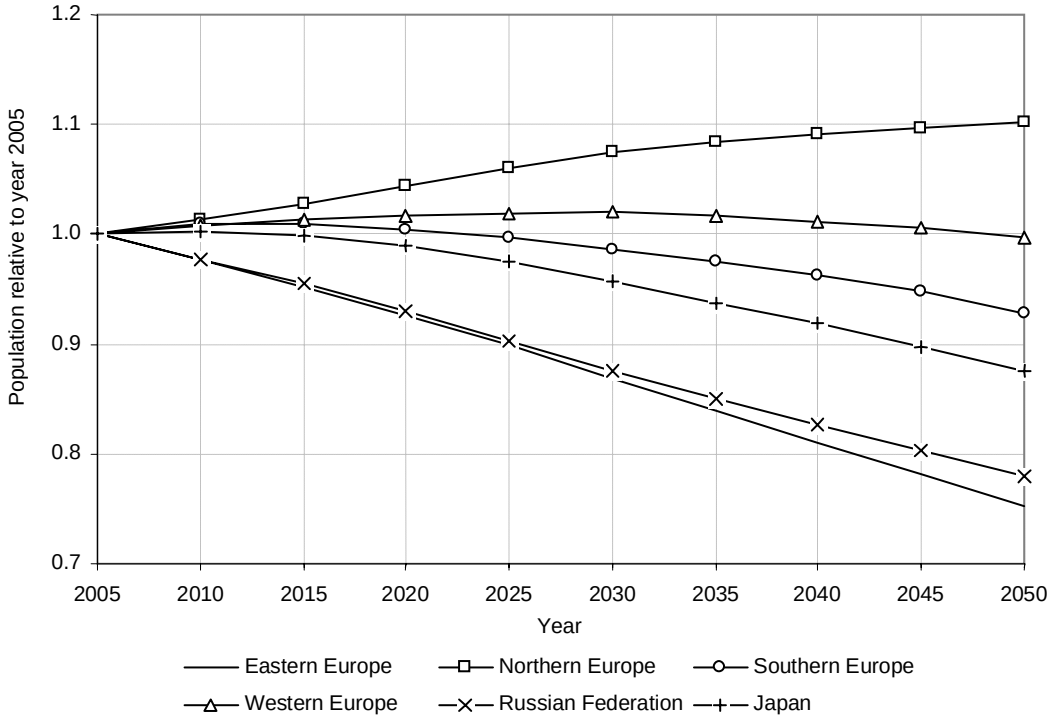
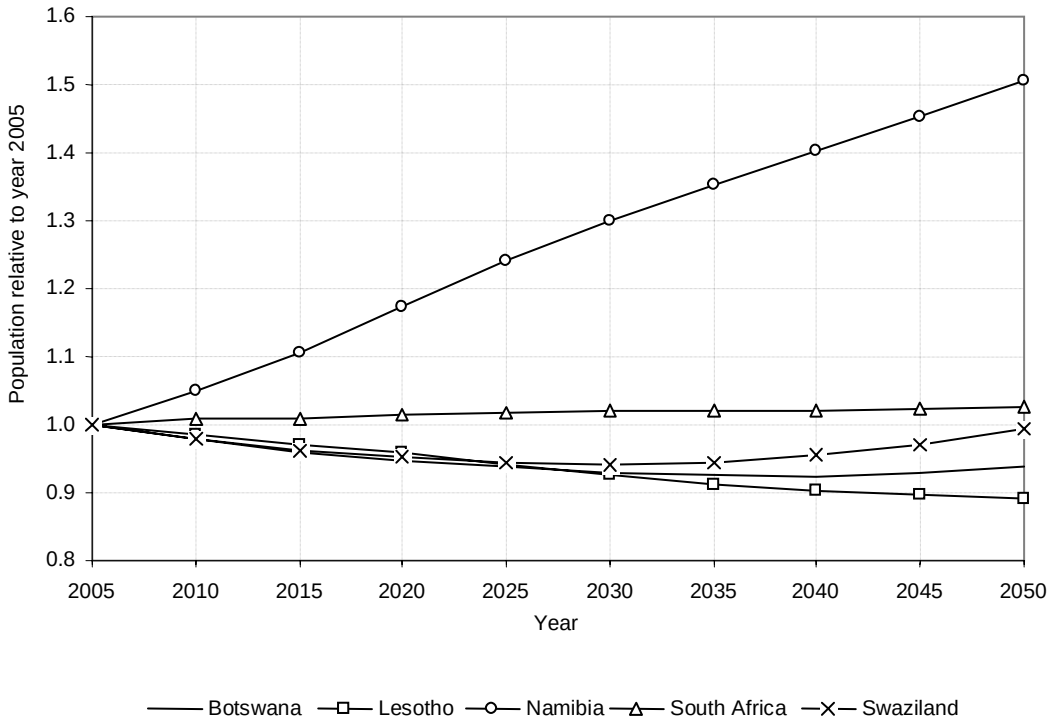


Figure I.5. Projected population trends in countries of Southern Africa, medium variant, 2005–2050



cent relative to the level in 2005, while Swaziland, following a decline until 2030, should almost regain its 2005 population level by the middle of the century. Botswana is expected to experience a population loss of about 6 per cent, and for Lesotho, the expected loss is even greater, at about 11 per cent.

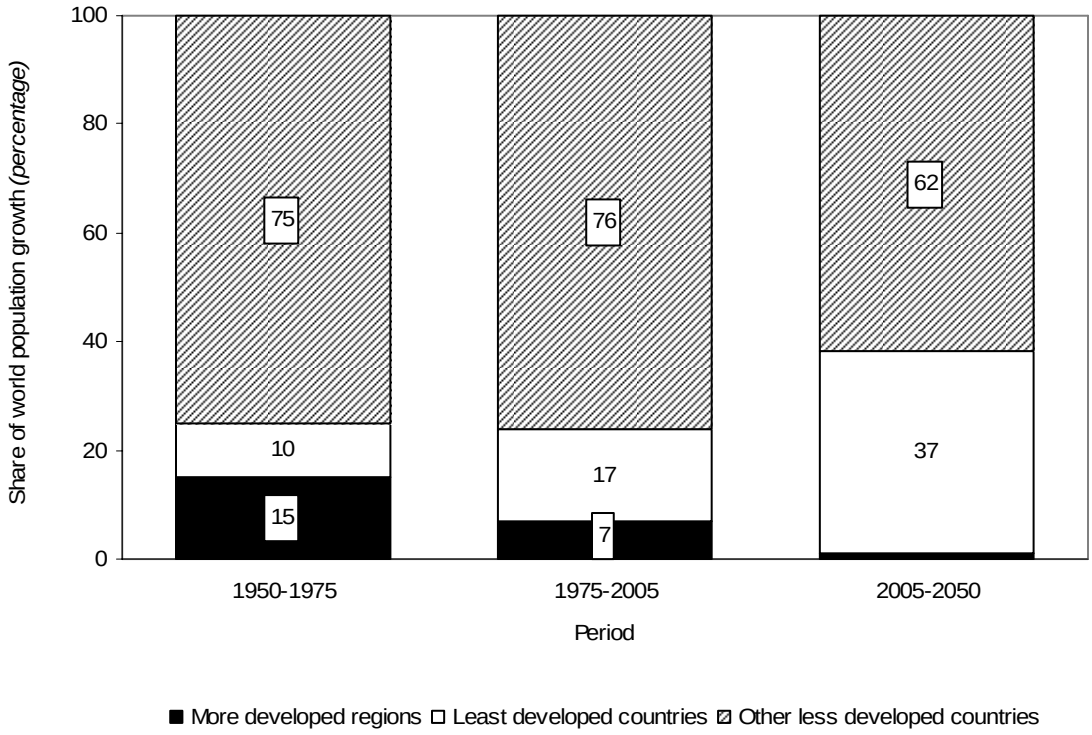
During the period 2000-2005, the estimates show that 16 countries across the world experienced a reduction in population of more than 5,000 persons, ranging from 37 thousand in Estonia to close to more than 3 million in the Russian Federation (table I.3). Except for Serbia and Montenegro, all countries included in this group are located in Eastern and Northern Europe or are successor States of the former USSR. Losses will be greater and more widespread by 2045-2050. During the last five years of the projection period, 31 countries are expected to experience population declines of 100,000 persons or more (up from 9 countries in 2000-2005), with an additional 15 countries losing more than 25,000 persons or more. Comparing 2000-2005 with 2045-2050, countries newly experiencing declines in 2045-2050 are located in Asia, Southern and Western Europe and also include Cuba and Mexico. Among the five countries that are expected to lose the largest absolute amount of population in 2045-2050, three are from Eastern Asia: China, Japan and the Republic of Korea. As in 2000-2005, the Russian Federation and Ukraine are expected to be among the countries with the biggest declines.

The different paths of future population growth or decline will result in changes in the shares of world population growth taken by the more developed regions and the least developed and other less developed countries. Of all population growth anticipated during the period 2005–2050 in the medium variant, the less developed regions will take in most of it (roughly 99 per cent) (figure I.6). Total growth for the more developed regions—projected at 25 million—is barely perceptible in relation to total population growth over the period, amounting to less than 1 per cent. This is a marked departure from what occurred in the last half-century, when population growth in the more developed regions accounted for a considerably larger share of the world growth (some 15 per cent in 1950-1975 and about 7 per

TABLE I.3. COUNTRIES AND AREAS EXPERIENCING POPULATION DECLINES OF MORE THAN 5,000 PERSONS IN 2000-2005 OR OF MORE THAN 100,000 PERSONS IN 2045-2050, ESTIMATES AND MEDIUM VARIANT

Rank	*Country or area*	*Population in 2000*	*Population in 2005*	*Population decrement in 2000-2005*	*Rank*	*Country or area*	*Population in 2045*	*Population in 2050*	*Population decrement in 2045-2050*
		(thousands)					*(thousands)*		
1	Russian Federation	146 560	143 202	-3 358	1	China	1 416 926	1 392 307	-24 619
2	Ukraine	49 116	46 481	-2 635	2	Russian Federation	115 098	111 752	-3 346
3	Romania	22 117	21 711	-406	3	Japan	114 983	112 198	-2 785
4	Belarus	10 029	9 755	-274	4	Ukraine	28 481	26 393	-2 088
5	Bulgaria	7 997	7 726	-271	5	Republic of Korea	46 111	44 629	-1 482
6	Georgia	4 720	4 474	-246	6	Italy	52 256	50 912	-1 344
7	Kazakhstan	15 033	14 825	-208	7	Poland	33 053	31 916	-1 137
8	Hungary	10 226	10 098	-128	8	Germany	79 455	78 765	-690
9	Poland	38 649	38 530	-120	9	Romania	17 425	16 757	-668
10	Republic of Moldova	4 275	4 206	-69	10	Spain	43 185	42 541	-643
11	Lithuania	3 500	3 431	-69	11	Cuba	10 212	9 749	-463
12	Latvia	2 373	2 307	-66	12	Kazakhstan	13 543	13 086	-458
13	Armenia	3 082	3 016	-66	13	France	63 523	63 116	-407
14	Czech Republic	10 267	10 220	-48	14	Thailand	74 935	74 594	-341
15	Serbia and Montenegro	10 545	10 503	-42	15	Belarus	7 342	7 017	-325
16	Estonia	1 367	1 330	-37	16	Bulgaria	5 349	5 065	-284
					17	Czech Republic	8 718	8 452	-266
					18	Hungary	8 499	8 262	-237
					19	Sri Lanka	23 779	23 554	-225
					20	Georgia	3 186	2 985	-202
					21	Serbia and Montenegro	9 621	9 426	-195
					22	Slovakia	4 772	4 612	-160
					23	Republic of Moldova	3 456	3 312	-144
					24	Greece	10 868	10 742	-127
					25	Dem. People's Rep. of Korea	24 318	24 192	-126
					26	Croatia	3 806	3 686	-120
					27	Bosnia and Herzegovina	3 289	3 170	-118
					28	Lithuania	2 682	2 565	-118
					29	Portugal	10 832	10 723	-109
					30	Mexico	139 123	139 015	-108
					31	Netherlands	17 243	17 139	-104

Figure I.6. Share of world population growth, by development group, estimates and medium variant, 1950–2050



cent in 1975-2005). By contrast, the least developed countries will account for some 37 per cent of all population growth in the next 45 years, up from about 10 per cent during the 1950-1975 period. The other less developed countries, which accounted for about three-quarters of the world population growth during the past 55 years, are expected to see their share reduced to close to 62 per cent during the period 2005-2050.

At present, some 76 million people are added annually to the world population; about 95 per cent of that growth occurs in less developed regions. Seven countries account for over half (51.1 per cent) of that net addition: India (21.7 per cent); China (11.0 per cent); Pakistan (4.0 per cent); and from 3.7 to 3.4 per cent each, the United States of America, Nigeria, Indonesia and Bangladesh. In the next 45 years, nine countries are expected to absorb about half (51.6 per cent) of the world's projected population increase. Listed in order of their expected additions, these are India, Pakistan, Nigeria, the Democratic Republic of Congo, Bangladesh, Uganda, the United States of America, Ethiopia and China. India alone is expected to add some 489 million people over the next 45 years, while China, although currently more populous, adds only 76 million people by virtue of its lower expected fertility rates. (China will actually be losing population by 2045-2050.) Pakistan will see its population increase by 147 million people, according to the medium projection, while Nigeria will grow by 127 million. Of the countries in this list, the only one in the more developed regions is the United States of America, which is expected to add 97 million people to its population by 2050. The population dynamics of these countries will substantially influence world population dynamics in the coming decades.

B. POPULATION GROWTH RATES

Throughout the course of human history, and partially as a consequence of high mortality levels, population growth rates were on average quite low. It was probably not until the seventeenth and eighteenth centuries that annual growth rates as high as 0.5 per cent were being sustained. From then until the dawn of the twentieth century, annual population growth at the rate of half a percentage point was the norm. But

improvements in sanitary measures as well as access to antibiotics during the twentieth century, among other factors, led to a reduction in mortality levels. Consequently, population growth accelerated to historically unprecedented rates, reaching levels of around 2 per cent annually in 1965–1970. Since that historic peak, world population growth has greatly decelerated, and if the medium projections made in the *2004 Revision* come to pass, the world will be returning to the 0.5 per cent rate of growth. The rapid growth of the twentieth century may come to be seen as an extraordinary but historically isolated phenomenon.

The annual population growth rate[2] of the world is now estimated at 1.21 per cent. For the projections, assumptions about the trajectory of fertility rates play a major role in determining the rates of growth (figure I.7). As was the case with projected population sizes (shown earlier), the constant fertility assumption generally produces the highest rate of world population growth, followed by the high-fertility variant, the medium variant and the low variant. Indeed, under the assumption of constant fertility rates, world population growth rates would be above 1.0 per cent and rising by the end of the projection period.

Because fertility decline has not occurred simultaneously in all countries (see chapter III), the pace of population growth differs considerably among development groups (figure I.8). At present, the growth rate of the more developed regions stands at 0.30 per cent per annum—about half of the norm in the eighteenth and nineteenth centuries—whereas the growth rate for the least developed countries is 2.40 per cent, far above the historical norm. The other less developed countries have an intermediate position with a growth rate of 1.27 per cent. Growth rates in all three regions are projected to decline over time under the medium-variant projection, but only the more developed regions are thought likely to enter an era of population decline during the projection period. By 2050, the combined population of the more developed regions will have been declining in absolute terms for 20 years, whereas the least developed countries will still be growing at a rate of 1.30 per cent annually.

Figure I.7. Average annual rate of change of world population, estimates and projection variants, 1950-1955 to 2045–2050

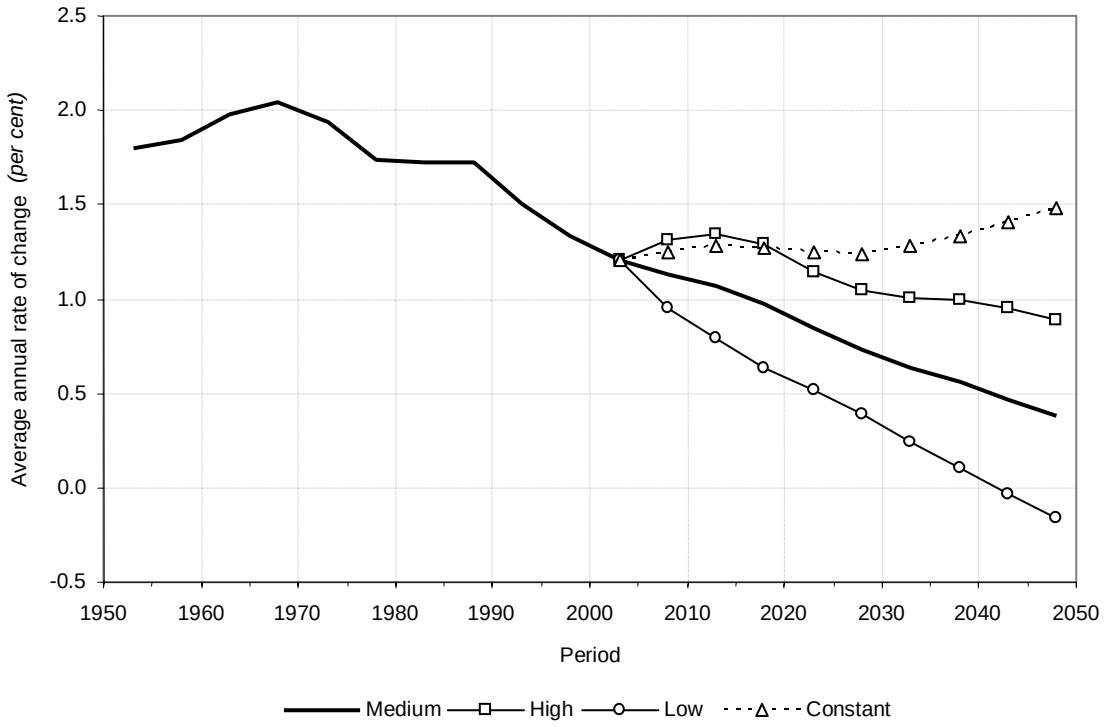
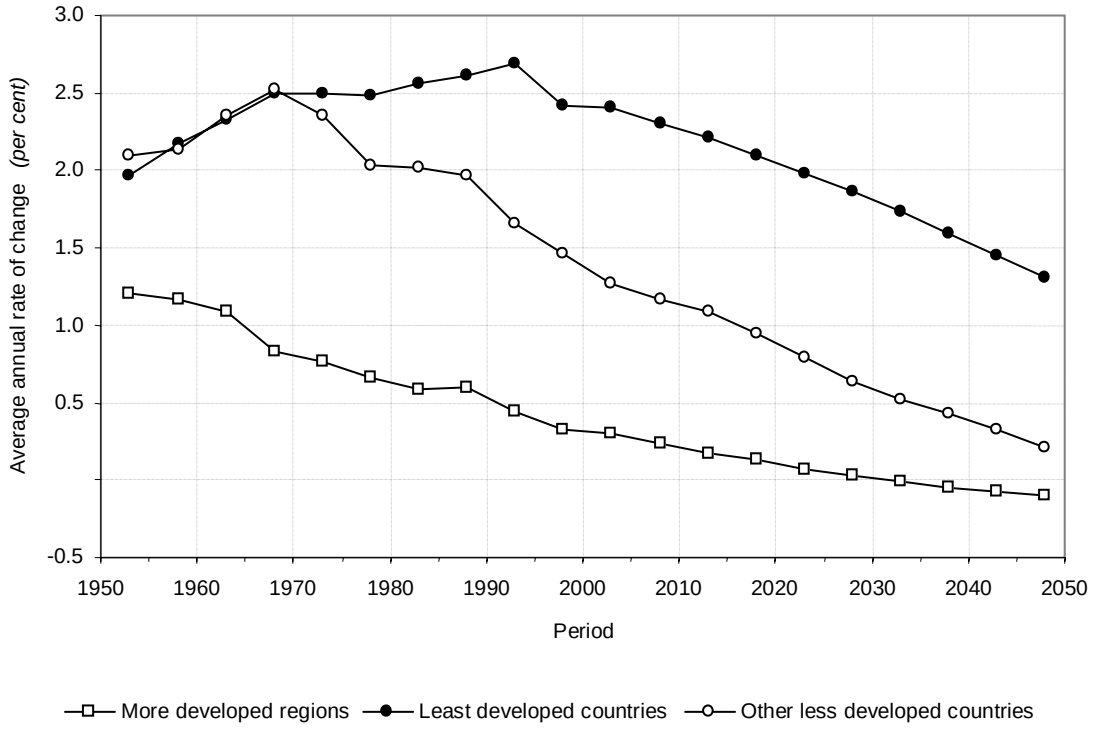


Figure I.8. Average annual rate of population change, by development group, estimates and medium variant, 1950-1955 to 2045-2050



An inspection of growth rate trajectories for the major areas of the world (table I.4 and figure I.9) shows that two will be sharply distinguishable from the others. Population growth rates in Africa are expected to be the highest throughout the projection period, falling to 1.21 per cent in 2045–2050, while those for Europe are projected to be the lowest, reaching -0.37 per cent by the end of the projection period. Growth rates of the other major areas—Asia, Latin America and the Caribbean, Northern America and Oceania—are expected to converge to between 0.19 and 0.45 per cent in 2045-2050. Noticeably, most of the convergence in terms of growth rates between these major areas actually occurred between 1950 and 2005, while growth rates from Africa and Europe actually diverged from those of the rest of the world.

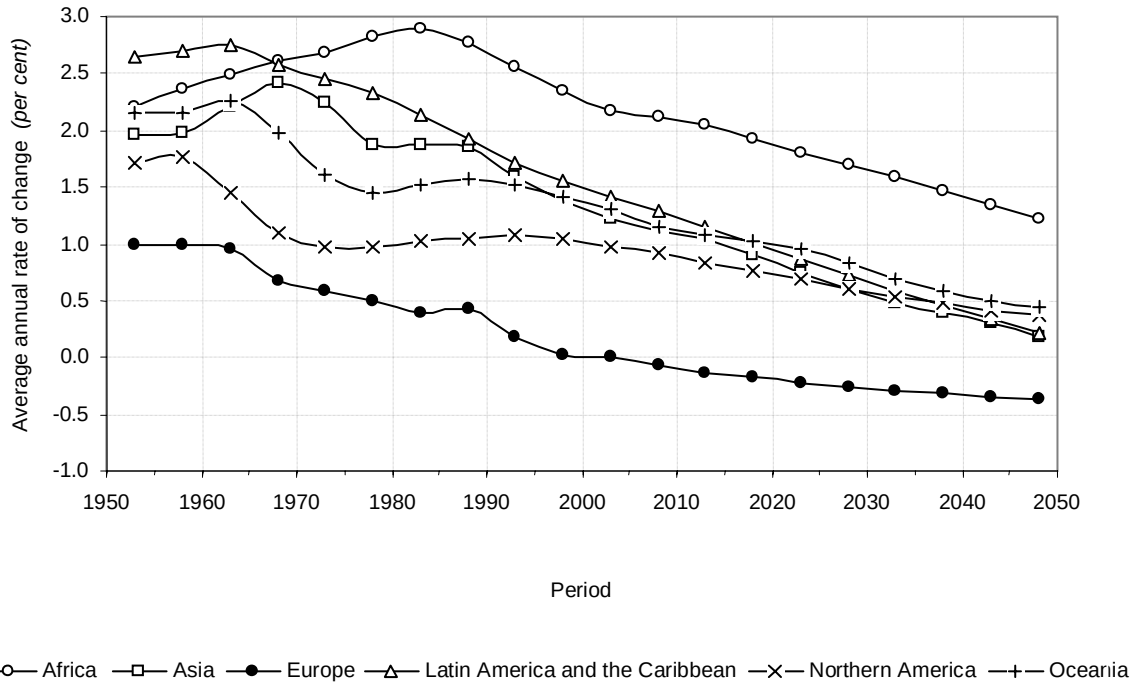
At the country level, among the ten countries with the highest population growth rates in 2000-2005, five are from Africa and five from Asia, with values ranging from around 3.40 per cent in Niger, Uganda and Chad to 6.51 per cent in the United Arab Emirates (table 1.5). Most countries included in the list have relatively high fertility levels, the main cause of such growth, but the soaring growth rates in the countries from the Arabic Peninsula (United Arab Emirates, Qatar and Kuwait) are largely due to international migration. By 2045-2050, all countries with the highest projected growth rates are in Africa, except for Afghanistan. Nevertheless, the anticipated growth rates are much lower than current ones, ranging from 1.75 per cent in Burkina Faso to 2.39 per cent in Uganda.

At the other end of the spectrum, the countries with the lowest rates of population change in 2000-2005 (i.e., fastest rates of decline) are all from Eastern and Northern Europe or are successor States of the former USSR. Estimates of growth rates range from about -0.4 per cent in Romania, Lithuania and Armenia to about -1.10 per cent in Georgia and Ukraine. A few of these countries will continue to have some of the lowest rates of change in the world by 2045-2050, joined mainly by members of the small island developing States[1].

TABLE I.4. AVERAGE ANNUAL RATE OF POPULATION CHANGE , BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT, 1950-1955, 2000-2005 AND 2045-2050

Development group or major area	*Average annual rate of change (per cent)*		
	1950-1955	*2000-2005*	*2045-2050*
World	1.81	1.21	0.38
More developed regions	1.20	0.30	-0.10
Less developed regions	2.09	1.43	0.45
Least developed countries	1.97	2.40	1.30
Other less developed countries	2.10	1.27	0.22
Africa	2.21	2.18	1.21
Asia	1.96	1.21	0.19
Europe	0.99	0.00	-0.37
Latin America and the Caribbean	2.65	1.42	0.22
Northern America	1.71	0.97	0.38
Oceania	2.15	1.32	0.45

Figure I.9. Average annual rate of population change, by major area, estimates and medium variant, 1950-1955 to 2045-2050



C. CRUDE RATES AND POPULATION MOMENTUM

Population growth rates are general indicators. They provide insights on overall trends but can sometimes conceal the driving forces exerted by age-specific schedules of fertility and mortality, whose net effects on growth can be expressed in what are referred to as intrinsic growth rates. Before emerging in the form of population growth rates, the forces of age-specific fertility and mortality must be filtered through the population's age structure. The influence of age structure is such that populations with an intrinsic tendency to decline (because of low age-specific fertility rates and/or high mortality) may sometimes grow, and those with an intrinsic tendency to grow (because

TABLE I.5. TEN COUNTRIES AND AREAS WITH THE HIGHEST AND TEN COUNTRIES AND AREAS WITH THE LOWEST AVERAGE ANNUAL RATE OF CHANGE, ESTIMATES AND MEDIUM VARIANT, 2000-2005 AND 2045-2050

2000-2005			2045-2050		
Rank	*Country or area*[1]	*Average annual rate of change (per cent)*	*Rank*	*Country or area*[1]	*Average annual rate of change (per cent)*
		A. Highest rate of change			
1	United Arab Emirates	6.51	1	Uganda	2.39
2	Qatar	5.86	2	Niger	2.12
3	Dem. Republic of Timor-Leste	5.42	3	Burundi	2.10
4	Afghanistan	4.59	4	Liberia	2.08
5	Eritrea	4.26	5	Congo	2.07
6	Sierra Leone	4.07	6	Guinea-Bissau	2.05
7	Kuwait	3.73	7	Chad	2.03
8	Chad	3.42	8	Mali	1.84
9	Uganda	3.40	9	Afghanistan	1.83
10	Niger	3.39	10	Burkina Faso	1.75
		B. Lowest rate of change			
1	Ukraine	-1.10	1	Guyana	-2.25
2	Georgia	-1.07	2	Tonga	-1.96
3	Bulgaria	-0.69	3	Samoa	-1.54
4	Latvia	-0.57	4	Ukraine	-1.52
5	Belarus	-0.55	5	United States Virgin Islands	-1.34
6	Estonia	-0.55	6	Georgia	-1.31
7	Russian Federation	-0.46	7	Micronesia (Fed. States of)	-1.19
8	Armenia	-0.43	8	St. Vincent and the Grenadines	-1.19
9	Lithuania	-0.40	9	Bulgaria	-1.09
10	Romania	-0.37	10	Cuba	-0.93
	WORLD	1.21		WORLD	0.38

[1] Countries and areas with 100,000 persons or more in 2000.

of high age-specific fertility rates and/or low mortality) may sometimes decline. The situation is further complicated by international migration. Chapters II to V will address some of these issues; to close this chapter only a preview is given here.

A country's age structure is the legacy of its demographic history and can influence its population dynamics for decades to come. Countries that have experienced rapid population growth in the past will tend to have large and increasing cohorts of potential parents. Even if these potential parents decide to have fewer offspring than did their forebears—indeed, even if they attain fertility levels that are insufficient for generational replacement—the sheer size of such parental cohorts can bring about continued, positive population growth. When lower age-specific fertility rates are ushered in against a history of rapid growth, they may need to be sustained for a considerable period of time before any reductions in population growth become evident. According to some estimates (National Research Council, 2000), the population momentum attributable to such age structure effects may account for over half of world population growth over the next half-century.

In Japan and some regions of Europe, the recent past has left a very different legacy. Here, in some cases, current age structures are such that not even an immediate rise in age-specific fertility to generational replacement levels (roughly 2.1 children per woman) would be enough to stop population decline, which would continue for

some years into the future (National Research Council, 2000). In other words, part of tomorrow's population growth dynamic is already encrypted in today's population age structure.

Graphs aid understanding the difference between the intrinsic growth tendencies established by age-specific fertility and mortality rates and the actual natural growth that results from the interaction of these rates with population age structure (figure I.10). In the graphs, the intrinsic tendencies are expressed in terms of the net reproduction rate (NRR), which may be understood as a measure of generational replacement. The NRR is the average number of daughters a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the age-specific fertility and mortality rates of a given period. It is expressed as number of daughters per woman. The NRR is also interpretable in the following terms. Consider a newly-born girl. The NRR is the average number of surviving daughters she would bear over the course of her own lifetime. The measure takes account of female mortality risks through the end of the reproductive span, although it is insensitive to mortality risks at more advanced ages.

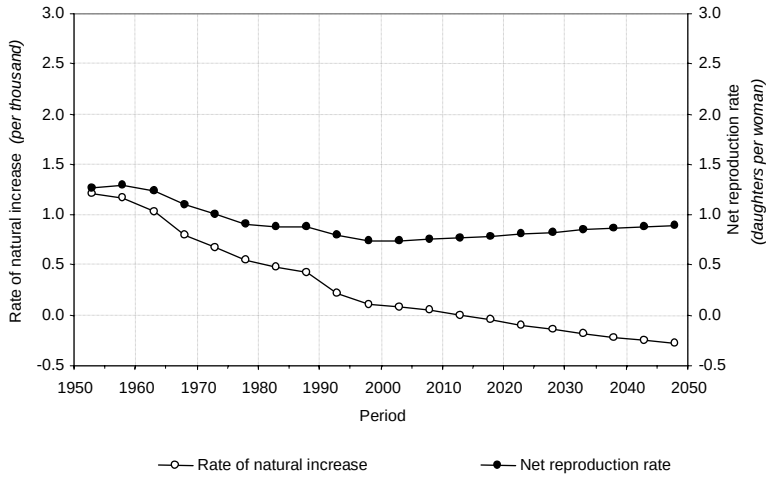
When the NRR is larger than 1.0, one newly-born girl will on average produce more than one daughter, and, in this way, will replace more than herself in a generational sense. Hence, a NRR larger than 1.0 establishes an intrinsic tendency for the population to grow. A value of NRR below 1.0 indicates insufficient fertility for generational replacement to occur and an intrinsic tendency for the population to decline. Generational replacement—no intrinsic tendency for population to either grow or decline—is indicated when NRR equals 1.0.

Natural growth rates are defined as the difference between crude birth rates and crude death rates, and can of course sometimes be negative. (For the purposes of these figures, the international migration component has been separated out.) If a population were to reach an NRR of 1.0 and continue at that level for a long period of time, natural growth (or decline) would eventually reach zero and the natural growth rate would be 0.00 per cent.

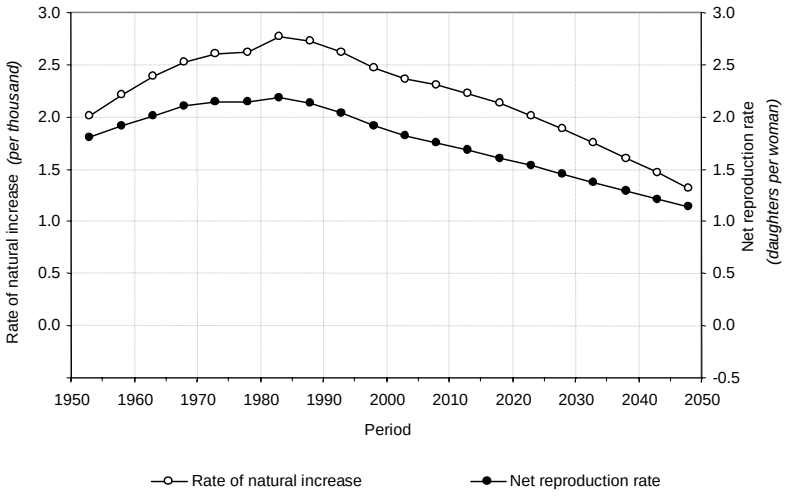
Net reproduction rates in the more developed regions fell below 1.0 in the 1970s, and an intrinsic tendency for population decline was thus established early (figure I.10A). But because of the effect of age structure, natural rates of population growth have not yet turned negative, although they are expected to do so in the coming decades. Interestingly, over the latter part of the projection period, the natural rates are projected to grow ever more negative even as the net reproduction rates turn upward—again, the effect of age structure. The least developed countries, considered as a group, are not expected to reach replacement fertility by 2050, and their time paths of intrinsic and natural population growth are roughly synchronous over the projection (figure I.10B). However, the NRR for these countries in 2045-2050 is near replacement, at 1.15 daughters per woman, whereas the rate of natural population growth will still be a robustly positive 1.32 per cent. In the other less developed countries, replacement levels of fertility are anticipated in the next few decades, mainly due to the low fertility rates expected for China. Net reproduction rates are likely to fall below 1.0 in 2020-2025. Even so, natural rates of growth are likely to remain positive throughout the projection period (figure I.10C).

Figure I.10. Rate of natural increase and net reproduction rate, by development group, estimates and medium variant, 1950-1955 to 2045-2050

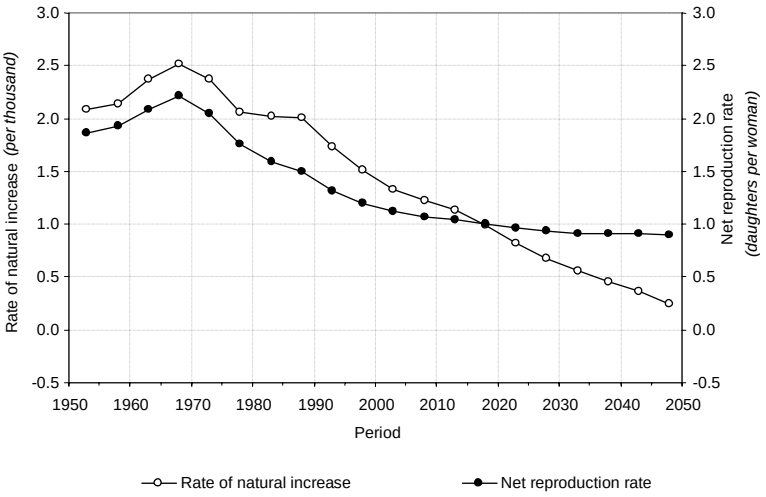
A. More developed regions



B. Least developed countries



C. Other less developed countries



NOTES

[1] Currently, fifty-one small island developing States and territories are included in the list used by the United Nations Department of Economic and Social Affairs in monitoring the progress in the implementation of the Barbados Programme of Action (United Nations, n.d.).

[2] For convenience, the terminology growth rate is sometimes used in this report, although the precise term should be the rate of change, because populations can also decline. Similarly, the natural growth rate and the NRR can also refer to population decline. In this report, rates of growth (and decline) are calculated using the exponential growth rate formula, $r = \ln(P_t/P_0)/t$.

II. POPULATION AGE COMPOSITION

The age composition of a population is important for several reasons. The proportions of children and older persons have much to do with the balance of national expenditures on schools, childcare, immunization and reproductive health, as against expenditures on old-age social security systems and health care for chronic and degenerative disease. The ratio of the population aged 65 and over to the working-age population is a fundamental consideration in the design of public pension arrangements, and the ratio has its micro-level expression in the age structure of the family, affecting the possibilities for private care of children and older persons. Political clout may also be linked to relative population proportions (Preston, 1984). Moreover, as was noted in chapter I, age structure alters the way in which the forces of fertility and mortality are expressed in rates of population growth.

In 2005 the more developed regions, least developed countries, and other less developed countries present the distinctive age profiles so often seen in the pages of demographic textbooks (figure II.1). The legacy of high fertility is clearly evident in the pyramid for the least developed countries, whose wide base testifies to the relatively high crude birth rates found in those countries.[1] Suggestions of recent fertility decline are apparent in the pyramid for the other less developed countries, which is drawn in at the base compared to that of the least developed countries. Note, too, that at the top of the age pyramid for the other less developed countries, there are somewhat more women than men. This feature is more pronounced in the population pyramid for the more developed regions, in which women clearly outnumber men at older ages, mainly a consequence of better overall survival among females (see chapter IV for more details). Also notable is the relative evenness of population proportions across age groups in the more developed regions, indicating steadier fertility levels coupled with higher survival probabilities to all ages. The smaller size of the more recent birth cohorts reflects decreasing fertility rates.

These pyramids are point-in-time snapshots of age distribution. Past levels and trends of fertility, mortality, and migration shape their contours. Reading the stories that age structures tell requires an exploration of their evolution over time.

A. THE MEASUREMENT AND EVOLUTION OF AGE STRUCTURES

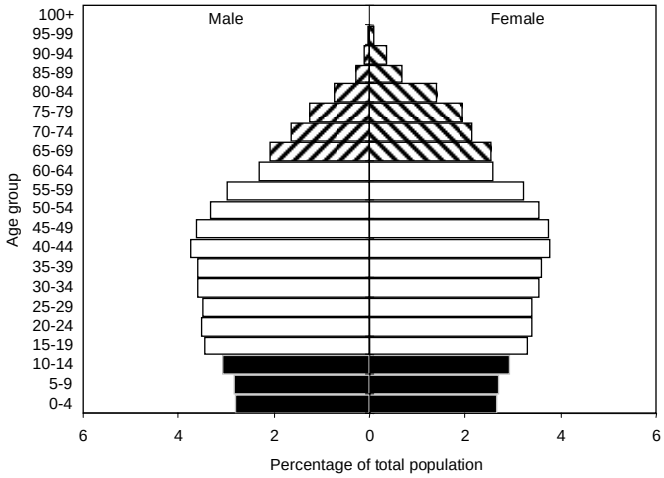
The estimated and projected changes in age structure can be assessed in two related ways: by examining the proportions of the total population in different age groups and by comparing the sizes of the different age groups. Special attention is usually given to the population aged under 15, 15-64, and 65 and over (table II.1, figure II.2).

The more developed regions show much higher proportions of older persons than the two groups of countries from the less developed regions. Furthermore, the percentage of people aged 65 and over is expected to increase in the more developed regions, rising from 15.3 per cent in the year 2005 to 25.9 per cent by 2050. Meanwhile, the proportion of children and youth under 15 in these regions will decrease slightly, from 17.0 per cent in 2005 to 15.6 per cent by 2050. In the less developed regions, qualitatively similar changes are underway, but the relative sizes of the three age groups are quite different from their sizes in more developed regions. For example, the proportion of older persons in the least developed countries is expected to rise between 2005 and 2050, but only from 3.2 per cent to 6.6 per cent, according to the medium variant. A larger change expected in these countries is a sharp decline in the proportion of children and youth under 15 years of age, which will fall from 41.8 per cent in 2005 to 28.9 per cent in 2050. Consequently the proportion of 15-64 will rise from 55.0 per cent to 64.5 per cent in the same period.

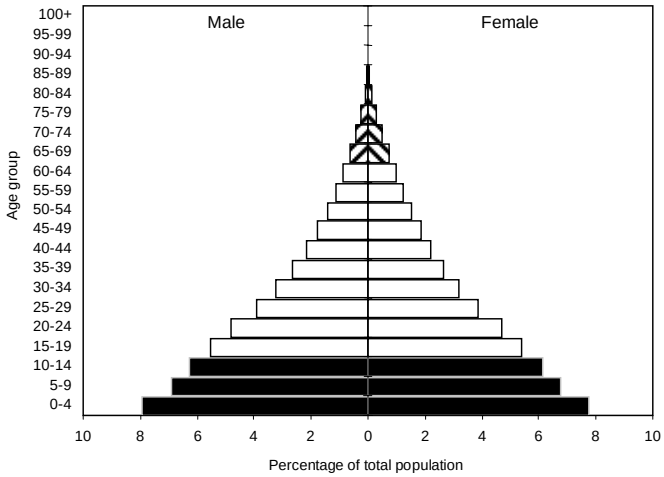
The major change anticipated for the more developed regions is thus, in effect, a transfer of population from the working ages to ages 65 and over. To express the changes differently, the

Figure II.1. Population pyramids, by development group, 2005

A. More developed regions



B. Least developed countries



C. Other less developed countries

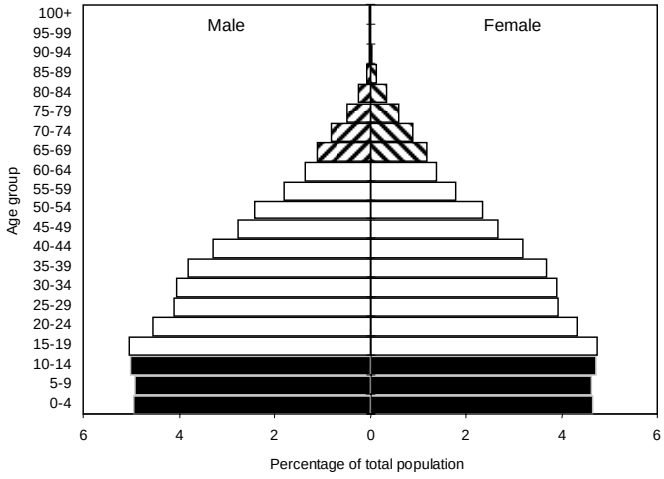


TABLE II.1. AGE COMPOSITION AND DEPENDENCY RATIO, BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT, 2005 AND 2050

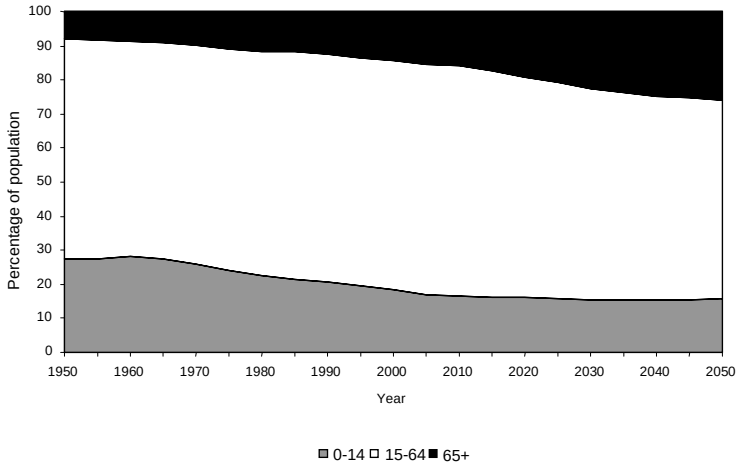
Development group or major area	Population (thousands)			Percentage			Dependency ratio (per 100)		
	0-14	15-64	65+	0-14	15-64	65+	Total	Child	Old-age
				A. 2005					
World	1 821 044	4 167 986	475 719	28.2	64.5	7.4	55.1	43.7	11.4
More developed regions	205 871	820 348	185 046	17.0	67.7	15.3	47.7	25.1	22.6
Less developed regions	1 615 173	3 347 638	290 673	30.7	63.7	5.5	56.9	48.2	8.7
Least developed countries	317 290	417 597	24 502	41.8	55.0	3.2	81.8	76.0	5.9
Other less developed countries	1 297 884	2 930 041	266 171	28.9	65.2	5.9	53.4	44.3	9.1
Africa	375 578	499 590	30 767	41.5	55.1	3.4	81.3	75.2	6.2
Asia	1 085 986	2 568 786	250 644	27.8	65.8	6.4	52.0	42.3	9.8
Europe	115 473	497 154	115 762	15.9	68.3	15.9	46.5	23.2	23.3
Latin America and the Caribbean	168 147	358 934	34 265	30.0	63.9	6.1	56.4	46.8	9.5
Northern America	67 653	221 993	40 961	20.5	67.1	12.4	48.9	30.5	18.5
Oceania	8 207	21 529	3 319	24.8	65.1	10.0	53.5	38.1	15.4
				B. 2050					
World	1 832 572	5 778 393	1 464 938	20.2	63.7	16.1	57.1	31.7	25.4
More developed regions	193 420	722 042	320 738	15.6	58.4	25.9	71.2	26.8	44.4
Less developed regions	1 639 152	5 056 350	1 144 200	20.9	64.5	14.6	55.0	32.4	22.6
Least developed countries	502 294	1 118 934	114 139	28.9	64.5	6.6	55.1	44.9	10.2
Other less developed countries	1 136 858	3 937 416	1 030 060	18.6	64.5	16.9	55.0	28.9	26.2
Africa	555 663	1 252 474	128 815	28.7	64.7	6.7	54.7	44.4	10.3
Asia	953 891	3 352 796	910 515	18.3	64.3	17.5	55.6	28.5	27.2
Europe	98 111	375 078	180 134	15.0	57.4	27.6	74.2	26.2	48.0
Latin America and the Caribbean	141 403	497 783	143 717	18.1	63.6	18.4	57.3	28.4	28.9
Northern America	74 951	270 437	92 563	17.1	61.8	21.1	61.9	27.7	34.2
Oceania	8 554	29 825	9 194	18.0	62.7	19.3	59.5	28.7	30.8

old-age dependency ratio (the ratio of population aged 65 and over to the population aged 15-64, expressed per 100) will almost double, increasing from 22.6 persons aged 65 and over per 100 persons of working age in 2005 to an expected value of 44.4 in 2050. In Europe, the situation is even more extreme, as the ratio is expected to more than double, reaching 48.0 in 2050. In other words, about two persons of working age will need to support one retiree. The European Economic Advisory Group (2005) has come to the conclusion that, under current conditions and taking into account the projected old-age dependency ratios in several European countries, most pay-as-you-go pension systems in Europe are not sustainable. The old-age dependency ratio, however, is purely a demographic measure of age structure, and it should be used with caution; evidence suggests, for example, that older persons in many societies provide support to their adult children (Morgan, Schuster and Butler, 1991; Saad, 2001).

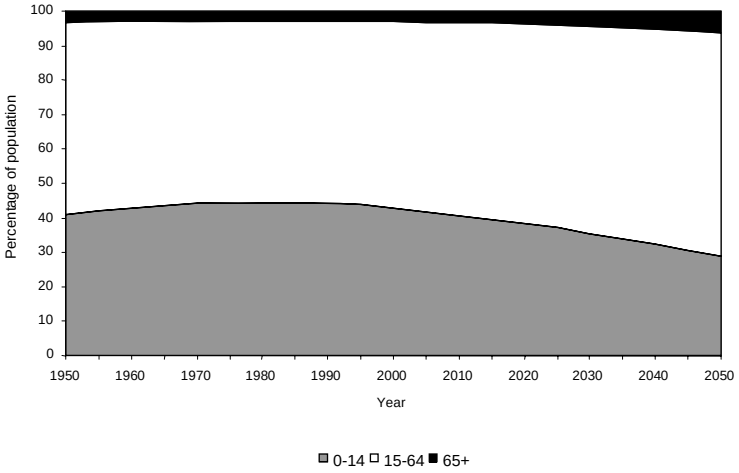
The old-age dependency ratio is expected to increase even more rapidly in the other less developed countries, more than doubling from 9.1 in 2005 to 26.2 in 2050. Because many of the world's most populous nations are in the other less developed countries category, such percentage changes imply large changes in absolute numbers of the older persons. According to these projections, the less developed regions as a whole will achieve by mid-century an age structure similar to that of today's more developed regions.

Figure II.2. Percentage of population aged 0-14, 15–64 and 65 and over, by development group, estimates and medium variant, 1950–2050

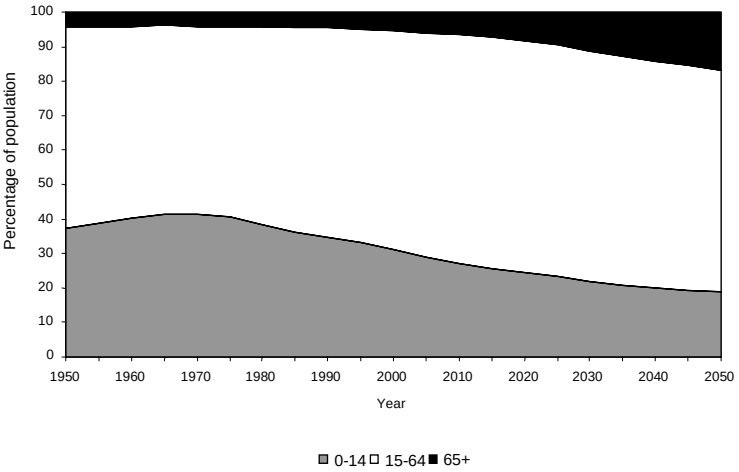
A. More developed regions



B. Least developed countries



C. Other less developed countries



In the least developed countries, the child dependency ratio (the ratio of population aged 0-14 to the population aged 15-64, expressed per 100) is projected to decline substantially, from 76.0 youth per 100 people of working age in 2005 to 44.9 in 2050. In the other less developed countries, the ratio will fall from 44.3 to 28.9 over the period 2005–2050. In the more developed regions, the child dependency ratio will rise slightly during the projection period, from 25.1 to 26.8.

A related measure of dependency and potential social support needs is the total dependency ratio, defined as the ratio of the sum of the population aged 0-14 and the population aged 65 and over to the population aged 15-64 (per 100). The total dependency ratio is based on the notion that persons under 15 and those 65 and over are likely to be in some sense dependent on the population in the working ages of 15-64 (United Nations, 2002). Those in the working ages are assumed to provide direct or indirect support to those in the dependent ages (Kinsella and Gist, 1995).

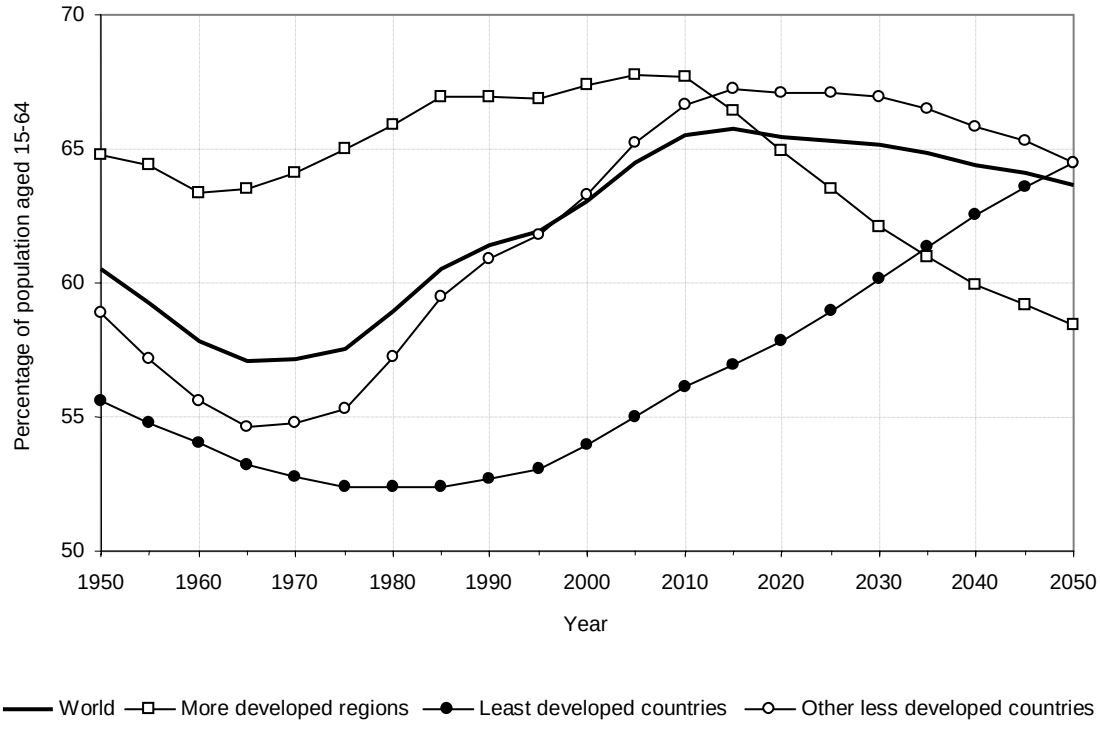
At the world level, the total dependency ratio is not projected to change significantly between 2005 and 2050, increasing only from 55.1 to 57.1. This weak trend, however, is the product of distinct and compensating changes in different regions and areas. The total dependency ratio of the more developed regions is projected to increase substantially between 2005 and 2050, from 47.7 persons in the dependent ages per 100 persons of working age to 71.2, while that of the least developed countries should decline, from 81.8 to 55.1. These respective regional trends are largely influenced by trends in Europe and Africa. In both cases, the trends are strongly determined by transfers of large cohorts from younger to older age groups. In the case of Africa, the main shifts are expected to occur between cohorts of children and youth that will be entering adulthood, while in Europe large cohorts of working-age adults will be entering old age. Among the major areas, Africa currently has the highest dependency ratio in the world (81.3), while Europe has the lowest (46.5). It is anticipated that by 2050, these two major areas will be trading positions, giving an edge to Africa with respect to the demographic bonus premise (see below).

Changes in population age structure have important effects on economic performance, as reflected in measures such as the level of national income per capita and its rate of growth. Income per capita for the total population will grow if income per capita for the working ages grows or if the per cent of the population in the working ages grows. Thus, if other things are held constant, changes in population age structure translate into changes in the growth rate of income per capita.

Over the coming decade or so, the less developed regions will be experiencing increases in their working-age proportions (figure II.3), and, by the compositional argument given above, as that proportion rises, economic growth rates will be pushed upwards[2]. Some authors describe such a period of rising working-age proportions as a demographic bonus period (e.g., Bloom, Canning and Malaney, 2000), during which compositional changes in population temporarily boost levels of income per capita and rates of economic growth. As is evident in the figure, the bonus period is expected to last through the end of the projection period in the least developed countries, but for the other less developed countries, the working-age proportion will level off and then begin to turn down beginning about 2035. In the more developed regions, the working-age proportion is expected to begin its descent soon.

The demographic bonus is produced by a particular sequence of declines in mortality and fertility rates (Bloom and Williamson, 1998; Bloom, Canning and Malaney, 2000). Declines in the early stages of the mortality transition in a population tend to be concentrated in the younger ages, generating larger-than-typical cohorts of young adult survivors. Declines in fertility, generally subsequent to the initial declines in mortality, have their age distribution effects entirely at age zero. The two factors work together to produce a bulge in the age distribution, concentrated at the younger ages. Over time the bulge moves upward through the age distribution, increasing the proportion of the working age population and lowering the total dependency ratio. Typically, a population going through the demographic transition experiences a period of growth, as mortality decline outpaces fertility

Figure II.3. Percentage of population aged 15–64, by development group, estimates and medium variant, 1950–2050



decline. Because of the process just described, the population also goes through a period of lower than normal total dependency. As the demographic transition slows, fertilily decline abates and may eventually reverse (as projected in this report), ending the era of increasingly smaller cohorts that contributed to the bulge. In addition, mortality rates decline at the older ages, increasing the proportion of older persons and reducing the share of population in the working ages. This phenomenon has already appeared in the more developed regions and is well advanced in some countries. In short, the appearance and subsequent disappearance of the demographic bonus is attributable to a sequence of transitions in fertility and mortality.

B. POPULATION AGEING

A primary demographic consequence of fertility decline, especially if combined with increases in life expectancy, is population ageing (box II.1). In 1950, just over 5 per cent of the world population was aged 65 and over. By 2005 that proportion had risen to more than 7 per cent, and it is expected to more than double over the next 45 years, reaching 16.1 per cent in 2050. Globally, the number of persons aged 65 and over will more than triple in size, increasing from 476 million in 2005 to almost 1.5 billion by 2050.

The world's major areas will each participate in the trend toward population ageing but at widely differing levels (figure II.4). Europe will have the highest share of older persons in its populations in 2050, as it does today, while Africa will continue to exhibit the lowest share, owing to its legacy of relatively high fertility and the prospects that, for many African countries, fertility will remain above replacement even at the end of the projection period. The sharpest increases in the proportion of the population aged 65 and over are expected to take place in Latin America and the Caribbean and in Asia, with percentages rising from about 6 per cent in 2005 to about 18 per cent in 2050 in both cases.

As population ageing continues to take place around the world, it becomes increasingly important to differentiate among the age groups of older people. The age group 65 and over can be distrib-

BOX II.1. DEMOGRAPHIC CHANGES AND AGE STRUCTURE

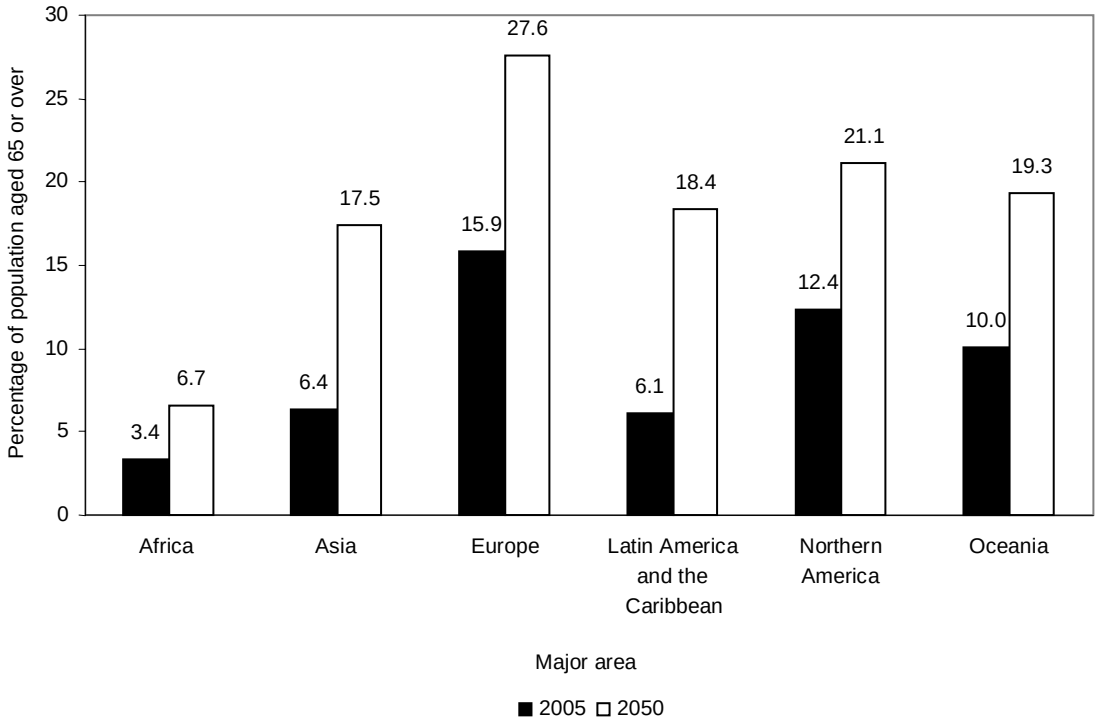
Changes in population growth rate, size and age structure are intrinsically related to changes in migration, fertility and mortality.

International migration has a comparatively weak influence on the overall population growth of a given country, though in some cases it does exert important effects on age structure.

Fertility declines have the effect of reducing the proportion of children and, on balance, raising the proportion of adults and older persons. Thus fertility decline is often associated with population ageing.

Mortality The influence of mortality decline is more complex and is dependent on the stage of mortality transition. The initial stage of mortality decline is one in which mortality risks in infancy and childhood tend to fall more, in proportional terms, than do risks for working-age adults and older persons. Declines in risk of dying at ages 0-5 exert an influence much like that of fertility increases: they tend to raise the population rate of growth and increase the proportion of children in the population. In this way, the initial stages of mortality decline have the seemingly paradoxical effect of making the population as a whole, grow younger, even as the probabilities of survival to the middle and older ages increase. Later, as levels of life expectancy approach and surpass 70 years, the continuation of mortality decline increasingly takes the form of reductions in mortality risks for older people. These changes tend to increase the proportion of older persons in the population as a whole.

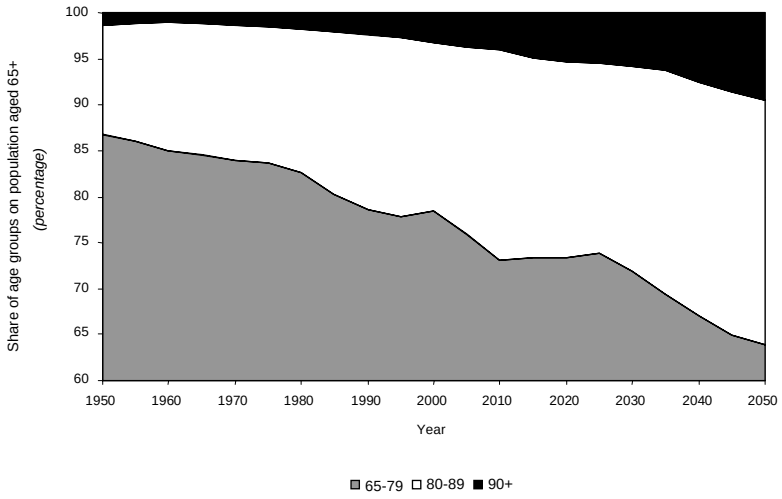
Figure II.4. Percentage of population aged 65 and over, by major area, estimates and medium variant, 2005 and 2050



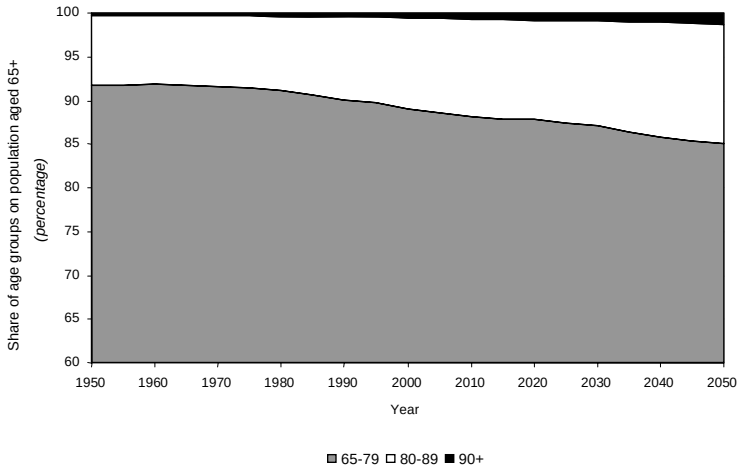
uted among three age sub-groups: 65–79, 80–89, and 90 and over (figure II.5). In many ways, the patterns seen in the age distribution of the senior populations across development groups closely resemble those seen in the age structures of populations as a whole.

Figure II.5. Age composition of people aged 65 and over, by development group, estimates and medium variant, 1950–2050

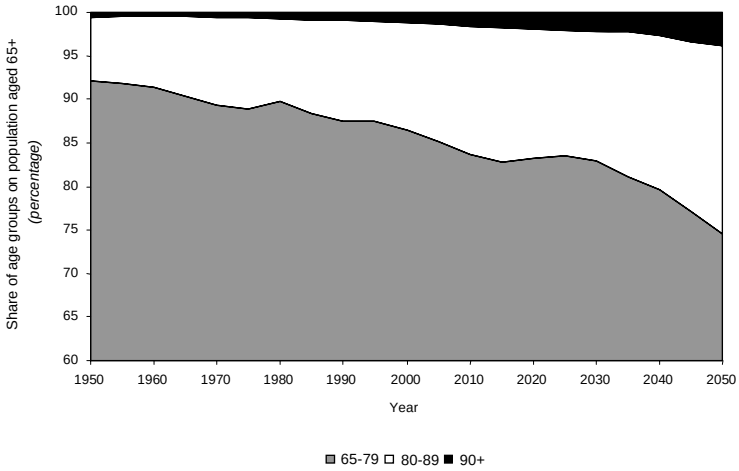
A. More developed regions



B. Least developed countries



C. Other less developed countries



In the more developed regions, for instance, the percentage of all persons aged 65 and over who are aged 90 and over is expected to increase by a factor of 2.5, rising from almost 4 per cent to over 9 per cent between 2005 and 2050, while the percentage of the youngest-old, aged 65 to 79, declines from 76 to 64 per cent and the percentage of those aged 80–89 is expected to increase from 20 to 27 per cent. Such changes in the age composition of the older population have profound implications for the distribution of health care expenditures, among other things.

Similar trends are expected to characterize the older populations of the least developed and other less developed countries, but for these regions the prospects for old-age survival are not expected to permit the percentage of those 90 and over to reach the levels anticipated for more developed regions. In the least developed countries, only slightly more than 1 per cent of all older persons are expected to be aged 90 and over by 2050, and among the other less developed countries, just under 4 per cent. Nevertheless, in the case of the other developed countries, which includes China, this would imply that the proportion of persons aged 90 and over would almost triple between 2005 and 2050 (China's proportion of persons aged 90 and over is expected to almost quadruple during that same period). Hence, although the trends stemming from improving old-age survivorship are similar across the three regions, important differences in the age composition of the older population are expected to persist.

This discussion may be summarized by reference to the median age of populations (table II.2). (The median age is the age at which 50 per cent of the population is older and 50 per cent is younger.) Increases in the median age capture, in a single number, the ageing process of a population. In 1950, the median age of the more developed regions was only 29.0 years, but is projected to rise to more than 45 years by 2050. In the least developed countries, where higher fertility rates generally prevail, the median age in 1950 was just under 20 years, and, although increases in the median age are expected over the coming years, even by the end of the projection period the median age is not likely to attain 30 years. The other less developed countries, by contrast, which in 1950 had a median age only slightly above that of the least developed countries, are expected to attain a median age of over 39 years by the end of the projection.

The differentials are even more pronounced across major areas, with Africa maintaining a median age below 20 years in both 1950 and 2005 and below 30 years in 2050, while Europe, which has already reached a median age of 39.0 years in 2005, is expected to increase to 47.1 years in 2050. At the intermediate level, Northern America and Oceania have followed similar patterns, with

TABLE II.2. MEDIAN AGE, BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT, 1950–2050

	Median age (years)		
Development group or major area	*1950*	*2005*	*2050*
World	23.9	28.1	37.8
More developed regions	29.0	38.6	45.5
Less developed regions	21.4	25.6	36.6
Least developed countries	19.6	18.9	27.3
Other less developed countries	21.7	26.8	39.3
Africa	19.0	18.9	27.4
Asia	22.0	27.7	39.9
Europe	29.7	39.0	47.1
Latin America and the Caribbean	20.2	25.9	39.9
Northern America	29.8	36.3	41.5
Oceania	28.0	32.3	40.5

median ages rising from just under 30 years in 1950 to just above 40 years in 2050. The most extreme changes in median ages are seen in Latin America and the Caribbean and in Asia, where estimated median ages in 1950 (respectively 20.2 and 22.0 years) are expected to almost double by 2050, reaching about 40 years. The median age in these two major areas is thus expected to increase from levels similar to that of Africa in 1950 to levels close to those of Northern America and Oceania in 2050.

In 2005, 11 countries were estimated to have a median age above 40 years, all of them belonging to the more developed regions. In 2050, 89 countries are projected to have a median age above 40 years, and about half of them will be from the less developed regions. Seventeen countries are expected to have a median age above 50 years in 2050. That is, population ageing, which is a pervasive reality in developed countries, is expected to become common in the developing world as well, and it will occur over a shorter time span than in developed countries.

Among the ten countries with the oldest populations in the world in 2005, all are in Europe except for Japan, which has the highest estimated median age (42.9 years; table II.3). By 2050, five of the top six countries with the oldest populations are expected to be non-European (Macao, China SAR; the Republic of Korea; Martinique; Japan and Singapore). The median age is expected to be above 50 years in all top ten oldest countries. All of the countries with very high median ages have low fertility and mortality levels.

TABLE II.3. TEN COUNTRIES AND AREAS WITH THE OLDEST AND TEN COUNTRIES AND AREAS WITH THE YOUNGEST POPULATIONS, ESTIMATES AND MEDIUM VARIANT, 2005 AND 2050

	2005			*2050*	
	Country or area[a]	*Median age (years)*		*Country or area*[a]	*Median age (years)*
		A. Oldest population			
1	Japan	42.9	1	Macao, China SAR	54.4
2	Italy	42.3	2	Republic of Korea	53.9
3	Germany	42.1	3	Martinique	53.0
4	Finland	40.9	4	Italy	52.5
5	Switzerland	40.8	5	Japan	52.3
6	Belgium	40.6	6	Singapore	52.1
7	Croatia	40.6	7	Slovenia	51.9
8	Austria	40.6	8	Ukraine	51.9
9	Bulgaria	40.6	9	Slovakia	51.8
10	Slovenia	40.2	10	Lithuania	51.7
		B. Youngest population			
1	Uganda	14.8	1	Burundi	20.3
2	Niger	15.5	2	Uganda	20.5
3	Mali	15.8	3	Liberia	20.9
4	Guinea-Bissau	16.2	4	Chad	21.0
5	Burkina Faso	16.2	5	Niger	21.5
6	Dem. Republic of the Congo	16.3	6	Guinea-Bissau	21.5
7	Malawi	16.3	7	Equatorial Guinea	21.8
8	Chad	16.3	8	Congo	21.9
9	Congo	16.3	9	Dem. Republic of the Congo	22.1
10	Liberia	16.3	10	Angola	22.9
	WORLD	28.1		WORLD	37.8

[a] Countries or areas with 100,000 persons or more in 2000.

As for the 10 countries with the youngest populations, all are in Africa in 2050 as well as in 2005. Among these countries, the median age varies slightly, from 14.8 to 16.3 years in 2005 and from 20.3 to 22.9 years in 2050. The total fertility rates in the countries included in the lists were estimated or projected at above 6 children per woman in 2000-2005 and at about 2.75 children per woman in 2045-2050.

NOTES

[1]If very finely-disaggregated age data were available, such that the proportion of newborns could be graphed at the bottom of the age pyramid, the width of the base would be interpretable as a crude birth rate. This interpretation of the bottom-most age group is not strictly correct when broader 5-year age categories are employed, because the width of the base is also affected by mortality risks in infancy and childhood. Nevertheless, in most cases, the width of the base provides a good visual indicator of fertility levels.

[2]This assumes that changes in age structure leave income per person of working age unaffected. See National Research Council (1986) for an account of the early literature on age structure, population growth, and the implications for income per worker. Birdsall, Kelley and Sinding (2003) provide a recent reassessment. There remains much controversy about the existence, direction, and strength of such effects.

III. FERTILITY

The birth of a child is a very private and personal event. At the same time, each individual birth contributes more than any other demographic event to population growth or decline. The history of the last two centuries has brought dramatic changes in family size and the number of children per woman, that has lead in recent years an increasing number of countries to experience lower fertility.

Fertility refers in this report to the number of children procreated by a woman in her lifetime. Out of the different demographic components contributing the most to population growth, fertility has historically played the greatest role far exceeding the contributions played by migrations or increased survival. Until the advent of modern contraception and the increased recognition of individual reproductive rights, human reproduction among most populations remained largely determined by sociocultural factors such as the proportion of persons married or living in unions (with the age at first marriage controlling the onset of exposure to socially accepted childbearing), the practice of induced abortions and the prevalence and duration of infertility post-partum (mostly related to breastfeeding behaviors and to a lesser extent to abstinence practices, both contributing to determine the length of the infertility interval after a birth) - Bongaarts and Potter (1983).

While the causal mechanisms responsible for the fertility decline remain elusive in most parts of the world (Montgomery and Cohen, 1998), increased infant and child survival, greater access to education and health services especially for women, expanded access and use of effective contraception methods combined with changes in individual and parental aspirations, increased women empowerment and participation into market economy have contributed to postpone childbearing, and to reduce family size.

It is in this historical context that the fertility transition occurred in the last decades through most countries still experiencing high fertility in 1950. This long-term decline of fertility from a high average number of children per woman (more than five) to a low average number of children per woman has become today an almost universal phenomenon. In fact, in recent years fertility has fallen well below replacement (approximately 2.1 children per woman) to reach historically unprecedented low levels (1.3 children per woman and below) in most developed countries as well as in several less developed ones.

A. FERTILITY LEVELS IN 2000-2005

Total fertility (see box III.1) for the world was 2.65 children per woman in 2000-2005 (table III.4). This average masks substantial heterogeneity of fertility levels among countries. During the period, 65 countries (43 of them located in the more developed regions), with a total of 2.8 billion people and accounting for 42.8 per cent of the world's population, had fertility levels below 2.1 children per woman (table III.1). On the other hand, 127 countries (all but one in the less developed regions), with a total population of 3.6 billion persons and accounting for 57.2 per cent of the world's total, had total fertility levels at or above replacement level. Among the latter, 35 countries (30 of them in the least developed category) had total fertility levels at or above 5 children per woman.

Although in 2000-2005 most developing countries were already far advanced in the transition from high to low fertility, 12 least developed countries and 1 other less developed country still showed no sign of even beginning of the transition. The share of the 13 accounted for only 3 per cent of the world population, but most of the 188 million persons living in the 12 least developed countries with no sign of a transition lived in Africa and represented 24.7 per cent of the population living in least developed countries.

In 22 other less developed countries, some fertility decline had started by 2000-2005, although the average number of children per woman was still more than five. Such countries accounted for 8.8 per cent of the population of the less developed regions and 48.2 per cent of the population of Africa.

BOX III.1. FERTILITY DEFINITIONS

Total fertility (total fertility rate, TFR) In common usage and in this report, total fertility is interpreted as the number of children per woman. Technically it is defined as the average number of children a group (birth cohort) of women would have during their lifetimes if none died before the end of the childbearing years and if they experienced the age-specific birth rates of the period in question. Total fertility is calculated by summing the birth rates at each age (the age-specific birth rates, or ASFRs) for a particular period, e.g., a single year or, for this report, a 5-year period such as 2000-2005.

High fertility Total fertility levels above 5 children per woman.

Low fertility Total fertility levels in the range of 2 to 3 children per woman.

Replacement-level fertility Total fertility levels of about 2.1 children per woman. This corresponds to the average number of children a woman needs to have to produce one daughter who survives to childbearing age. If sustained over the long run, each generation will replace itself (disregarding migration). For most countries, replacement level is close to 2.1 children per woman, but the actual levels vary slightly from country to country, depending on mortality conditions up to the end of the childbearing ages.

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

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

Overall, the bulk of the population of the developing world lived in 70 countries where total fertility levels ranged from 2.1 to 4 children per woman, countries that accounted for over 40 per cent of the world population. Already, however, 29.7 per cent of the population living in less developed regions experience below-replacement fertility levels similar to those in more developed regions. More than 42 per cent of the population living in Asia, nearly everyone in Europe and Northern America and three quarters of the population in Oceania also live in countries where fertility levels are below replacement level.

Patterns of fertility by age may throw some light on the sources of these differences between the more developed and the less developed regions (figure III.1). The least developed countries, which have a total fertility of 5.02 children per woman (table III.4), have fertility rates at all ages lying far above those seen in other less developed countries, which have a total fertility just over half that (2.58). The lowest fertility rates, especially for the younger ages, are for the more developed regions, where total fertility is only 1.56 children per woman.

Childbearing among adolescents remains high in least developed countries, with rates 2.4 times as high as those in other less developed countries and 4.7 times as high as in more developed regions. This problem is most severe in several regions still experiencing relatively high fertility (i.e., more than 5 children per woman on average), such as Middle, Western and Eastern Africa, where fertility rates for adolescents are, respectively, 3.6, 2.9 and 2.2 times as high as in other less developed countries. But high adolescent fertility also remains a serious issue in other regions, such as Latin America and the Caribbean, South-central Asia, and Southern Africa, where overall total fertility is relatively much lower (between 2 and 3 children per woman on average). In these countries, fertility rates among those less than 20 years old are 2.5 to 3 times as high as in more developed regions.

In more developed countries, where fertility is low, childbearing tends to be concentrated early in a woman's life (80 per cent of it occurring between age 20 and 35), and fertility rates at ages over 35 are low. In the least developed countries, however, fertility rates are relatively high in the older

TABLE III.1. STAGES OF THE FERTILITY TRANSITION, BY DEVELOPMENT GROUP AND MAJOR AREA, 2000-2005

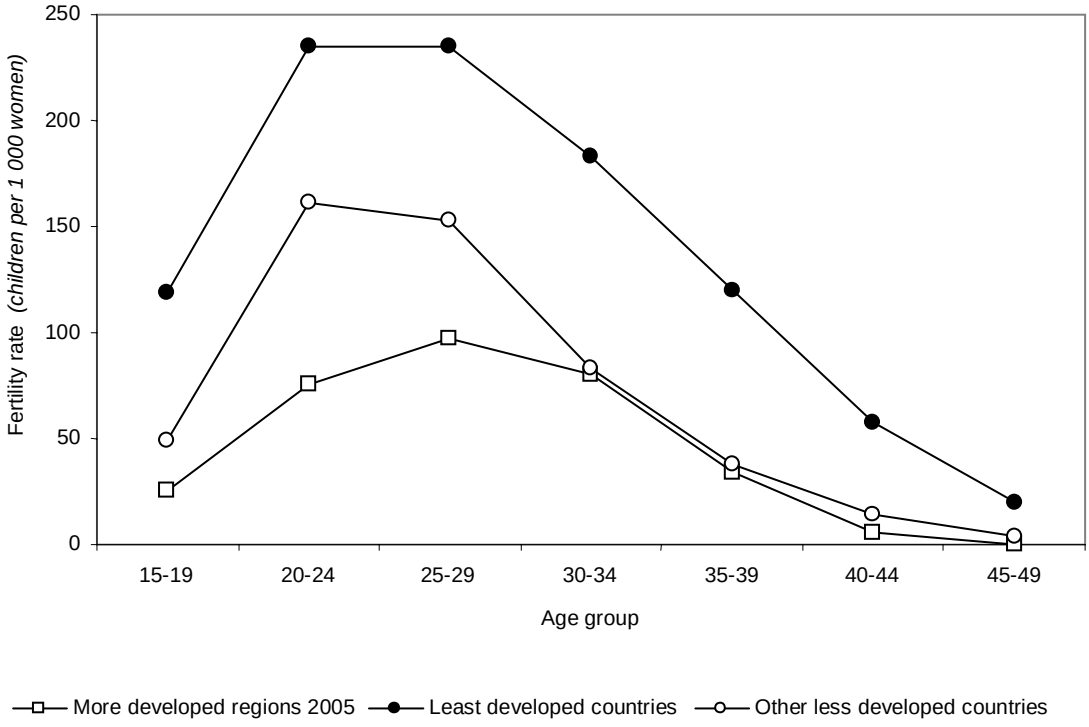
Development group or major area	*No transition*	*Incipient fertility decline* [1]	*Decline to levels between 4 and 5 children per woman*	*Decline to levels between 3 and 4 children per woman*	*Decline to levels between replacement level* [2] *and 3 children per woman* [3]	*Decline to levels at or below replacement level*[2]	*Total*
			A. Number of countries[4]				
World	13	22	21	26	45	65	192
More developed regions	—	—	—	—	1	43	44
Less developed regions	13	22	21	26	44	22	148
Least developed countries	12	18	12	5	1	—	48
Other less developed countries	1	4	9	21	43	22	100
Africa	12	19	8	9	4	2	54
Asia	1	3	7	9	16	14	50
Europe	—	—	—	—	1	38	39
Latin America and the Caribbean	—	—	1	7	20	7	35
Northern America	—	—	—	—	—	2	2
Oceania	—	—	5	1	4	2	12
			B. Population in 2005 [4] *(in millions)*				
World	192	463	336	1 527	1 178	2 767	6 463
More developed regions	—	—	—	—	3	1 208	1 211
Less developed regions	192	463	336	1 527	1 175	1 560	5 252
Least developed countries	188	275	66	180	51	—	759
Other less developed countries	4	188	270	1 348	1 124	1 560	4 493
Africa	162	437	83	100	113	11	906
Asia	30	26	234	1 390	584	1 643	3 905
Europe	—	—	—	—	3	725	728
Latin America and the Caribbean	—	—	13	37	477	34	561
Northern America	—	—	—	—	—	330	330
Oceania	—	—	7	0	2	24	33

TABLE III.1 (*continued*)

Development group or major area	*No transition*	*Incipient fertility decline* [1]	*Decline to levels between 4 and 5 children per woman*	*Decline to levels between 3 and 4 children per woman*	*Decline to levels between replacement level* [2] *and 3 children per woman* [3]	*Decline to levels at or below replacement level*[2]	*Total*
			C. Percentage of population				
World	3.0	7.2	5.2	23.6	18.2	42.8	100.0
More developed regions	—	—	—	—	0.3	99.7	100.0
Less developed regions	3.7	8.8	6.4	29.1	22.4	29.7	100.0
Least developed countries	24.7	36.2	8.7	23.7	6.7	—	100.0
Other less developed countries	0.1	4.2	6.0	30.0	25.0	34.7	100.0
Africa	17.9	48.2	9.1	11.1	12.4	1.3	100.0
Asia	0.8	0.7	6.0	35.6	14.9	42.1	100.0
Europe	—	—	—	—	0.4	99.6	100.0
Latin America and the Caribbean	—	—	2.2	6.6	85.1	6.1	100.0
Northern America	—	—	—	—	—	100.0	100.0
Oceania	—	—	21.0	0.3	4.6	74.0	100.0

[1] Fertility has declined, but is still more than five children per woman.
[2] Replacement level assumed to be 2.1 children per woman.
[3] Including Argentina and Uruguay, which had experienced an early transition to low fertility but had not reached levels at or below replacement level by 2000-2005.
[4] Figures refer to the 192 countries for which information on fertility is available.

Figure III.1. Age-specific fertility rates, by development group, 2000-2005



reproductive ages, and rates for women aged 45-49 are almost as high as those for those age 15-19 in the more developed world.

In recent decades, however, the situation has improved in part of the developing world. Fertility rates at ages 30-34 and older, for instance, are already nearly as low in other less developed countries as in the more developed regions, and in both cases are very low at ages 40–44 and 45–49. In the least developed countries, however, it is not uncommon for women to give birth in their 40s, an age range in which women tend to face elevated risks in pregnancy, labor and delivery. Overall, 21.0 per cent of all births in these countries still happen at age 35 or older compared to 11.7 per cent in other less developed countries and 11.8 per cent in more developed regions.

B. LOW FERTILITY COUNTRIES AND BELOW-REPLACEMENT FERTILITY IN 2000-2005

As of 2000-2005, fertility had reached historically unprecedented low levels (below 1.3 children per woman) in 15 developed countries, all located in Southern and Eastern Europe. But very low fertility is not limited to the more developed regions (box III.2). Of the 148 countries and territories in the less developed regions for which fertility data are available, some 22 have below-replacement fertility (table III.1). While a detailed examination of the main motivations for low fertility is beyond the scope of this chapter, further details about reproductive behaviour among populations with below-replacement fertility can be found in two recent United Nations reports (2000, 2003) and several demographic articles dedicated to this topic (Morgan, 2003; Goldstein, Lutz and Testa, 2003; Billari and Kohler, 2004).

C. HIGH FERTILITY COUNTRIES IN 2000-2005

Fertility has declined below 5 children per woman in 113 out of 148 less developed countries, but it remains above 5 in 35 (table III.1). In 22 of these 35 high fertility countries, however, fertility started to decline within the last 10-15 years, and in 17 of them total fertility is now between 5 and 6 children.

Five countries still had a total fertility above 7 children per woman in 2000-2005 (table III.2), and

BOX III.2. BELOW-REPLACEMENT FERTILITY BY DEVELOPMENT REGION

More developed regions In 2000-2005, the lowest total fertility levels in the more developed regions were found in Ukraine (1.12 children per woman) and in the Central and Southern European countries of Czech Republic (1.17), Slovakia (1.20) and Slovenia (1.22) (table III.2). At the other end of the scale, six more developed countries had fertility above 1.85 children per women. Countries with the highest fertility were Albania (2.29 children per woman), the United States of America (2.04), Iceland (1.97) and New Zealand (1.96).

Less developed regions The lowest total fertility levels were found in the Hong Kong and Macao Special Administrative Regions of China, respectively 0.84 and 0.94 child per woman, followed by the Republic of Korea (1.23) and Armenia (1.33). China, the world's most populous country in 2005, had below-replacement fertility of 1.70 children per woman in 2000-2005. However, the second most populous country, India, had fertility of 3.07 children per woman.

TABLE III.2. TEN COUNTRIES OR AREAS WITH THE HIGHEST AND TEN COUNTRIES AND AREAS WITH THE LOWEST TOTAL FERTILITY, BY LEVEL OF DEVELOPMENT, 2000-2005

Rank	*Less developed country or area*	*Total fertility (children per woman)*	*Rank*	*More developed country or area*	*Total fertility (children per woman)*
		A. Highest			
1	Niger	7.91	1	Albania	2.29
2	Democratic Republic of Timor-Leste	7.79	2	United States of America	2.04
3	Afghanistan	7.48	3	Iceland	1.97
4	Guinea-Bissau	7.10	4	New Zealand	1.96
5	Uganda	7.10	5	Ireland	1.94
6	Mali	6.92	6	France	1.87
7	Burundi	6.80	7	Norway	1.79
8	Liberia	6.80	8	Denmark	1.75
9	Angola	6.75	9	Australia	1.75
10	Democratic Republic of the Congo	6.70	10	Luxembourg	1.73
		B. Lowest			
1	Macao, China SAR	0.84	1	Ukraine	1.12
2	Hong Kong, China SAR	0.94	2	Czech Republic	1.17
3	Republic of Korea	1.23	3	Slovakia	1.20
4	Armenia	1.33	4	Slovenia	1.22
5	Singapore	1.35	5	Republic of Moldova	1.23
6	Georgia	1.48	6	Bulgaria	1.24
7	Barbados	1.50	7	Belarus	1.24
8	Trinidad and Tobago	1.61	8	Greece	1.25
9	Cuba	1.61	9	Poland	1.26
10	Cyprus	1.63	10	Latvia	1.26

the average number of children per woman was still between 6 and 7 in 11 additional countries. The highest total fertility for 2000-2005 was for Niger (7.91 children per woman), followed by the Democratic Republic of Timor-Leste (7.79), Afghanistan (7.48), and several sub-Saharan African countries.

A review of fertility trends since 1950 shows that in 2000-2005, 13 countries (12 of them in Africa) showed little or no fertility decline (tables III.1 and III.3). While a 10 per cent decline has been commonly used as threshold to define the onset of fertility decline, several authors have recently proposed to use 5 per cent as a threshold to better

detect the early stage of the fertility transition (Bongaarts, 2002; Casterline, 2001). Use of this less stringent threshold would suggest that fertility started to decline in three high fertility countries (Angola, Mali and Afghanistan) within the last decade. Further evidence will be needed to confirm whether these countries have indeed started their fertility transition. In the other high fertility countries, recent evidence about fertility trends does not indicate that fertility started to decline in any substantial way. (In some countries, the lack of up-to-date reliable data precludes any firm conclusions.)

With the sole exception of the Congo, the 10 countries where fertility in 2000-2005 had declined by less than 5 per cent from its maximum observed value—Burundi, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Guinea-Bissau, Liberia, Niger, Sierra Leone, Uganda—are all least developed countries, and several are highly affected by the HIV/AIDS epidemic. Moreover, a number of them have been experiencing civil strife and political instability in recent years, factors that militate against the provision of basic services. The continuation of rapid population growth poses an additional serious challenge to their future development.

D. Pace of fertility decline since the 1970s

Fertility was high almost everywhere in the less developed regions in the early 1970s: 110 out of the 148 less developed countries had on average more than 5 children per woman. In the 30 years since the first World Population Conference was held in Bucharest, Romania in 1974, however, fertility has declined by 20 per cent or more in 121 less developed countries; in 49 of them the decline exceeded 50 per cent. Today women in those countries have on average half the number of children their mothers had. But the pace of fertility decline has varied substantially across regions and countries (table III.4, figure III.2).

In the least developed countries, total fertility declined by an average of 0.80 per cent annually (from 6.61 to 5.02 children per woman) between 1970-1975 and 2000-2005. Even more remarkable was the change in other less developed countries,

TABLE III.3. COUNTRIES AND AREAS WHERE THE FERTILITY TRANSITION HAD NOT BEGUN BY 2000-2005

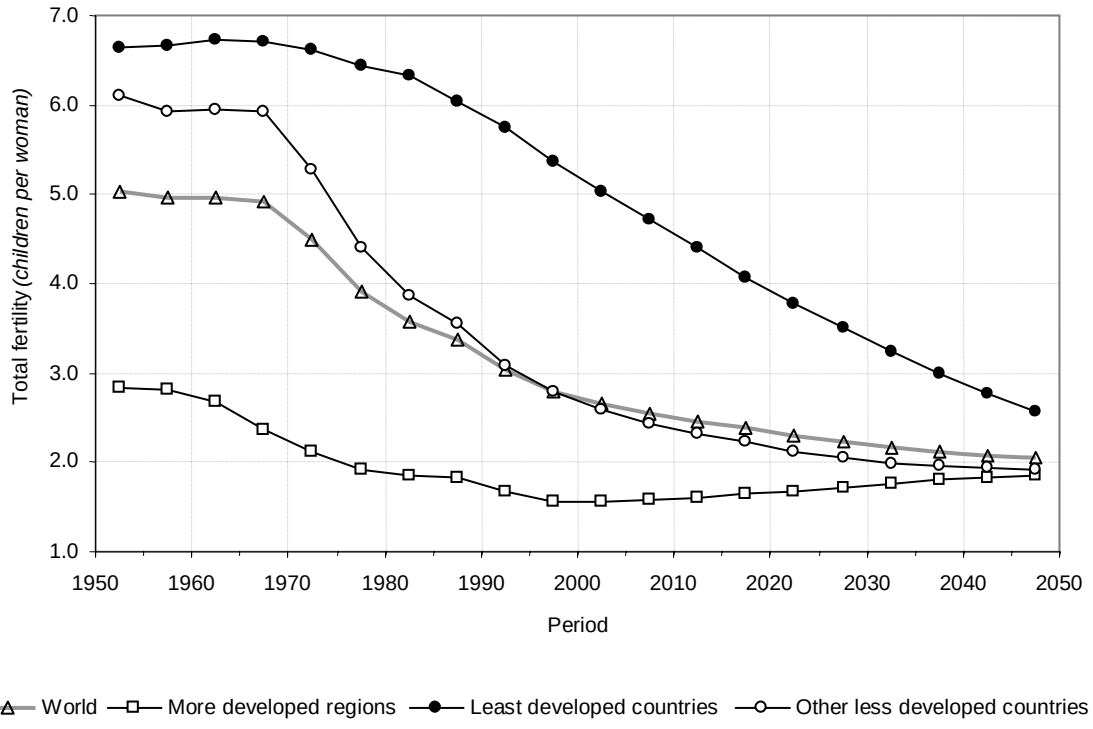
		Total fertility (children per woman)				
Major area or country	*Population in 2005 (thousands)*	*1950-1955*	*2000-2005*	*Maximum level during 1950-2005*	*2000-2005 per cent decline from maximum*	*Reference period of maximum level*
Africa						
Niger	13 957	7.70	7.91	8.20	3.6	1975-2000
Uganda	28 816	6.90	7.10	7.10	—	1965-2005
Guinea-Bissau	1 586	5.58	7.10	7.10	—	1970-2005
Mali	13 518	7.11	6.92	7.56	8.4	1970-1985
Burundi	7 548	6.80	6.80	6.80	—	1950-2005
Liberia	3 283	6.45	6.80	6.90	1.4	1965-1995
Angola	15 941	7.00	6.75	7.40	8.8	1960-1970
Dem. Republic of the Congo	57 549	6.00	6.70	6.70	—	1980-2005
Chad	9 749	5.77	6.65	6.66	0.1	1970-2005
Sierra Leone	5 525	6.09	6.50	6.50	—	1975-2005
Congo	3 999	5.68	6.29	6.29	—	1970-2005
Equatorial Guinea	504	5.50	5.89	5.89	—	1985-2005
Asia						
Afghanistan	29 863	7.70	7.48	8.00	6.5	1990-2000

NOTE: Countries are ordered by total fertility in 2000-2005 and, where that is equal, by total fertility in 1950-1955.

TABLE III.4. TOTAL FERTILITY AND PERIOD CHANGE IN TOTAL FERTILITY FOR THE WORLD AND BY DEVELOPMENT GROUP AND MAJOR AREA, 1950-1955, 1970-1975 AND 2000-2005

	Estimates			*Average annual per cent change by period*	
Development group or major area	*1950-1955*	*1970-1975*	*2000-2005*	*1950-1955 to 1970-1975*	*1970-1975 to 2000-2005*
World	5.02	4.49	2.65	-10.6	-41.0
More developed regions	2.84	2.12	1.56	-25.4	-26.4
Less developed regions	6.17	5.44	2.90	-11.8	-46.7
Least developed countries	6.64	6.61	5.02	-0.5	-24.1
Other less developed countries	6.11	5.28	2.58	-13.6	-51.1
Africa	6.72	6.72	4.97	—	-26.0
Asia	5.89	5.08	2.47	-13.8	-51.4
Europe	2.66	2.16	1.40	-18.8	-35.2
Latin America and the Caribbean	5.89	5.05	2.55	-14.3	-49.5
Northern America	3.47	2.01	1.99	-42.1	-1.0
Oceania	3.87	3.23	2.32	-16.5	-28.2

Figure III.2. Total fertility for the world and by development group, estimates and medium variant, 1950-1955 to 2045-2050



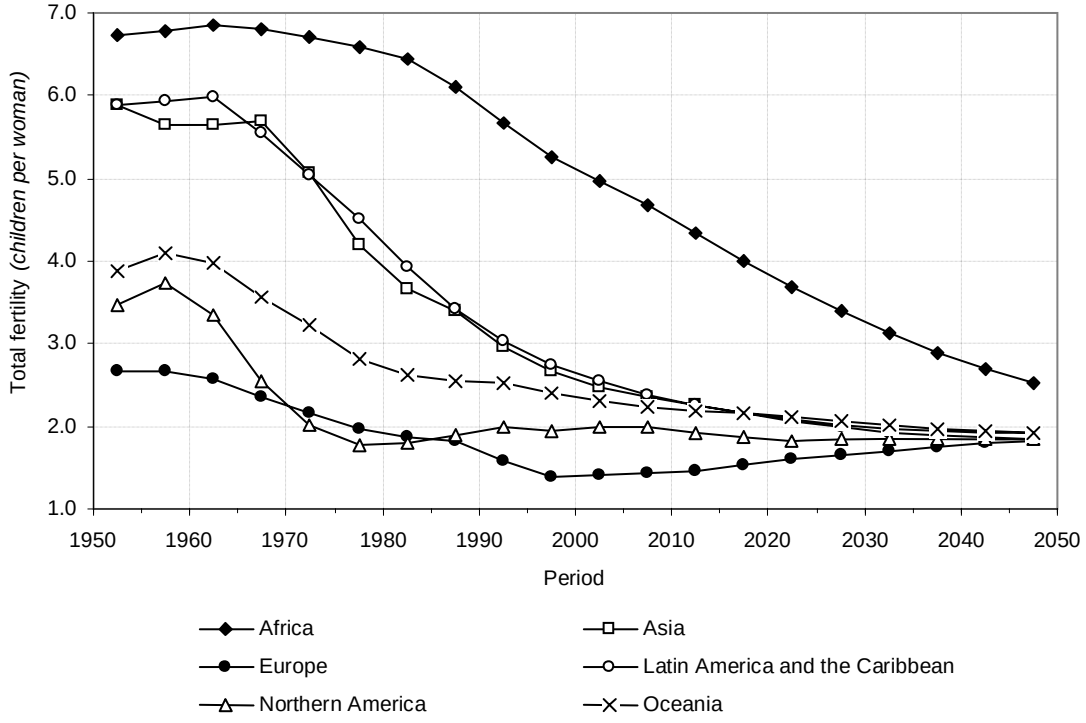
where total fertility dropped by an average of 1.70 per cent per year (from 5.28 to 2.58) during the same period (box III.3). This exceptionally fast decline occurred first in Asia and in Latin America and the Caribbean, where total fertility fell from about 5 children to about 2.5 children per woman during the three decades (figure III.3). These two regions started their fertility transitions with similar fertility levels and have followed similar trajectories. This contrasts with the situation in Africa, where there was essentially no fertility decline before 1975.

BOX III.3. FASTEST FERTILITY DECLINES SINCE 1970-1975 IN LESS DEVELOPED REGIONS

Among least developed countries, the fastest fertility declines within the last 30 years are mostly in Asia (-57.2 per cent in Myanmar, -47.3 per cent in Bangladesh, -35.9 per cent in Nepal), in insular nation-states like Cape Verde (-46.1 per cent), Solomon Islands (-40.1 per cent), Maldives (-38.1 per cent), São Tomé and Príncipe (-37.7 per cent), and Vanuatu (-32.1 per cent), and in Lesotho (-36.4 per cent) and Sudan (-33.4 per cent) (table III.5, panel B). In most of these countries women on average have 2-3 fewer children than their mothers were having in 1970-1975. Fertility was nevertheless still around 4 children per woman in 2000-2005, except for countries that have experienced the fastest decline, such as Myanmar and Bangladesh, where total fertility is around 3 or below.

While the achievements of least developed countries are impressive, fertility declined even faster in other less developed countries. In ten of them it dropped by 65 per cent or more (table III.5, panel C). Most of these ten are in Asia (Macao SAR, the Republic of Korea, Hong Kong SAR, Iran, Mongolia, Kuwait, Viet Nam, China), but also included are Algeria and Tunisia in Northern Africa. Within a generation, women in Macao and Hong Kong came to have only one child or less in 2000-2005, or on average about 2 children less than their mothers in 1970-1975. In some less developing countries, the absolute declines have been staggering. In six countries women were having 4 to 5 fewer children on average in 2000-2005 than 30 years ago. In these countries, women have today on average 2.5 children or less while a generation ago their mothers had 6 or more.

Figure III.3. Total fertility, by major area, estimates and medium variant, 1950-1955 to 2045-2050



Rapid change has not been limited to the developing world. In the more developed regions, fertility fell at an annual rate of 1.27 per cent between 1950-1955 and 1970-1975 (from 2.84 to 2.12 children per woman) (table III.4). The decline slowed somewhat over the last 30 years, leading to an average of 1.56 children per woman in 2000-2005.

Overall, fertility levels in more developed regions, and especially in Europe, have generally declined since the 1970s to below-replacement level. While in 1970-1975, 18 countries out of the 44 developed countries in the world already had below-replacement fertility, 25 years later all but one (Albania) had below-replacement fertility levels.

The 10 largest fertility declines in more developed regions in the past 30 years all occurred in countries with fertility above replacement levels in 1970-1975 (table III.5, panel C). In these countries, the average number of children per woman, which varied from 2 to well over 4 in 1970-1975, decreased by more than 47 per cent. Today women in these countries have about half the number of children their mothers had. The largest declines between 1970-1975 and 2000-2005 happened in the two Western European countries of Spain (-55.6 per cent) and Ireland (-49.0 per cent), and in Eastern European countries such as Slovakia (-52.2 per cent), the Republic of Moldova (-52.0 per cent), Romania (-51.9 per cent), and Albania (-50.9 per cent).

E. FASTEST FERTILITY DECLINES FROM 1995-2000 TO 2000-2005

During the last decade, large fertility changes have occurred in both the other less developed countries and several least developed ones (table III.6, panels B and C). With the exception of the Democratic Republic of Timor-Leste, where fertility increased over the past decade (as discussed in the next section), a number of least developed countries in Asia and Africa experienced fertility declines of 10 per cent or more between 1995-2000 and 2000-2005.

Most of the large fertility declines between 1995-2000 and 2000-2005, however, happened in the other less developed countries: first among higher fertility countries (i.e., 4 children or more per woman on average in 1995-2000) in Western Asia (Oman, Jordan and Saudi Arabia) and Africa (Namibia), secondly in Asian countries with low but above-replacement fertility (United Arab Emirates, Iran and Azerbaijan), and third among countries already experiencing below replacement fertility in 1995-2000 (Macao, China SAR; Armenia and Republic of Korea) (table III.6, panel C). Fertility in all ten other less developed countries declined during the last decade by 15 per cent or more, and in the third group it decreased by more than 19 per cent, leading to some of the lowest fertility recorded in the world.

Despite already low below-replacement fertility levels at the start of the period, a number of more developed countries in Eastern, Southern and Northern Europe also experienced substantial per cent declines (table III.6, panel A). The largest declines occurred in the Republic of Moldova (21.2 per cent) and Malta (18.9 per cent). Except for Malta and TFYR Macedonia, where women had on average about 1.5 children in 2000-2005, fertility in these countries reached historically unprecedented low levels (below 1.3 children per woman).

The *2004 Revision* reveals that the pace of fertility decline between 1995-2000 and 2000-2005 was faster than anticipated in the *2002 Revision* for eleven Asian countries and one African country (Namibia) (table III.7). In the *2002 Revision*, fertility was expected to have declined in all these countries by 5 per cent or more within the period, the observed decline was almost three times as fast in Oman and Lebanon and more than twice as fast in Maldives, Iran, Pakistan and Yemen. Except for Yemen, where fertility declined by 9.8 per cent between 1995-2000 and 2000-2005, the average number of children per woman decreased by 14 per cent or more in all other countries listed in the table.

TABLE III.5. TEN COUNTRIES AND AREAS WITH LARGEST PER CENT DECLINES IN TOTAL FERTILITY, BY DEVELOPMENT GROUP, 1970-1975 TO 2000-2005

Rank	Country or area	Total fertility (children per woman)		Change 1970-1975 to 2000-2005	
		1970-1975	2000-2005	Difference	Per cent
	A. More developed countries				
1	Spain	2.86	1.27	-1.59	-55.6
2	Slovakia	2.51	1.20	-1.31	-52.2
3	Republic of Moldova	2.56	1.23	-1.33	-52.0
4	Romania	2.62	1.26	-1.36	-51.9
5	Albania	4.66	2.29	-2.37	-50.9
6	Bosnia and Herzegovina	2.63	1.32	-1.31	-49.8
7	Ireland	3.82	1.94	-1.87	-49.0
8	TFYR Macedonia	2.96	1.53	-1.43	-48.3
9	Ukraine	2.16	1.12	-1.04	-48.1
10	Czech Republic	2.21	1.17	-1.04	-47.1
	B. Least developed countries				
1	Myanmar	5.75	2.46	-3.29	-57.2
2	Bangladesh	6.15	3.25	-2.91	-47.3
3	Cape Verde	7.00	3.77	-3.23	-46.1
4	Solomon Islands	7.23	4.33	-2.90	-40.1
5	Maldives	7.00	4.33	-2.67	-38.1
6	São Tomé and Príncipe	6.52	4.06	-2.46	-37.7
7	Lesotho	5.74	3.65	-2.09	-36.4
8	Nepal	5.79	3.71	-2.08	-35.9
9	Sudan	6.67	4.45	-2.23	-33.4
10	Vanuatu	6.11	4.15	-1.96	-32.1
	C. Other less developed countries				
1	Macao, China SAR	3.20	0.84	-2.36	-73.8
2	Republic of Korea	4.28	1.23	-3.06	-71.5
3	Tunisia	6.21	2.00	-4.21	-67.8
4	Hong Kong, China SAR	2.89	0.94	-1.95	-67.5
5	Iran (Islamic Republic of)	6.40	2.12	-4.28	-66.9
6	Mongolia	7.33	2.45	-4.89	-66.7
7	Algeria	7.38	2.53	-4.85	-65.7
8	Kuwait	6.90	2.38	-4.52	-65.5
9	Viet Nam	6.70	2.32	-4.37	-65.2
10	China	4.86	1.70	-3.16	-65.0

NOTE: Countries are ordered by per cent change.

TABLE III.6. TEN COUNTRIES AND AREAS WITH LARGEST PER CENT DECLINES IN TOTAL FERTILITY, BY DEVELOPMENT GROUP, 1995-2000 TO 2000-2005

Rank	Country or area	Total fertility (children per woman)		Change 1995-2000 to 2000-2005	
		1995-2000	2000-2005	Difference	Per cent
	A. More developed countries				
1	Republic of Moldova	1.56	1.23	-0.33	-21.2
2	Malta	1.85	1.50	-0.35	-18.9
3	Poland	1.48	1.26	-0.22	-14.9
4	Slovakia	1.40	1.20	-0.20	-14.3
5	Bosnia and Herzegovina	1.54	1.32	-0.22	-14.3
6	Lithuania	1.47	1.28	-0.20	-13.6
7	Croatia	1.54	1.35	-0.19	-12.3
8	TFYR Macedonia	1.74	1.53	-0.21	-12.1
9	Ukraine	1.22	1.12	-0.10	-8.2
10	Hungary	1.38	1.30	-0.09	-6.5
	B. Least developed countries				
1	Dem. Republic of Timor-Leste	4.92	7.79	2.88	58.5
2	Myanmar	3.00	2.46	-0.54	-18.0
3	Maldives	5.24	4.33	-0.91	-17.4
4	Nepal	4.37	3.71	-0.66	-15.1
5	Bhutan	5.02	4.40	-0.62	-12.4
6	Lesotho	4.11	3.65	-0.46	-11.2
7	São Tomé and Príncipe	4.54	4.06	-0.48	-10.6
8	Solomon Islands	4.82	4.33	-0.50	-10.4
9	Yemen	6.88	6.20	-0.68	-9.9
10	Senegal	5.60	5.05	-0.55	-9.8
	C. Other less developed countries				
1	Oman	5.10	3.78	-1.32	-25.9
2	Macao, China SAR	1.12	0.84	-0.28	-25.0
3	Armenia	1.75	1.33	-0.42	-24.0
4	Republic of Korea	1.51	1.23	-0.29	-19.2
5	Jordan	4.32	3.53	-0.79	-18.3
6	Namibia	4.80	3.95	-0.85	-17.7
7	United Arab Emirates	3.07	2.53	-0.53	-17.3
8	Iran (Islamic Republic of)	2.53	2.12	-0.41	-16.2
9	Saudi Arabia	4.86	4.09	-0.77	-15.8
10	Azerbaijan	2.20	1.85	-0.35	-15.9

TABLE III.7. SELECTED COUNTRIES AND AREAS WITH FASTER DECLINES IN TOTAL FERTILITY BETWEEN 1995-2000 AND 2000-2005 THAN ANTICIPATED IN *2002 REVISION*

		Total fertility (children per woman)		*Per cent change 1995-2000 to 2000-2005*		
Rank	*Country or area*	*1995-2000*	*2000-2005*	*2004 Revision (observed)*	*2002 Revision (anticipated)*	*Ratio of observed to anticipated (per cent)*
1	Oman	5.10	3.78	-25.9	-8.8	294.3
2	Lebanon	2.70	2.32	-14.0	-4.8	291.7
3	Yemen	6.88	6.20	-9.8	-4.0	245.0
4	Maldives	5.24	4.33	-17.4	-8.1	214.8
5	Iran (Islamic Republic of)	2.53	2.12	-16.2	-7.8	207.7
6	Pakistan	5.00	4.27	-14.6	-7.3	200.0
7	Nepal	4.37	3.71	-15.1	-8.3	181.9
8	Namibia	4.80	3.95	-17.7	-11.4	155.3
9	United Arab Emirates	3.07	2.53	-17.3	-11.2	154.5
10	Saudi Arabia	4.86	4.09	-15.9	-11.0	144.5
11	Jordan	4.32	3.53	-18.2	-13.2	137.9
12	Myanmar	3.00	2.46	-18.0	-13.5	133.3

NOTE: Ranked in descending order of ratio of observed to expected per cent change in fertility.

F. SLOW FERTILITY DECLINES FROM 1995-2000 TO 2000-2005

While many countries have experienced a rapid fertility decline in the last decade, and in some of them the pace of change was faster than the *2002 Revision* anticipated, in other high fertility countries the anticipated rapid declines did not materialize (table III.8, panel A). In the Federated States of Micronesia, for example, the observed decline was only 32.5 per cent of the expected decline. In addition, fertility in the Democratic Republic of Timor-Leste actually increased substantially over the past decade (indicated in the table by a negative sign). For this country, the recent increase of fertility, from about 5 children per woman to almost 8, is likely to be temporary, associated as it has been with the political changes that have occurred since the referendum in 1999 and independence in 2002.

The slower than expected fertility decline was not limited to high fertility countries; some low-fertility countries have even experienced unexpected reversals in fertility trends within the last decade. Between 1995-2000 and 2000-2005, fertility declined by 3 per cent or more in 21 developed countries, but it increased by 3 per cent or more in 10 developed countries.

The decline in average number of children per woman anticipated in the *2002 Revision* did not materialize for nine developed countries already experiencing very low fertility (below 1.4 children per woman) in 1995-2000 (table III.8, panel B). The *2004 Revision* reveals that fertility increased, if moderately, during this period in six countries and decreased more slowly than expected in three others. In Italy, where a small increase was expected, fertility increased more rapidly.

These recent changes favor the hypothesis that the contemporary fertility decline in many more developed countries might have reached a plateau. While this could be only a temporary slowdown or pause before further decline, it could also represent a potential reversal toward replacement fertility levels. These recent trends are still too short lived and too small to infer with confidence whether they will be sustained in the near future.

G. FERTILITY PROJECTIONS

Given the current status of countries with respect to the fertility transition and the rapid reductions of fertility that many countries in the developing world have experienced, the *2004 Revision* assumes that fertility levels will continue to drop and then

TABLE III.8. SELECTED COUNTRIES AND AREAS WITH SLOWER DECLINES IN TOTAL FERTILITY BETWEEN 1995-2000 AND 2000-2005 THAN ANTICIPATED IN *2002 REVISION*, BY LEVEL OF FERTILITY

Rank	Country or area	Total fertility (children per woman)		Per cent change 1995-2000 to 2000-2005		
		1995-2000	2000-2005	2004 Revision (observed)	2002 Revision (anticipated)	Ratio of observed to anticipated (per cent)
	A. High fertility countries or areas					
1	Dem. Republic of Timor-Leste	4.92	7.79	58.5	-11.6	-504.3
2	Micronesia (Fed. States of)	4.53	4.35	-3.8	-11.7	32.5
3	South Africa	2.95	2.80	-5.1	-9.9	51.5
4	Indonesia	2.50	2.37	-5.3	-9.5	55.8
5	Uzbekistan	3.01	2.74	-9.0	-15.5	58.1
6	Samoa	4.66	4.42	-5.2	-8.7	59.8
7	Cape Verde	4.10	3.77	-8.0	-13.1	61.1
8	Tajikistan	4.29	3.81	-11.3	-17.8	63.5
9	Bangladesh	3.55	3.25	-8.5	-12.5	68.0
10	Kenya	5.00	5.00	-	-13.0	-
	B. Low fertility countries or areas					
1	Spain	1.18	1.27	7.5	-3.4	-220.6
2	Latvia	1.16	1.26	8.7	-6.0	-145.0
3	Bulgaria	1.19	1.24	4.3	-3.5	-122.9
4	Russian Federation	1.24	1.33	7.0	-8.8	-79.5
5	Estonia	1.34	1.37	2.8	-4.7	-59.6
6	Austria	1.36	1.39	2.2	-6.5	-33.8
7	Slovenia	1.25	1.22	-2.7	-8.8	30.7
8	United Kingdom	1.70	1.66	-2.1	-5.9	35.6
9	Hungary	1.38	1.30	-6.2	-13.0	47.7
10	Italy	1.21	1.28	5.6	1.9	294.7

NOTE: Ranked according to ascending ratio of observed to expected per cent change in total fertility.

converge toward replacement level by 2045-2050 (figures III.2 and III.3). This convergence combines two different trends. The more developed regions are anticipated to undergo a fertility increase, especially in Europe, where fertility is assumed to increase by 30.7 per cent from 1.40 to 1.83 children per woman according to the medium variant during this period. Elsewhere, the trend is expected to be downward, albeit from different levels by development group and major world region (table III.9). The assumptions that lie behind the trajectories for the different groups are described in more detail in chapter VII.

The most substantial fertility decline will occur in least developed countries, where fertility is still high. Fertility in these countries will decrease by 48.8 per cent by 2045-2050, according to the medium-variant projection. In Africa, where fertility is distinctively high, the average number of children is expected to decrease by almost half during the projection period. Latin America and Asia, which have become nearly indistinguishable in their fertility levels, are expected to undergo similar fertility decreases within the next 45 years (by 27.1 per cent in Latin America and 22.7 per cent in Asia). Such regional averages, however, hide a wide range of fertility levels at the national level and more diverse trends within each region.

With respect to the 13 high fertility countries that, as of 2000-2005, had not yet exhibited clear signs of fertility decline (table III.3), the *2004 Revision* projects that their fertility will decline at a pace of about one child per decade, although none of these countries is expected to reach 2 1 children per woman by 2045-2050 in the medium variant. As a result of these trends, their population is ex-

TABLE III.9. TOTAL FERTILITY, BY DEVELOPMENT GROUP AND MAJOR AREA AND BY FERTILITY VARIANT, 2000-2005 AND 2045-2050

	Projected total fertility				*Per cent change 2000-2005 to 2045-2050*		
Development group or major area	*Estimates 2000-2005*	*Low 2045-2050*	*Medium 2045-2050*	*High 2045-2050*	*Low*	*Medium*	*High*
World	2.65	1.56	2.05	2.53	-41.1	-22.6	-4.5
More developed regions	1.56	1.34	1.84	2.34	-14.1	17.9	50.0
Less developed regions	2.90	1.59	2.07	2.56	-45.2	-28.6	-11.7
Least developed countries	5.02	2.08	2.57	3.05	-58.6	-48.8	-39.2
Other less developed countries	2.58	1.42	1.92	2.41	-45.0	-25.6	-6.6
Africa	4.97	2.03	2.52	3.00	-59.2	-49.3	-39.6
Asia	2.47	1.42	1.91	2.41	-42.5	-22.7	-2.4
Europe	1.40	1.33	1.83	2.33	-5.0	30.7	66.4
Latin America and the Caribbean	2.55	1.36	1.86	2.36	-46.7	-27.1	-7.5
Northern America	1.99	1.35	1.85	2.35	-32.2	-7.0	18.1
Oceania	2.32	1.42	1.92	2.42	-38.8	-17.2	4.3

pected to rise from 192 million in 2005 to 639 million in 2050. Whether the projected fertility decline for these countries will actually be observed is, of course, impossible to know. In any case, in 2005 this set of high fertility countries accounted for such a small share of world population (less than 3 per cent) that any continued resistance to fertility decline on their part should not greatly affect the world population projections. Even by 2050, according to the medium variant, they are expected to account for only 7 per cent of the world's population.

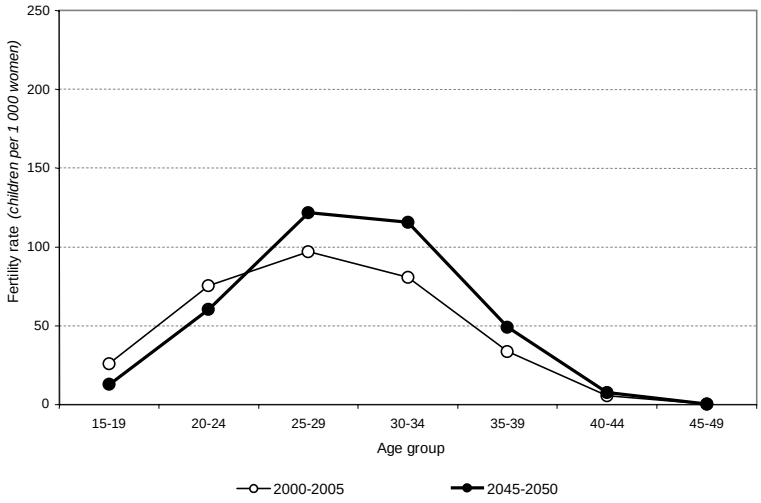
In the rest of the developing world, and especially in countries where the average number of children ranged from 2.1 to 4 per woman in 2000-2005, total fertility is generally projected to decline below 2.1 children per woman by 2050. But if the total fertility projected for a country falls to 1.85 children per woman before 2050, the projections hold total fertility constant at that level for the remainder of the projection period. Although 20 countries whose fertility in 2000-2005 was in the range of 2.1 to 4 children per woman do not reach the floor level of 1.85 children per woman, most of such countries do. Thus, for the first time, fertility levels in the less developed regions will likely fall below 2.1 children per woman at some point in the twenty-first century. By 2045-2050, the medium variant projects that 3 out of every 4 countries in the less developed regions will be experiencing below-replacement fertility. Taken as a group, the less developed regions are expected to reach replacement level fertility by mid-century.

Changes in total fertility within the next 50 years obey two different dynamics with regard to age patterns (figure III.4). In more developed regions (panel A), the assumed fertility increase toward replacement level comes from a combination of slight decreases in rates at younger ages, slight increases at ages 35-40 and relatively large increases at ages 25-34. In the other less developed regions (panel C), the fertility decline is expected to happen at all ages. The most substantial changes in age-specific fertility rates are anticipated to occur in least developed countries (panel B), where substantial decreases are expected at all ages and the fertility schedule is expected to converge toward the age-specific fertility pattern observed today for other less developed countries.

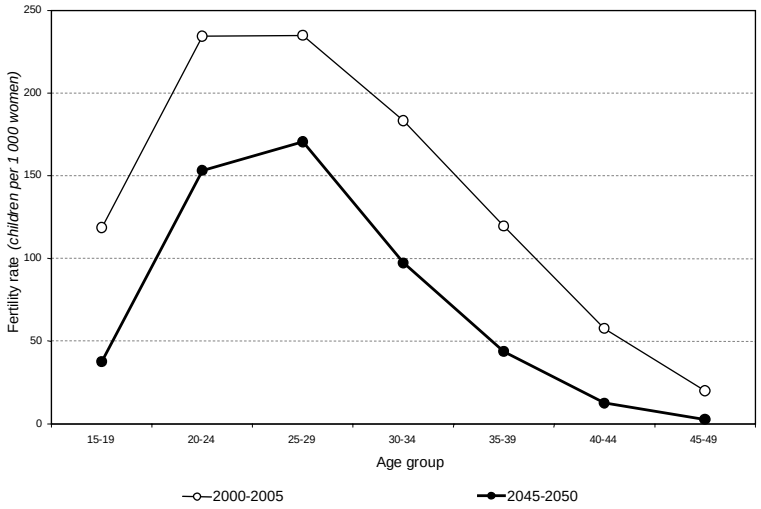
At the world level, total fertility in 2045-2050 is expected to be 2.05 children per woman, according to the medium variant (table III.9), with 1.84 children per woman in the more developed regions and 2.07 children per woman in the less developed regions. That is, although the difference in total fertility between the more and the less developed regions narrows considerably by mid-century, the less developed regions as whole are still expected to have a higher total fertility than the more developed regions. That difference persists in all projection variants. Total fertility in the low variant is

Figure III.4. Age-specific fertility rates, by development group, estimates and medium variant, 2000-2005 and 2045-2050

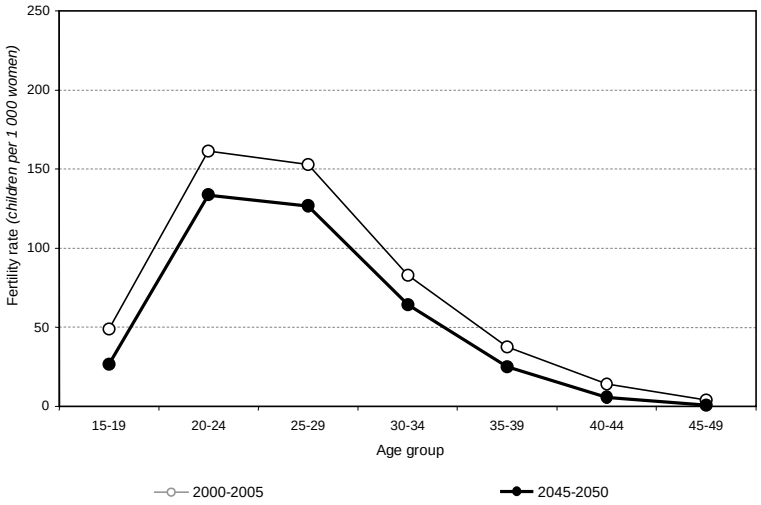
A. More developed regions



B. Least developed countries



C. Other less developed countries



expected to be 1.34 children per woman in the more developed regions and 1.59 in the less developed regions. In the high variant, total fertility is projected to be 2.34 in the more developed regions and 2.56 in the less developed regions.

In 2005, the countries with below-replacement fertility (under 2.1 children) accounted for 42.8 per cent of the world's population. Those with total fertility in the range from 2.1 to less than 4 children accounted for another 41.9 per cent (table III.10). Finally, 15.3 per cent of world's population with total fertility greater or equal to 4 children per woman. By the end of the projection period, under the assumptions of the medium-fertility variant, the world's distribution of fertility is expected to be much more concentrated at the lower end (figure III.5).

By 2050, the medium variant projects that 77.1 per cent of the world's population will live in countries with a total fertility below replacement. A total of 148 countries will be in that group, among which 22 are projected to have a total fertility equal or lower to 1.85 children per woman in 2045-2050 (table III.10). The remaining 44 countries are projected to have total fertility levels between 2.1 and 4.0 in 2045-2050, and according to the projection, no country will have total fertility levels in excess of 4 children per woman.

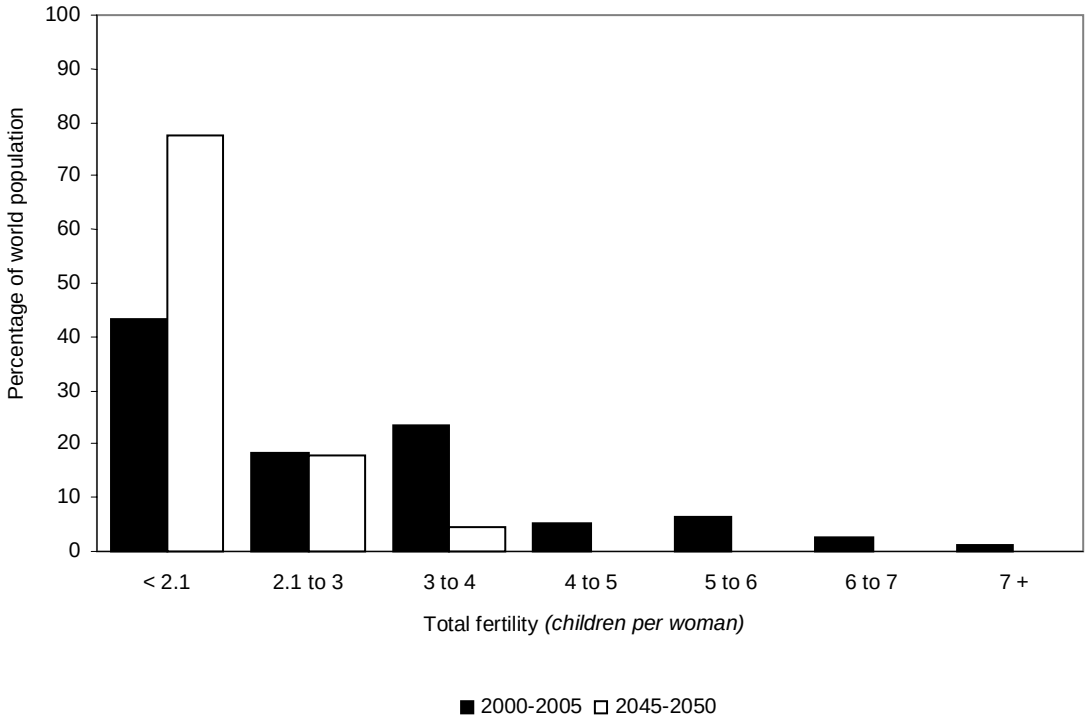
Because of their low fertility and the expectation that it will not rise markedly in the future, the countries with below-replacement fertility today are projected to have only a slightly larger population in 2050 than today (2.9 billion people instead of 2.8). In contrast, the countries whose fertility is currently above replacement level are expected to experience a marked population increase, reaching 6.2 billion by 2050 (compared to 3.7 billion in 2005) and accounting for 68.2 per cent of the global population.

TABLE III.10. POPULATION AND NUMBER OF COUNTRIES AND AREAS, 1955, 1975, 2005 AND 2050, BY TOTAL FERTILITY, 1950-1955, 1970-1975, 2000-2005 AND 2045-2050, ESTIMATES AND MEDIUM VARIANT

	Population (millions)				*Number of countries and areas*			
Total fertility	*1950*	*1975*	*2005*	*2050*	*1950*	*1975*	*2005*	*2050*
Greater or equal to 7	131	151	75	—	32	28	5	—
Between 6 and less than 7	990	342	172	—	69	36	12	—
Between 5 and less than 6	524	423	407	—	32	31	18	—
Between 4 and less than 5	32	981	336	—	14	22	21	—
Between 3 and less than 4	273	1 042	1 527	417	16	18	26	10
Between 2.1 and less than 3	558	260	1 178	1 662	24	30	45	34
Between 1.85 and less than 2.1	10	325	530	6 714	5	12	16	126
Between 1.50 and less than 1.85	—	549	1 506	280	—	15	18	21
Less than 1.50	—	—	731	1	—	—	31	1
TOTAL	2 519	4 073	6 463	9 074	192	192	192	192
				Percentage				
Greater or equal to 7	5.2	3.7	1.2	—	16.7	14.6	2.6	—
Between 6 and less than 7	39.3	8.4	2.7	—	35.9	18.8	6.3	—
Between 5 and less than 6	20.8	10.4	6.3	—	16.7	16.1	9.4	—
Between 4 and less than 5	1.3	24.1	5.2	—	7.3	11.5	10.9	—
Between 3 and less than 4	10.8	25.6	23.6	4.6	8.3	9.4	13.5	5.2
Between 2.1 and less than 3	22.2	6.4	18.2	18.3	12.5	15.6	23.4	17.7
Between 1.85 and less than 2.1	0.4	8.0	8.2	74.0	2.6	6.3	8.3	65.6
Between 1.50 and less than 1.85	—	13.5	23.3	3.1	—	7.8	9.4	10.9
Less than 1.50	—	—	11.3	0.0	—	—	16.1	0.5

NOTE: Countries or areas with 100,000 persons or more in 2000.

Figure III.5. Percentage distribution of world population, by total fertility, estimates and medium variant, 2000–2005 and 2045–2050



Total population will continue to increase until at least 2050 in almost all regions of the world (table III.11). The only exception is Europe where, even with an increase in fertility to 1.85 children per woman by 2045-2050, the total population is expected to decline by 0.24 per cent annually during the coming period. In all other areas, the continuous fertility decline toward replacement level (or a floor of about 1.85 children per woman) assumed in the low, medium and high projection variants slows down population growth but does not reverse it within the next 45 years.

This slower but nevertheless continuous population growth results from a well-documented demographic phenomenon called "population momentum" (chapter III.C; Preston, Heuveline and Guillot, 2001; Bongaarts, 1998). This can be illustrated by assuming that all countries would experience, beginning in 2000-2005, an instant-replacement fertility level. Population growth would still continue, because the large cohorts born earlier during periods of higher fertility will be moving through their reproductive years and producing a large number of children. This accumulated potential for population growth is so pervasive that all regions and areas would still be experiencing positive growth by 2050.

H. Differences between period and cohort fertility rates

Total fertility, as used in this report, is a period rate, constructed by summing the age-specific fertility rates in effect for a given time period (usually five years, e.g., 2000-2005) (box III.1). It can be interpreted as the number of children that a hypothetical cohort of women would bear over the course of their reproductive years, assuming that they all survived to age 50 and that they experienced the particular period age-specific fertility rates at each age. No real cohort will experience these exact rates, however, because period fertility rates change over time. Thus, total fertility for any short period of time during a real cohort's lifetime will usually not be equal to the actual mean number of children born to women of that cohort (a cohort rate).

The detailed calculations and projections made for the *2004 Revision* permit a comparison between total fertility estimated or projected for given time

TABLE III.11. TOTAL POPULATION, BY DEVELOPMENT GROUP AND MAJOR AREA AND BY FERTILITY VARIANT, 2000 AND 2050

	Population according to projected fertility variant from 2005 to 2050 (millions)					*Average annual rate of change for 2005-2050 (per cent)*			
	Estimates	*Instant-replacement*	*Low*	*Medium*	*High*				
Development group or major area	*2005*	*2050*	*2050*	*2050*	*2050*	*Instant-replacement*	*Low*	*Medium*	*High*
World	6 465	8 773	7 680	9 076	10 646	0.68	0.38	0.76	1.11
More developed regions	1 211	1 419	1 057	1 236	1 440	0.35	-0.30	0.05	0.38
Less developed regions	5 253	7 354	6 622	7 840	9 206	0.75	0.52	0.89	1.25
Least developed countries	759	1 166	1 497	1 735	1 994	0.96	1.52	1.85	2.17
Other less developed countries	4 494	6 188	5 126	6 104	7 213	0.71	0.29	0.68	1.06
Africa	906	1 341	1 666	1 937	2 228	0.87	1.36	1.70	2.02
Asia	3 905	5 343	4 388	5 217	6 161	0.70	0.26	0.65	1.02
Europe	728	784	557	653	764	0.16	-0.60	-0.24	0.11
Latin America and the Caribbean	561	789	653	783	930	0.76	0.34	0.74	1.13
Northern America	331	468	375	438	509	0.77	0.28	0.63	0.96
Oceania	33	48	41	48	55	0.84	0.48	0.81	1.14

periods, which are the figures presented in this report, and the estimated or projected experiences of birth cohorts over their reproductive lifetimes. The differences can be illustrated by considering the case of Eastern Europe, a region whose total fertility in 2000-2005 was the lowest recorded worldwide—1.27 children per woman on average. As of 2000-2005, little variation existed within the 10 countries in the region; total fertility varied from 1.12 for Ukraine to 1.33 for the Russian Federation.

A simple way to show how period and cohort rates may differ is to explore the estimated and projected experience of the Eastern European birth cohort of 1985-1990, women who reached their 15th birthdays and were just beginning their childbearing years during the period 2000-2005. Is 1.27, the period total fertility for 2000-2005, a reasonable estimate of eventual completed cohort fertility for these Eastern European women, who will not complete their childbearing years until 2035-2040?

If the women in question, as they passed through their childbearing years, were at each age to adhere to the changing age-specific period fertility rates assumed by the medium-variant projection, they would end their childbearing years having had not 1.27 children per woman but rather 1.46. The difference arises from the assumption applied in the projection: that fertility rates in countries now below replacement, including those in Eastern Europe, will rise and converge to an assumed long-run total fertility of 1.85 children. That is, if the projections are accurate, the 1985-1990 cohort of Eastern European women will live through (and contribute to) a period of rising age-specific and total fertility.

Several authors interpret the very low period fertility rates found today in Europe and elsewhere as the result of a temporary postponement of childbearing and the consequent increasing average age at motherhood (Bongaarts and Feeney, 1998; Philipov and Kohler, 2001; Kohler, Billari and Ortega, 2002; Sobotka, 2004). That is, the age-specific fertility rates for the period 2000-2005 combined relatively low rates at the older ages (because these women had had their children fairly early) with relatively low rates at the younger ages (because these women were getting married later and postponing their childbearing). The projection assumes that these younger women will make up for their postponed births at older ages and that their fertility rates at older ages will be higher than the rates for the same ages in 2000-2005. If the medium-variant projection proves accurate, completed fertility for the Eastern European cohort of 1985-1990 will thus exceed what was suggested by 2000-2005 total fertility.

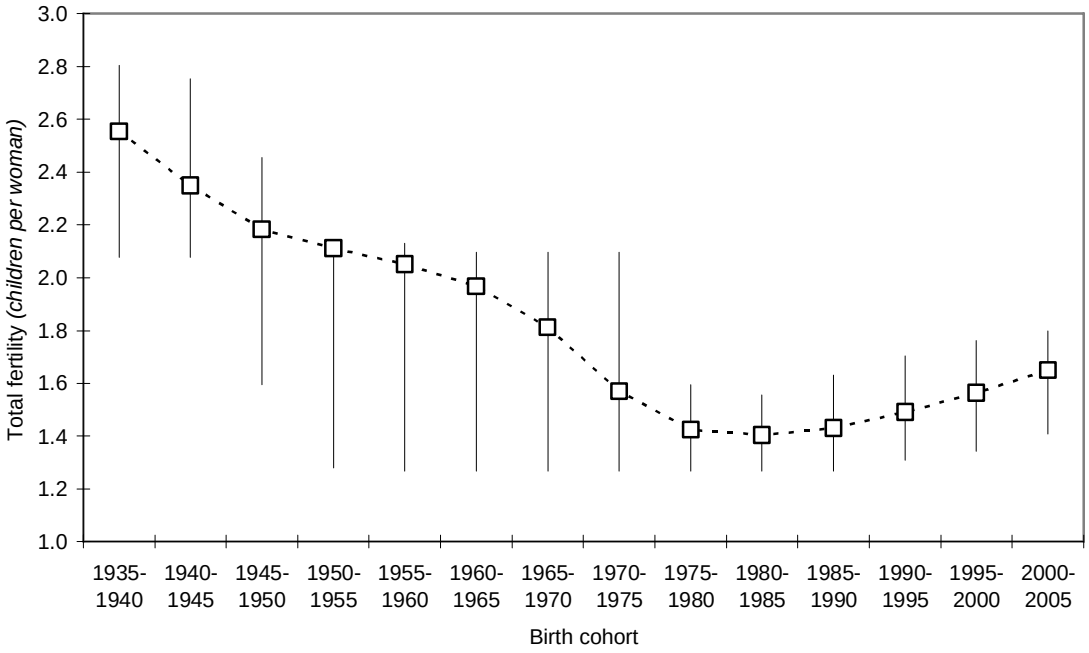
The situation for Eastern Europe can be illustrated by comparing estimates and projections of period fertility with estimates and projections of completed cohort fertility for cohorts born between 1935-1940 and 2000-2005, based on the medium variant of *2004 Revision* (figure III.6).

A box indicates the estimated or projected value of completed fertility for each birth cohort, with a dashed line connecting these estimates or predictions across cohorts. (For example, the fourth box from the right represents the 1985-1990 cohort discussed above). The vertical lines depict the range of period total fertility that was (or is projected to be) in effect at some time during the cohort's reproductive span. The 1985-1990 birth cohort, for example, will be bearing its children during the period of some 40 years following the year 2000; during these 40 years, period total fertility is projected to range from a low of 1.27 children per woman to a high of 1.63; as already noted, the cohort will end its reproductive span with a projected average of 1.46 children per woman.

As another example, the birth cohort of 2000-2005 is expected to see period total fertility varying from 1.41 to 1.80 children per woman during the years 2020-2050, but its own completed cohort fertility is projected to be 1.65 children. The projection assumption that period total fertility reaches a value of 1.85 children per woman draws cohort fertility toward that same level over the course of the projection, but the convergence of cohort fertility and period fertility will not be completed by the projection's endpoint.

The situation becomes less certain when the other fertility variants are considered. The Eastern Europe birth cohort of 2000-2005 could pass through periods when total fertility ranges from 0.91 children per woman (2015-2020, low-variant projection) to 2.30 children per woman

Figure III.6. Projected cohort fertility and range of period total fertility, Eastern Europe birth cohorts of 1935-1940 to 2000-2005, estimates and medium variant



(2045-2050, high-variant projection). Its own completed cohort fertility is projected to fall between 1.15 and 2.20 children per woman.

While some uncertainty exists about the future fertility of low-fertility countries, in the countries still experiencing above-replacement fertility, the general trend toward lower fertility is rather clear. Under the medium-fertility assumption, by 2050 more than three quarters of the world's population is expected to live in countries with total fertility levels below 2.1 children per woman.

Another fairly safe conclusion is that the world's population will continue to grow in the next half-century and beyond, in spite of fertility assumptions in the *2004 Revision* that assume a decline in total fertility at the world level. This expected population growth results from the population momentum built in the last fifty years through high fertility levels in many parts of the world. The fertility decline in most countries has been critical in slowing population growth worldwide, and the continuous decline toward replacement level assumed in the *2004 Revision* is expected to slow this growth even more.

Finally, it is important to note that while the *2004 Revision* takes into account the fact that the fertility transition is well advanced in most parts of the world, the fertility decline in the medium variant assumes that progress in reproductive health and services made since the 1994 Conference on Population and Development (ICPD) in Cairo will continue unabated and will extend to high fertility countries. Failures in continuous commitment toward child and maternal health and toward expanded access to basic reproductive health care and services could keep countries from reaching the goals of the ICPD Programme of Action.

IV. MORTALITY AND THE DEMOGRAPHIC IMPACT OF HIV/AIDS

The mortality story told by the *2004 Revision* begins in 1950. In the previous half-century, improvements in hygiene, increased knowledge about the transmission of infectious diseases and the introduction of drug-based treatments had brought about rapid reductions in mortality. The world stood on the threshold of a remarkable period of progress that would see the less developed regions make dynamic strides against mortality, narrowing the gap with the more developed world. The picture of that period, however, is not uniformly bright. The HIV/AIDS epidemic, wars and economic stagnation impeded the fight against mortality in some parts of the world, leaving millions of people experiencing mortality conditions that are scarcely better than a half-century ago.

A. MORTALITY

By the 1950s, the more developed regions of the world had reaped the benefits of the earlier advances, reaching a life expectancy at birth (box IV.1) of 66.1 years for both sexes combined in 1950-1955 (table IV.1). Meanwhile, the less developed regions had experienced only the beginnings of improvement. Life expectancy in the less developed regions in 1950-1955 stood at 41.1 years, a full 25 years lower than in the more developed regions.

1. Trends and differentials in life expectancy since 1950

Mortality improvements in the second half of the twentieth century benefited a large proportion of the world population. In the early 1950s, fully 60 per cent of the world's population lived in countries where life expectancy at birth was below 50 years (figure IV.1). By 2000-2005, this proportion had fallen to 10 per cent. Meanwhile, the share of world population living in countries with life expectancy of 70 or higher rose from less than 1 per cent in 1950-1955 to over 50 per cent in 2000-2005.

Today, the more developed regions continue to enjoy better life expectancy on average than the less developed regions. Since 1950, life expectancy in the more developed regions has con-

BOX IV.1. MEASURING MORTALITY: LIFE EXPECTANCY AT BIRTH

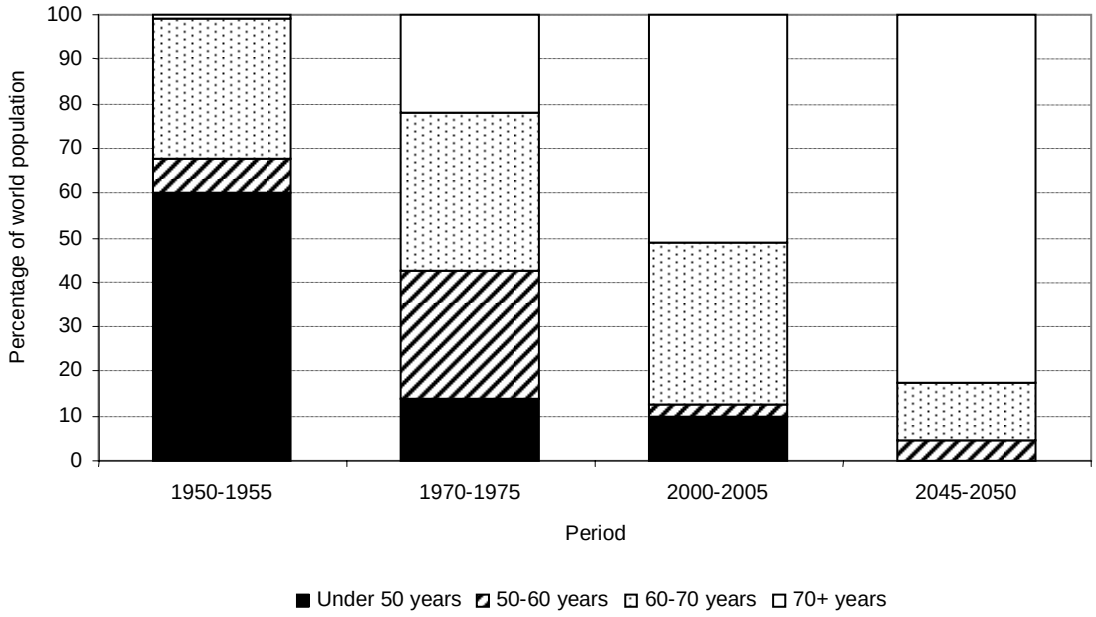
Life expectancy at birth (e_0) is a commonly used measure to summarize mortality conditions for a period of time. In the *2004 Revision*, life expectancy summarizes mortality for 5-year periods. A life expectancy of 75 years for a country in 2000-2005 can be interpreted to mean that if mortality rates observed at each age in the period 2000-2005 were to remain constant, children born in 2000-2005 would live an average of 75 years. In reality, mortality rates do not remain constant and the cohort born in 2000-2005 will have longer or shorter average lives, depending on whether mortality conditions improve or deteriorate. However, life expectancy provides a convenient, standardized measure (unaffected by age structure differences) for comparing mortality over time and across populations.

Life expectancy is often calculated and presented separately by sex. In this report, data on life expectancy are given for both sexes combined except in section A.2, below.

TABLE IV.1. LIFE EXPECTANCY AT BIRTH, BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT, 1950-1955, 2000-2005, AND 2045-2050

	Life expectancy at birth (years)			*Absolute change*		*Percentage change*	
Development group or major area	*1950-1955*	*2000-2005*	*2045-2050*	*1950-1955 to 2000-2005*	*2000-2005 to 2045-2050*	*1950-1955 to 2000-2005*	*2000-2005 to 2045-2050*
World	46.6	65.4	75.1	18.8	9.7	40.3	14.8
More developed regions	66.1	75.6	82.1	9.5	6.5	14.4	8.6
Less developed regions	41.1	63.4	74.0	22.2	10.6	54.1	16.7
Least developed countries	36.1	51.0	66.5	14.9	15.5	41.3	30.3
Other less developed countries	41.9	66.1	76.3	24.2	10.2	57.7	15.5
Africa	38.4	49.1	65.4	10.7	16.3	28.0	33.2
Asia	41.4	67.3	77.2	25.8	10.0	62.3	14.8
Europe	65.6	73.7	80.6	8.2	6.8	12.5	9.3
Latin America and the Caribbean	51.4	71.5	79.5	20.2	7.9	39.3	11.1
Northern America	68.8	77.6	82.7	8.7	5.2	12.7	6.7
Oceania	60.4	74.0	81.2	13.6	7.2	22.5	9.7

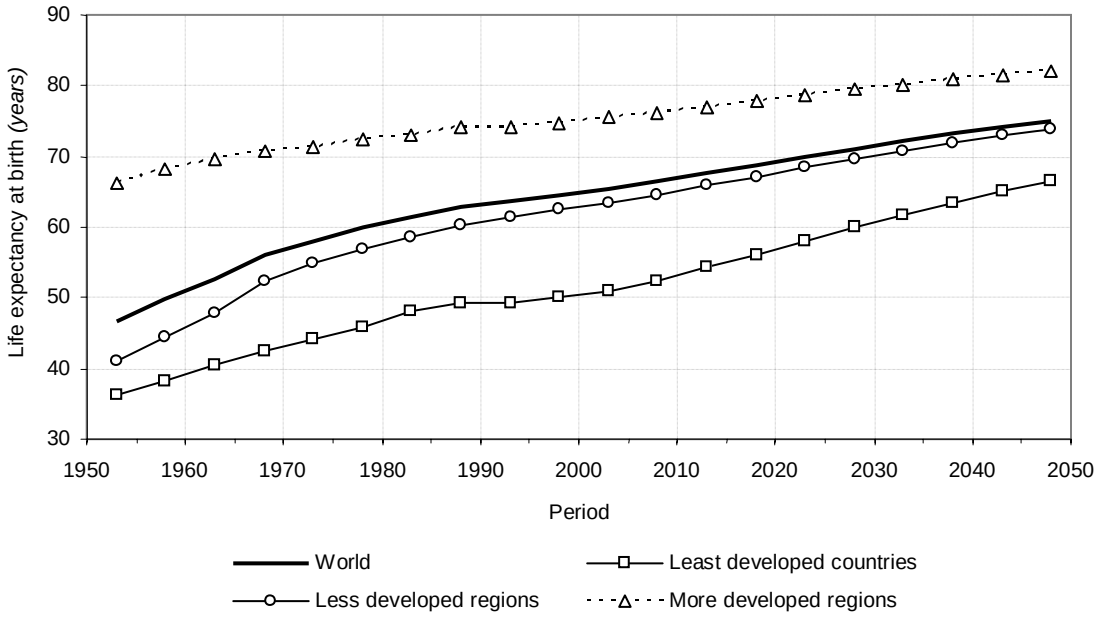
Figure IV.1. Share of world population, by level of life expectancy at birth, estimates and medium variant: 1950-1955, 1970-1975, 1995-2000 and 2045-2050



tinued to increase (table IV.1 and figure IV.2), reaching 75.6 years in 2000-2005. The pace of increase in these regions, however, has slowed. The rapid declines earlier in the century were due primarily to decreases in infectious disease mortality among children and young adults. Once mortality rates in the younger age groups become very low, further increase in life expectancy comes only with progress against the degenerative diseases of old age.

In the less developed regions, progress against infectious diseases had not yet been achieved by mid-century. After 1950, basic health interventions became more widespread throughout the world, and less developed regions were able to

Figure IV.2. Life expectancy at birth, by development group, estimates and medium variant: 1950-2050



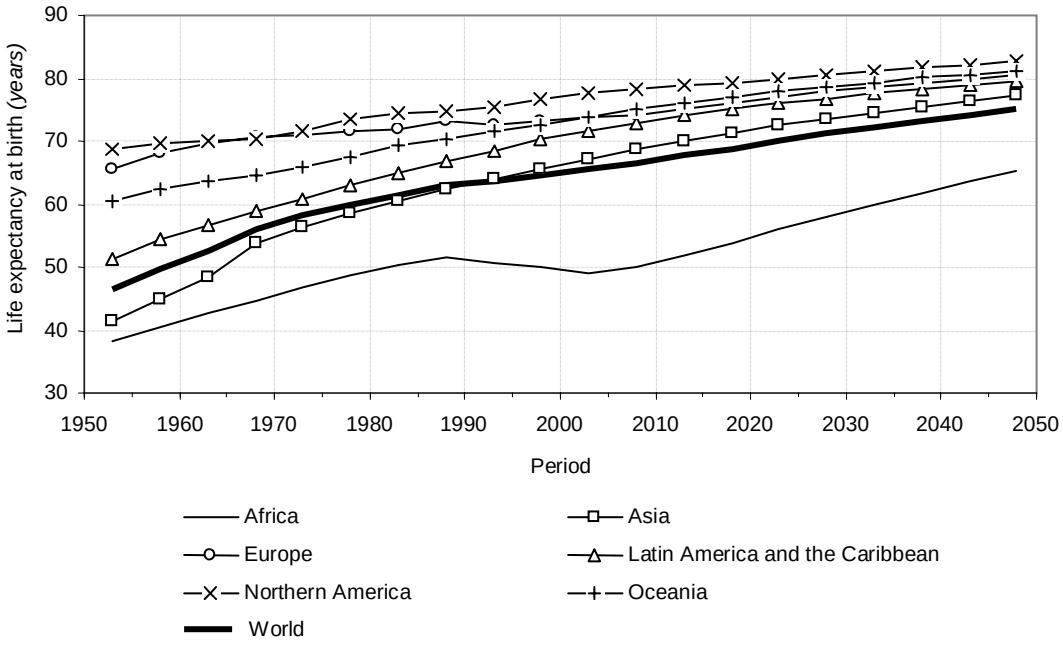
achieve substantial reductions in infectious disease mortality. As a result, life expectancy rose at a fast pace in the less developed regions as a whole, increasing by 22.2 years—more than 50 per cent—between 1950-1955 and 2000-2005, to a level of 63.4 years. Thus, the gap in life expectancy between the less and more developed regions shrank from 25 years in 1950-1955 to 12.2 years in 2000-2005.

The general upward trend in life expectancy masks variations within the less developed regions. For example, the 50 least developed countries, which include 31 countries that are highly affected by HIV/AIDS, currently experience very high mortality relative to the rest of the less developed group. The average life expectancy at birth in the least developed countries was 51.0 years in 2000-2005, more than 15 years below that of the other less developed countries; in 1950-1955, the disparity between these two groups was only about 6 years.

Within the less developed regions, progress differs greatly among the major areas (figure IV.3). Asia and Latin American and the Caribbean experienced steady increases in life expectancy throughout the second half of the twentieth century. Latin America and the Caribbean has had the highest life expectancy among major areas in the less developed regions. From 51.4 years in 1950-1955, life expectancy in Latin America increased to 71.5 years in 2000-2005. The biggest rise among all major areas occurred in Asia, where life expectancy rose from 41.4 years in 1950-1955 to 67.3 years in 2000-2005.

Africa, unlike other major areas, has been experiencing declining life expectancy since the late 1980s. Life expectancy in Africa stood at just 49.1 years in 2000-2005, after reaching 51.5 years in 1985-1990. The only exception has been Northern Africa, with continually rising life expectancy. While the downward trend in the rest of Africa is due in large part to the HIV/AIDS epidemic, other factors have also played a role, including armed conflict, economic stagnation and resurgent infectious diseases such as tuberculosis and malaria. The recent negative trends in Africa have set back progress in reducing mortality by at least 25 years. Not until 2010-2015 are life expectancy levels in Africa expected to return to those last seen in 1985-1990.

Figure IV.3. Life expectancy at birth, by major area, estimates and medium variant, 1950-2050



Among the more developed regions, aggregate trends for Northern America and Europe have diverged since the 1960s. The two major areas had nearly equal life expectancy in 1965-1970, 70.5 and 70.6 years, respectively. Northern America subsequently experienced continually rising life expectancy, reaching 77.6 years in 2000-2005. Europe, on the other hand, experienced a slowdown in life expectancy increase starting in the late 1960s and stagnating levels in the 1990s. In 2000-2005, Europe's life expectancy stood at 73.7 years. The stagnating trend for Europe as a whole was strongly influenced by severe declines in life expectancy in Eastern Europe, particularly in the Russian Federation and Ukraine, the most populous countries in that region. The remaining regions of Europe had life expectancies in 2000-2005 equal to or higher than that for Northern America. The remaining three countries of the more developed regions, Australia, New Zealand, and Japan, had life expectancies in 2000-2005 of 80.2, 79.0, and 81.9 respectively, well above the averages for Europe and Northern America.

The extremes of life expectancy within the more and less developed regions illustrate the wide disparities that characterize the world mortality situation. In 2000-2005, life expectancy levels among the more developed regions ranged from highs of 81.9 years in Japan, 80.6 years in Iceland and 80.4 years in Switzerland to lows of 65.4 years in the Russian Federation, 66.1 years in Ukraine and 67.5 years in the Republic of Moldova (table IV.2). Several countries that are geographically classified with the less developed regions have very high life expectancy, for example 81.5 years in Hong Kong, China SAR; 80 years in Macao, China SAR and 79.6 years in Israel. At the other end of the spectrum, life expectancy in 2000-2005 was as low as 32.9 years in Swaziland, 36.6 years in Botswana and 36.7 years in Lesotho. In these three countries, the impact of the HIV/AIDS epidemic has lowered life expectancy to a level even lower than that of countries affected by civil strife, such as Sierra Leone (40.6 years) and Angola (40.7 years). In the world's two most populous countries, China (apart from the Hong Kong and Macao, China SARs) and India, life expectancy in 2000-2005 was 71.5 years and 63.1 years, respectively.

TABLE IV.2. TEN COUNTRIES AND AREAS WITH THE HIGHEST AND TEN COUNTRIES AND AREAS WITH THE LOWEST LIFE EXPECTANCY AT BIRTH, BY DEVELOPMENT REGION, 2000-2005

Country or area[a]	*Life expectancy (years)*	*Country or area*[a]	*Life expectancy (years)*
A. More developed regions			
Rank *Highest life expectancy at birth*		*Rank* *Lowest life expectancy at birth*	
1 Japan	81.9	1 Russian Federation	65.4
2 Iceland	80.6	2 Ukraine	66.1
3 Switzerland	80.4	3 Republic of Moldova	67.5
4 Australia	80.2	4 Belarus	68.1
5 Sweden	80.1	5 Estonia	71.2
6 Italy	80.0	6 Romania	71.3
7 Canada	79.9	7 Latvia	71.4
8 Spain	79.4	8 Bulgaria	72.1
9 France	79.4	9 Lithuania	72.2
10 Norway	79.3	10 Hungary	72.6
B. Less developed regions			
Rank *Highest life expectancy at birth*		*Rank* *Lowest life expectancy at birth*	
1 Hong Kong, China SAR	81.5	1 Swaziland	32.9
2 Macao, China SAR	80.0	2 Botswana	36.6
3 Israel	79.6	3 Lesotho	36.7
4 Martinique	78.7	4 Zimbabwe	37.2
5 Singapore	78.6	5 Zambia	37.4
6 Cyprus	78.5	6 Central African Republic	39.4
7 United States Virgin Islands	78.5	7 Malawi	39.6
8 Guadeloupe	78.3	8 Sierra Leone	40.6
9 Costa Rica	78.1	9 Angola	40.7
10 Chile	77.9	10 Mozambique	41.9

[a] Countries or areas with 100,000 persons or more in 2000.

a. Future prospects for life expectancy

By 2000-2005 the world population had achieved a life expectancy at birth of 65.4 years. The *2004 Revision* assumes that future increases in life expectancy for individual countries will proceed at a pace consistent with recent trends in each country and with models based on historical experience of mortality improvement at various levels of life expectancy. Historically, annual increases in life expectancy have become smaller at higher levels of life expectancy. Therefore, gains in life expectancy over the next half-century are expected to be smaller than those achieved in the past half-century. Overall, a further increase of 9.7 years is projected by 2045-2050 for the world as a whole, compared to 18.8 years between 1950-1955 and 2000-2005 (table IV.1).

The more developed regions are projected to gain 6.5 years of life expectancy by 2045-2050, reaching a level of 82.1 years. In the less developed regions a gain of 10.6 years is projected to bring life expectancy to 74.0 years by 2045-2050. Thus the gap in life expectancy between more and less developed regions is expected to narrow, from 12.2 years in 2000-2005 to 8.1 years in 2045-2050. Within the less developed regions, the least developed countries will continue to be characterized by higher mortality than other less developed countries. Still, a gain of 15.5 years in life expectancy is projected for the least developed countries, bringing this group to a life expectancy of 66.5 years at the end of the projection period, one year higher than the world average today.

All but one of the world's major areas will see smaller gains in life expectancy over the next 45 years than over the previous half-century, similar to the projected worldwide trend. The exception is Africa, where a gain of 16.3 years of life expectancy is projected by 2045-2050, compared to a gain of only 10.7 years between 1950-1955 and 2000-2005. The gain projected for Africa rests on the assumptions that the HIV/AIDS epidemic will be brought under control and that economic and political stability will permit the improvement of health infrastructures in a way that will allow sustained declines in mortality.

2. Differences in life expectancy by sex

In nearly all countries of the world today, female life expectancy at birth is higher than male life expectancy. Globally, females had a life expectancy of 67.7 years in 2000-2005, compared to 63.2 years for males (table IV.3). The female advantage in the more developed regions, 7.4 years in 2000-2005, is considerably larger than the 3.5-year advantage of females in the less developed regions (figure IV.4). The gap between male and female life expectancy is particularly narrow in the least developed countries (1.9 years), where the impact of HIV/AIDS on mortality is estimated to be more detrimental for women than for men. In 2045-2050, the difference between female and male life expectancy for the world is expected to remain close to 5 years in favour of females. The gap is expected to narrow in the more developed regions, continuing trends that have been observed since the 1980s in most of these regions, with the exception of Eastern Europe and Japan. Meanwhile, the sex differential in life expectancy is projected to widen in the less developed regions.

Among major areas, the sex differential in life expectancy is particularly large in Europe, at 8.8 years in 2000-2005 (figure IV.5). The very high sex differentials in countries of the former Soviet Union, as high as 13 years in the Russian Federation, have a strong effect on the European average. Asia, which historically had a very low sex differential in life expectancy, has seen the female advantage increase in recent decades. In Africa, a lessening of the female advantage is projected in the next 5 years or so, followed by a gradual increase to 2045-2050. As in the least developed countries generally, the contraction of the sex differential in Africa is due largely to the larger impact of HIV/AIDS on mortality among women than among men (see section B.3.a, below).

The sex differential in mortality is attributable to a combination of behavioural factors, such as tobacco use and risk-taking behaviour, and genetic factors that appear to advantage women, particularly against ischaemic heart disease (Nathanson, 1984; Pampel, 2002; Waldron, 1985). The female advantage in mortality over the full life course has not been a universal phenomenon, however, in South-central Asia, for example, males had higher life expectancy than females until the late 1970s. Excess female mortality in some parts of the age range was common in many Western countries until the first half of the twentieth century (Tabutin and Willems, 1998). In recent years, a female disadvantage in mortality between ages 1 and 5 continued to be documented in many countries of the less developed regions (United Nations Secretariat, 1998).

TABLE IV.3. LIFE EXPECTANCY AT BIRTH, BY SEX AND DEVELOPMENT GROUP, ESTIMATES AND MEDIUM VARIANT, 2000-2005 AND 2045-2050

	Life expectancy at birth (years)			
	2000-2005		*2045-2050*	
Development group	*Male*	*Female*	*Male*	*Female*
World	63.2	67.7	72.8	77.5
More developed regions	71.9	79.3	79.1	85.0
Less developed regions	61.7	65.2	71.8	76.2
Least developed countries	50.1	52.0	64.9	68.2
Other less developed countries	64.2	68.0	74.1	78.6

Figure IV.4. Difference between female and male life expectancy at birth, by development group, estimates and medium variant, 1950-2050

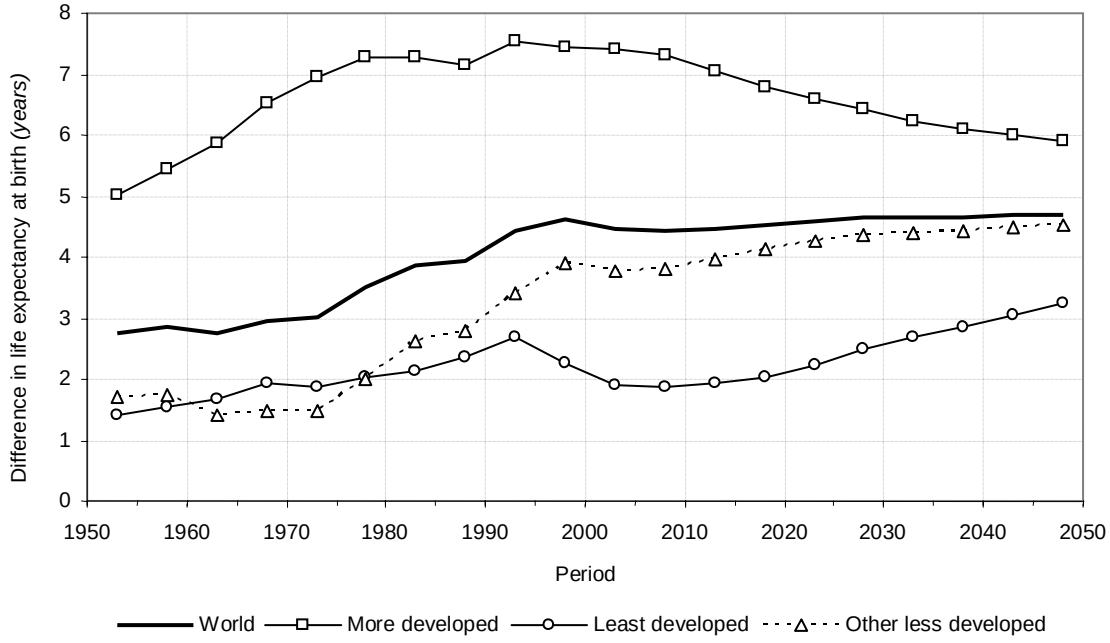
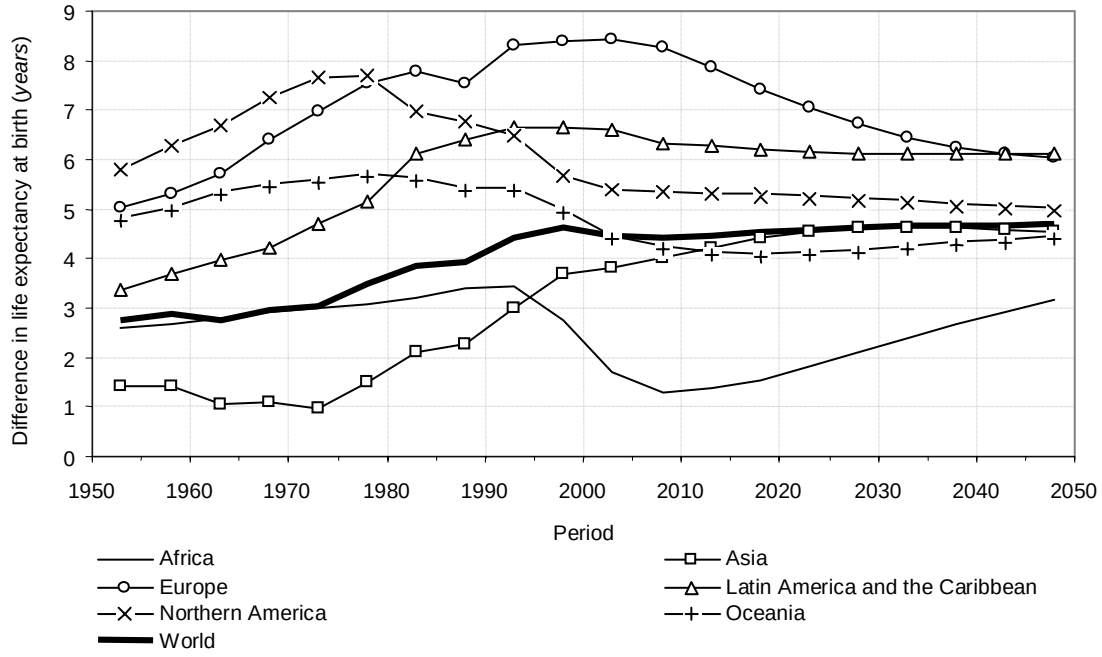


Figure IV.5. Difference between female and male life expectancy at birth by major area, estimates and medium variant, 1950-2050



3. Mortality at young ages

The infant mortality rate and the under-five mortality rate, measured as the number of deaths in a given period before exact age 1 and exact age 5, respectively, per 1000 live births in the same period, are important indicators of development and of the well-being of children. Improvements in infant and child mortality have a large impact on life expectancy and have been responsible for much of the rise in life expectancy around the world. Despite considerable progress since the 1950s in reducing child mortality, however, more than 10 million children under the age of 5 die each year worldwide, largely due to preventable causes. The most common causes of child deaths are diarrhea, pneumonia, measles, malaria, HIV/AIDS, and the underlying cause of undernutrition (Black, Morris and Bryce, 2003; Jones and others, 2003). Neonatal causes such as asphyxia, prematurity, sepsis and tetanus are also important. The reduction of mortality among infants and children is a major component of declared international development goals, including the Millennium Development Goals[1].

Worldwide, 57 out of 1000 live-born children died before their first birthdays in 2000-2005 (figure IV.6). This represents a major reduction of the infant mortality rate since 1950-1955, when the rate was 157 per 1000. However, very wide gaps remain between richer and poorer countries. Out of 1000 babies born in the least developed countries, 97 die before reaching age 1. Among their counterparts in the more developed regions, just under eight per thousand die in the first year of life.

Of the world's major areas, Africa stands out for its slow progress in lowering infant mortality (figure IV.7). In the early 1950s, Africa and Asia had similarly high levels of infant mortality, around 180 deaths per 1000 live births. By 2000-2005, infant mortality in Asia had fallen by more than two-thirds, to 54 per 1000. Africa achieved substantial reductions in infant mortality as well, but improvement was much slower than in Asia: in Africa, infant mortality fell by slightly less than half between 1950-1955 and 2000-2005, to 94 per 1000.

Figure IV.6. Infant mortality rate, by development group, 1950-2050

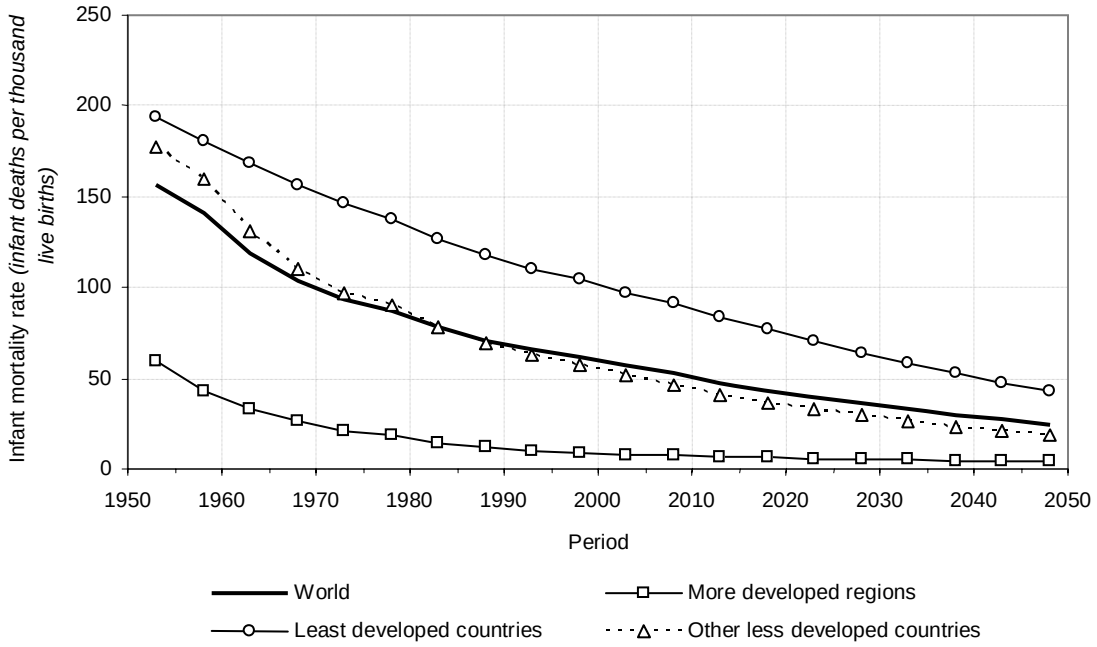
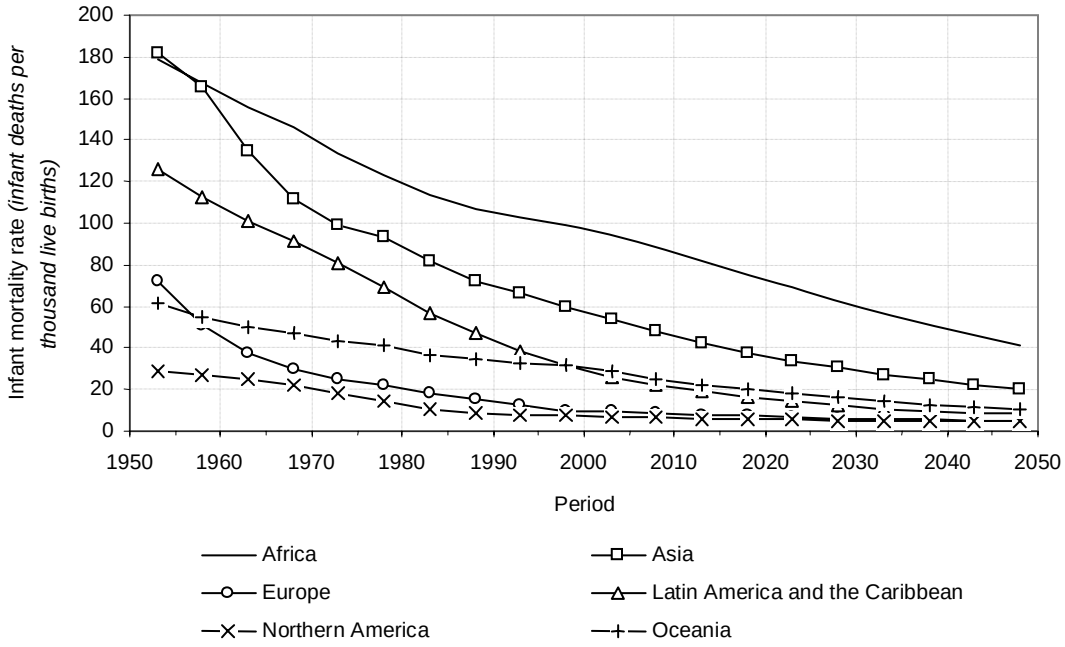


Figure IV.7. Infant mortality rate, by major area, estimates and medium variant, 1950-2050



The under-five mortality rate is a closely watched public health indicator because it reflects the access of children and communities to basic health interventions such as vaccination, to medical treatment of infectious diseases and to adequate nutrition. Under-five mortality remains high in less developed regions and particularly in the least developed countries. In the least developed group, 160 per 1000 children born alive do not reach age 5, compared to 74 per 1000 in other less developed countries and 10 per 1000 in the more developed regions (figure IV.8). Trends by major area are similar to those for infant mortality, with lagging progress in Africa (figure IV.9). Under-five mortality in Africa is more strongly affected by HIV/AIDS than is infant mortality, because most children born with the disease survive past their first birthday but die before age 5.

Projected declines in infant and under-five mortality are contingent upon continued progress against the many risks that threaten children's health. Progress against such risks will likely depend on improvements in women's education, which many studies have shown to be associated with better survival prospects for children, on extension of public health systems to cover the poor and others at risk and on continued national and international commitments to broad-based programs of vaccination.

4. Mortality among adults

Adult mortality is analyzed here using two measures. First, the mortality experience of young and middle-aged adults is examined using a measure denoted by demographers as ${}_{45}p_{15}$, the probability that a 15 year old person will survive to age 60. This measure can be understood as analogous to life expectancy for a given age. That is, it represents the probability that a person of exact age 15 in the given period would survive to age 60 if he or she experienced the mortality rates of that period for 45 years. Second, mortality among the elderly will be measured with ${}_{20}p_{60}$, the probability of a 60-year-old surviving to age 80. The discussion of adult mortality must be qualified with the observation that direct data on adult deaths are lacking in much of the less developed world. In contrast to child mortality, which is relatively well measured through demographic surveys, estimates of adult mortality for less developed countries are often based on model life tables that relate the level of adult mortality to that of child mortality.

Figure IV.8. Under-five mortality rate, by development group, estimates and medium variant, 1950-2050

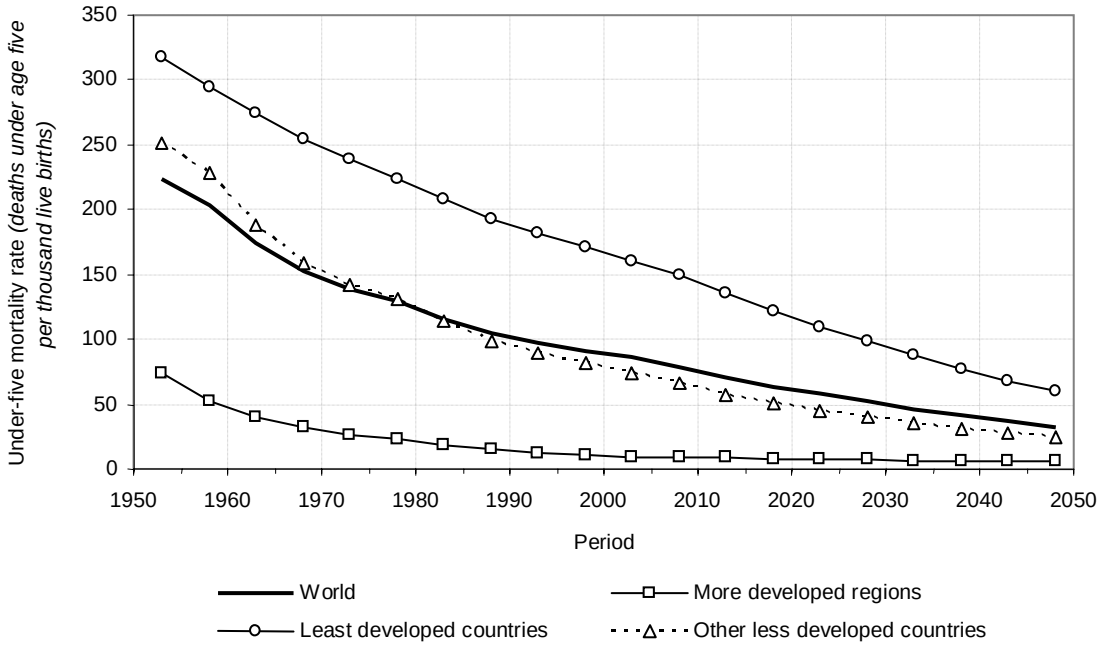
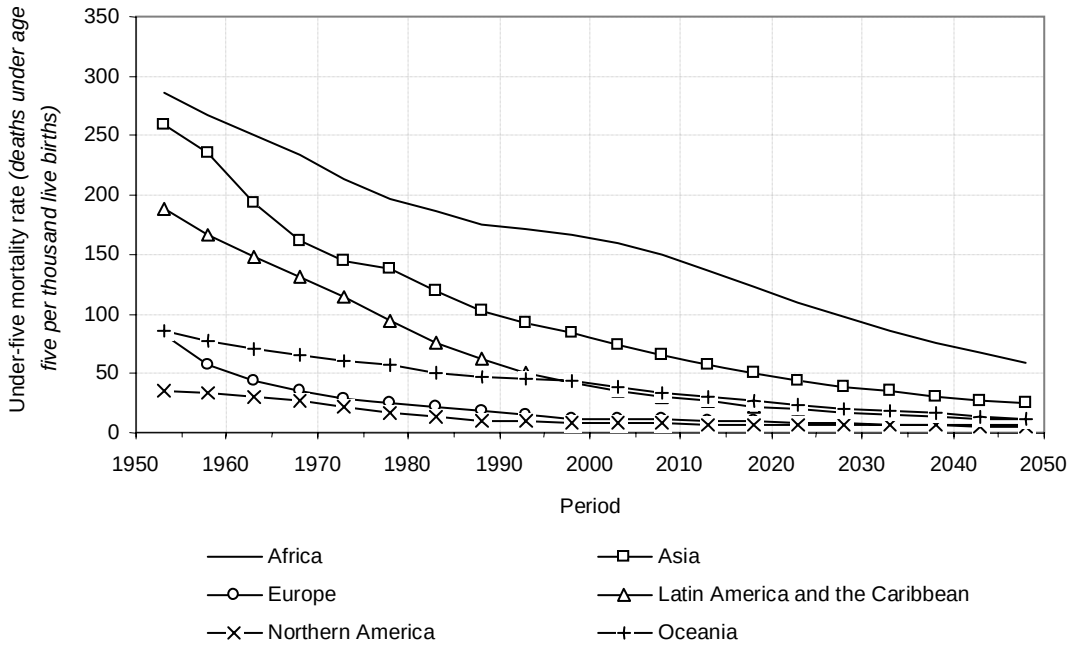


Figure IV.9. Under-five mortality rate, by major area, estimates and medium variant, 1950-2050



Under the mortality conditions of the 2000-2005 period, the chance that someone at 15 years of age would survive to age 60 was 81 per cent (table IV.4) for the world as a whole. Disparities in health and well-being between low- and high-income countries continue into the adult ages. The relative rankings of the development groups for adult mortality correspond to their ranks in child survival and life expectancy: 15-year-olds in more developed regions had a higher probability of survival, 87 per cent, than those in less developed regions, 79 per cent. The least developed countries were particularly disadvantaged, with only 63 per cent of 15-year-olds estimated to survive to age 60 under the mortality conditions of 2000-2005.

In the more developed regions, ${}_{45}p_{15}$ in 2000-2005 stood at 89 per cent in Northern America and 84 per cent in Europe. The European level was about the same as those in Asia and Latin America, despite the higher life expectancy in Europe. The European average is heavily affected by particularly low adult survival in Eastern Europe, where ${}_{45}p_{15}$ for both sexes combined stood at 75 per cent in 2000-2005, lower than the average for less developed regions. Males in Eastern Europe had exceptionally low adult survival, 64 per cent. For females, ${}_{45}p_{15}$ was 87 per cent, resulting in the largest sex differential in adult survival of any world region.

Among the less developed regions, Africa had the lowest adult survival, with ${}_{45}p_{15}$ only 57 per cent in 2000-2005. Adult survival was particularly low in countries ravaged by the HIV/AIDS epidemic; in Swaziland and Botswana, ${}_{45}p_{15}$ was estimated at less than 20 per cent in 2000-2005 (the impact of AIDS on adult survival is discussed at length in section B.3.a, below). In contrast, Hong Kong and Macao SARs of China had the highest ${}_{45}p_{15}$, not only among the less developed regions, but for the whole world: 94 per cent in 2000-2005. For Asia as a whole, ${}_{45}p_{15}$ was 84 per cent for the same period, slightly higher than that in Latin America and the Caribbean (83 per cent).

Because mortality among young and middle-aged adults is already fairly low in most parts of the world, future improvements in ${}_{45}p_{15}$ are projected to be of modest size. Worldwide, ${}_{45}p_{15}$ is projected to rise from 81 per cent in 2000-2005 to 88 per cent in 2045-2050.

In contrast, there is more room for improvement in survival of the elderly, which historically began to improve later than that of children and younger adults (Horiuchi, 1999). In 2000-2005, the probability of survival from age 60 to age 80 was 48 per cent for the world population. In the more developed regions, this measure of elderly survival stood at 56 per cent, while in the less developed regions it was 43 per cent. Large advances in survival of the elderly are anticipated for the coming half-century. Worldwide, ${}_{20}p_{60}$ is projected to rise to 61 per cent by 2045-2050, to 70 per cent in the more developed regions and to 59 per cent in the less developed regions.

TABLE IV.4. PROBABILITY OF SURVIVAL FROM EXACT AGE 15 TO EXACT AGE 60 (${}_{45}p_{15}$) AND FROM EXACT AGE 60 TO EXACT AGE 80 (${}_{20}p_{60}$), BY DEVELOPMENT GROUP AND MAJOR AREA, 2000-2005 AND 2045-2050

	${}_{45}p_{15}$		${}_{20}p_{60}$	
Development group or major area	*2000-2005*	*2045-2050*	*2000-2005*	*2045-2050*
World	0.81	0.88	0.48	0.61
More developed regions	0.87	0.93	0.56	0.70
Less developed regions	0.79	0.88	0.43	0.59
Least developed countries	0.63	0.79	0.34	0.49
Other less developed countries	0.82	0.90	0.43	0.60
Africa	0.57	0.75	0.35	0.50
Asia	0.84	0.92	0.44	0.60
Europe	0.84	0.92	0.52	0.67
Latin America and the Caribbean	0.83	0.90	0.54	0.68
Northern America	0.89	0.94	0.59	0.71
Oceania	0.88	0.93	0.60	0.69

B. THE DEMOGRAPHIC IMPACT OF AIDS

Since 1981, when the first cases of the acquired immunodeficiency syndrome (AIDS) were diagnosed, the world has been facing the deadliest epidemic in recent history. At the end of 2005, 40.3 million people worldwide were living with the human immunodeficiency virus (HIV) (UNAIDS/WHO, 2005). AIDS has become the leading cause of death for adults aged 15 to 59 worldwide (WHO, 2004). The premature death of so many working-age adults has tragic consequences for younger generations; in 2003, 15 million children aged 0 to 17 were orphans because of AIDS (UNAIDS, 2004).

The statistics on HIV/AIDS are already grim, yet the full demographic burden of the disease is still to come. When an individual is infected with HIV, he or she may be asymptomatic for many years, but the virus is replicating and causing the immune system to deteriorate by attacking the crucial CD4+ T immune cells. When the concentration of these immune cells in the blood drops to very low levels, the infected individual becomes highly susceptible to opportunistic infections that are rarely seen in people with healthy immune systems. At this point the individual has progressed to full-blown AIDS (defined as one of a number of opportunistic infections or other clinical conditions that characterize the most advanced stage of HIV disease[2]). The median time from HIV infection to full-blown AIDS is about 9 years for adults in the absence of treatment, although the duration can range from just a couple of years to 15 or more. After progression to full-blown AIDS, the median survival is just one year without medical treatment. Thus HIV/AIDS must be seen as a gathering storm whose full demographic impact in a country will be evident only 10 years or more after the level of HIV prevalence has peaked. While HIV prevalence seems to have crested in some highly affected countries, prevalence is still rising in many others (see section B.2, below; box IV.2).

The detrimental impact of the HIV/AIDS epidemic is more strongly felt in developing countries, where some 92 per cent of those infected with HIV lived at the end of 2003. Sub-Saharan Africa, with 25.8 million HIV-infected people of all ages, remains the worst-affected region (UN-

BOX IV.2. MEASURING THE PREVALENCE OF HIV

The burden of HIV in a population is measured by looking at the prevalence of HIV in the population, that is, the percentage infected with HIV. In theory prevalence can be calculated for any group with the relevant data or estimates, but in practice it is difficult to measure, even in countries with good health statistics. HIV infection produces no symptoms for many years and a large proportion of HIV-positive individuals do not know their HIV status. While more information exists about HIV/AIDS than about many other infectious diseases, the ranges around the estimates of HIV prevalence demonstrate the uncertainty that surrounds measurement of the epidemic (table IV.5).

In countries with generalized HIV/AIDS epidemics, where the primary mode of HIV transmission is heterosexual contact, national prevalence estimates are usually based on surveillance testing of pregnant women at selected antenatal clinics (UNAIDS/WHO, 2005). The reliability of these estimates depends on a number of factors, including whether HIV prevalence among pregnant women is representative of that among non-pregnant women and among men and whether the assumptions made about survival of infected individuals are correct. In addition, selected surveillance sites may not be representative with regard to the national population; for example, rural sites may be underrepresented in the sample. Also, the quality of national surveillance systems varies (Garcia-Calleja and others, 2004; Grassly and others, 2004). Recently, nationally representative household surveys have provided another source of data on HIV infection in some countries, but these surveys are also subject to potential biases. For example, people who are not tested due to absence from the household may be more likely to be HIV-positive (UNAIDS, 2004).

For countries with low-level or concentrated epidemics, prevalence must be estimated for high-risk groups such as intravenous-drug users, sex workers and their clients and men who have sex with men. Estimating both the size of these groups and the prevalence within them entails high levels of uncertainty (Walker and others, 2004).

AIDS, 2004; UNAIDS/WHO, 2005). However, the number of infected people and the number of highly affected countries are rising in Asia and in Latin America and the Caribbean. By the end of 2005, an estimated 8.3 million HIV-positive people lived in East, South-East and South Asia, and an additional 2.1 million lived in Latin America and the Caribbean. Eastern Europe and Central Asia have been experiencing a rapid rise in the number of HIV infections, reaching more than 1.6 million in 2005 (UNAIDS/WHO, 2005).

In the *2004 Revision*, projections taking explicit account of the impact of HIV/AIDS were made for 60 countries, up from 53 in the *2002 Revision*. The 60 countries encompassed 33.7 million of the 35.7 million HIV-infected adults aged 15-49 in the world at the end of 2003, 94 per cent of the total. In 56 of these countries, HIV prevalence in the population aged 15-49 was estimated at 1 per cent or higher at the end of 2003 (table IV.5). The remaining 4 countries—Brazil, China, India and the United States of America—had prevalence below 1 per cent but had large numbers of people infected due to their large population size. Among the countries considered in the *2004 Revision*, 40 are in Africa, 5 in Asia, 12 in Latin America and the Caribbean, 2 in Europe and 1 in Northern America.

TABLE IV.5. COUNTRIES AND AREAS FOR WHICH THE DEMOGRAPHIC IMPACT OF HIV/AIDS IS EXPLICITLY INCLUDED IN THE *2004 REVISION* OF THE OFFICIAL UNITED NATIONS ESTIMATES AND PROJECTIONS, BY MAJOR AREA AND COUNTRY OR AREA, END OF 2003

		Estimated number of HIV-positive persons aged 15-49, end of 2003 (thousands)		*HIV prevalence among persons aged 15-49, end of 2003 (percentage)*	
	Major area, country or area	*Estimate*	*[Low estimate - high estimate]*	*Estimate*	*[Low estimate - high estimate]*
Africa					
1	Angola	220	[88 - 540]	3.9	[1.6 - 9.4]
2	Benin	62	[35 - 110]	1.9	[1.1 - 3.3]
3	Botswana	330	[310 - 340]	37.3	[35.5 - 39.1]
4	Burkina Faso	270	[170 - 420]	4.2	[2.7 - 6.5]
5	Burundi	220	[150 - 320]	6.0	[4.1 - 8.8]
6	Cameroon	520	[360 - 740]	6.9	[4.8 - 9.8]
7	Central African Republic	240	[150 - 380]	13.5	[8.3 - 21.2]
8	Chad	180	[120 - 270]	4.8	[3.1 - 7.2]
9	Congo	80	[34 - 180]	4.9	[2.1 - 11.0]
10	Côte d'Ivoire	530	[370 - 750]	7.0	[4.9 - 10.0]
11	Democratic Republic of the Congo	1 000	[410 - 2 400]	4.2	[1.7 - 9.9]
12	Djibouti	8	[2.1 - 21]	2.9	[0.7 - 7.5]
13	Equatorial Guinea[a]	24	…	11.3	…
14	Eritrea	55	[19 - 150]	2.7	[0.9 - 7.3]
15	Ethiopia	1 400	[890 - 2 100]	4.4	[2.8 - 6.7]
16	Gabon	45	[23 - 86]	8.1	[4.1 - 15.3]
17	Gambia	6	[1.7 - 23]	1.2	[0.3 - 4.2]
18	Ghana	320	[200 - 520]	3.1	[1.9 - 5.0]
19	Guinea	130	[48 - 330]	3.2	[1.2 - 8.2]
20	Guinea-Bissau[a]	31	…	3.8	…
21	Kenya	1 100	[760 - 1 600]	6.7	[4.7 - 9.6]
22	Lesotho	300	[270 - 330]	28.9	[26.3 - 31.7]
23	Liberia	96	[44 - 200]	5.9	[2.7 - 12.4]
24	Madagascar	130	[66 - 220]	1.7	[0.8 - 2.7]
25	Malawi	810	[650 - 1 000]	14.2	[11.3 - 17.7]

TABLE IV.5 (*continued*)

	Major area, country or area	Estimated number of HIV-positive persons aged 15-49, end of 2003 (thousands)		HIV prevalence among persons aged 15-49, end of 2003 (percentage)	
		Estimate	[Low estimate - high estimate]	Estimate	[Low estimate - high estimate]
26	Mali	120	[40 - 380]	1.9	[0.6 - 5.9]
27	Mozambique	1 200	[910 - 1 500]	12.2	[9.4 - 15.7]
28	Namibia	200	[170 - 230]	21.3	[18.2 - 24.7]
29	Niger	64	[34 - 120]	1.2	[0.7 - 2.3]
30	Nigeria	3 300	[2 200 - 4 900]	5.4	[3.6 - 8.0]
31	Rwanda	230	[150 - 350]	5.1	[3.4 - 7.6]
32	Sierra Leone[a]	51	…	1.8	…
33	South Africa	5 100	[4 300 - 5 900]	21.5	[18.5 - 24.9]
34	Sudan	380	[120 - 1 200]	2.3	[0.7 - 7.2]
35	Swaziland	200	[190 - 210]	38.8	[37.2 - 40.4]
36	Togo	96	[61 - 150]	4.1	[2.7 - 6.4]
37	Uganda	450	[300 - 730]	4.1	[2.8 - 6.6]
38	United Republic of Tanzania	1 500	[1 100 - 2 000]	8.8	[6.4 - 11.9]
39	Zambia	830	[680 - 1 000]	16.5	[13.5 - 20.0]
40	Zimbabwe	1 600	[1 400 - 1 900]	24.6	[21.7 - 27.8]
Asia					
1	Cambodia	170	[99 - 280]	2.6	[1.5 - 4.4]
2	China	830	[430 - 1 400]	0.1	[0.1 - 0.2]
3	India	5 000	[2 500 - 8 200]	0.9	[0.5 - 1.5]
4	Myanmar	320	[170 - 610]	1.2	[0.6 - 2.2]
5	Thailand	560	[310 - 1 000]	1.5	[0.8 - 2.8]
Latin America and the Caribbean					
1	Bahamas	5	[3.1 - 8.4]	3.0	[1.8 - 4.9]
2	Barbados	3	[0.7 - 9.1]	1.5	[0.4 - 5.4]
3	Belize	4	[1.2 - 9.8]	2.4	[0.8 - 6.9]
4	Brazil	650	[320 - 1 100]	0.7	[0.3 - 1.1]
5	Dominican Republic	85	[47 - 150]	1.7	[0.9 - 3.0]
6	Guatemala	74	[36 - 120]	1.1	[0.6 - 1.8]
7	Guyana	11	[3.3 - 33]	2.5	[0.8 - 7.7]
8	Haiti	260	[120 - 560]	5.6	[2.5 - 11.9]
9	Honduras	59	[33 - 100]	1.8	[1.0 - 3.2]
10	Jamaica	51	[11 - 40]	1.2	[0.6 - 2.2]
11	Suriname	5	[1.4 - 18]	1.7	[0.5 - 5.8]
12	Trinidad and Tobago	28	[10 - 72]	3.2	[1.2 - 8.3]
More developed countries					
1	Russian Federation	860	[420 - 1 400]	1.1	[0.6 - 1.9]
2	Ukraine	360	[170 - 580]	1.4	[0.7 - 2.3]
3	United States of America	940	[460 - 1 500]	0.6	[0.3 - 1.1]

Source: Report on the Global HIV/AIDS Epidemic 2004, Joint United Nations Programme on HIV/AIDS and World Health Organization (Geneva), July 2004.

[a] Data for Equatorial Guinea, Guinea-Bissau, and Sierra Leone were not reported in the source publication. The figures given here are estimates by the United Nations Population Division.

1. The distribution of HIV around the world

The number of people infected with HIV is not evenly distributed among the major areas of the world. Sixty-six per cent of HIV-infected people (adults and children) at the end of 2003 were located in sub-Saharan Africa, while this region was home to only 11 per cent of the world's population.

Within sub-Saharan Africa, a smaller group of badly hit countries bears a disproportionate burden of HIV infection (table IV.6). There were 11 countries where HIV prevalence in 2003 was estimated at 10 per cent or more of the adult population aged 15 and over. These countries were home to just 1.8 per cent of the world's population in 2003, yet accounted for over 30 per cent of the world's HIV-infected adults.

TABLE IV.6. ADULT HIV PREVALENCE, YEAR OF PEAK PREVALENCE, AND LEVEL OF PEAK PREVALENCE IN COUNTRIES AND AREAS, BY LEVEL OF PREVALENCE, ESTIMATES AND PROJECTIONS, 2003 AND 2015

	Country or area	Prevalence (percentage of adults 15 and over) 2003	Prevalence (percentage of adults 15 and over) 2015	Change between 2003 and 2015	Estimated or projected year of peak prevalence	Level of peak prevalence (percentage of adults 15 and over)
Countries and areas with adult HIV prevalence above 20 per cent						
1	Swaziland	37.4	34.0	-3.4	2003	37.4
2	Botswana	36.2	31.8	-4.4	2002	36.3
3	Lesotho	27.6	24.9	-2.7	2000	28.5
4	Zimbabwe	22.5	21.1	-1.4	1998	23.3
Countries and areas with adult HIV prevalence between 10 per cent and 20 per cent						
1	South Africa	18.8	16.5	-2.3	2004	19.0
2	Namibia	18.7	16.8	-1.9	2003	18.7
3	Zambia	15.4	14.6	-0.9	1997	15.9
4	Malawi	14.3	13.4	-0.9	1998	15.0
5	Central African Republic	13.5	12.3	-1.2	2002	13.5
6	Mozambique	11.5	10.3	-1.3	2003	11.5
7	Equatorial Guinea	11.3	15.3	4.0	2015	15.3
Countries and areas with adult HIV prevalence between 5 per cent and 10 per cent						
1	United Republic of Tanzania	8.8	8.1	-0.7	1997	9.3
2	Gabon	8.1	11.1	3.0	2013	11.1
3	Kenya	8.0	2.9	-5.1	1997	11.1
4	Côte d'Ivoire	7.0	6.8	-0.2	2007	7.5
5	Cameroon	6.9	6.4	-0.5	2001	7.0
6	Burundi	6.1	5.9	-0.2	1993	7.2
7	Liberia	6.0	6.2	0.2	2009	6.9
8	Haiti	5.6	5.1	-0.6	1988	6.5
9	Nigeria	5.4	4.8	-0.6	2000	5.5
10	Congo	5.3	5.2	-0.1	1992	7.3
Countries and areas with adult HIV prevalence between 1 per cent and 5 per cent						
1	Chad	4.8	4.4	-0.4	2001	4.8
2	Rwanda	4.6	4.6	0.0	1993	5.2
3	Ethiopia	4.4	4.9	0.4	2009	5.2
4	Uganda	4.3	1.8	-2.5	1991	12.7
5	Dem. Rep. of the Congo	4.2	4.1	0.0	1995	4.3
6	Burkina Faso	4.2	4.1	-0.1	1991	6.1
7	Togo	4.1	3.8	-0.3	1997	4.6
8	Angola	3.9	3.8	-0.1	2007	4.1

TABLE IV.6 (*continued*)

	Country or area	Prevalence (percentage of adults 15 and over) 2003	Prevalence (percentage of adults 15 and over) 2015	Change between 2003 and 2015	Estimated or projected year of peak prevalence	Level of peak prevalence (percentage of adults 15 and over)
9	Guinea-Bissau	3.8	3.0	-0.8	2004	3.8
10	Guinea	3.3	4.4	1.1	2012	4.5
11	Trinidad and Tobago	3.1	3.0	-0.2	2007	3.3
12	Ghana	3.1	2.7	-0.4	2001	3.1
13	Bahamas	3.0	2.7	-0.3	1994	3.7
14	Djibouti	2.9	2.7	-0.2	2007	3.0
15	Eritrea	2.6	2.5	-0.2	1997	3.2
16	Cambodia	2.6	2.5	-0.2	1998	2.9
17	Belize	2.5	3.3	0.8	2012	3.3
18	Guyana	2.5	2.4	-0.1	1991	3.6
19	Sudan	2.3	2.7	0.5	2010	3.0
20	Benin	2.1	1.7	-0.4	1998	2.5
21	Mali	1.9	1.7	-0.3	2001	2.0
22	Sierra Leone	1.8	1.7	-0.1	1997	2.2
23	Jamaica	1.8	1.0	-0.8	2002	1.8
24	Madagascar	1.7	2.2	0.6	2010	2.4
25	Dominican Republic	1.6	1.1	-0.6	1999	1.8
26	Honduras	1.6	1.5	-0.1	1997	1.8
27	Thailand	1.5	0.8	-0.7	1995	2.0
28	Suriname	1.5	1.0	-0.5	2003	1.5
29	Barbados	1.5	1.1	-0.3	1999	1.6
30	Ukraine	1.4	1.3	-0.1	2007	1.5
31	Niger	1.3	1.8	0.5	2011	1.9
32	Myanmar	1.2	0.9	-0.3	2005	1.2
33	Gambia	1.2	0.9	-0.3	2000	1.2
34	Guatemala	1.1	0.6	-0.5	2003	1.1
35	Russian Federation	1.1	1.7	0.6	2010	1.8
	Countries and areas with adult HIV prevalence below 1 per cent					
1	India	0.9	0.8	-0.1	2006	0.9
2	United States of America	0.4	0.4	0.0	1990	0.5
3	Brazil	0.4	0.3	-0.1	2003	0.4
4	China	0.1	0.6	0.4	2019	0.6

NOTE: Based on Population Division calculations and *Report on the Global HIV/AIDS Epidemic 2004*, Joint United Nations Programme on HIV/AIDS and World Health Organization (Geneva), July 2004.

Another 21 per cent of HIV-positive adults aged 15 and over lived in the 10 countries where prevalence is between 5 and 10 per cent, while these countries encompassed only 4 per cent of the world population. All of the countries in this group are also in sub-Saharan Africa, with the exception of Haiti.

Countries where prevalence was between 1 and 5 per cent of adults are located throughout the world: in Africa, Asia, Latin America and the Caribbean, and Europe. There are 35 countries in this prevalence bracket. They accounted for 22 per cent of adult infections in 2003 yet contained only 11 per cent of world population.

Four large countries—Brazil, China, India and the United States of America—are important to the world picture of HIV/AIDS even though their adult prevalence was below 1 per cent in 2003.

These four countries contained 45 per cent of world population, and held an estimated 20 per cent of HIV-infected adults.

2. The dynamics of the HIV/AIDS epidemic

The dynamics of the HIV/AIDS epidemic described in the estimates and projections of the *2004 Revision* are fully consistent with the estimates of HIV prevalence in each country in 2003 reported by UNAIDS. The path of the HIV epidemic up to 2003 varied widely across countries (figure IV.10). In Uganda and Kenya, for example, the epidemic spread quickly in the late 1980s and early 1990s, respectively. In both countries, the prevalence of HIV peaked in the 1990s (table IV.6) and has since fallen, with a particularly large drop in Uganda. In contrast, in South Africa and Botswana, the epidemic started later and prevalence climbed very rapidly to levels far above those reached in the eastern African countries. The latest available estimates for Botswana and South Africa show an apparent leveling off of prevalence, but there is no sign yet of an overall national decline in these countries (UNAIDS/WHO, 2004).

Both inside and outside of Africa, many countries are still experiencing rising HIV prevalence (figure IV.11). The future of the epidemic in these countries is highly uncertain. Existing epidemiological models are ill-equipped to project the timing and level of peak prevalence in countries where the epidemic is still increasing, but predications can be made (table IV.6).

The *2004 Revision* assumes that beginning in 2005, changes in behaviour, along with treatment, will reduce the chances of infection. Rates of recruitment into high-risk groups are assumed to decline as well. In light of major expansions in antiretroviral therapy (ART) coverage, survival of individuals receiving ART is assumed to increase at a rate determined by projected levels of ART coverage and efficacy. The epidemic is still expanding, and some countries are expected to see increasing levels of HIV prevalence for several more years. Nevertheless, in 49 of the 60 highly affected countries, HIV prevalence is projected to be lower in 2015 than in 2003 (table IV.6).

3. The demographic impact of AIDS

HIV/AIDS affects population trends through two mechanisms. First, most people infected with HIV die earlier than they would have from other causes of death, resulting in mortality rates that are higher than they would be in a projection that assumes no AIDS (the "No-AIDS scenario"). This higher mortality reduces the size of affected age groups in the medium-variant projection compared to the No-AIDS scenario. Second, when women die of AIDS before the end of their reproductive life span, they have fewer births than are projected in a scenario without AIDS, further reducing the size of the youngest age cohorts.

Empirical evidence for the impact of AIDS on population structures and dynamics remains fragmentary (Blacker, 2004; Heuveline, 2004). Because of the 10-year average lag time between infection and death, data from the 2000 round of population censuses were too early to show a significant impact on population structure from the dramatic increases in HIV prevalence that occurred during the 1990s. Several censuses from Africa, however, did give evidence of rising overall levels of adult mortality in the 1990s, as have a number of population surveys.

Most of the highly affected countries do not have adequate vital registration systems for tracking deaths due to AIDS. Even when vital registration is functioning, deaths related to HIV/AIDS are often attributed to other causes on the death certificate (Groenewald and others, 2005). Despite weaknesses in cause-of-death statistics, mortality data from a few highly affected countries that have relatively good vital registration systems, such as Thailand and South Africa, show increases in overall deaths of young adults consistent with high HIV infection rates in these age groups (Im Em, 2003; Statistics South Africa, 2005). While the available evidence provides confirmation of increased mortality due to AIDS, it does not provide the age- and sex-specific detail necessary for incorporating the impact of the disease into population estimates and projections. Therefore, the United Nations estimates and projects the impact of the disease using an integrated epidemiologic and demographic model. The model is described in detail in chapter VI.

Figure IV.10. Estimated and projected prevalence of HIV, selected African countries, 1980-2020

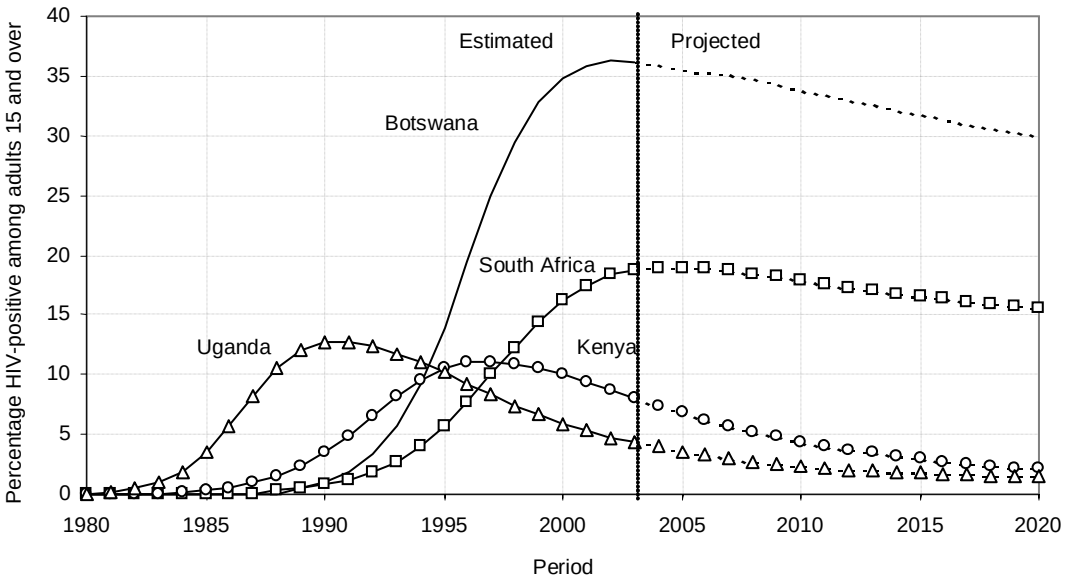
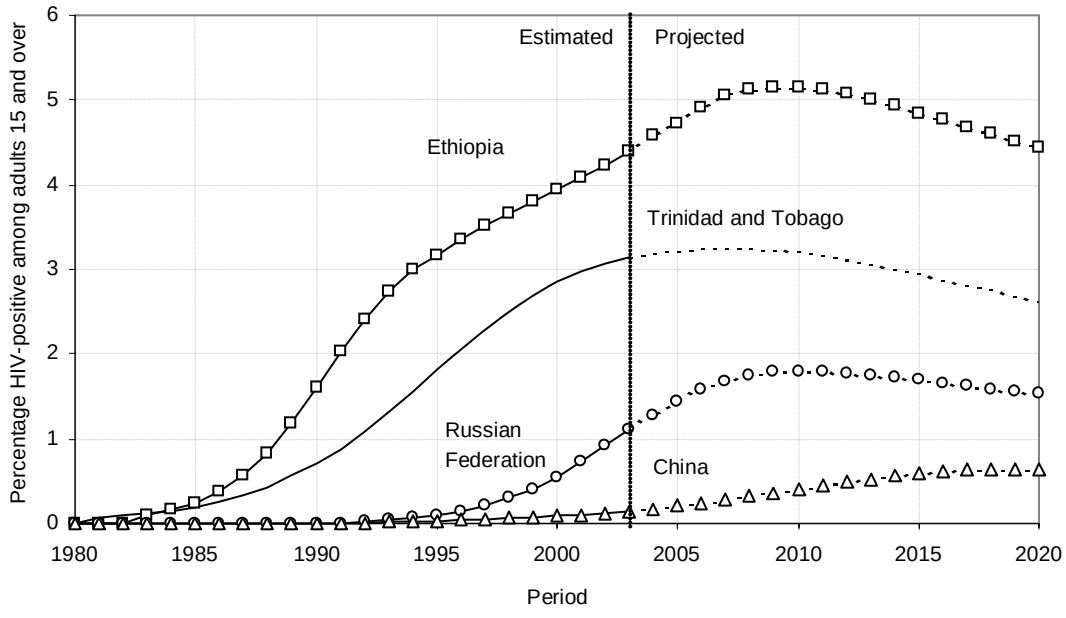


Figure IV.11. Estimated and projected prevalence of HIV, selected countries, 1980-2020



In the *2004 Revision*, the projected long-term impact of HIV/AIDS is somewhat less severe than that projected in the *2002 Revision*. Part of this reduction in impact is due to the incorporation of revised and lower estimates of HIV prevalence for several countries. Another part stems from the assumption that antiretroviral therapy will reach an ever increasing proportion of the persons who need it. As a result, those persons will not only survive longer but will be less infectious. How-

ever, realization of these projections is contingent on sustained commitment by Governments to assure treatment for those infected and to promote preventive measures and behavioural changes among the uninfected.

The *2004 Revision* confirms yet again the devastating toll AIDS is having and will continue to have in terms of increased morbidity, mortality and population loss. In the sections that follow, the demographic impact of AIDS is assessed by looking at time trends in mortality indicators for very highly affected countries and by comparing the *2004 Revision* medium-variant projections to the No-AIDS scenario.

a. The impact on mortality

Even though the prevalence of HIV in the adult population appears to have stabilized in many countries (table IV.6), the impact of HIV/AIDS on mortality will continue to grow for years to come. On average, HIV-infected individuals survive 10 years after infection in the absence of antiretroviral treatment. Thus, the greatest impact of HIV/AIDS on mortality in a country will lag about 10 years behind the peak in prevalence.

Life expectancy in the most affected countries, primarily located in Africa, shows dramatic declines. In the 40 affected countries of Africa (table IV.7), life expectancy declined from 48.2 years in 1990-1995 to 45.7 years in 2000-2005. While life expectancy is projected to begin rising in the 2005-2010 period, this rise will be entirely due to improvements in non-AIDS mortality. 2005-2010 will be the period of maximum impact of AIDS on life expectancy in the group of African countries, 8.6 years. In the other geographic groups of AIDS-affected countries, AIDS has not caused

TABLE IV.7. LIFE EXPECTANCY AT BIRTH IN AFFECTED COUNTRIES AND AREAS, BY MAJOR AREA, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), SELECTED PERIODS 1990-2050

	Life expectancy at birth (years)				
Group of affected countries and areas	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
All 60 affected countries and areas					
With AIDS	61.4	62.5	64.6	67.1	73.0
Without AIDS	62.2	64.9	67.5	69.9	74.8
Difference	-0.8	-2.4	-2.9	-2.7	-1.7
Percentage difference	-1.2	-3.7	-4.2	-3.9	-2.3
40 countries and areas in Africa					
With AIDS	48.2	45.7	48.3	52.9	63.4
Without AIDS	50.8	53.6	56.6	60.1	68.0
Difference	-2.6	-7.9	-8.3	-7.2	-4.6
Percentage difference	-5.1	-14.8	-14.6	-12.0	-6.8
5 countries and areas in Asia					
With AIDS	63.7	67.0	69.8	72.1	77.2
Without AIDS	64.0	67.9	71.0	73.5	77.7
Difference	-0.3	-0.9	-1.2	-1.4	-0.6
Percentage difference	-0.5	-1.3	-1.7	-2.0	-0.7
12 countries and areas in Latin America and the Caribbean					
With AIDS	65.5	69.0	71.7	74.1	78.5
Without AIDS	66.5	70.3	72.9	75.1	79.1
Difference	-0.9	-1.3	-1.2	-1.0	-0.6
Percentage difference	-1.4	-1.9	-1.6	-1.3	-0.7
3 more developed countries and areas					
With AIDS	71.5	71.9	73.1	75.3	79.5
Without AIDS	71.8	72.6	74.8	76.7	80.2
Difference	-0.4	-0.7	-1.7	-1.4	-0.7
Percentage difference	-0.5	-1.0	-2.2	-1.8	-0.9

declines in life expectancy, but in 2000-2005 life expectancy was lower than it would have been in the absence of AIDS by 0.9 years in the affected Asian countries, 1.3 years in the affected Latin American and Caribbean countries, and 0.7 years in the affected more developed countries. In the affected Asian countries, the impact of AIDS on life expectancy is not projected to peak until 2020-2025, mainly due to projected continual growth of the epidemic in China.

Differences in life expectancy between the medium variant and the No-AIDS scenario are particularly striking for the groups of countries with the highest HIV prevalence (table IV.8). For the four countries with prevalence higher than 20 per cent, life expectancy in 2000-2005 was 27.2 years lower in the medium variant than in the No-AIDS scenario. In the groups of countries with prevalence between 10 and 20 per cent, the difference was 15.7 years. In both groups, life expectancy plummeted between 1990-1995 and 2000-2005, and the impact of AIDS has not yet reached its projected maximum, which will occur between 2005 and 2015. In the groups with lower HIV prevalence, the impact of AIDS is commensurately lower than in the very high prevalence groups. Nevertheless, both the 5-10 per cent and 1-5 per cent groups experienced declines in life expectancy between 1990-1995 and 2000-2005, due to a combination of increasing AIDS mortality and very slow progress versus non-AIDS mortality.

At the country level, the impact of AIDS on life expectancy varies widely (table IV.9). In Botswana, where HIV prevalence was estimated at 36.2 per cent of the adult population in 2003, life expectancy had fallen from 65.1 years in 1985-1990 to 36.6 years in 2000-2005. Life expectancy is now 32.1 years lower than it would be in the absence of AIDS. The discrepancy is projected to widen to 36 years in 2005-2010 before beginning to fall. Similarly, life expectancy in South Africa has declined from a high of 62.0 years in 1990-1995 to 49.0 years in 2000-2005, 18.0 years lower than estimated in the No-AIDS scenario. The difference will increase to 25 years in 2010-2015 before beginning to ease slightly.

In countries where HIV prevalence rates are lower, AIDS has mainly slowed down the increase in life expectancy. For instance, life expectancy was lower in 2000-2005 than it would have been in the absence of AIDS by 4.0 years in Cambodia, 2.9 years in the Dominican Republic, and 2.0 years in Ukraine. An increase in the impact of AIDS on life expectancy is yet to come in many countries, such as China, where the impact relative to the No-AIDS scenario is projected to rise from a gap of 0.3 years in 2000-2005 to 1.2 years in 2015-2020. Similarly, in the Russian Federation, impact will rise from 0.9 year in 2000-2005 to 3.1 years by 2015-2020.

Gender differentials in the impact of AIDS on mortality vary according to the distribution of infections among men and women. In sub-Saharan Africa, 57 per cent of HIV-infected adults are women (UNAIDS, 2005). In addition, women are infected at younger ages, on average, than men. As a result, AIDS has a greater impact on female life expectancy than on that of males in sub-Saharan Africa. In Malawi, for example, life expectancy for females was estimated to be 19 years lower in 2000-2005 than it would have been in the absence of AIDS; for males, the difference was 15 years. In other regions of the world, the proportion of females among HIV-infected adults is lower than in Africa, and AIDS has a larger relative impact on the mortality of men. However, the proportion of infections among women is growing throughout the world (UNAIDS/WHO, 2005).

AIDS also reshapes the distribution of deaths by age. In a typical population with moderately high mortality, deaths are concentrated among very young children and older adults. For example, in 1985-1990, before the AIDS epidemic spread widely in Southern Africa, deaths in that region exhibited such a pattern (figure IV.12). Adults aged 20 to 49 accounted for only 20 per cent of all deaths. By 2000-2005, a dramatic shift had taken place in the distribution of deaths by age, with nearly 60 per cent of all deaths occurring between the ages of 20 and 49.

TABLE IV.8. LIFE EXPECTANCY AT BIRTH, BY PREVALENCE GROUP OF AFFECTED COUNTRIES AND AREAS, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), SELECTED PERIODS 1990-2050

	Life expectancy at birth (years)				
	1990-1995	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
4 countries and areas with adult HIV prevalence above 20 per cent					
With AIDS	57.2	36.8	38.1	43.4	54.4
Without AIDS	64.6	64.0	66.5	69.3	74.1
Absolute difference	-7.4	-27.2	-28.5	-25.9	-19.6
Percentage difference	-11.5	-42.5	-42.8	-37.4	-26.5
7 countries and areas with adult HIV prevalence between 10 per cent and 20 per cent					
With AIDS	52.0	43.8	43.0	47.9	58.9
Without AIDS	54.9	59.5	62.6	65.5	71.6
Absolute difference	-2.8	-15.7	-19.6	-17.6	-12.7
Percentage difference	-5.2	-26.3	-31.3	-26.9	-17.8
10 countries and areas with adult HIV prevalence between 5 per cent and 10 per cent					
With AIDS	48.9	44.9	48.2	52.8	63.5
Without AIDS	51.7	52.8	55.5	59.1	67.5
Absolute difference	-2.9	-7.9	-7.3	-6.3	-4.0
Percentage difference	-5.5	-15.0	-13.2	-10.7	-5.9
35 countries and areas with adult HIV prevalence between 1 per cent and 5 per cent					
With AIDS	54.5	54.2	56.4	59.6	67.5
Without AIDS	55.4	57.2	60.1	63.0	69.9
Absolute difference	-0.9	-3.0	-3.7	-3.4	-2.5
Percentage difference	-1.6	-5.2	-6.1	-5.4	-3.5
4 countries and areas with adult HIV prevalence below 1 per cent					
With AIDS	65.1	68.4	71.0	73.1	77.9
Without AIDS	65.5	69.2	72.1	74.4	78.4
Absolute difference	-0.4	-0.8	-1.1	-1.3	-0.5
Percentage difference	-0.6	-1.1	-1.5	-1.7	-0.6

The worsening of adult mortality in highly-affected countries can be seen through trends in the probability of surviving from age 15 to age 60 (${}_{45}p_{15}$). Among males in Southern Africa, this probability declined from 65 per cent in 1990-1995 to 36 per cent in 2000-2005. For females in the region, the probability of surviving from age 15 to age 60 dropped from 78 per cent to 43 per cent over the same period. Still further declines are projected over the coming decade. In the most highly affected countries of the region, Swaziland, Botswana and Lesotho, ${}_{45}p_{15}$ will drop to exceptionally low levels over the next decade as the delayed toll mounts from the rapid increases in HIV prevalence that occurred in the 1990s. In Swaziland, ${}_{45}p_{15}$ is projected to drop to as low as 10 per cent for males in 2005-2010 and 6 per cent for females in 2010-2015. Such large increases in the mortality of younger adults will deplete the cohorts that are in the prime of their working and parental careers, creating the potential for severe shocks to economic and societal structures.

AIDS is also elevating child mortality rates above what would be expected in the absence of the disease. Children who are infected by mother-to-child transmission of HIV have a median survival time of two years. Among children under 5, HIV/AIDS is responsible for 3 per cent of deaths worldwide and 6 per cent in Africa (WHO, 2005b).

Figure IV.12. Percentage distribution of deaths, by age, Southern Africa, 1985-1990 and 2000-2005

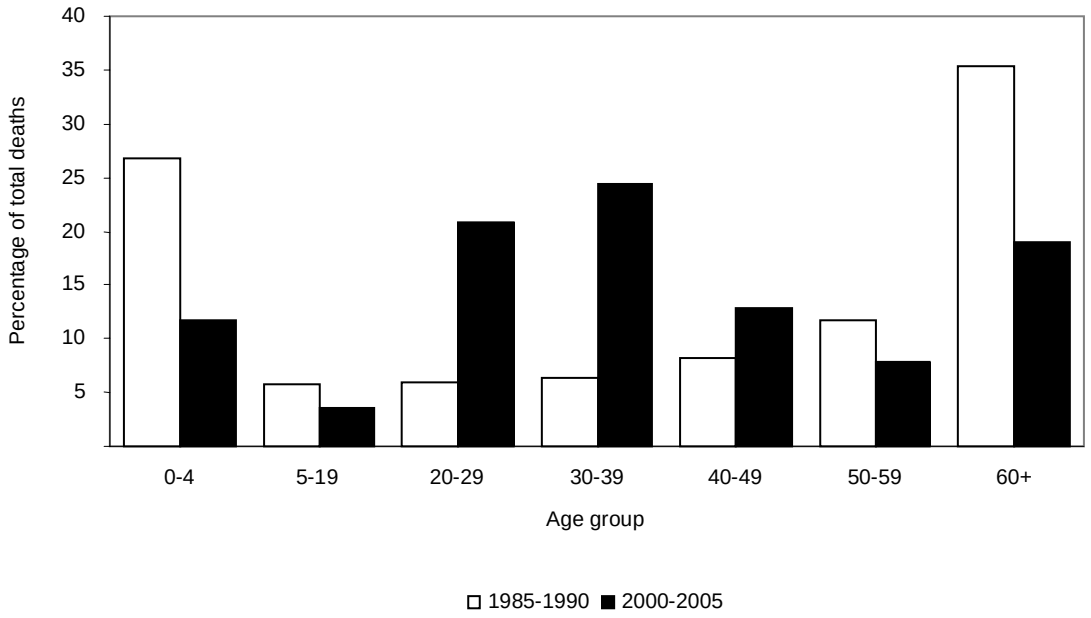


TABLE IV.9. LIFE EXPECTANCY AT BIRTH IN COUNTRIES AND AREAS MOST AFFECTED BY THE HIV/AIDS EPIDEMIC, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), 2000-2005 AND 2015-2020

Major area	*Country or area*	*Life expectancy at birth, both sexes combined (years)*					
		2000-2005			*2015-2020*		
		With AIDS	*Without AIDS*	*Difference*	*With AIDS*	*Without AIDS*	*Difference*
Africa							
1.	Angola	40.7	44.0	-3.3	45.6	49.2	-3.6
2.	Benin	53.8	57.1	-3.3	60.3	62.7	-2.4
3.	Botswana	36.6	68.7	-32.1	38.4	72.1	-33.7
4.	Burkina Faso	47.4	53.1	-5.7	53.0	57.8	-4.8
5.	Burundi	43.5	51.0	-7.5	49.3	55.6	-6.3
6.	Cameroon	45.8	53.6	-7.8	50.3	57.5	-7.2
7.	Central African Republic	39.4	53.4	-14.0	43.4	57.5	-14.1
8.	Chad	43.6	48.6	-5.0	48.2	53.3	-5.1
9.	Congo	51.9	60.2	-8.3	56.5	63.8	-7.3
10.	Côte d'Ivoire	46.0	54.0	-8.0	50.1	58.9	-8.8
11.	Dem. Republic of the Congo	43.1	48.0	-4.9	47.7	52.4	-4.7
12.	Djibouti	52.7	55.6	-2.9	58.0	61.3	-3.3
13.	Equatorial Guinea	43.5	52.2	-8.7	41.7	58.0	-16.3
14.	Eritrea	53.5	57.6	-4.1	60.1	63.5	-3.4
15.	Ethiopia	47.6	52.2	-4.6	51.7	58.2	-6.5
16.	Gabon	54.6	63.0	-8.4	54.5	68.5	-14.0
17.	Gambia	55.5	57.3	-1.8	62.4	63.6	-1.2
18.	Ghana	56.7	61.2	-4.5	61.9	66.3	-4.4
19.	Guinea	53.6	57.0	-3.4	57.2	64.0	-6.8

TABLE IV.9 (*continued*)

Major area	Country or area	Life expectancy at birth, both sexes combined (years)					
		2000-2005			2015-2020		
		With AIDS	Without AIDS	Difference	With AIDS	Without AIDS	Difference
20.	Guinea-Bissau	44.6	47.7	-3.1	49.8	53.4	-3.6
21.	Kenya	47.0	60.5	-13.5	59.1	63.8	-4.7
22.	Lesotho	36.7	63.9	-27.2	38.6	68.5	-29.9
23.	Liberia	42.5	46.6	-4.1	45.5	52.2	-6.7
24.	Madagascar	55.3	56.8	-1.5	59.0	62.5	-3.5
25.	Malawi	39.6	56.7	-17.1	45.5	62.5	-17.0
26.	Mali	47.8	49.9	-2.1	53.3	55.7	-2.4
27.	Mozambique	41.9	52.6	-10.7	46.1	58.8	-12.7
28.	Namibia	48.6	68.4	-19.8	50.3	72.1	-21.8
29.	Niger	44.3	45.3	-1.0	48.5	50.7	-2.2
30.	Nigeria	43.3	49.0	-5.7	48.2	53.9	-5.7
31.	Rwanda	43.6	48.7	-5.1	48.0	52.6	-4.6
32.	Sierra Leone	40.6	42.7	-2.1	44.7	46.5	-1.8
33.	South Africa	49.0	67.0	-18.0	47.0	70.8	-23.8
34.	Sudan	56.3	58.6	-2.3	59.7	64.1	-4.4
35.	Swaziland	32.9	63.6	-30.7	34.4	68.4	-34.0
36.	Togo	54.2	60.7	-6.5	59.8	65.1	-5.3
37.	Uganda	46.8	56.5	-9.7	58.9	61.5	-2.6
38.	United Republic of Tanzania	46.0	58.0	-12.0	50.4	61.2	-10.8
39.	Zambia	37.4	54.3	-16.9	44.1	59.4	-15.3
40.	Zimbabwe	37.2	63.5	-26.3	41.8	67.4	-25.6
Asia							
1.	Cambodia	56.0	60.0	-4.0	62.4	65.9	-3.5
2.	China	71.5	71.8	-0.3	73.8	75.0	-1.2
3.	India	63.1	64.5	-1.4	68.5	70.0	-1.5
4.	Myanmar	60.1	61.4	-1.3	66.1	67.8	-1.7
5.	Thailand	69.7	73.0	-3.3	74.5	75.9	-1.4
Europe							
1.	Russian Federation	65.4	66.3	-0.9	66.9	70.0	-3.1
2.	Ukraine	66.1	68.1	-2.0	68.9	71.6	-2.7
Latin America and the Caribbean							
1.	Bahamas	69.5	74.8	-5.3	75.5	79.0	-3.5
2.	Barbados	74.9	77.2	-2.3	77.9	79.1	-1.2
3.	Belize	71.9	74.4	-2.5	71.8	76.4	-4.6
4.	Brazil	70.3	71.0	-0.7	74.2	74.8	-0.6
5.	Dominican Republic	67.1	70.0	-2.9	71.6	73.5	-1.9
6.	Guatemala	67.1	69.0	-1.9	71.3	72.6	-1.3
7.	Guyana	62.8	67.2	-4.4	68.3	72.0	-3.7
8.	Haiti	51.5	59.2	-7.7	58.0	65.3	-7.3
9.	Honduras	67.6	71.0	-3.4	71.4	74.1	-2.7
10.	Jamaica	70.7	73.5	-2.8	73.2	75.2	-2.0
11.	Suriname	69.0	71.2	-2.2	72.6	73.8	-1.2
12.	Trinidad and Tobago	69.9	74.9	-5.0	71.8	77.3	-5.5
Northern America							
1.	United States of America	77.3	77.7	-0.4	79.1	79.5	-0.4

In the affected countries of sub-Saharan Africa, under-five mortality in 2000-2005 was 16 deaths per thousand births higher (10.1 per cent) than would have been expected in the absence of AIDS (table IV.10). In the affected countries of Asia and Latin America and the Caribbean, AIDS elevated under-five mortality by about 2 per thousand. The relative impact of this difference is higher in Latin America (6.4 per cent) than in Asia (3.2 per cent) due to the lower level of non-AIDS child mortality in Latin America.

The impact of AIDS on child mortality is strongest in the worst-affected countries (table IV.11). In the countries with prevalence higher than 20 per cent in 2003, AIDS contributed to a substantial increase in under-five mortality over the past decade, from 87 in 1990-1995 to 118 in 2000-2005. Under-five mortality in this group of countries is now 60.0 per cent higher than would be expected in the absence of AIDS. In countries where HIV prevalence was between 10 and 20 per cent, under-five mortality decreased during the 1990s, but was still 24.8 per cent higher in 2000-2005 than estimated in the No-AIDS scenario.

The impact of AIDS on under-five mortality is projected to decline over the coming decades. The lessening impact is due both to the assumption that adult HIV prevalence will decline and to the assumption that mother-to-child transmission of HIV will be reduced sharply in the future by expanded access to preventative treatment. If these conditions are not realized, the impact of AIDS on child mortality could remain far higher than projected in the *2004 Revision*.

TABLE IV.10. UNDER-FIVE MORTALITY, BY AFFECTED COUNTRY AND AREA GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), SELECTED PERIODS 1990-2050

	Under-five mortality (deaths under age 5 per 1,000 live births)				
Group of affected countries and areas	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
All 60 affected countries and areas					
With AIDS	113	101	85	70	39
Without AIDS	109	96	81	68	39
Absolute difference	4	6	4	2	0
Percentage difference	3.6	5.8	5.2	3.3	1.3
40 countries and areas in sub-Saharan Africa					
With AIDS	185	174	149	119	63
Without AIDS	174	158	136	111	60
Absolute difference	11	16	13	8	3
Percentage difference	6.1	10.0	9.3	7.2	5.5
5 countries and areas in Asia					
With AIDS	96	76	56	43	24
Without AIDS	95	74	55	43	24
Absolute difference	2	2	1	1	0
Percentage difference	1.6	2.5	2.7	1.8	0.2
12 countries and areas in Latin America and the Caribbean					
With AIDS	62	42	31	23	12
Without AIDS	59	39	30	22	12
Absolute difference	3	2	2	1	0
Percentage difference	4.3	6.4	5.3	5.1	2.4
3 more developed countries and areas					
With AIDS	15	12	11	9	7
Without AIDS	14	12	11	9	7
Absolute difference	1	0	0	0	0
Percentage difference	3.6	3.2	3.2	1.4	0.0

NOTE: Because of rounding, figures on absolute difference and percentage difference may not be entirely consistent.

TABLE IV.11. UNDER-FIVE MORTALITY, BY PREVALENCE GROUP OF AFFECTED COUNTRIES AND AREAS, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), SELECTED PERIODS 1990-2050

	Under-five mortality (deaths under age 5 per 1 000 live births)				
Group of affected countries and areas	*1990-1995*	*2000-2005*	*2010-2015*	*2020-2025*	*2045-2050*
4 countries and areas with adult HIV prevalence above 20 per cent					
With AIDS	87	118	92	58	25
Without AIDS	70	74	59	44	23
Absolute difference	17	44	33	14	2
Percentage difference	24.4	60.0	56.8	33.3	9.8
7 countries and areas with adult HIV prevalence between 10 per cent and 20 per cent					
With AIDS	152	140	115	86	45
Without AIDS	143	112	93	75	42
Absolute difference	9	28	22	11	3
Percentage difference	6.3	24.8	23.9	14.1	6.4
10 countries and areas with adult HIV prevalence between 5 per cent and 10 per cent					
With AIDS	181	178	152	122	63
Without AIDS	171	162	141	114	61
Absolute difference	10	16	12	7	3
Percentage difference	6.0	9.6	8.5	6.5	4.6
35 countries and areas with adult HIV prevalence between 1 per cent and 5 per cent					
With AIDS	156	146	127	106	59
Without AIDS	148	137	120	101	57
Absolute difference	8	9	7	5	2
Percentage difference	5.2	6.3	6.1	4.9	3.8
4 countries and areas with adult HIV prevalence below 1 per cent					
With AIDS	87	67	50	38	21
Without AIDS	86	65	49	38	21
Absolute difference	1	2	1	1	0
Percentage difference	1.7	2.6	2.5	1.7	0.0

NOTE: Because of rounding, figures on absolute difference and percentage difference may not be entirely consistent.

b. The impact on population size and growth

The rising numbers of deaths due to AIDS are expected to result in a reduction of population growth and, in a few countries—Botswana, Lesotho and Swaziland—in a decrease of population size. In most of the other developing countries affected by the epidemic, population growth will continue to be positive because their moderate or high fertility more than counterbalances the rise in mortality.

The total population of the 60 affected countries in 2005 was 3,990,000 in the medium variant, about 49 million lower than in the No-AIDS scenario (table IV.12). By 2050, the difference between the medium variant and the No-AIDS scenario is projected to increase to 344 million, or 5.8 per cent of the population projected in the No-AIDS scenario. The majority of this difference is attributable to Africa, where the population in affected countries is projected to be 266 million (14.0 per cent) less than in the absence of AIDS. The second largest gap is projected to occur in the 5 affected countries of Asia, whose population is expected to be 62 million lower in 2050 than in the No-AIDS scenario. However, in relative terms, this reduction amounts to only 1.9 per cent of the 2050 population of those Asian countries.

TABLE IV.12. POPULATION SIZE AND AVERAGE ANNUAL RATE OF CHANGE IN AFFECTED COUNTRIES AND AREAS, BY MAJOR AREA, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), 2005-2050

	Population size (millions)			*Average annual rate of change (per cent)*	
Group of affected countries and areas	*2005*	*2025*	*2050*	*2005-2025*	*2025-2050*
All 60 affected countries and areas					
With AIDS	3 990	4 890	5 639	1.02	0.57
Without AIDS	4 040	5 078	5 984	1.14	0.66
Absolute difference	-49	-188	-344	-0.13	-0.09
Percentage difference	-1.2	-3.7	-5.8	-11.1	-13.1
40 countries and areas in Africa					
With AIDS	725	1 099	1 634	2.08	1.59
Without AIDS	761	1 236	1 900	2.42	1.72
Absolute difference	-36	-137	-266	-0.34	-0.13
Percentage difference	-4.8	-11.1	-14.0	-14.2	-7.8
5 countries and areas in Asia					
With AIDS	2 548	2 989	3 149	0.80	0.21
Without AIDS	2 558	3 029	3 211	0.84	0.23
Absolute difference	-10	-40	-62	-0.05	-0.02
Percentage difference	-0.4	-1.3	-1.9	-5.6	-10.4
12 countries and areas in Latin America and the Caribbean					
With AIDS	230	286	323	1.09	0.49
Without AIDS	231	290	330	1.13	0.51
Absolute difference	-2	-4	-7	-0.04	-0.02
Percentage difference	-0.7	-1.5	-2.0	-3.4	-4.1
3 more developed countries and areas					
With AIDS	488	517	533	0.29	0.13
Without AIDS	490	524	543	0.34	0.14
Absolute difference	-2	-7	-10	-0.05	-0.02
Percentage difference	-0.3	-1.4	-1.8	-15.4	-11.6

NOTE: Because of rounding, figures on absolute difference and percentage difference may not be entirely consistent.

The impact of AIDS on the rate of population growth for the 60 affected countries is also projected to be significant (table IV.12). During 2005-2025, AIDS is likely to reduce the expected average annual rate of population change of the countries involved from 1.14 per cent per year in the No-AIDS scenario to 1.02 per cent annually in the medium variant. Among the regional groupings, the largest impact on population growth is projected to occur in the affected countries of sub-Saharan Africa, where population growth of 2.42 per cent in the No-AIDS scenario is projected to be cut to 2.08 per cent in the medium variant.

The effect of AIDS on population growth is even more marked when countries are grouped according to their level of prevalence in 2003 (table IV.13). In the four most affected countries, where adult HIV prevalence was above 20 per cent in 2003, total population in 2050 is projected to be 47.5 per cent lower than in the No-AIDS scenario. Between 2005 and 2025, projected average annual population growth would be 0.32 per cent, compared to 1.80 per cent in the No-AIDS scenario.

TABLE IV.13. POPULATION SIZE AND ANNUAL GROWTH RATE, BY PREVALENCE GROUP OF AFFECTED COUNTRIES AND AREAS, ESTIMATES AND MEDIUM VARIANT ("WITH AIDS") AND NO-AIDS SCENARIO ("WITHOUT AIDS"), 2005-2050

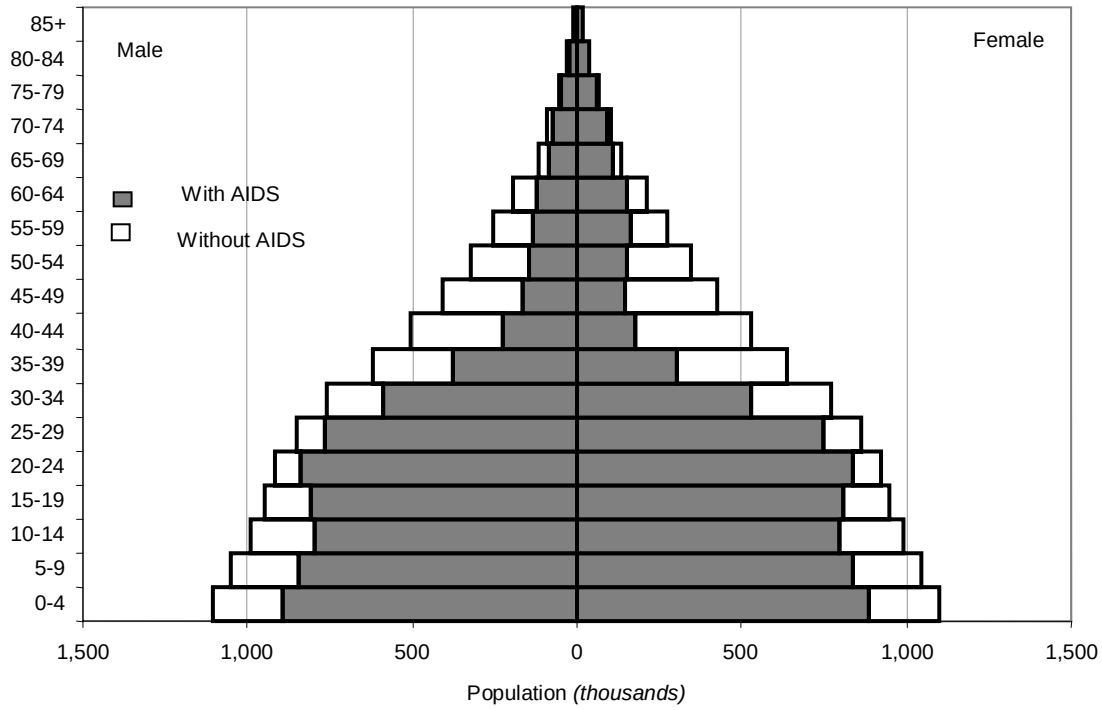
	Population size (millions)			*Average annual rate of change (per cent)*	
Groups of affected countries and areas	*2005*	*2025*	*2050*	*2005-2025*	*2025-2050*
4 countries and areas with adult HIV prevalence above 20 per cent					
With AIDS	18	19	20	0.32	0.28
Without AIDS	21	29	38	1.80	1.05
Absolute difference	-3	-11	-18	-1.49	-0.77
Percentage difference	-14.2	-36.3	-47.5	-82.5	-73.7
7 countries and areas with adult HIV prevalence between 10 and 20 per cent					
With AIDS	98	121	149	1.02	0.86
Without AIDS	107	158	219	1.96	1.30
Absolute difference	-8	-38	-70	-0.95	-0.44
Percentage difference	-7.9	-23.8	-31.8	-48.2	-34.0
10 countries and areas with adult HIV prevalence between 5 and 10 per cent					
With AIDS	263	385	534	1.90	1.31
Without AIDS	277	432	621	2.22	1.46
Absolute difference	-14	-47	-87	-0.32	-0.14
Percentage difference	-4.9	-10.9	-14.0	-14.5	-9.7
35 countries and areas with adult HIV prevalence between 1 and 5 per cent					
With AIDS	707	951	1 303	1.48	1.26
Without AIDS	721	1 004	1 411	1.65	1.36
Absolute difference	-14	-54	-109	-0.17	-0.10
Percentage difference	-2.0	-5.3	-7.7	-10.5	-7.5
4 countries and areas with adult HIV prevalence below 1 per cent					
With AIDS	2 904	3 415	3 633	0.81	0.25
Without AIDS	2 914	3 455	3 694	0.85	0.27
Absolute difference	-10	-40	-61	-0.04	-0.02
Percentage difference	-0.3	-1.1	-1.7	-4.7	-7.6

NOTE: Because of rounding, figures on absolute difference and percentage difference may not be entirely consistent.

c. The impact on population age structure

The concentration of AIDS mortality among working-age adults will reshape the age structure of populations in the most highly affected countries, such as Zimbabwe (figure IV.13). The age distribution resulting from the No-AIDS scenario for 2015 is superimposed on the population projected under the medium variant. In the No-AIDS scenario, the population age structure has the pyramid shape typical of populations with moderate to high fertility and mortality. By 2015, AIDS will have caused marked deviations from the pyramidal shape. For instance, the population aged 35 to 59 projected for 2015 in the medium variant is a small fraction of the population that would have been expected in the absence of AIDS. The ratio of men to women in these age groups will be elevated because more women than men die of AIDS in Zimbabwe, and they die at younger ages. The early deaths of so many women, before the end of their reproductive years, will reduce the size of cohorts to be born over the coming decade. The size of child cohorts will be further reduced by the deaths of children infected with HIV through mother-to-child transmission. The reshaping of population structure due to AIDS will have far-reaching effects on household structure, the labour force and other facets of society.

Figure IV.13. Population of Zimbabwe, by sex and age group, medium variant ("with AIDS") and No-AIDS scenario ("without AIDS"), 2015



4. Uncertainties in projecting the demographic impact of HIV/AIDS

In considering this assessment of the demographic impact of HIV/AIDS, the reader should bear in mind that there is much uncertainty surrounding both the estimated prevalence of the disease in different populations and the path that the epidemic will follow in the future. In addition, more needs to be known about the dynamics of the epidemic itself. For example, it is not certain that the progression from HIV infection to AIDS and from AIDS to death will occur according to the same model schedule in all or even most populations in a geographical region. The rollout of therapies that increase the survivorship of infected persons has just begun in the developing world, and the assumptions made in the *2004 Revision* regarding ART will have to be validated and revised in future assessments, regarding both the additional survival achieved with ART in different settings and the percentage of persons in need of medication who receive it. Similarly, estimates of mother-to-child transmission of HIV will need to be validated in a variety of settings and will need modification as action to prevent such transmission increases.

Another element of uncertainty is the validity of national HIV prevalence estimates. In countries where these estimates are based on surveillance of pregnant women in antenatal clinics, their validity will depend on whether pregnant women are representative of the general population and whether the clinics chosen are representative of the national situation (for example, not overly concentrated in urban areas). Estimates of HIV prevalence in many countries have recently been revised downward by UNAIDS as quality of the surveillance systems improves and as other sources of prevalence estimates, such as population sample surveys, provide additional information, including for the male population.

Despite the uncertainties surrounding any measure of the impact of HIV/AIDS, it is important to underscore that all available evidence points to the same conclusion: the disease is already widespread in many countries and shows few signs of being controlled in others. The list of significantly

affected countries has been increasing steadily since 1990. The estimates and projections discussed in this chapter, which already show a devastating impact of the disease, are based on the assumption that starting in 2005 behaviours will be gradually adopted that reduce the proportion of adults at risk of infection and the chance that sex with an infected person will lead to infection. Governments, the international community and civil society need to continue and strengthen efforts to convince people around the world to adopt these behavioural changes. In addition, it is assumed that treatment interventions, such as those in the 3 by 5 Initiative (WHO, 2005a) and other programs, will extend the survival of infected persons and reduce the level of mother-to-child transmission. If these assumptions are not borne out, the impact of the epidemic could turn out to be worse than anticipated.

NOTES

[1] Specifically, Millennium Development Goal 4 calls for countries to "Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate."

[2] This corresponds to Clinical Stage IV of the WHO staging system for HIV infection and disease in adults and adolescents, intended for settings where laboratory diagnosis is not widely available. Under the AIDS surveillance definition of the US Centers for Disease Control, AIDS can also be defined by a CD4+ T cell count below 200 per millilitre of blood.

V. INTERNATIONAL MIGRATION

International migration is the third of the demographic components that determine the size and structure of a population. By its very nature, international migration links populations across boundaries and thus has impacts beyond any single country. At a time of growing interdependency between countries and regions, international migration has become a central component of worldwide globalization trends. Today, more people are residing outside their country of birth than ever before, and since the underlying causes for such mobility are likely to continue, international migration will remain an important component of both demographic change and future globalization.

A. MEASURING INTERNATIONAL MIGRATION

Compared to fertility and mortality, migration is a more complex and difficult demographic process to record, model and forecast accurately (Zlotnik, 1987; Plane and Rogerson, 1994). For example, birth and death occur only once in a person's lifetime, but migration can occur repeatedly. Thus, studying its patterns and trends requires a study of its occurrence over time as well as across space (Rogers and Castro, 1986). Since international migration involves the crossing of borders, its definition and measurement depend on the instruments and concepts used in many different national data collection systems.

International migration occurs as people move from a country of origin to a country of destination. Ideally, data on such movement should be recorded in both places, including information on the country of origin in the case of immigration and on the country of destination in the case of emigration. However, detailed data are available for only a few countries. When adequate data are studied, common patterns are often found. For example, as noted by Ravenstein (1885, 1989), migration often occurs in several stages, so the first destination of an emigrant might actually be temporary and not the ultimate destination of the move. Ravenstein also noted that migration flows often generate counter flows.

In a majority of countries, migration flows are not completely recorded, if they are recorded at all. Migration data from many National Statistical Offices include only the total number of immigrants and emigrants, thereby giving but a hint of the complex web of links a particular country may have with the rest of the world. Monitoring and appraising international migration trends are thus hindered by lack of data; in addition, there are problems related to the quality, comparability and consistency of the data over time and space.

Because of these data limitations, international migration on a global scale can be assessed and discussed only in terms of net migration—the difference between the number of immigrants and emigrants. Many countries, especially in the less developed regions of the world, do not have adequate data even for arrivals and departures, so estimates of net migration must be calculated as a residual for changes in population size between two successive enumerations of the population that are not accounted for by natural increase, that is, the difference between births and deaths.

If more people enter a country than leave it during a specific period of time, net migration is positive and the country is gaining population through migration. When more people leave than enter, net migration is negative and the country is losing population through migration. In this chapter, positive net migration is called net immigration and negative net migration is called net emigration.

It is important to keep in mind that use of data on net migration masks the separate immigration and emigration flows. Thus, in the discussion below, countries with net immigration or net emigration will be identified as overall receiving or sending countries although they are undoubtedly losing or gaining at least some population due to

migration in the opposite direction. At the world level, net migration necessarily adds to zero, meaning that when the countries of the world are divided into two groups of mutually exclusive units, such as the more developed regions and the less developed regions, the net migration flows to one group balance the net migration flows to the other.

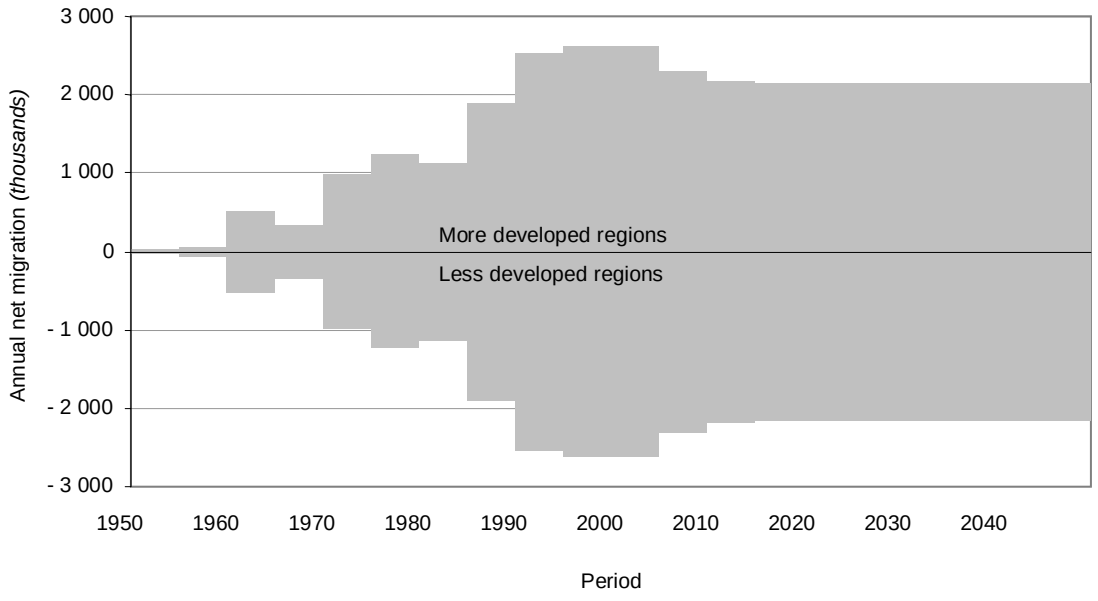
The data for the estimates of net migration presented in the *2004 Revision* come from various sources, including national figures on the number of immigrants and emigrants or on estimates of net migration, estimates of international labor migration recorded by countries, refugee stock data prepared by the Office of the United Nations High Commissioner for Refugees and other official sources and estimates of undocumented or irregular migration. (See chapter VII for sources of data and how net international migration is calculated for each country or area)

B. WORLDWIDE TRENDS IN INTERNATIONAL MIGRATION

In recent decades, the more developed regions have been gaining in population due to positive net migration, whereas the less developed regions have been losing population due to negative net migration (figure V.1). Net migration numbers have been steadily increasing in the more developed regions and reached an all-time high of 2.6 million annually between 1990 and 2000. For the next 50 years, the average number of net migration being added to the populations in the more developed regions is projected to average about 2.2 million persons annually.

Within the less developed regions, the least developed countries have shown a more irregular pattern of net migration than the other less developed countries. After decades of negative levels, net migration for the least developed countries was slightly positive between 1990 and 2000 and is projected to remain positive in 2000-2010; thereafter net migration is expected to become negative once again (table V.1). Most of the net migration in the least developed countries has involved refugee flows; the positive balances for the 1990s are the result of large refugee repatriation flows that occurred during that decade and are expected to be largely completed by 2010. After 2010, the levels of net migration projected for the least developed countries are projected to be no

Figure V.1. Annual net international migration flows by development group, estimates and medium variant, 1950-2050
(medium variant)



longer affected by repatriations and become consistently negative. Emigration from the least developed countries to more developed regions will dominate the net migration balance of this group of countries in the future.

Northern America and Europe are the two major areas that are currently gaining the most due to net immigration, whereas Africa, Asia and Latin America and the Caribbean are losing population due to net migration (table V.1). For the period 1950-2000, Northern America and Oceania were the only two areas that consistently added population due to international migration. Africa and Latin America and the Caribbean, on the other hand, consistently lost population. In the 1950s and 1960s, Europe had negative net migration, but since then net migration has been positive and is projected to remain so. Asia was just the opposite, with positive net migration in the 1950s and 1960s and subsequently negative net migration, which is expected to continue.

These general patterns mask substantial variation. Within Northern America, which has been adding around 1.3 million people annually to its population since 1990, the United States of America is the primary receiving country—accounting for more than 80 per cent of all the net migration estimated for Northern America since the 1950s. Large-scale immigration to the United States of America developed later in the twentieth century than it did in Western Europe, due to the country's restrictive immigration laws (Castles and Miller, 2003). Amendments to the Immigration and Nationality Act in 1965 following new civil rights legislation removed discriminatory national-origin quotas and led to large-scale non-European immigration, dominated by migrants from Asia and from Latin America and the Caribbean. Canada, the other Northern American country attracting large-scale immigration flows, also saw a change in the number and the national origin of immigrants. In the 1950s and 1960s, immigration to Canada was still mostly from Europe, but changes in immigration law in 1966 led to a greater inflow of non-Europeans. Immigrants from Jamaica, Portugal, the Philippines, but also Greece and Italy dominated these immigration flows (Castles and Miller, 2003).

Net emigration from Latin America and the Caribbean has been increasing over time (table V.1). Between 1990 and 2000, Latin America lost almost 800,000 people annually due to net migration. The major destinations of migrants from Latin America and the Caribbean are the United States of America and Canada, and, since the 1980s, countries in Southern Europe such as Spain and Italy (Castles and Miller, 2003). The declining economic performance of many countries in Latin America and the Caribbean has been the primary underlying factor for the rise in net emigration. Close traditional social and political ties and bilateral labor recruitment between countries in Latin America and the United States of America, Canada and some European countries, however, have also contributed to the high level of net emigration from Latin America and the Caribbean.

With regard to Africa, it is important to note that most of the international migration occurs within the continent and thus appears in country-level data but not in area data. Important emigration flows to other major areas have included the outflow of workers and their families from Northern Africa to Europe and to the oil-producing countries of Western Asia. During the 1960s and 1970s, negative net migration balances for Africa resulted mainly from repatriation flows of colonial cadres after the independence of some countries and from the outflow of workers from the Maghreb region in Northern Africa to Europe. In the 1980s, the drop in net emigration was due to the effects of lower emigration of workers from the Maghreb to Europe, important repatriation flows from Europe to the countries of the Maghreb, reduced outflows of workers from Northern Africa to the oil-producing countries of Western Asia and the end of large repatriation flows.

TABLE V.1. ANNUAL NET MIGRATION PER DECADE, BY DEVELOPMENT GROUP AND MAJOR AREA, ESTIMATES AND MEDIUM VARIANT, 1950-2050

Development group or major area	*1950-1960*	*1960-1970*	*1970-1980*	*1980-1990*	*1990-2000*	*2000-2010*	*2010-2020*	*2020-2030*	*2030-2040*	*2040-2050*
					Annual net migration (thousands)					
More developed regions	5	431	1 104	1 521	2 569	2 462	2 168	2 158	2 158	2 158
Less developed regions	-5	-431	-1 104	-1 521	-2 569	-2 462	-2 168	-2 158	-2 158	-2 158
Least developed countries	-95	-140	-462	-766	9	81	-247	-270	-270	-270
Other less developed countries	90	-291	-642	-755	-2 578	-2 543	-1 920	-1 888	-1 888	-1 888
Africa	-116	-220	-293	-244	-269	-410	-308	-322	-322	-322
Asia	165	77	-416	-595	-1 434	-1 244	-1 200	-1 204	-1 204	-1 204
Europe	-480	-64	304	479	1 139	937	704	699	699	699
Latin America and the Caribbean	-58	-288	-388	-649	-798	-740	-592	-567	-567	-567
Northern America	403	387	748	924	1 277	1 360	1 305	1 300	1 300	1 300
Oceania	85	109	44	84	86	98	92	94	94	94

By the 1990s, increased emigration from a number of countries in sub-Saharan Africa to Europe and to the traditional countries of immigration, such as Australia, Canada and the United States of America, and labor flows directed toward the oil-producing countries in Western Asia contributed to the rise in the net emigration for Africa. In addition, large refugee flows have for a long time originated in and been received by countries in Africa (box V.1).

Before the 1970s, Europe was an area of net emigration. Population dislocations that occurred during and after the Second World War resulted in major resettlement flows. Many refugees and displaced persons returned to their home countries in Europe, but others resettled elsewhere. Preferred destinations were the traditional countries of immigration as well as countries in Latin America and the Caribbean, such as Argentina, Brazil and Venezuela, and Israel and South Africa. Since the 1970s, however, Europe has been an area of net immigration and in 1990-2000 added 1.1 million persons annually to its population through immigration.

Within Europe there were variations in migration patterns. With the economies in Northern and Western Europe recovering from the devastating impact of the Second World War, many countries in these regions became net recipients of migrants from Southern Europe and from colonies or former colonies in Africa and Asia—Algeria in the case of France, and India, Pakistan and the West Indies in the case of the United Kingdom. Foreign labor was recruited to help ease a shortage of workers in an era of full employment. However, because of the 1973 increase in oil prices and the subsequent economic recession, official recruitment of foreign workers ceased in 1973-1974, and several Western European countries adopted measures to foster return migration. Consequently net migration declined during the late 1970s and early 1980s in many Western European countries. Later, newly enacted family reunification policies contributed to maintaining a positive net migration from countries in the less developed regions. By the 1980s, Southern Europe was changing from an origin of international migration to a destination for migration from countries in less developed regions. Historical ties of countries in Southern Europe to certain countries in less developed regions, the end of major guest-worker programs in Northern and Western Europe and changes in the economic and political landscape of the receiving and sending countries can be listed as the main reasons for the transformation of these countries from emigration to immigration countries.

As some countries in Eastern and Central Europe relaxed their restrictions on emigration, a further flow of international migrants toward Western Europe and Southern Europe occurred. With the political, economic and social disintegration of the Soviet Union and countries in Eastern and Central Europe, net migration directed toward Western Europe and Southern Europe increased further from 1990 to 2000.

Migration flows originating in Asia have traditionally been complex, encompassing very different types of migration. Asian migration to other parts of the world started to increase in the 1960s (Castles and Miller, 2003), and Asia changed from a net recipient to a net supplier of international migrants in the 1970s. Currently Asia is losing about 1.2 million people annually due to net emigration. More relaxed immigration laws in traditional immigration countries, such as the United States of America, Canada and Australia, as well as increased military, economic and political linkages led to higher levels of net emigration to traditional immigration countries.

Lately, rapid economic growth in several Asian countries has led to a redistribution of international migrants within and from Asia. There have been labor flows toward oil-rich countries within Western Asia; labor flows followed by family reunification of Turks migrating to Europe, primarily Germany; and migration from former colonies (primarily India, Pakistan, Indonesia and Vietnam) to the United Kingdom, Netherlands and France. Western Asia with its oil-exporting industries has thus been continuously gaining population due to net immigration since the 1960s, whereas Eastern Asia, South-central Asia and South-eastern Asia have been losing population due to net emigration over the same period. Fili-

BOX V.1. REFUGEES WORLDWIDE

At the end of 2004, the United Nations High Commissioner for Refugees (UNHCR) reported an estimated 9.2 million refugees worldwide[1] (UNHCR, 2005). The largest number of refugees originated in Asia (5.2 million persons) and Africa (3.7 million persons). Afghanistan, the source of a total of 2.1 million refugees at the end of 2004, 22.6 per cent of the global refugee population, was by far the largest country of origin for refugees under the care of UNHCR. Afghanistan was followed by Sudan (730,600 persons) and Burundi (485,800 persons), together accounting for more than 13 per cent of all refugees worldwide. Most beneficiaries of UNHCR programmes were hosted by countries in the less developed region; within this region, refugees were heavily concentrated within a small number of countries. In fact, more than 2 million refugees were residing in just two countries, the Islamic Republic of Iran and Pakistan, together accounting for 21.7 per cent of all refugees globally.

pinos, Chinese and Indians have also been migrating to the traditional countries of immigration. As noted, these movements have been facilitated by more relaxed family reunification provisions in the destination countries and by the emergence of global labor markets for highly skilled persons. Asia has now become a major supplier of such labor. In addition, war and civil strife and subsequent repatriation have caused many refugee flows within Asia (box V.1).

Other important migration flows negatively affecting the migration balance for Asia involve emigration from countries with economies in transition, such as Kazakhstan and Kyrgyzstan. Since the breakup of the former Soviet Union there has been repatriation of Russians from the Asian republics to the Russian Federation and other European republics as well as migration of ethnic Germans to Germany.

Oceania, especially Australia and New Zealand, added 86,000 persons annually through net migration over the 1990-2000 period (table V.1). Both countries have provided permanent settlement opportunities for immigrants for many decades. Immigration to these countries has for a long time been shaped by admission policies that favored certain national origins. In the case of Australia, there was for many years a strong preference for British immigrants, with severe restrictions on immigration of non-Europeans. By the 1970s, these laws were replaced by new regulations based on skills and family ties (Inglis, 2004). New Zealand also favored immigration from the United Kingdom for a long time (Castles and Miller, 2003). Moreover, New Zealand had traditionally close ties to its neighbors in the Pacific Ocean, such as Tonga and Cook Islands, and had relied on unskilled labor from these countries for its agricultural sector and manufacturing industries (Bedford, 2005). Immigration legislation that was enacted in 1987 brought New Zealand in line with other traditional immigration countries, such as Australia and the United States of America, that no longer relied on national origin quotas but employed skill and family-reunification criteria for admission of immigrants. In addition, immigrants intending to invest capital in New Zealand have been especially encouraged to settle in recent years.

Over the next 50 years, current international migration patterns at the level of the major areas are expected to change very little. Africa and Latin America and the Caribbean are projected to remain suppliers of international migrants, whereas Northern America, Europe and Oceania are expected to continue as primary recipients. On balance, Northern America is projected to see its positive net migration remain at 1.3 million persons annually with almost the same, but negative balance, -1.2 million, expected for Asia. Net immigration to Europe is projected to be level at about 700,000 thousand persons annually, Latin America and the Caribbean will have a net emigration balance of about 570,000 persons a year, Africa a net emigration of about 320,000 persons and Oceania a net immigration of somewhat more than 90,000 persons annually.

At the country level, 83 countries gained population from net migration during 1990-2000, including 33 of the 44 more developed countries. Among them were traditional countries of immigration, such as Australia, Canada, New Zealand

and the United States of America; most of the populous countries in Northern, Southern and Western Europe; and the Russian Federation and Japan (table V.2). Over the same period, 50 of the 178 countries in the less developed regions also experienced net immigration. Traditional labor-recruiting countries, such as United Arab Emirates, Singapore and Hong Kong, China SAR, were among this group of countries, as well as countries repatriating refugees, such as Afghanistan, Mozambique and Ethiopia. In contrast, 103 countries, the majority in the less developed regions, had negative net migration in 1990-2000. Some of these countries are among the most populous in the world, such as Mexico, China, India, Pakistan, Philippines and Indonesia.

For the period 2005-2050, the United States of America, Germany, Canada, United Kingdom, Italy and Australia are projected to gain the most due to net migration (table V.3). China, Mexico, India, Philippines, Indonesia and Pakistan are expected to be the major countries of net emigration.

Migration is a volatile process, with flows changing in direction and countries moving from a position of net immigration to one of net emigration. Since 1950, migration changed sign or became zero at least once in 149 out of 191 countries[2] (table V.4). In the remaining 42 countries, net migration was consistently negative or consistently positive. Of these 42 countries, 14 experienced continuous positive net migration since 1950. Among these were the traditional immigration countries and labor-importing countries in Asia, such as Qatar, Brunei Darussalam, Singapore and the United Arab Emirates. For 28 countries, net migration has been consistently negative since 1950; the majority of these countries were in the less developed regions.

Among the group of countries whose net migration had changed direction or became zero at least once between 1950 and 2005 are several that since 1985 experienced continuous positive net migration. Many of these are countries that were formerly countries sending labor migrants to Western and Northern Europe, such as Greece, Italy and Spain, but that more recently have become receiving countries. Also in this group are those that have experienced the repatriation of ethnic groups, such as Japanese returning from Latin America and Asia to Japan and ethnic Russians returning from other member States of the Commonwealth of Independent States (CIS) to the Russian Federation.

C. CONTRIBUTION OF INTERNATIONAL MIGRATION TO POPULATION CHANGE

Change in the size of a population between any two points in time equals the sum of natural increase (births minus deaths) and net migration (immigrants minus emigrants). By calculating natural increase and net migration for each development group and major area, one can identify the contribution of each component to the population growth or decline of the areas.

Migration affects population change directly by the sheer number of immigrants and emigrants. Migration also affects population change indirectly, by the impact of migration on mortality and fertility in the countries of origin and destination (National Research Council, 2000). For example, immigrants will bear children and they will die in their new country, perhaps at different rates than the native-born. Fertility in the country of origin might be affected negatively due to the departure of young adults, while remittances and the transmission of ideas and practices back to the country of origin might affect mortality. The spread of diseases such as HIV/AIDS can also be linked to people migrating. The following paragraphs will focus on the direct impact of net migration on population growth. For a discussion of the indirect effects, see National Research Council, 2000.

Net international migration numbers have been and are expected to remain substantial in all major areas (table V.1). However, when net migration rates are calculated, relating migration numbers to the size of the affected populations, their values are generally low. For most development groups and major areas of the world, the effect of international migration on overall population growth is minor compared to that of natural increase.

TABLE V.2. COUNTRIES AND AREAS WITH THE HIGHEST AND THE LOWEST LEVELS OF NET MIGRATION, ESTIMATES AND MEDIUM VARIANT, 1950-1960, 1990-2000, 2000-2010 AND 2040-2050

Rank	*Country or area*	*1950-1960*	*Rank*	*Country or area*	*1990-2000*	*Rank*	*Country or area*	*2000-2010*	*Rank*	*Country or area*	*2040-2050*
				A. Countries with net immigration (in thousands)							
1	United States of America	2 908	1	United States of America	11 400	1	United States of America	11 550	1	United States of America	11 000
2	Kazakhstan	1 640	2	Russian Federation	4 158	2	Afghanistan	3 034	2	Canada	2 000
3	Canada	1 120	3	Germany	3 822	3	Spain	2 625	3	Germany	2 000
4	Germany	996	4	Canada	1 375	4	Germany	2 200	4	United Kingdom	1 300
5	France	955	5	Spain	1 176	5	Canada	2 050	5	Italy	1 200
6	Australia	793	6	Italy	1 173	6	United Kingdom	1 336	6	Australia	1 000
7	Brazil	549	7	United Kingdom	955	7	Italy	1 200	7	Hong Kong, China SAR	600
8	Republic of Korea	539	8	Australia	900	8	United Arab Emirates	1 160	8	France	600
9	Israel	454	9	Greece	770	9	Australia	1 000	9	Spain	600
10	Argentina	450	10	France	643	10	Russian Federation	650	10	Japan	540
				B. Countries with net emigration (in thousands)							
1	Russian Federation	-1 328	1	Mexico	-3 800	1	Mexico	-3 800	1	China	-3 200
2	Italy	-1 010	2	China	-3 231	2	China	-3 700	2	Mexico	-2 800
3	Dem. People's Rep. of Korea	-891	3	Kazakhstan	-2 830	3	Pakistan	-2 740	3	India	-2 400
4	Spain	-777	4	India	-2 807	4	India	-2 650	4	Philippines	-1 800
5	Algeria	-722	5	Pakistan	-2 651	5	Iran (Islamic Republic of)	-1 979	5	Indonesia	-1 600
6	China	-713	6	Iran (Islamic Republic of)	-1 968	6	Indonesia	-1 900	6	Pakistan	-1 500
7	Portugal	-631	7	Philippines	-1 800	7	Philippines	-1 800	7	Ukraine	-1 000
8	Belarus	-564	8	Indonesia	-1 625	8	Ukraine	-1 200	8	Egypt	-800
9	United Kingdom	-540	9	Somalia	-1 298	9	Kazakhstan	-1 000	9	Bangladesh	-600
10	Puerto Rico	-470	10	Egypt	-1 100	10	Egypt	-850	10	Kazakhstan	-600

TABLE V.3. TOP SIX NET IMMIGRATION COUNTRIES OR AREAS AND TOP SIX NET EMIGRATION COUNTRIES OR AREAS, MEDIUM VARIANT, 2005-2050

Rank	*Country or area*	*Annual net migration (thousands)*
	A. Net immigration countries or areas	
1	United States of America	1 107
2	Germany	202
3	Canada	200
4	United Kingdom	130
5	Italy	120
6	Australia	100
	B. Net emigration countries or areas	
1	China	-327
2	Mexico	-293
3	India	-241
4	Philippines	-180
5	Indonesia	-164
6	Pakistan	-154

TABLE V.4. NUMBER OF COUNTRIES OR AREAS, BY NET MIGRATION STATUS AND BY MAJOR AREA, 1950-2005

	Number of countries or areas			
Major area	*Net immigration*	*Net emigration*	*Recent net immigration*	*Other*
World	14	28	26	123
Africa	—	5	4	45
Asia	5	5	4	35
Europe	4	3	15	17
Latin America and the Caribbean	2	14	1	18
Northern America	2	—	—	—
Oceania	1	1	2	8

NOTE: Net immigration: countries that consistently showed positive net migration during the period; net emigration: countries that consistently showed negative net migration; recent net immigration: countries that showed consistently positive net migration over the period 1985-2005 but that had negative or zero net migration at least once before 1985; other: countries whose net migration had changed sign or had been zero at least once since 1950.

Fifty years ago, the impact of net migration on overall population growth was negligible nearly everywhere. Subsequently, in the more developed regions, net migration became more important, and by 1990-2000 it was the driving force behind population growth (figure V.2). Until 2040, although the rate of natural increase in the more developed regions becomes negative, the positive contribution of net migration is projected to prevent the population from declining. Beyond 2040, however, the projected levels of net migration will not counterbalance the excess of deaths over births (figure V.3).

The effect of net migration in the less developed regions was relatively small in the 1990-2000

Figure V.2. Average annual rates of population change, natural increase and net migration, by development group, 1990-2000

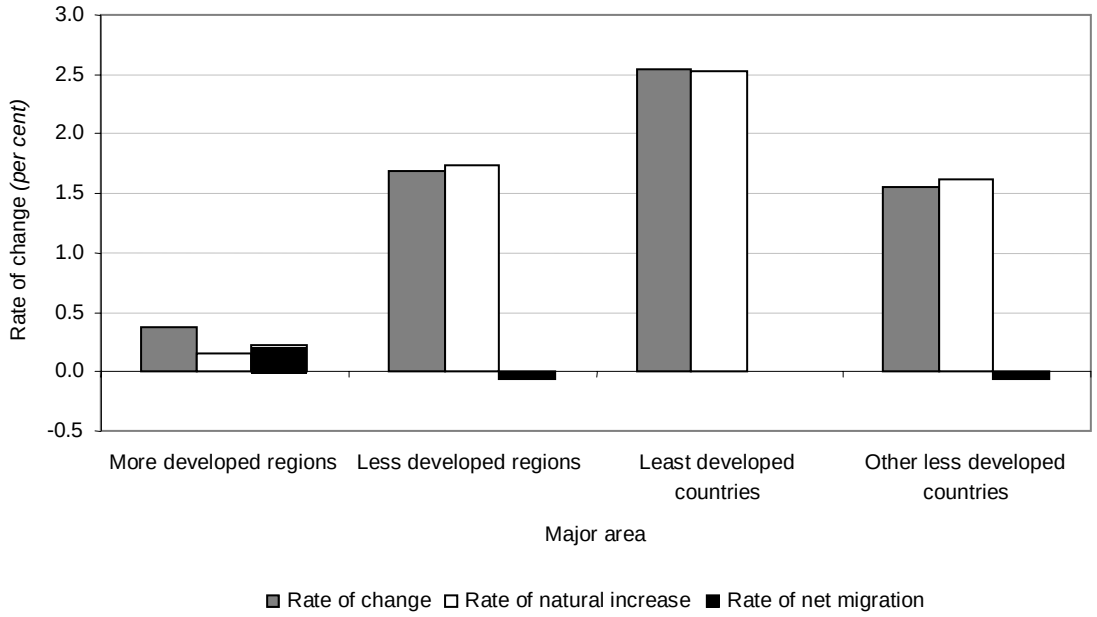
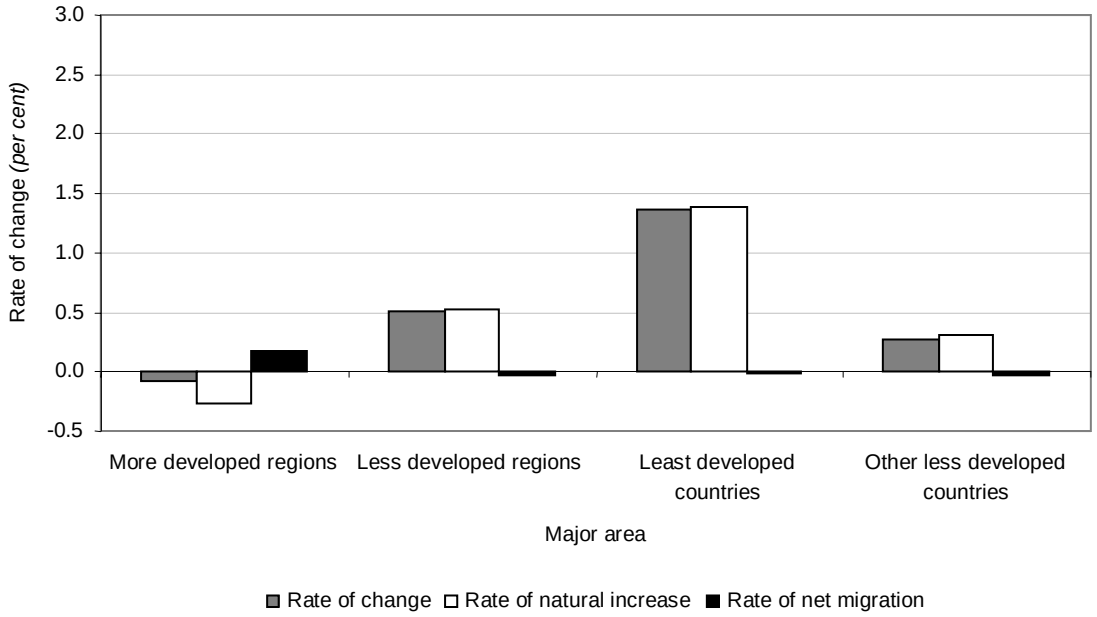


Figure V.3. Average annual rates of population change, natural increase and net migration, by development group, medium variant, 2040-2050



decade. Projected population growth in these regions in the coming decades will still be dominated by natural increase, although both growth and natural increase will be lower than in earlier periods. Net migration rates for the less developed regions are expected to be small and negative, thus slightly slowing population growth from natural increase.

These overall trends for more and less developed regions are the result of different trends at the level of the major areas (figures V.4 and V.5). In both Northern America and Oceania, net international migration has played a positive and at times important role in increasing population growth over the last 50 years. Overall, this trend is expected to continue in the future. By 2020-2030, the net migration rate in Northern America will, for the first time, be higher than the rate of natural increase. From then on, net immigration will be driving the growth in Northern America. In Europe, it was net immigration that kept population growth weakly positive since 1990-2000. By 2010-2020, the rate of population change will, however, turn negative. Despite continued positive net migration rates, the negative rate of natural increase will become the more dominant force in population change, leading to negative growth in Europe. In Africa, Asia, and Latin America and the Caribbean, negative net migration rates are more than offset by positive rates of natural increase, which will remain the major factor behind population growth in these major areas.

At the country level, the contribution of international migration to population growth varies considerably. For the majority of countries, levels of net migration have been low in the past and are expected to remain low in the future. However, in some countries in the more developed regions with low fertility and mortality levels, population change will depend more and more on net international migration.

Over the period 1990-2000, the population increased in 173 countries (table V.5). For 16 of these countries, 13 in Europe and 3 in Asia, net immigration was the primary source of this growth. In 62 countries, natural increase drove population growth, although net immigration was positive. In the remaining 89 countries, population grew entirely due to natural increase and was slowed by net emigration. In 6 countries, net migration was zero.

Figure V.4. Average annual rates of population change, natural increase and net migration, by major area, 1990-2000

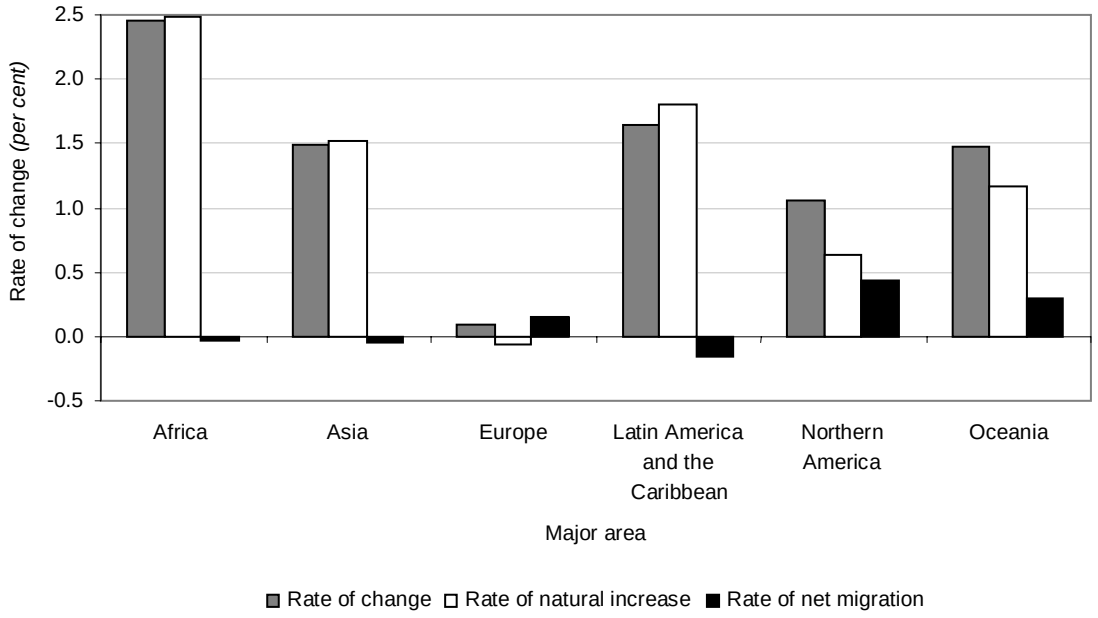


Figure V.5. Average annual rates of population change, natural increase and net migration, by major area, medium variant, 2040-2050

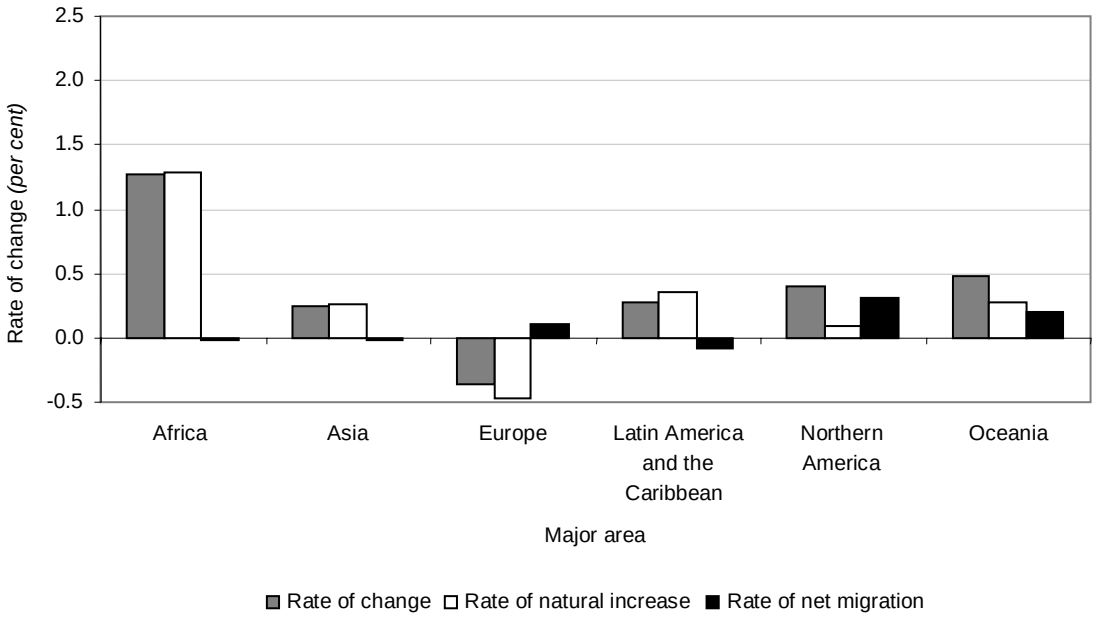


TABLE V.5. NATURAL INCREASE AND NET MIGRATION AS SOURCES OF POPULATION GROWTH OR DECLINE, BY MAJOR AREA, 1990-2000

	Population growth primarily due to			*Population decline primarily due to*		
Major area	*natural increase*	*net migration*	*Total*	*natural increase*	*net migration*	*Total*
World	157	16	173	7	12	19
Africa	54	—	54	—	—	—
Asia	43	3	46	—	4	4
Europe	12	13	25	7	7	14
Latin America and the Caribbean	34	—	34	—	1	1
Northern America	2	—	2	—	—	—
Oceania	12	—	12	—	—	—

During the same period, 19 countries experienced population decline. For 12 of these countries, net emigration was the primary factor causing the decrease in population. For 7 countries—Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Russian Federation and Ukraine—population declined due to an excess of deaths over birth.

Another way of assessing the impact of international migration on future population growth or decline is by comparing the results of the medium-variant projection for 2005-2050 with those obtained by projecting the population with zero international migration—the zero migration scenario (table V.6). As could be expected, compared to the medium variant, the zero-migration scenario produces a smaller population for the more developed regions and a larger population for the less developed regions[3]. However, the magnitude of the differences in relative terms is revealing. In the more developed regions, a zero migration scenario during 2005-2050 would result in a population that was smaller than the medium variant by

TABLE V.6. PROJECTED POPULATION, BY DEVELOPMENT GROUP AND MAJOR AREA, MEDIUM VARIANT AND ZERO-MIGRATION SCENARIO, 2050

Development group or major area	*Population in 2050 (millions)*		*Difference (zero-migration scenario minus medium variant)*	*Difference as percentage of medium variant*
	Medium variant	*Zero-migration scenario*		
World	9 076	9 065	-10	-0.1
More developed regions	1 236	1 097	-139	-11.2
Less developed regions	7 840	7 968	128	1.6
Least developed countries	1 735	1 749	13	0.8
Other less developed countries	6 104	6 220	115	1.9
Africa	1 937	1 959	22	1.1
Asia	5 217	5 283	65	1.3
Europe	653	610	-43	-6.7
Latin America and the Caribbean	783	820	37	4.7
Northern America	438	353	-85	-19.5
Oceania	48	42	-6	-12.2

11.2 per cent, whereas in the less developed regions it would have resulted in a population 1.6 per cent larger. This comparison confirms the importance of international migration for population growth in the more developed regions.

At the level of the major areas, the largest percentage differences between the 2050 population with the medium variant and the zero-migration scenario are found for Northern America and Oceania. Without any international migration, the projected population of Northern America in 2050 would be 19.5 per cent smaller than with the medium variant; for Oceania the population would be 12.2 per cent smaller. The potential reduction of the population of Europe is more modest, just 6.7 per cent, the result of lower levels of international migration projected for that area than for Northern America. The impact of international migration is considerably lower in all the other regions. The 2050 population of Latin America and the Caribbean is 4.7 per cent higher when projected without emigration, that of Asia 1.3 per cent higher and that of Africa 1.1 per cent above that produced by the medium variant.

Comparisons between the medium-variant projection and the zero migration scenario can also be made for individual countries (table V.7). Many countries for which emigration is responsible for substantially smaller populations under the medium variant (in percentage terms) in 2050, have small populations (panel A). By 2050 the most populous country in this group is Mexico, whose projected medium-variant population of 139.0 million would have been 13.5 per cent higher with zero migration. The second largest country is the Ukraine, where a medium-variant 2050 population of 26.4 million would be 17.3 per cent higher under the zero-migration scenario.

Many of the countries whose populations show at least 10 per cent larger populations in 2050 because of international migration also have small populations (panel B). The largest country in the group is the United States of America, whose medium-variant population in 2050, at 395.0 million, would be 18.5 per cent lower in the absence of net immigration. Germany, with 78.8 million inhabitants projected in 2050 under the medium variant, would have 16.7 per cent fewer inhabitants under the zero-migration scenario (box V.2). For Australia and Canada the reductions would be 22.7 per cent and 28.2 per cent, respectively.

Because of its age selectivity (Rogers and Castro, 1986; Rogers and Little, 1993; Rogers, Castro and Lea, 2005), migration has impacts not only on total population size but also on the age and sex composition of a population. Assessing the impact of migration on the future age structure is important in order to obtain a better understanding of

TABLE V.7. PROJECTED POPULATION FOR COUNTRIES AND AREAS WITH THE LARGEST PERCENTAGE DIFFERENCE BETWEEN THE MEDIUM VARIANT AND THE ZERO-MIGRATION SCENARIO, 2050

Rank	Country or area	Population in 2050 (thousands)		Difference (zero-migration scenario minus medium variant)	Difference as percentage of medium variant*
		Medium variant	Zero-migration scenario		
	A. Countries and areas with greater projected growth under zero-migration scenario				
1	Jamaica	2 586	3 753	1 167	+45.1
2	Georgia	2 985	3 887	902	+30.2
3	Kazakhstan	13 086	16 321	3 235	+24.7
4	Albania	3 458	4 124	666	+19.3
5	Lesotho	1 601	1 907	306	+19.1
6	Trinidad and Tobago	1 230	1 451	221	+18.0
7	Armenia	2 506	2 953	447	+17.8
8	Ukraine	26 393	30 960	4 567	+17.3
9	Cuba	9 749	11 273	1 524	+15.6
10	Mexico	139 015	157 831	18 817	+13.5
11	Kyrgyzstan	6 664	7 536	873	+13.1
12	Tajikistan	10 423	11 705	1 282	+12.3
13	Dominican Republic	12 668	14 191	1 523	+12.0
14	Guatemala	25 612	28 184	2 572	+10.0
	B. Countries and areas with less projected growth under zero-migration scenario				
1	Hong Kong, China SAR	9 235	5 858	-3 376	-36.6
2	United Arab Emirates	9 056	6 100	-2 957	-32.6
3	Kuwait	5 279	3 674	-1 605	-30.4
4	Canada	42 844	30 772	-12 072	-28.2
5	Cyprus	1 174	872	-303	-25.8
6	Qatar	1 330	1 026	-304	-22.9
7	Australia	27 940	21 607	-6 333	-22.7
8	Singapore	5 213	4 056	-1 157	-22.2
9	Bahrain	1 155	938	-217	-18.8
10	Greece	10 742	8 738	-2 003	-18.7
11	United States of America	394 976	321 766	-73 211	-18.5
12	Ireland	5 762	4 735	-1 027	-17.8
13	Germany	78 765	65 589	-13 176	-16.7
14	United Kingdom	67 143	57 367	-9 776	-14.6
15	Portugal	10 723	9 195	-1 528	-14.2
16	Norway	5 435	4 692	-743	-13.7
17	Austria	8 073	6 982	-1 091	-13.5
18	Sweden	10 054	8 704	-1 350	-13.4
19	Denmark	5 851	5 078	-774	-13.2
20	Switzerland	7 252	6 387	-866	-11.9
21	Netherlands	17 139	15 270	-1 870	-10.9

NOTE: Only countries and areas with a population of more than 1 million inhabitants in 2050 and with absolute differences of at least 10 per cent are included. Countries and areas ranked by difference as percentage of medium variant.

* Increase (+) or decrease (-) in population if there were no net international migration.

BOX V.2. CAN IMMIGRATION OFFSET POPULATION DECLINE?
THE CASES OF ITALY AND GERMANY

Over the next 45 years, the medium-variant projection shows that Italy and Germany will experience the largest population declines among countries of Western Europe. Fertility in these two countries is projected to remain below replacement level until at least the end of the projection period. There will be an assumed annual net immigration of 120,000 persons to Italy and of 202,000 persons to Germany, but this will not be sufficient to balance the excess of deaths over births. Calculations assuming labor-dominated migration flows show that Italy would have to increase its annual net immigration to about 220,000 persons annually and Germany to about 307,000 persons annually in order to keep the populations of the two countries constant at the 2005 level. From the viewpoint of economic sustainability, however, maintaining changes in the age structure is probably more crucial than maintaining total population size. Maintaining constant age structures in these two countries over the next 45 years would require even higher net immigration levels (United Nations, 2001). It appears that sustained net immigration can play a role in mitigating the effects of population decline and population ageing, but it will not necessarily reverse demographic trends that have led to these demographic developments.

the economic sustainability of future populations In this regard, the dependency ratio—the ratio of the dependent age population (the young and the old) to the working-age population—is a useful indicator measuring the potential social and economic impact of different age structures (see chapter II). The higher this ratio, the more people each potential worker needs to support.

According to the medium variant, the dependency ratio is projected to increase in the developed regions over the next 50 years despite international migration (table II.1). However, in some countries, international migration is projected to reduce dependency ratios. This is shown by comparing the projected dependency ratios calculated under the medium variant with the corresponding results from the zero-migration scenario (table V.8). International migration reduces the dependency ratios in labor-recruiting countries, such as the oil-exporting countries in Western Asia. Countries of immigration in Northern America, Oceania and Europe, such as the United States of America, Australia, Germany, United Kingdom and Spain, also have lower dependency ratios when migration is set to zero. The changes in the dependency ratios are fairly modest, however, for countries in which the ageing process of the population is more advanced. Thus, international migration can play a role in modifying population decline or reductions of the working-age population, but it cannot reverse the trend of population ageing.

As the previous analysis has shown, net migration levels have increased since 1950, with the more developed regions consistently gaining population and less developed regions losing population. Northern America and Europe are the two major areas that are currently gaining the most, while Africa, Asia and Latin America and the Caribbean are experiencing net emigration. These overall trends are expected to continue in the foreseeable future. Given the decline in fertility rates in the more developed regions, net migration has become a more prominent force behind continued population growth in these areas, whereas natural increase is still determining population increase in less developed regions. Given the age selectivity of migration, international migration can have a modifying influence on population ageing, but it cannot reverse long-established trends in population decline or population ageing.

International migration has become a global phenomenon, with more people living outside their country of birth today than at any other point in history. Since the forces underlying international migration flows, such as economic and social inequalities, improved transportation and closer network ties between countries and communities are very unlikely to reverse in the near

TABLE V.8. COUNTRIES AND AREAS WITH GREATEST INCREASE IN DEPENDENCY RATIO UNDER ZERO-MIGRATION SCENARIO, 2050

Rank	Country or area	Population in 2005 (thousands)	Dependency ratio in 2005	Dependency ratio in 2050		Increase (zero-migration scenario minus medium variant)
				Medium variant	Zero-migration scenario	
1	United Arab Emirates	4 496	30	48	87	39
2	Hong Kong, China SAR	7 041	36	81	110	30
3	Qatar	813	30	55	74	19
4	Kuwait	2 687	35	57	75	19
5	Bahrain	727	43	51	63	12
6	Canada	32 268	44	71	82	12
7	Greece	11 120	48	78	89	11
8	Germany	82 689	49	76	86	9
9	Switzerland	7 252	48	76	85	9
10	Austria	8 189	48	79	88	8
11	Cyprus	835	47	63	72	8
12	Australia	20 155	48	67	74	8
13	Spain	43 064	45	94	100	6
14	United Kingdom	59 668	51	66	72	6
15	United States of America	298 213	49	61	67	6

NOTE: Ranked by difference between zero-migration scenario and medium variant dependency ratios.

future, current migration patterns are expected to change very little over the next 50 years. Thus, international migration will continue to be an important demographic as well as social, economic and political process impacting countries all over the world and continuing to be a matter of intense policy debate.

NOTES

[1] Persons recognized as refugees under the 1951 UN Convention/1967 Protocol, the 1969 OAU Convention, in accordance with the UNHCR Statute, persons granted a humanitarian status and those granted temporary protection (UNHCR, 2005). Other persons of concern to UNHCR brought the total to more than 191 million persons; the great bulk of these, however, were internally displaced persons (IDPs) and returned refugees, who are not classified as international migrants.

[2] One country (Democratic People's Republic of Korea) was classified as essentially closed to migration and was excluded from the analysis.

[3] It is interesting to note that by 2050 the medium variant projection results in a slightly larger total world population than does the zero migration scenario. When net international migration is from less developed regions to more developed regions, a larger proportion of the world's total population ends up living in regions of relatively low fertility and relatively low mortality, and a smaller proportion of the world's total population ends up living in regions of relatively high fertility and relatively high mortality. As a result, with net migration to the more developed regions, fewer babies are born but even more deaths do not occur than would have been the case with no migration. Thus, the world population in 2050 is slightly larger than it would be with no migration.

VI. METHODOLOGY OF THE UNITED NATIONS POPULATION ESTIMATES AND PROJECTIONS

The preparation of each new *Revision* of the official population estimates and projections of the United Nations is a complex process involving several steps.

First, based on new empirical evidence and informed by recent findings in demography, sociology, political sciences and economics, specific guidelines about dominant future trends of fertility, mortality and migration are formulated. These guidelines ensure consistency between and comparability of the estimated and projected demographic trends for the world's countries. These guidelines are flexible and allow for the incorporation of country-specific trends that deviate from assumed general trends and they take into account a countries current position in the demographic transition from high to low fertility and mortality. Specific guidelines for fertility, mortality and migration are described in the main body of this chapter.

The population estimates and projections of this *Revision* cover 100 years, from mid-year 1950 to mid-year 2050. The 100 years covered in this *Revision* are subdivided into past estimates (1950-2005) and projections (2005-2050). Past estimates of demographic variables are either directly taken from national statistical sources, or estimated by the Population Division based on the best available national or international estimates, and if needed, adjusted for deficiencies such as age misreporting, underenumeration of populations or underreporting of vital events, such as birth and deaths. Adjustments are also made to international migration. The year 2005, separating the past estimates from the projections, is called the base year of the projections (sometimes the terms start year or jump-off year can be found). The projection period of this *Revision* covers 45 years and ends in 2050. Usually, population projections prepared by the United Nations Population Division are carried out for a number of variants and scenarios, all based on the medium variant.

The preparation of each new *Revision* of the official estimates and projections of the United Nations involves two distinct processes: (*a*) the incorporation of all new and relevant information regarding the past dynamics of the population of each country of the world, and (*b*) the formulation of detailed assumptions about the future paths of fertility, mortality and international migration. In order to ensure consistency and comparability, certain steps must be taken. New information is evaluated to determine recent changes in population dynamics that have an impact on the age and sex structure of the population at the base year (the year when the projection starts). The methods used to carry out this evaluation must be technically appropriate and consistently applied. With respect to the projection period, general guidelines are established regarding the paths that fertility, mortality and international migration are to follow in the future. However country-specific deviations from the general guidelines are common under two sets of circumstances: (*a*) when recent trends suggest that the population of a country is not yet ready to embark on the path determined by the general guidelines, a transition period between current dynamics and those formulated in the general guidelines has to be introduced, and (*b*) when the populations of certain countries are likely to experience a long-term deviation from the paths set by the guidelines, as is the case for countries where the prevalence of HIV/AIDS is high.

This chapter first describes the way past estimates were revised during the preparation of the *2004 Revision* of the United Nations population projections. It then examines the assumptions made and approaches used for projecting fertility, mortality and international migration up the year 2050. Finally, procedures and assumptions for population projections are described. This chapter also provides the technical documentation of models used for this *Revision* in an annex.

A. PAST ESTIMATES OF POPULATION DYNAMICS

One of the major tasks in revising the estimates and projections of the population of each country of the world is to obtain and evaluate the most recent information available on each of the three major components of population change: fertility, mortality and international migration. In addition, newly available census information or other data providing information on the age distribution of the population are also carefully evaluated. The process of updating and revising past population estimates usually entails not only the separate evaluation of the quality of the different estimates available but also and more importantly the search for consistency among them. The key task is therefore to ensure that for each country past trends of fertility, mortality and international migration are consistent with changes in the size of the population and its distribution by age and sex. In very general terms, for most countries in the more developed regions, the availability of detailed information on fertility and mortality trends over time and of periodic censuses of the population greatly facilitates the task of producing reliable estimates of past population dynamics. Yet, even for those countries, the data on international migration flows are generally inadequate. Consequently, consistency between population counts and the components of population change is often achieved by assigning to net international migration the residual estimate obtained by comparing actual intercensal population growth with independent estimates of natural increase.

For many countries in the less developed regions, the estimation of past trends is more complex. In these countries, information may be limited or lacking and the available data may be unreliable. In numerous cases, therefore, consistency can only be achieved by making use of models in conjunction with methods of indirect estimation (United Nations, 1983, 2002). In extreme cases, when countries have no data referring to the past decade or two, estimates are derived by inferring levels and trends from those experienced by countries in the same region that have a socioeconomic profile similar to the country in question. However, since the 1970s the emphasis put on surveys and census-taking in the developing countries has considerably improved the availability of demographic information.

At the global level, data from censuses or reliable official estimates based on censuses, population registers and surveys referring to 1995 or later were available for 181 countries, 79 per cent of the 228 countries or areas for which projections are carried out. For 32 countries, data were available from the 1985-1994 global censuses round, for 13 countries, census information or estimates with comparable quality were available from the global 1975-1984 census round, and for 2 countries, data were available only for years before 1975.

Aside from relying on census information concerning the distribution of the population by age and sex, in order to estimate the population as of 1 July 2005, the base year, trends in fertility, mortality and international migration up to this date must be established. Ideally, complete time series of annual age-specific fertility rates, life tables and age-specific net international migration rates by sex would be needed. In practice, the information available is considerably less comprehensive, consisting often of no more than the average age-specific fertility rates experienced by women over one or two periods of various lengths, estimates of infant or child mortality at several points in time and, less commonly, one or two life tables for different periods. For developing countries, estimates of recent fertility and child mortality are often derived from surveys, especially when countries lack a civil registration system or have one that does not have sufficient coverage of all vital events. When countries have a reliable civil registration system, as is the case in most developed countries and in some developing countries, data on both fertility and mortality by age and sex are theoretically available on a continuous basis. However, owing to either delays in processing the data or the difficulty of estimating appropriate denominators to calculate age-specific fertility or mortality rates, fertility schedules and life tables may only be available for selected years. In preparing the revised estimates of the base-year population, such information has to be taken into account together with trends in other indicators, such as changes in the overall number of births.

To provide some assessment of the timeliness of the information on which the *2004 Revision* is based, tables VI.1a, b and c present the distribution of countries by region and time period, indicating the most recent information used for estimating fertility, child mortality and adult mortality. Such information pertains to a total of 192 countries, each of which was estimated to have a population of 100,000 inhabitants or more in 2000 and for which projections were prepared using the cohort-component method. For the other 36 countries considered, whose populations were below 100,000 in 2000, simplified projections were made. As a consequence, only total population figures and growth rates are available for these countries.

As table VI.1a indicates, this *Revision* incorporates relatively recent information on fertility for most countries: out of the 192 countries considered, 178 had information referring to 1995 or later. Only one country had no information whatsoever on fertility. All countries in Europe, Northern America and Oceania had information referring to 1995 or later, whereas in the developing regions the percentage of countries with recent information was lower, varying from a high of 96 per cent in Asia, to 94 per cent in Latin America and the Caribbean, and to a low of 81 per cent in Africa.

Child mortality, e.g. the probability to survive from birth to age five, is a lead indicator to asses

TABLE VI.1a. DISTRIBUTION OF COUNTRIES AND THE POPULATION ACCORDING TO THE MOST RECENT DATA USED FOR THE ESTIMATIONS OF FERTILITY

Topic and reference date	*Africa*	*Asia*	*Europe and Northern America*	*Latin America and the Caribbean*	*Oceania*	*Total*
			Number of countries			
No Information.....	1	—	—	—	—	1
Before 1985	3	—	—	—	—	3
1985-1989.....	2	1	—	—	—	3
1990-1994.....	4	1	—	2	—	7
1995-1999.....	18	10	1	12	4	45
2000 or later.....	26	38	40	21	8	133
TOTAL	54	50	41	35	12	192
			Population (millions)			
No Information.....	—	—	—	—	—	—
Before 1985	62	—	—	—	—	62
1985-1989.....	11	29	—	—	—	40
1990-1994.....	40	22	—	1	—	63
1995-1999.....	243	1 293	—	126	2	1 664
2000 or later.....	550	2 561	1 058	434	31	4 635
TOTAL	906	3 905	1 059	561	33	6 463
			Percentage of the population			
No Information.....	0.0	—	—	—	—	0.0
Before 1985	6.9	—	—	—	—	1.0
1985-1989.....	1.2	0.7	—	—	—	0.6
1990-1994.....	4.4	0.6	—	0.2	—	1.0
1995-1999.....	26.9	33.1	0.0	22.4	5.0	25.7
2000 or later.....	60.7	65.6	100.0	77.4	95.0	71.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

the welfare of children. The availability of information on it was also high (table VI.1b), with 186 countries having information referring to 1995 or later, including all of the developed countries. At the regional level, only one country in Africa and one in Latin America and the Caribbean had no information on childhood mortality while three African countries and one Asian country had data referring to dates prior to 1995. This implies that for 99.9 per cent of the world population information from 1995 and later was used in the estimation of child mortality.

In contrast with the availability of information on fertility and on mortality in childhood, information on adult mortality was sparse and often outdated (table VI.1c). Data on adult mortality referring to 1995 or later was used in little more than a third of all countries considered (37 per cent) and no empirical data on age specific mortality was available for the estimation of adult mortality in 41 per cent of the countries. Information was especially lacking or of insufficient quality among the countries of Africa (91 per cent) and Asia (36 per cent). However, it is important to under-

TABLE VI.1b. DISTRIBUTION OF COUNTRIES AND THE POPULATION ACCORDING TO THE MOST RECENT DATA USED FOR THE ESTIMATION OF CHILD MORTALITY

Topic and reference date	*Africa*	*Asia*	*Europe and Northern America*	*Latin America and the Caribbean*	*Oceania*	*Total*
			Number of countries			
No Information	1	—	—	—	—	1
Before 1985	2	—	—	—	—	2
1985-1989	1	—	—	—	—	1
1990-1994	0	1	—	1	—	2
1995-1999	14	14	2	12	5	47
2000 or later	36	35	39	22	7	139
TOTAL	54	50	41	35	12	192
			Population (millions)			
No Information	—	—	—	—	—	—
Before 1985	5	—	—	—	—	5
1985-1989	3	—	—	—	—	3
1990-1994	0	1	—	—	—	1
1995-1999	224	1 461	43	98	2	1 828
2000 or later	674	2 443	1 015	463	31	4 626
TOTAL	906	3 905	1 059	561	33	6 463
			Percentage of the population			
No Information	0.0	—	—	—	—	0.0
Before 1985	0.5	—	—	—	—	0.1
1985-1989	0.4	—	—	—	—	0.1
1990-1994	0.0	0.0	—	0.0	—	0.0
1995-1999	24.7	37.4	4.1	17.5	5.6	28.3
2000 or later	74.4	62.6	95.9	82.5	94.4	71.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

line that life expectancy estimates are often derived from more recent information than what is documented in table VI.1c with respect to adult mortality. In particular, life expectancy at birth was often arrived at by using recent information of infant and child mortality and appropriate model life tables. In addition, official estimates of adult mortality were sometimes considered, but not necessarily used because their quality was not adequate or due to methodological constraints (e.g. implementation of the AIDS methodology and actual base year of the projection). Thus, table VI.1c reflects the data that was used in this *Revision*, not the availability of the data.

It is important to consider the implications of data availability for the quality of the population estimates and projections made. One way of assessing the probable overall impact of the uncertainty involved in making estimates on the basis of non-existent or outdated information is to calculate the proportion of the population to which the less reliable or outdated estimates refer. With regard to information on child mortality, the total population of countries lacking recent information was, with fewer than 10 million people, very small. As for fertility, the population of countries that either lacked data entirely or whose most recently used estimates referred to periods before

TABLE VI.1c. DISTRIBUTION OF COUNTRIES AND THE POPULATION ACCORDING TO THE MOST RECENT DATA USED FOR THE ESTIMATION OF ADULT MORTALITY

Topic and reference date	*Africa*	*Asia*	*Europe and Northern America*	*Latin America and the Caribbean*	*Oceania*	*Total*
			Number of countries			
No Information	49	18	—	7	4	78
Before 1985	1	1	—	3	1	6
1985-1989	1	3	2	2	0	8
1990-1994	1	12	4	11	1	29
1995-1999	1	6	24	2	5	38
2000 or later	1	10	11	10	1	33
TOTAL	54	50	41	35	12	192
			Population (millions)			
No Information	854	537	—	40	1	1 432
Before 1985	1	30	—	10	—	41
1985-1989	33	88	7	7	—	135
1990-1994	9	1 495	322	212	—	2 039
1995-1999	8	1 301	558	9	27	1 903
2000 or later	1	455	171	282	4	914
TOTAL	906	3 905	1 059	561	33	6 463
			Percentage of the population			
No Information	94.3	13.7	—	7.2	1.9	22.2
Before 1985	0.1	0.8	—	1.7	1.5	0.6
1985-1989	3.6	2.3	0.7	1.3	—	2.1
1990-1994	1.0	38.3	30.4	37.8	0.5	31.5
1995-1999	0.8	33.3	52.7	1.6	83.8	29.4
2000 or later	0.1	11.7	16.2	50.3	12.3	14.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

1995 amounted to 3 per cent of the world population. However, the proportion of the population lacking equally recent estimates of adult mortality amounted to 56 per cent. Therefore, the most serious weakness faced in producing the 2005 base year estimates of the population of each country was the lack of recent information on mortality and especially on adult mortality. Owing to the wide availability of data from recent census enumerations, the lack of recent mortality data would be less critical if those enumerations were accurate. However, considerable evidence exists that coverage errors in census enumerations are not necessarily small. Furthermore, as an increasing number of countries face sharp rises in mortality brought about by war, civil strife, major social and economic changes, or the HIV/AIDS epidemic, direct information on those trends is necessary to derive appropriate estimates of their impact on the population's age and sex structure. In the absence of direct and reliable information on the timing and magnitudes of such 'shocks' to mortality, estimations and approximations are necessarily less accurate.

A final consideration in the *Revision* of past estimates of population dynamics concerns the sources of information regarding international migration. In preparing this *Revision* particular attention was given to official estimates of net international migration or its components (immigration and emigration), to information on labour migration or on international migration flows recorded by receiving countries, to estimates of undocumented or irregular migration by origin, and to data about refugee flows and stocks prepared by the Office of the United Nations High Commissioner for Refugees. Even by combining these numerous data sources, it is difficult to produce comprehensive and consistent data of net migration over time. In those cases net international migration was estimated as the residual not accounted for by natural increase between two successive enumerations of the population. Clearly, therefore, the paucity of reliable and comprehensive data on international migration should also be singled out as one of the limitations in producing more accurate estimates of the population for the base year.

B. THE PROJECTION OF FERTILITY

This section provides a detailed account of how future levels and age patterns of fertility were projected for countries in different groups of current fertility levels. In the discussion that follows, assumptions and methodology will be described in terms of the following groups of countries:

1. High-and medium fertility countries. High fertility countries are countries that until 2005 had had no fertility reduction or only an incipient decline, and medium-fertility countries are those where fertility has been declining but whose level was still above 2.1 children per woman in 2000-2005;
2. Low-fertility countries: Countries with total fertility at or below 2.1 children per woman in 2000-2005.

The projection of fertility in this *Revision* follows the methodology that was introduced in the *2002 Revision*, with only minor changes. In this *Revision*, as in the previous one, it is assumed that countries in the transition from high to low fertility will ultimately approach a fertility floor of 1.85 children per woman, regardless of their current position in the fertility transition. The transition from the current level of fertility to the fertility floor is expressed by models of fertility change over time. These models have been formalized for this *Revision*; they are described below and documented in the annex of this chapter. The assumption for countries currently below replacement level have been slightly altered, namely it is now assumed that the fertility recovery will follow a uniform pace. As a consequence, individual countries will reach the fertility floor at different years in the future and not, as in the previous *Revision*, between 2045 and 2050.

1. The high- and medium-fertility countries

The projection of fertility for the high-fertility and medium-fertility countries is carried out through a unified model. First introduced in the *2002 Revision* (United Nations, 2004a, pp. 183-184), it is formulated in terms of the pace of fertility decline. An important feature of the fertility

model is its assumption that fertility in all countries will eventually fall below replacement level, but not necessarily by the end of the projection period in 2050. In light of evidence that fertility in a growing number of countries in less-developed regions has already dropped below replacement level, or is rapidly approaching it, this *Revision* keeps the assumption of a fertility "floor" of 1.85 children per woman.

a. The pace of fertility decline

For all countries where fertility was above the replacement level in 2000-2005, fertility was projected in this *Revision* using a model based upon the combined experience of all countries that underwent fertility decline between 1950 and 2000.

The model relates changes in fertility over a specified period to the level of fertility at the beginning of that period. When examining the empirical evidence, a particular pattern emerges: decline in fertility is relatively slow when the fertility transition is starting but accelerates until fertility is between 4 and 5 children per woman. The pace of decline then decreases near the end of the transition. Further analysis of empirical pathways of fertility decline suggested some variations of the general pattern, associated with the pace or speed of fertility decline at the beginning and at the end of the fertility transition.

Three models have been identified to capture best the variety of pathways from high to low fertility. One model represents pathways with a slower decline at both high and low fertility, labelled Slow/Slow. A second model exhibits faster decline at both high and low fertility levels and is labelled Fast/Fast. Empirical evidence suggests a third model that combines a fast decline at high levels of fertility and slow decline as lower fertility levels are approached. The latter model is labelled Fast/Slow. The three models of fertility decline have been implemented as logistic functions and are documented in the annex to this chapter.

The models are expressed as fertility decline in the current year given a certain level of fertility in the previous year. For most countries, the new model was used to project fertility beginning in 2005, based on the estimated levels of total fertility in 2000-2005. However, in the high-fertility countries where there has been no evidence of fertility decline to date, it was assumed that fertility would remain constant until 2010 and begin to fall according to the model after that year.

Figures VI.1a and 1b illustrate the different trajectories of the three models for different base levels of fertility, here in 2000. A high-fertility country with a total fertility of 8 children per woman in 2000 (figure VI.1a) would reach the fertility floor of 1.85 children per woman with the Fast/Fast model not before the year 2083. Assuming the Fast/Slow and the Slow/Slow model, the fertility floor would be reached after 2100, e.g. after a period of more than 100 years. Figure VI.1a also shows that the Fast/Fast model and the Fast/Slow model show different trends only after fertility declined to about 3 children per woman.

Figure VI.1b shows trajectories of fertility decline for a country with a total fertility of 4 children per woman in 2000. It will reach the fertility floor after 39 year (Fast/Fast model), 61 years (Fast/Slow model) and 62 years (Slow/Slow model). The figure also shows that for countries with medium and low levels of fertility, the Fast/Slow and the Slow/Slow model converge.

b. Age pattern of fertility

For both the high-fertility and medium fertility countries the age pattern of fertility was projected by interpolating linearly between a starting proportionate age pattern of fertility and a target model pattern. The target pattern is usually attained in either 2045-2050 or in the period when the country reaches its lowest fertility level. Several model patterns of fertility, shown in the annex to this chapter, are available (table VI.3, VI.4, VI.5). In certain cases, the proportionate age pattern of fertility was held constant for the projection period.

2. Low-fertility countries

a. The pace of fertility recovery

Low-fertility countries are those where the total fertility was 2.1 or below in 2000-2005. For those

Figure VI.1a. High fertility: Models of fertility decline

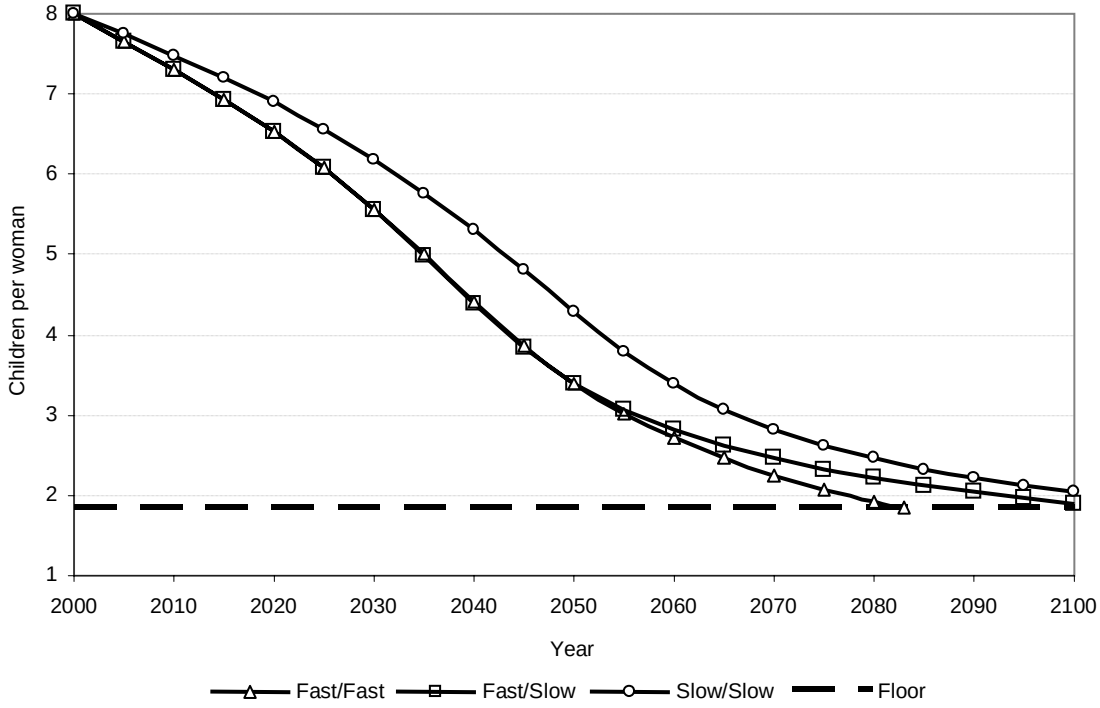
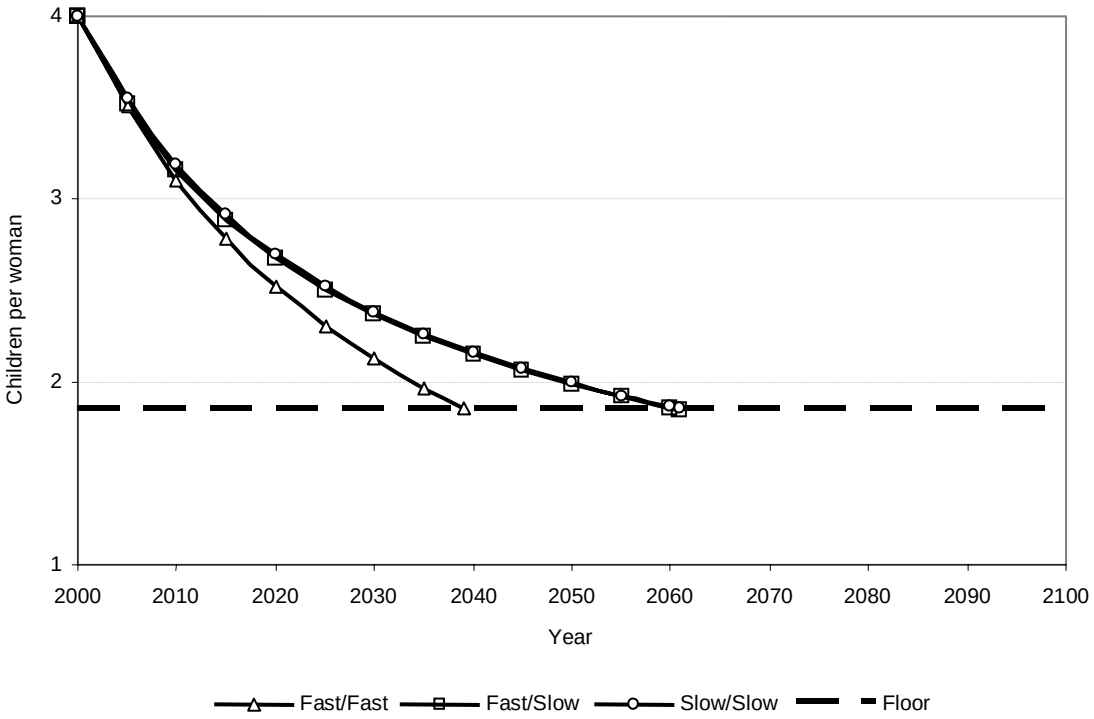


Figure VI.1b. Medium fertility: Models of fertility decline



countries, a much simpler model of fertility change was adopted. In general, it is assumed, as in the previous *Revision*, that fertility now below replacement level will also converge to the fertility floor of 1.85 children per woman, just as the high and medium fertility countries.

While all low-fertility countries were projected to have fertility of 1.85 in the long term in the *2002 Revision*, the short-term projection of total fertility for each country was accomplished taking into account the most recent trends in annual total fertility. For those countries where total fertility was below 1.85 and declining in the 1990s, the annual trend between 1990 and the most recent estimate was generally extrapolated to 2005 or 2010. Then, for most countries a pause period was projected until 2010 or 2015, at which time fertility would begin to rise at a pace of 0.07 children per woman per quinquennium Several low-fertility countries experienced a levelling-off of fertility decline or a slight increase in fertility in the late 1990s. For these countries, total fertility was generally projected to stay constant near its most recent level until 2005 or 2010.

For countries where total fertility in the 2000-2005 was above 1.85 but below 2.1, fertility was projected to decline to 1.85 during the projection period.

b. Age patterns of fertility

The projected total fertility levels were converted into age-specific fertility rates by using age patterns of fertility derived by interpolating between the most recent age pattern of fertility available and a model age-specific pattern. For the countries of Europe, model patterns were to be reached by 2025 in the market economy countries and by 2035 in the countries with economies in transition. Linear interpolation was used to move from the current fertility pattern to a model pattern. Once the model pattern was reached, it was assumed to remain constant until the end of the projection period. The model age patterns of fertility used are shown in annex table VI.4 for the market economies of Europe and in annex table VI.5 for the countries with economies in transition. They were derived from the experience of low-fertility countries by fitting a simple Beta distribution to the age-specific fertility patterns typical of market-economy countries (e.g., the Netherlands) and of countries with economies in transition (e.g., Slovenia). By varying the parameters of the Beta distribution in a manner similar to that implied by past trends, a set of model age-specific fertility patterns was generated with different mean ages of childbearing.

The model age patterns of fertility developed for Europe were also used for several of the low-fertility countries outside of Europe. In certain other low-fertility countries, the proportionate age pattern of fertility was assumed to remain constant over the projection period.

C. THE PROJECTION OF MORTALITY

In contrast with the assumptions made about future fertility trends, only one variant of future mortality trends was used for each country for the standard variants (high, medium and low variants). It must be noted, however, that the estimation and projection of HIV/AIDS related mortality, documented below, made it necessary to prepare an additional mortality variant with No-AIDS mortality for all countries with significant HIV prevalence (see chapter IV).

Assumptions are made in terms of life expectancy at birth by sex and, in most cases, an underlying model life table. As in previous *Revisions*, life expectancy was generally assumed to rise over the projection period for most countries. The major exceptions are the countries affected by the HIV/AIDS epidemic (explained below), and countries with economies in transition.

1. General approach

The often dramatic decline of mortality was - and is - a driving force behind the profound changes to population trends observed during the past two centuries. While first limited to a small number of countries in the world, the decline of mortality and rise in life expectancy has now become a global phenomenon.

For countries where mortality was assumed to follow a declining trend starting in 2005, the pace of change of life expectancy was set according to

a chosen model. This *Revision* added two new models of gains in life expectancy to the existing three that were available in previous *Revisions*, namely a very slow and a very fast model of mortality improvement. Altogether, a total of five mortality models are now available: the new very fast model, the established fast, medium and slow models, and a new very slow model. The addition of the two additional models was necessary because some countries have experienced smaller gains in life expectancy than the traditional slow model suggested, while other countries have experienced consistently faster increases in life expectancy than the fast improvement model envisioned.

All five models are based on a broad empirical basis of increasing life expectancy during the period 1950 to 2005, covering life expectancies between 50 and about 85 years. The models represent the average experience of this historical period grouped according to the 90th percentile (very fast, modelled on Japan), the 75th percentile (fast model) the arithmetic mean (medium model), the lowest 25th percentile (slow model), and the lowest 10th percentile (the very slow model).

In order to be useful for the projection of life expectancy for advanced countries such as Japan, the models needed to be extended to cover levels of life expectancy not yet achieved. Such an extension was carried out to levels of life expectancy of 92.5 years by extrapolating the trends in the given models using the Lee-Carter model (United Nations 2004b). Because an unconstrained extrapolation of declining gains in life expectancy would ultimately yield zero and even negative increments, it was assumed that after the gains in life expectancy reached a certain low level, future gains would stay constant at this lowest increment. While there is no strong empirical basis for such an assumption, there is also no evidence today of a particular upper limit to life expectancy (Oeppen, Vaupel 2002). Indeed, as Tuljapurkar and Li (2004) have shown, under certain conditions, a linear trend in life expectancy, and thus a constant increment, is possible.

The models are expressed as annual increments of life expectancy for a given level of life expectancy, but are presented in the annex for the ease of use as quinquennial increments (table VI.6). Although all models differ regarding the amount of change or increments of life expectancy during a given period of time, they all share a general feature of the evolution of life expectancy: very low life expectancy is associated with small gains in life expectancy, as was the case before the onset of the demographic transition. Increments in life expectancy increased during the early stages of the demographic transition and reached a peak when life expectancy was between 50 and 60 years. As mortality is further reduced, annual gains in life expectancy tend to become smaller.

For any given country, the appropriate model was chosen by taking into account the observed pace of mortality decline in the recent to medium-term past. The selected model of improvement in life expectancy was generally followed until 2025 and, if deemed appropriate, a switch was made as of that date to the medium-pace model.

In countries with economies in transition that experienced a long period of stagnating or even increasing mortality, life expectancy was assumed to increase only very little until 2010; it was then assumed to follow one of the models just described.

Once the path of future expectation of life was determined, survival ratios by five-year age group and sex consistent with the expectation of life at birth for each quinquennium were calculated. For countries with recent empirical information on the age patterns of mortality, survival ratios for the projection period were obtained by extrapolating the most recent set of survival ratios by the rates of change of an underlying model life table. In other words, under such a procedure the empirical or estimated age pattern of mortality converges towards the underlying model pattern as life expectancy changes over time. For countries lacking recent or reliable information on age patterns of mortality, survival ratios were directly obtained from an underlying model life table. A choice could be made among nine model life table systems, four proposed by Coale and Demeny (1966; Coale, Demeny, Vaughn 1983; Coale, Guo 1989) and five model systems for developing countries produced by the United Nations (1982). These nine model life tables have been updated and ex-

tended by the Population Division in order to cover the whole age range up 100 years, and a range of life expectancies from 20 to 92.5 years (for more details, see Buettner, 2002). It must be noted that the last available entry in the revised system of model life tables of 92.5 year of life expectancy, for both males and females, are not meant to represent a ceiling for human longevity.

The general approach to the projection of mortality just described is not appropriate for countries significantly affected by the HIV/AIDS epidemic. A detailed description of assumptions made and models used to estimate and project the demographic impact of HIV/AIDS is given in the next section.

2. Modelling HIV/AIDS mortality

This *Revision* incorporates explicitly the impact of the HIV/AIDS epidemic for 60 countries, most of which had an adult HIV prevalence of at least one per cent in 2003. Brazil, China, India and the United States of America, countries where HIV prevalence is still low but which had a large number of infected persons, were also included. Among the 60 countries considered, 40 countries are in Africa, 5 are in Asia and 12 in Latin America and the Caribbean (see chapter IV, table 5). For those countries, a different approach for the estimation and projection of mortality must be used. Unlike other infectious diseases, HIV/AIDS has a very long incubation period in which an infected person is mostly symptom-free and infectious. Also unlike many other infectious diseases, individuals do not develop immunity, but, in the absence of treatment, almost always die as a consequence of their compromised immune system. Another reason for an explicit modelling of the HIV/AIDS is the avalanche-like process of the infection spreading through a population and the particular age pattern exhibited by HIV/AIDS. The additional deaths due to HIV/AIDS, predominantly adults in their reproductive age, are consequently distorting the usual U-shaped age-specific age profile of mortality, a feature which cannot be found in the model life tables that are available to demographers (Heuveline, 2003). Thus the particular dynamic of this disease and the severity of its outcome require an explicit modelling of the epidemic.

As a consequence, instead of an overall mortality process that can be captured by standard age patterns of mortality and smooth trends of changing life expectancy, for countries highly affected by HIV/AIDS, two separate mortality processes must be modelled: the mortality due to the HIV/AIDS epidemic itself and the mortality that prevails among the non-infected population. The latter is often called "background mortality". The estimation of it is described in the next section.

a. Establishing background mortality

For countries severely affected by HIV/AIDS, hypothetical mortality paths for what is often called "background" or "No-AIDS mortality" needed to be constructed first. The background mortality is the mortality experienced by those not infected with HIV in a given country and at a given period of time. It is not the mortality that would have been observed in the complete absence of HIV/AIDS in that country, however. The distinction between background mortality and mortality in the absence of HIV/AIDS is of little importance during the first years the epidemic develops in a given country. But once a sizeable number of people is infected and ultimately dies of AIDS, the consequences of the epidemic are likely to affect severely the capacity of a country to provide health care services to its population, including the uninfected people. It is for this reason that the assumed trends in background mortality are generally less optimistic than in a similar country that is not affected by HIV/AIDS.

The background mortality can be estimated from data on causes of death (deaths caused by HIV and deaths due to other causes). Such detailed account of deaths by causes of deaths and by age and sex, however, is rarely available in countries in less developed regions that are severely affected by the epidemic. Therefore, background mortality needs to be estimated by assuming plausible levels and trends based on other information or assumptions. Often the process is one of iterative refinement: beginning with an assumed trend of the background mortality, the HIV/AIDS epidemic is modelled and the results are then compared with overall mortality estimates, if they are available (see, for example, Feeney, 2001), or with results provided by a cen-

sus or survey. If necessary, background mortality is adjusted, and the procedure is repeated until a reasonable agreement between the model output and available evidence is achieved.

b. Modelling the overall dynamic of the epidemic

The approach of the Population Division to model the dynamics of the HIV/AIDS epidemic follows that suggested by the UNAIDS Reference Group on Estimates, Modelling and Projections (2002). UNAIDS has implemented this model in a software package called Epidemiological Program Package or EPP, described in Ghys et al (2004). In the following, both the epidemiological model and its software implementation are called EPP for short.

The first stage in modelling the epidemic is to derive estimates of the yearly probability of being infected by HIV (annual incidence) from available estimates of HIV prevalence. In countries of sub-Saharan Africa these prevalence estimates are derived mainly from data on the proportion of seropositive females among pregnant women attending antenatal clinics that belong to the system of sentinel surveillance sites in each country. Consequently, available estimates of prevalence refer to the HIV prevalence among pregnant women only. It has been shown, however, that prevalence levels among pregnant women aged 15-49 provide reasonable estimates of prevalence levels among all women in the same age group (Gregson and Zaba, 1998; Glynn et al, 2001; Gregson, Zaba and Hunger, 2002). There is scant information on how well prevalence levels among pregnant women represent those among men. Only recently have nationally representative surveys of HIV seroprevalence begun to be taken in countries of sub-Saharan Africa; their results will inform modelling specification in future *Revisions*. In the absence of more information, the models presented here assume that available estimates of prevalence among pregnant women aged 15-49 are adequate proxies of HIV prevalence among both women and men.

The EPP model divides the total population of persons over 15, denoted by N, into three groups:

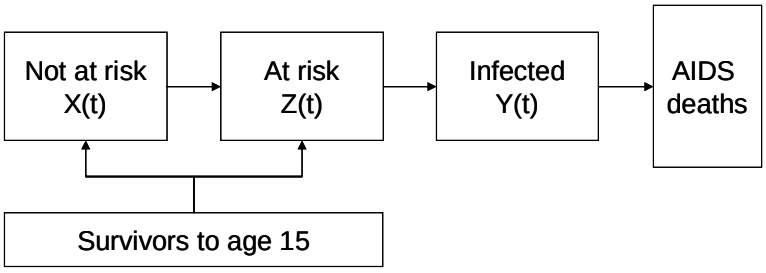
- Persons who, at time t, are not at risk of being infected by HIV, denoted by $X(t)$.
- Persons already infected by HIV at time t, denoted by $Y(t)$;
- Persons at risk of being infected by HIV at time t, denoted by $Z(t)$,

The model of the HIV/AIDS epidemic is described by a system of three differential equations (see annex), with the following four parameters to be estimated:

- *The parameter* f_0 is the fraction of individuals who entered the at-risk population at age 15 at the time the HIV epidemic started. This parameter determines the endemic level of the epidemic.
- The parameter r represents the force of infection or reproductive potential of the epidemic. It is the probability that interactions between an infected and a non-infected individual results in the infection of the latter. This parameter governs to a large extend how the epidemic grows: If r is larger than one, the epidemic grows, if it is smaller than one, the epidemic will disappear over time.
- *Φ (Phi)* captures the recruitment of people into the at-risk population and is therefore also called the behavioural or response parameter. If Φ is positive, more people are entering the at-risk population than die of the epidemic. As a consequence, the epidemic is sustained at a higher level. If Φ is negative, less people are entering the at-risk population than die of the epidemic. With Φ negative, the epidemic declines.
- The parameter t_0, the year the epidemic started in a particular country

In order to keep the number of parameters to be estimated to a minimum, other information necessary to formulate the epidemiological model are set to predetermined values, such as the rate of Mother-To-Child Transmission (MTCT), the incubation period (time from infection to death caused by HIV/AIDS), and the fertility reduction

Figure VI.2. Structure of the EPP model



associated with a HIV positive status of women. Demographic parameters such as the crude birth and death rates as well as the probability of survival from birth to age 15, the age of entry into the adult population, are taken the No-AIDS scenario.

In the original implementation of the model, the parameters r, $f_{0,}$ Φ and t_0 are kept constant over time, assuming that they will not change significantly during the relatively short period of 20 to 30 years covered by the model. However, over longer periods, as in this *Revision*, the impact of the epidemic itself on the demographic variables needs to be explicitly taken into account. In addition, behavioural change as well as medical treatment of infected people is poised to alter the dynamics of the epidemic. For those reasons, the implementation of the epidemiological model by the Population Division allows for changes over time for most parameters.

In addition, because of the inclusion of treatment with Anti-Retroviral Treatment (ART) in this *Revision*, two new parameters - the coverage rate of ART treatment and annual survival for people under treatment - were included. These additional parameters are currently set outside the model and not obtained from fitting the model to empirical data.

The system of differential equations of the EPP model can be solved numerically by using, for instance, the Runge-Kutta method, provided values of all relevant parameters are known. Population-based estimates of population size at the start of the epidemic, births and mortality risks over time are available. In addition, assumptions are made about the probabilities of dying of AIDS among those infected, about the probability of mother-to-child transmission and about the extent to which the fertility of HIV-positive women is reduced. Then it is possible to estimate, via numerical approximation methods, the values of r, f_0 and Φ that minimize the distance between the HIV prevalence generated by the model and the HIV prevalence estimated on the basis of data from antenatal clinics at various points in time. More specifically, a non-linear iterative optimization procedure is used to obtain estimates of the parameters r, $f_{0,}$ Φ *and* t_0.

This simple epidemiological model is capable of producing a large number of different epidemics and thus can be applied to countries with varying levels of severity of the epidemic (see figure IV.10 in the chapter about mortality).

This versatility is illustrated below by comparing epidemiological curves produced by varying one parameter while keeping all others constant. Each of the four parameters shapes the epidemiological curve in a particular way, allowing to attribute certain characteristics of the epidemic to one particular parameter.

The fraction of new entrants to the at-risk population, f_0, largely determines the endemic level of the epidemic (figure VI.3). If, at the beginning of the epidemic, a large fraction of people is already in the at-risk category, the epidemic will level off at higher level than in cases where initially the fraction of the at-risk population is smaller.

The force of infection (parameter r) determines the growth of the epidemic (figure VI.4). A higher force of infection results in a faster growth of the epidemic, with a higher endemic level after the peak prevalence. A lower force of infection, on

Figure VI.3. Initial fraction of people in at-risk population

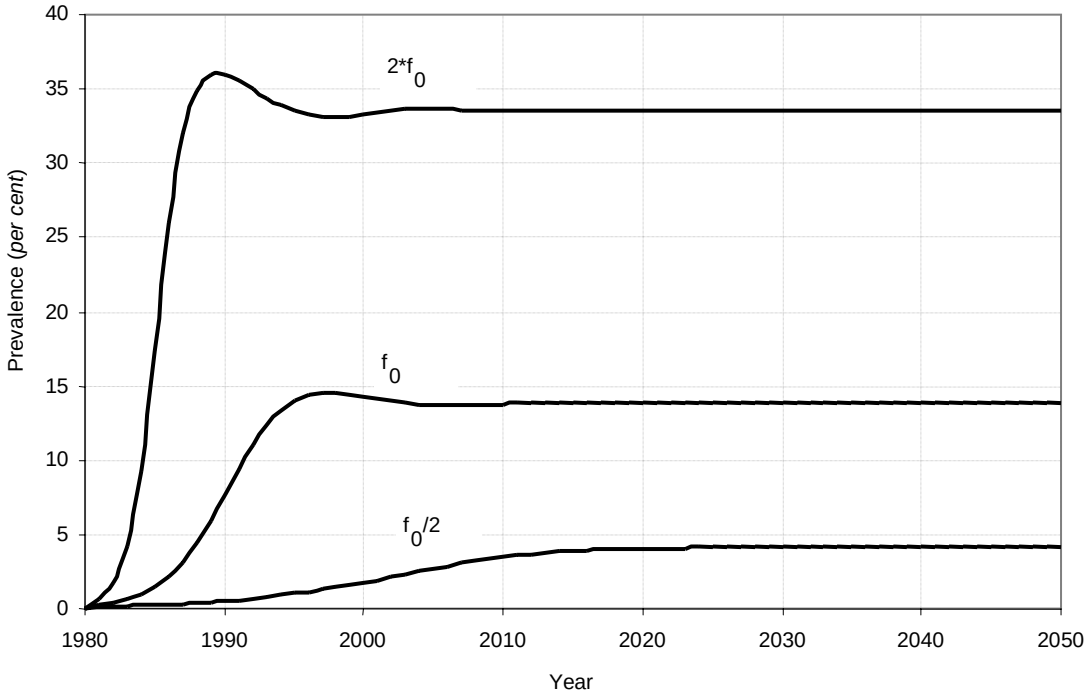
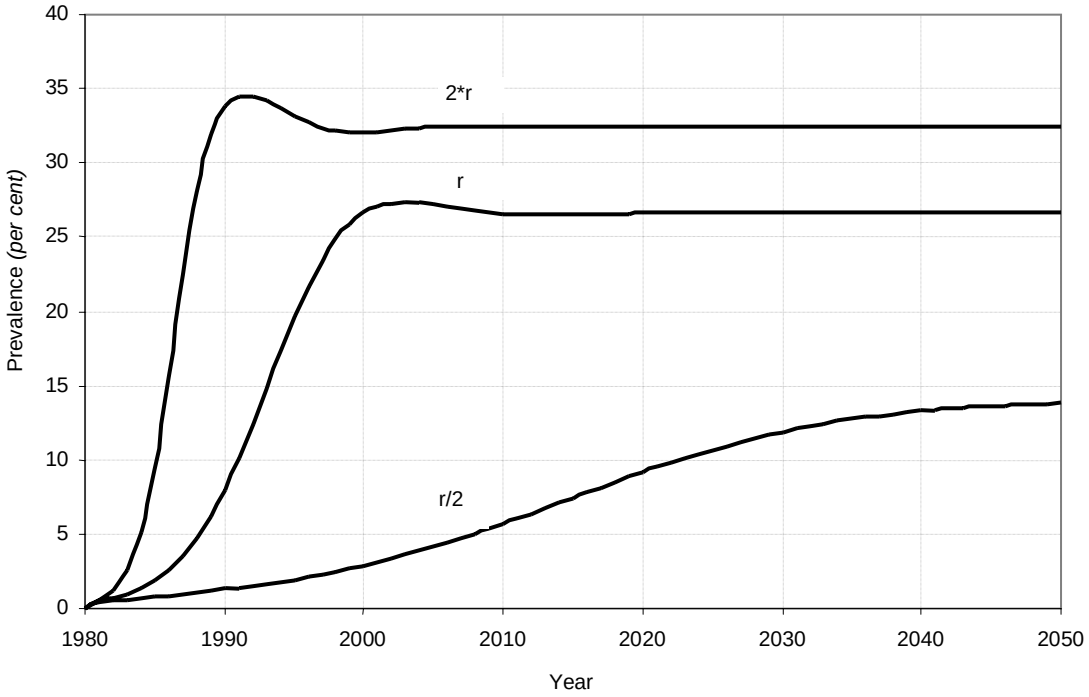


Figure VI.4. Force of infection



the other hand, produces an epidemic curve that grows slower, reaches its peak prevalence later and also has a lower endemic level.

The parameter Φ models the recruitment of people into the at-risk population (figure VI.5). If Φ is zero, then the at-risk population maintains its initial fraction of the population, that is f_0. A positive Φ means that more people are recruited into the at-risk population, resulting in an epidemic with higher endemic level. If Φ is negative, the prevalence of the epidemic declines more rapidly because the number of people dying of AIDS is larger than the number of people entering the at-risk population.

The parameter t_0 determines when the epidemic started in a given country. This parameter simply shifts a given epidemic curve horizontally on the time axis. It is not shown as a chart.

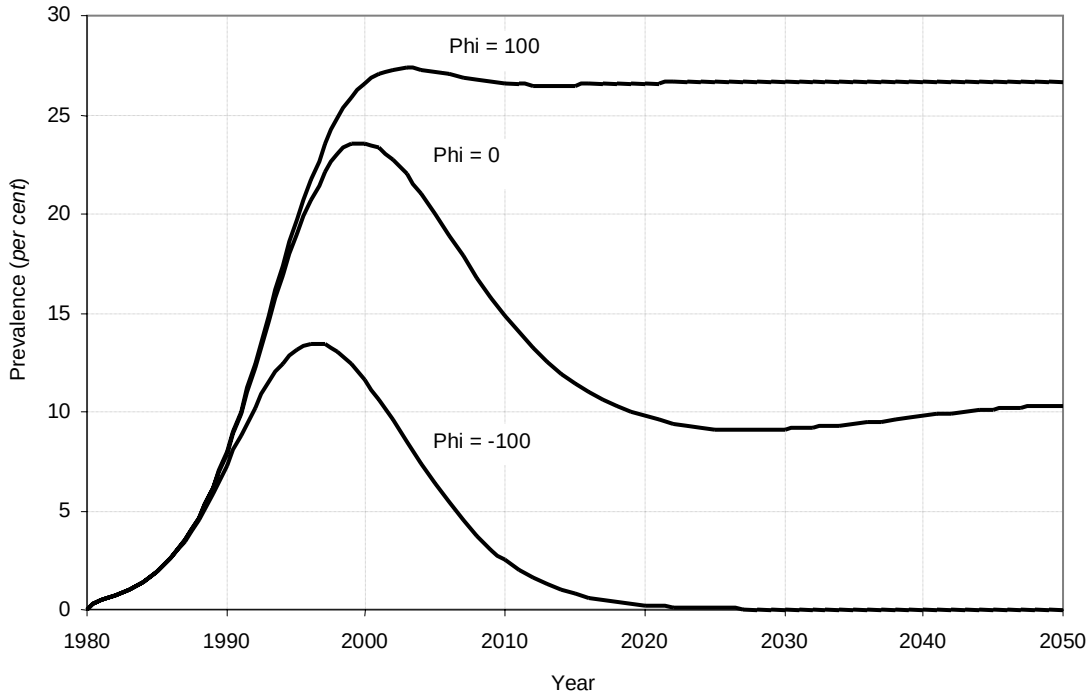
Once the values of all parameters are obtained, the mathematical model is used to calculate the number of adult persons living with HIV, the number in the at-risk group and the number who are not susceptible, as well as the number of newly infected individuals for each year *t* ranging from the start of the epidemic to 2003, the most recent year with data on prevalence available at the time of this *Revision*. Also calculated is the incidence rate for the total population at risk.

However, in order to estimate the effect of the HIV/AIDS epidemic on mortality and population dynamics, it is necessary to derive estimates of the infected population by age and sex. The procedures followed in such derivation are described in the next sections.

c. Estimating the demographic impact of HIV/AIDS

The simple epidemiological model EPP just outlined captures the overall dynamics of the epidemic for three sub-population groups. It does not, however, allow for a detailed account of the demographic impact of the epidemic. As mentioned, no provision is made for a disaggregation by age or sex, two key elements of a demographic analysis of the epidemic. Modelling only adult populations, it does not include explicitly the paediatric dimension of the epidemic. In order to

Figure VI.5. Recruitment into at risk population



generate a full account of the demographic impact of HIV/AIDS, the Population Division developed abcDIM[1], a software package that combines the EPP model with a full multistate demographic projection model. In it, the epidemiological dynamics captured in EPP are translated into age-and sex specific values, thus providing a full demographic account. Figure VI.6 shows the schematic structure of the model used in abcDIM.

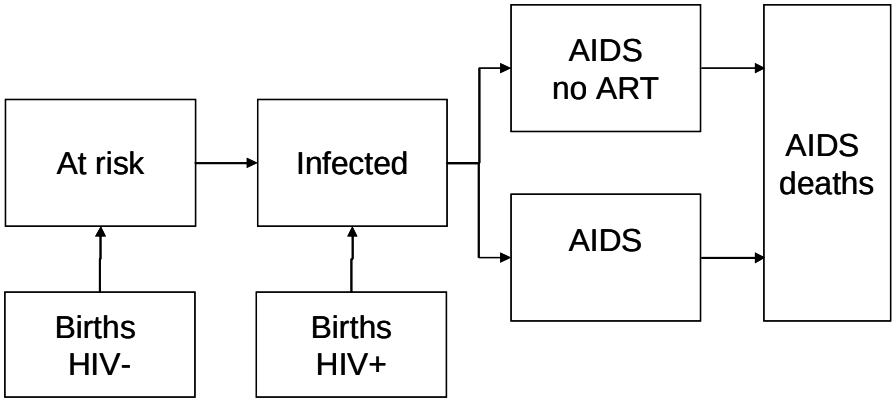
The estimation of the demographic impact of HIV/AIDS is carried out in several steps. First, the EPP epidemiological model needs to be extended until 2050, the final projection year in this *Revision*. While the simple epidemiological model used by UNAIDS makes the implicit assumption of constant parameters for the last 25 years, for long range projections such a simplification can not be maintained. In particular the parameters of the model that capture behavioural elements, such as Φ and r, cannot be assumed to be constant throughout this period. Instead, in order to incorporate the effects of intervention, such as treatment, or prevention, such as increased condoms use, reasonable assumptions about future trends of these parameters are needed.

For this *Revision*, Φ, r and the Mother-to Child Transmission (MTCT) are assumed, after 2005, to decline over time, reflecting the impact of interventions and behavioural change. The declining trend in these parameters can be specified in abcDIM by assuming a halving period, that is the number of years it take to reduce the value of the parameter to half the value it had at the beginning of the projection period (see table VI.10). The default values for the halving times are 10 years for MTCT, 30 years for r, and 20 years for Φ.

The parameters just described influence the number of people that are being newly infected, but they do not alter the chances of survival once a person is infected. Anti-retroviral treatment, on the other hand, results in longer survival of infected people. In this *Revision*, the effects of ART have been included into the abcDIM model by adding a new stage (labelled ART in figure VI.6) to the demographic projection model, and by prolonging the survival times in EPP accordingly. Consequently, depending on the proportion of HIV positive people receiving treatment and the percentage of people under treatment surviving annually, the overall survival time in EPP is dynamically adjusted in order to reflect the impact of treatment on survival of infected people.

Then, the estimates of annual HIV incidence derived from the epidemiological model with all sexes and ages combined are converted into age and sex-specific estimates of newly infected individuals and the population that was initially free from the epidemic is projected using a multi-state approach that tracks the transitions of people from at-risk to AIDS and finally deaths. Note that the abcDIM model also estimates the number of children by infection status and follows them similarly.

Figure VI.6. Structure of the abcDIM model



[1] Its name is derived from Demographic Impact Model (abcDIM).

All sub-populations are projected by single years of age while the infected population is further classified by duration since infection in single years. The exact steps followed and the assumptions made in recreating the dynamics of a population affected by the HIV/AIDS epidemic are described in detail below.

Step 1: *Derivation of the number of new infections by sex.*

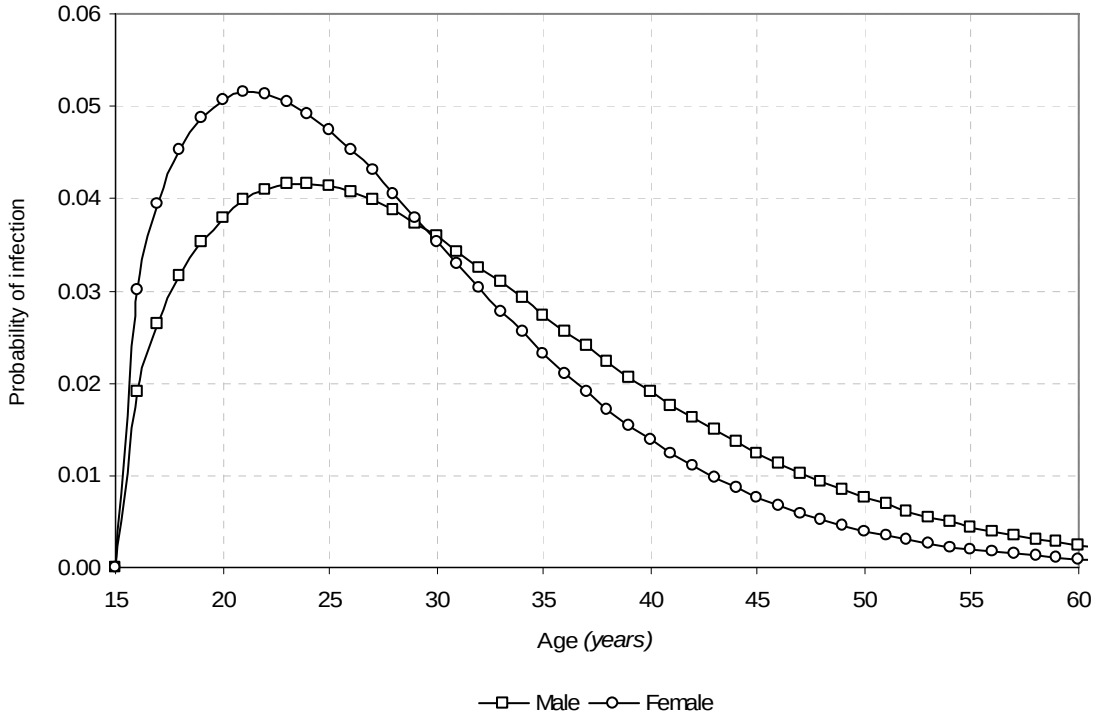
As noted above the model used to derive the parameters r, f_0 and Φ does not take into account the age or sex of the population infected. To derive estimates of the impact of HIV/AIDS by age and sex, it is first necessary to distribute by sex the yearly number of newly infected individuals, as yielded by the general epidemiological model EPP. Although data on the distribution by sex of newly infected individuals are rare, there is some evidence suggesting that when HIV/AIDS is spread mainly by heterosexual transmission, the proportion of males among the newly infected is high at first but declines rapidly in the years following the start of the epidemic to proportions closer to those of women.

On the basis of this observation, the proportion of males among the newly infected is assumed to decline from 80 per cent or so at the start of the epidemic to 45 per cent after a few years and to remain constant at that level for an extended period. However, in regions or countries where HIV/AIDS is not spread primarily by heterosexual contact (e.g. homosexual contact, intravenous drug use, etc.) sex patterns of newly infected individuals differ, with higher proportions being attributed to men. Under these assumptions, the annual number of newly infected individuals per year is distributed by sex.

Step 2: *Derivation of the number of newly infected men and women by age.*

Once estimates of the newly infected people by sex are available, they are distributed by single-years of age according to model age distributions derived from empirical data that were fitted to a Weibull distribution (figure VI.7, table VI.7, annex), with a mean age at infection of 29.1 years for males and 26.1 years for females. Figure VI.7 shows the density functions by age for males and females.

Figure VI.7. Age specific HIV infection probabilities by sex



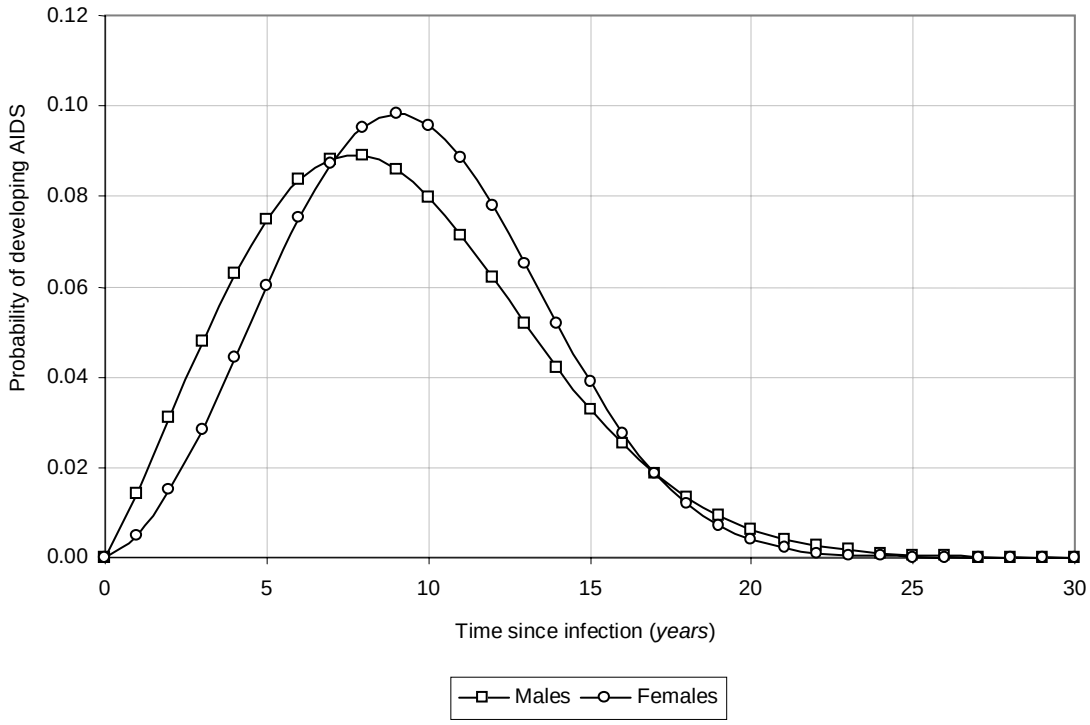
Step 3: *Estimation of the number of deaths caused by AIDS among HIV positive persons.*

As in the previous *Revision*, infected people are passing first through a stage equivalent to stages 1 through 3 of the WHO staging system (WHO, 2004) in which they are infected but, at least in stages 1 and 2, asymptomatic. Deaths that occur during those stages are not caused by HIV/AIDS. In figure VI.6, these three clinical stages are aggregated into the stage labelled "Infected". Infected people can enter two possible final stages, associated with full-blown AIDS (stage 4 by WHO classification). In the stage labelled AIDS/noART, people do not receive ART, and it is therefore assumed that they have a further average life expectancy of just one year. In the stage labelled AIDS/ART, new in this *Revision*, they receive life-prolonging treatment, and their average remaining life time will be increased well beyond the one year associated to the stage without treatment.

To estimate the number of deaths due to AIDS by age and sex, the infected population is projected over time using a multi-state approach that takes account of the competing risks of moving from being uninfected to being infected (HIV-positive) and from being HIV-positive to developing full blown AIDS versus the probability of dying of a cause other than AIDS. The probability schedules used to reflect the chances of developing full blown AIDS after *x* years of infection (the incubation period) are assumed to follow a Weibull distribution (see table VI.8). Different schedules were used for each sex, with a mean incubation period of about 9.3 years for both sexes combined, a slightly longer mean incubation period for females (9.6 years) and a shorter one for males (9 years). The schedules are shown in figure VI.2.

These survival functions originally suggested to cover the whole period from infection with HIV to deaths of AIDS were based on cohort studies that included background mortality. Removing the background component of mortality results in a net survival time of approximately 10 years (see Porter and Zaba, 2004). The procedure used for this *Revision* therefore increased the originally

Figure VI.8. Annual probability of transition from HIV infection to AIDS



recommended mean survival time of about 9.3 years since infection by one year. This extension was achieved by adding the one year survival in the additional AIDS stage (without treatment) to the model.

The probability of progressing from HIV infection to full-blown AIDS was assumed to be age-neutral, that is no allowance was made for systematic differences in the incubation period related to age at infection.

Competing mortality risks for causes other than AIDS were estimated on the basis of mortality estimates for the whole population. It was assumed that among HIV positive persons, the risk of dying of a cause other than AIDS was independent from the risk of dying of AIDS.

Once an infected person reaches stage 4, or full blown AIDS, he or she is in need for treatment with ART. In resource-poor settings such as in most developing countries, treatment is not available for the whole group of infected people reaching stage 4. The abcDIM program therefore allows setting a time varying parameter, the coverage rate, to reflect this situation. Table VI.10 lists country specific values of assumed current and future coverage rates for all the countries concerned.

It was mentioned earlier that the default mean survival time of people entering stage 4 or full-blown AIDS is approximately one year. With treatment, survival of infected people is extended. An exponential function is used to model the survival with or without treatment in abcDIM; it is parameterized as constant annual per cent survival. Based on early evidence on the efficiency of ART treatment in resource-poor countries, two different setting have been used, one with 80 per cent annual survival, corresponding to a mean survival time of 4.5 years after starting treatment, and another with 90 per cent annual survival, corresponding to 9.5 years mean survival time.

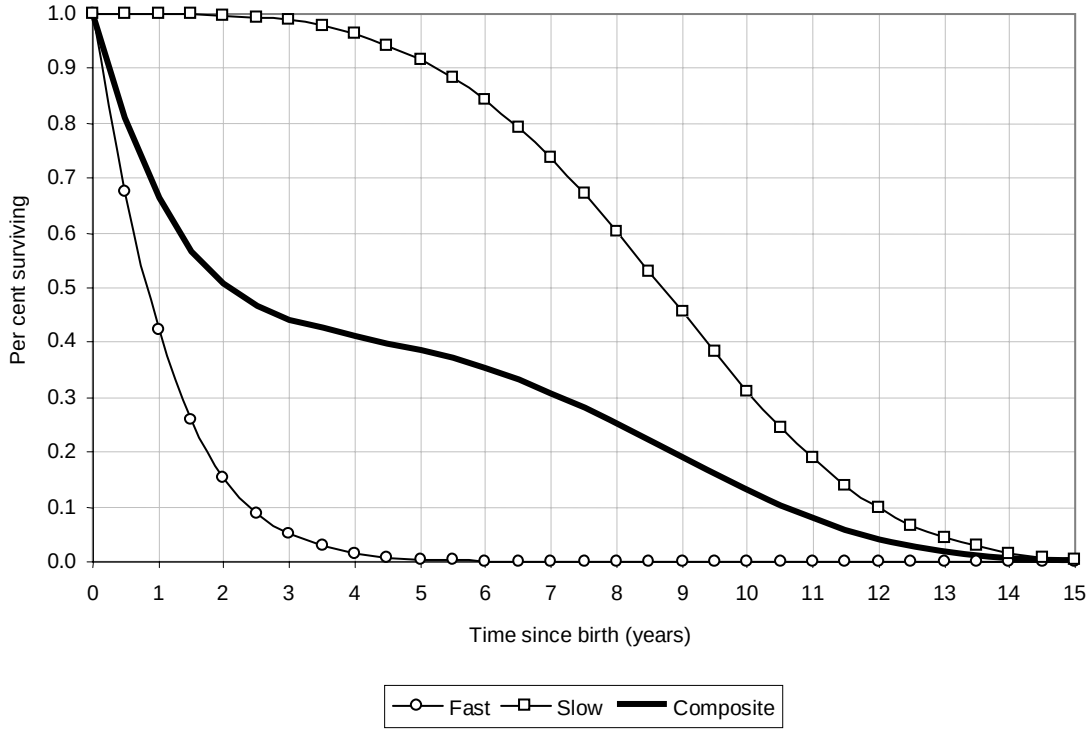
Step 4: *Calculation of the number of children infected by HIV/AIDS.*

Although HIV is primarily transmitted by sexual contact, which places adolescents and adults at risk, it also exerts a heavy toll on children. Children are infected by their HIV positive mothers passing the virus to their children in utero, at parturition or during breastfeeding. To estimate the number of children that can potentially become infected by their mothers, first the number of children born by HIV-positive women is calculated, allowing for a reduced fertility that takes into account the lower probability of conception among HIV-positive women. In this *Revision*, it was uniformly assumed that HIV positive women have a 20 per cent lower age-specific fertility than those not infected. Because most HIV-positive children acquire the disease from their infected mothers at or near the time of birth, the number of HIV-positive children is obtained by assuming a fixed rate of transmission of HIV from mother to child of 35 per cent and multiplying it by the number of children born to HIV-positive women. Such an approach produces the number of children who become HIV positive at birth or soon thereafter during each year. In addition, the age-specific fertility rates applied to non-infected women are increased in such a way that the overall fertility rates of the population as a whole (both infected and not infected women) match those estimated from available data.

Step 5: *Calculation of the number of AIDS deaths among children.*

In children, the length of infection is the same as their age. The number of surviving HIV-positive children is calculated by modelling the probability that infected children have of surviving HIV infection up to a certain age as the sum of two Weibull functions representing two subgroups of infected children: Fast progressors and slow progressors (figure VI.9). Fast progressors are those children infected *in utero*, while slow progressors are children infected at parturition or during breast feeding. In the current model, about 58 per cent of all infected children follow the fast progression schedule and will die early, on average just 1.1 years after birth. Children that follow the slow progression schedule (about 42 per cent of all infected children) have a longer incubation period and will on average die about 8.8 years after birth. Together, the life expectancy of all children infected with HIV is less than 5 years (table VI.11). The current survival model for chil-

Figure VI.9. Survival distributions for children



dren implies that none of the infected children will survive past age 15; it also assumes that the survival probabilities are the same for the male and female child.

Step 6: *Projecting the population that is not infected by HIV.*

The previous steps describe how the HIV-positive population is projected from the start of the epidemic onward. In fact, the full multi-state projection procedure projects also the non-infected population allowing for two possible and independent ways of leaving that group: (*a*) by dying from non-AIDS causes, or (*b*) by becoming infected with HIV (i.e., the yearly incidence).

Step 7: *Calculation of revised life-tables that reflect the impact of HIV/AIDS.*

The results of the multi-state projections permit the calculation of life tables that reflect both the effect of general mortality and the added impact of HIV/AIDS in a manner consistent with what is known about HIV prevalence in each country. The life tables representing average mortality for five-year periods are then used to carry out the "normal" population projections over five-year periods prepared by the Population Division for countries affected by the epidemic. That is, the mortality projection procedure ultimately used is the same for countries that are not yet affected significantly HIV/AIDS and those severely affected by the epidemic. This approach allows it to easily "splice" population projections for periods before the start of the epidemic with those after its start. It also allows to create "No-AIDS" versions of the population projections that represent estimated population dynamics in the absence of HIV/AIDS.

D. THE PROJECTION OF INTERNATIONAL MIGRATION

International migration is the component of population change most difficult to project. This is primarily due to the fact that data on past trends are often sparse or incomplete, and because the movement of people across international borders, which is often a response to rapidly changing economic, social, political and environmental factors,

is a very volatile process. Not only has international migration shown drastic changes in absolute numbers, but the direction of the flows has changed as well. As discussed in more detail in chapter 5, immigration countries have in the past often become emigration countries or vice versa. Therefore, formulating assumptions of future trends must focus on dominant past trends that are then kept constant throughout the projection period.

When a person moves from one country to another, that person is an emigrant when leaving the country of origin and becomes an immigrant when entering the country of destination. Because immigration and emigration flows affect countries differently, international migration is ideally studied as the flow of people moving between countries. In practice, data on international migration flows do exist only for a small number of countries. Therefore, international migration in this *Revision*, as in previous ones, has been captured as net migration. Net migration - the difference between the number of immigrants and the number of emigrants for a particular country and period of time - shows the net effect of international migration on the respective population. It does not provide an indication about the number of immigrants and emigrants involved. In an extreme case, immigration and emigration for a country could be significant, but if the number of immigrants was equal to the number of emigrants, net migration would amount to zero.

In preparing assumptions about future trends in international migration, several pieces of information were taken into account: (*1*) information on net international migration or its components (immigration and emigration) as recorded by countries; (*2*) data on labour migration flows; (*3*) estimates of undocumented or irregular migration; (*4*) and data on refugee movements in recent periods.

The basic approach for formulating future international migration assumptions is straightforward. For any given country, a distinction is made between international migration flows and movement of refugees. For international migration, it is assumed that recent levels, if stable, continue throughout the projection period. Government's views on international migration as well as estimates of undocumented and irregular migration flows affecting a country are also considered (see, for example United Nations, 2003). Regarding the movements of refugees, it is assumed in general that refuges return to their country of origin within the next one or two projection periods, or within 5 to 10 years. If a country experiences both international migration and refugee movements, the two processes are added in order to capture to overall net migration during a particular period in the future.

Usually, migration assumptions are expressed in terms of net number of international migrants. Their distribution by sex is established on the basis of what is known about the participation of men and women in different types of flows for any given country (e.g. labour migration, family reunification, etc.). Given the lack of suitable information on the age distribution of migrant flows, models are generally used to distribute the overall net number of male and female migrants by age group according to the dominant type of migration flow assumed (i.e., labour migration, family migration). These age and sex profiles of the net migration flows are then used as input for the cohort-component projection model (United Nations 1988, pp 65-70). For few countries with a known age and sex distribution of international migrants, those distributions were used to determine which model is most suitable or, in some cases, they were used directly as input. The distribution of net migrants by age and sex was generally kept constant over the projection period. However, if a country was known to attract temporary labour migrants, an effort was made to model the return flow of those labour migrants accounting for aging of the migrants involved. The same idea was applied to refugee flows.

International migration has become a universal phenomenon affecting countries all over the world. For countries known not to admit international migrants and known not to be the source of a sizeable number of migrants, net migration was set to zero during 2005-2050. In fact, 15 of 192 countries were assumed to have zero net migration over the projection period. For an additional 10 countries migration was assumed to become zero some time during 2005-2025. Most countries

in this category were countries affected by refugee flows. In general, refugees who had found asylum in less developed countries were assumed to return to their countries of origin by 2010-2015. Hence, net migration for host countries of refugees was assumed to differ from zero in 2010-2015 but was set to zero after 2015.

The remaining 167 countries were projected to experience non-zero net international migration during the entire projection period. Among these 167 countries 58 were projected to be receiving countries with positive net flows, while 109 countries were projected to be sending countries with negative net flows.

E. THE PREPARATION OF POPULATION PROJECTIONS

1. Projection methods

The Population Division has employed the cohort-component projection method for individual country projections since the *1963 Revision*. This method, the most commonly projection method used by demographers, provides an accounting framework for the three demographic components of change: births, deaths and international migration and relates them to the population affected. Technically, it is not a projections method, as it requires the components of change - births, deaths, migration - to be projected in advance. Rather, it is a calculation device that describes how to combine the demographic components arithmetically such that correct results are obtained. At its core, the cohort component method follows people in a certain age group at a certain point in time as they survive n years and are n years older. During a projection interval of n years, deaths occurring to that group of people are subtracted and international migration is added or subtracted, depending on the direction of the migration. Births that occur during a projection period are also exposed to the risk of deaths and then added as the youngest age group. A formal description of the mathematics of the cohort-component method can be found in Preston, Heuveline and Guillot (2001); it is not repeated here.

The cohort component method is applied for 192 countries with populations of 100,000 or more inhabitants in 2000. The 36 countries that fell below that threshold are projected assuming growth rates of their total populations. As a consequence, only total population and growth rates are available for these countries with relatively small population sizes.

2. Variants and scenarios

This *Revision* includes six projection variants in addition to the medium variant, plus three scenarios related to the HIV/AIDS epidemic. Three variants—high, low and constant-fertility—differ from the medium variant only in the projected level of total fertility. In the high variant, total fertility is projected to approach a fertility level that is 0.5 children above the total fertility in the medium variant For example, countries reaching a total fertility of 1.85 in the medium variant reach a total fertility of 2.35 in the high variant. In the low variant, total fertility is projected to remain 0.5 children below the total fertility in the medium variant. In the constant-fertility variant, total fertility remains constant at the level estimated for 2000-2005.

Three additional variants with constant-mortality, zero-migration and instant-replacement fertility have been prepared. The constant-mortality and zero migration variants have the same fertility assumption as the medium variant. Furthermore, the constant-mortality variant has the same international migration assumption as the medium variant. Consequently, the results of the constant-mortality variant can be compared with those of the medium variant to assess the effect that changing mortality has on other demographic parameters. Similarly, the zero-migration variant differs from the medium variant only with respect to the underlying assumption regarding international migration. Therefore, the zero-migration variant allows an assessment of the effect that non-zero migration has on other demographic parameters. The instant-replacement variant shares mortality and migration settings with the medium variant, but sets, beginning in 2005-2010, fertility to levels that would assure replacement of future generations.

For illustrative purposes, three scenarios related to the HIV/AIDS epidemic have been prepared: a

No-AIDS mortality scenario, a high-AIDS mortality scenario and an AIDS-vaccine scenario. The No-AIDS mortality scenario serves as the basis for the estimation of the demographic impact of the epidemic and assumes that only the background mortality applies (see VI.C.2.a). In the high-AIDS mortality scenario, all epidemiological parameters are kept constant over time. This scenario can therefore be used to gauge the impact of the assumed and projected treatment and behavioural changes contained in the medium variant. Finally, the AIDS-vaccine scenario assumes that, beginning in 2006, all additional infections can be averted by a perfect and universally available vaccine.

The various projections variants and scenarios are made available, in varying degree of completeness, on three CD-ROMs (see order form).

3. Interpolation procedures

The cohort-component method requires a uniform age format for the population and the vital events, usually single-year or five-year age groups. For the purpose of global population estimates and projections, most data are only available in five-year age groups. As a consequence, all results produced by the cohort-component method also in five year age groups and, for vital events, represent five year periods. Life expectancy, for instance, is given as the average over the five-year period from mid- 2000 to mid-2005. However, users of the estimates and projections often need to have demographic information for single calendar years or for single year-age-groups. In those cases, it is customary to apply special interpolation routines to produce such indicators. It must be noted, however, that interpolation procedures cannot recover the true series of events or the true composition of an aggregated age group. All these procedures can do is to provide the user with a smooth, reasonable and internally consistent annualized estimate of the indicator under consideration.

a. Interpolation of populations by age and sex

The basis for the calculation of interpolated population figures by single years of age and for each calendar year are estimated and projected quinquennial population figures by five-year age groups and sex. Interpolation into annual population figures is carried out by applying Beers ordinary formula (Siegel and Swanson, 2004, p.728). This interpolation procedure generates a smooth interpolated series of figures while maintaining the original values. The interpolation of five-year age groups into single year age groups is carried out by applying Sprague's fifth-difference osculatory formula (Siegel and Swanson, 2004, p. 727) for subdivision of groups into fifths. It should be noted that for ages above 80 and for age under five, the stability and reliability of the interpolation procedure is not always satisfactory.

b. Interpolation of vital events and summary statistics

For the interpolation of vital events, their rates and other measures into annualized times series, the modified Beers formula was used (Siegel and Swanson, 2004, p. 729). This formula combines interpolation with some smoothing. Beers modified methods is to be preferred over Beers "ordinary" formula as it avoids fluctuations at the beginning and the end of the series that are not typical for the variables concerned.

The time periods in the estimates and projections of this *Revision* are anchored to mid-year. Each observation or projections period starts at 1 July of a particular year and ends at mid-year five years later. Therefore, the annualized interpolated indicators refer to the period between the mid-year points of two consecutive calendar years. In order to provide annualized variables that refer to calendar years, an adjustment is made that simply assumes that the arithmetic average between two such periods will be a good representation of the calendar year based indicator.

4. Tabulations

Once the individual country projections are prepared, the results are aggregated into the world, regions, major areas, development groups and other aggregates. For a list of the aggregation units see the explanatory notes.

The aggregation of populations by age and sex and vital events by age and sex is performed by

simply adding the variables according to lists that assign individual countries to the aggregates. For synthetic variables, like life expectancy, total fertility, median age or net reproduction rates, proper population weighted averages are calculated.

Finally, after estimates and projections for all countries are performed and aggregated, it is necessary to ensure that the sum of all international migration adds to zero at the global level. This is achieved by an iterative process in which individual country projections are re-visited and altered accordingly.

F. ANNEX

This appendix contains the detailed information about the various models used for estimating and projecting demographic components, namely the models of fertility decline, of mortality improvement, and especially the mathematical model of the HIV/AIDS epidemic.

1. Fertility

a. Models of fertility decline

The decline of fertility in this *Revision* is modelled using logistic functions.

A logistic function exhibits an s-shape and describes a diffusion process growing from an initial level to an upper or lower asymptote.

The general form of a logistic can be expressed as

$$P(t) = \frac{k}{1 + \exp[-\alpha(t - \beta)]} \qquad (1)$$

k Saturation level or asymptote of the diffusion process

α Growth rate of the s-curve

β Length of time the curve takes to reach the midpoint of the growth trajectory.

For modelling purposes, a re-parameterised logistic function is sometimes used (Meyer, Young Ausubel, 1999), with easier to interpret parameters:

$$P(t) = \frac{k}{1 + \exp[-\frac{Ln(81)}{\Delta t}(t - t_m)]} \qquad (2)$$

t_m Midpoint of the growth/diffusion process

Δt Duration for the growth process to proceed from 10 per cent to 90 per cent of the asymptote (k).

This function relates to the general form by substituting

$$\beta = t_m$$
$$\Delta t = \frac{\ln(81)}{\alpha}.$$

As discussed in VI.B.1.a, the process of fertility decline consists of two phases: a first phase of accelerating rates of decline that is followed by a second phase of slowing rates of decline. Such a two-phase process can be modelled by two logistic functions, one approaching an upper limit and a second one that approaches a lower limit.

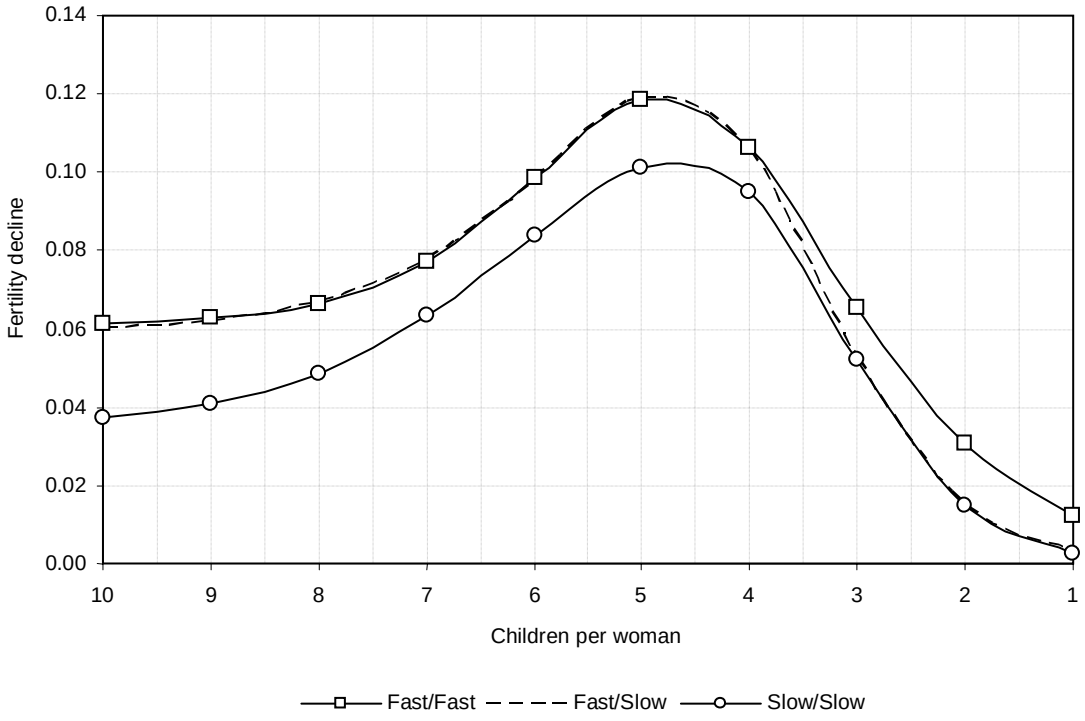
$$P(t) = \frac{k_1}{1 + \exp[-\frac{Ln(81)}{\Delta t_1}(t - t_{m1})]} + \frac{k_2}{1 + \exp[-\frac{Ln(81)}{\Delta t_2}(t - t_{m2})]} \qquad (3)$$

Table VI.2 presents the parameters of the three models used in this *Revision* for projecting fertility decline. Figure VI.10 shows the composite curves of fertility decline for all three models.

TABLE VI.2. PARAMETERS OF THREE FERTILITY MODELS

Parameter	*Slow/Slow*	*Fast/Slow*	*Fast/Fast*
k_1	-0.11	-0.16	-0.25
Δt_1	5.03	4.34	4.01
t_{m1}	5.77	5.06	5.17
k_2	0.15	0.22	0.31
Δt_2	2.75	3.02	4.32
t_{m2}	3.21	3.52	3.94

Figure VI.10. Models of fertility decline



b. Models of age patterns of fertility

Model age patterns of fertility are presented as proportionate age-specific mortality, indexed by the mean age at childbirth.

2. Models of general mortality improvement

Trends of mortality improvement are modelled as gains in life expectancy over a five-year period for a given range of life expectancy at the previous five-year period, and are shown in table VI.6 (see chapter VI.C.1).

3. Models of HIV/AIDS

a. Epidemiological model

The model used to derive annual estimates of incidence from observed prevalence levels is based on three differential equations representing the dynamics of the epidemic over time (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002). The model divides the total adult population of persons over 15, denoted by N, into three groups:

1. Persons who, at time t, are not at risk of being infected by HIV, denoted by $X(t)$.
2. Persons already infected by HIV at time t, denoted by $Y(t)$;
3. Persons at risk of being infected by HIV at time t (the susceptible population), denoted by $Z(t)$,

The first differential equation indicates how the susceptible or at-risk population changes over time:

$$\frac{dZ(t)}{dt} = F\left(\frac{X(t)}{N(t)}\right)E(t) - \left[\mu + \frac{rY(t)}{N(t)} + \theta(t)\right]Z(t) \qquad (1)$$

The second equation shows how the non-susceptible population (not at-risk population) changes over time:

$$\frac{dX(t)}{dt} = \left(1 - F\left(\frac{X(t)}{N(t)}\right)\right)E(t) - \mu X(t) \qquad (2)$$

TABLE VI.3. MODEL FERTILITY SCHEDULES FOR HIGH AND MEDIUM-FERTILITY COUNTRIES

Model	Percentage of total fertility by age group							Total	Mean age at childbirth
	15-19	20-24	25-29	30-34	30-39	40-45	45-49		
Early child-bearing	20	40	25	10	4	1	—	100	28.3
Intermediate child-bearing	12	31	31	16	8	2	—	100	26.5
Late child-bearing	4	22	40	22	10	2	—	100	24.3

TABLE VI.4. MODEL AGE PATTERNS OF FERTILITY USED FOR THE MARKET ECONOMY COUNTRIES OF EUROPE

Model	Percentage of total fertility by age group							Total	Mean age at childbirth
	15-19	20-24	25-29	30-34	35-39	40-45	45-49		
1	2.2	22.9	43.2	26.2	5.2	0.2	0.0	100	28.0
2	1.5	17.5	40.4	31.4	8.7	0.6	0.0	100	29.0
3	1.0	13.2	36.3	35.3	13.0	1.3	0.0	100	30.0
4	0.6	9.8	31.6	37.6	17.9	2.5	0.0	100	31.0
5	0.4	7.2	26.7	38.1	23.0	4.5	0.1	100	32.0

TABLE VI.5. MODEL AGE PATTERNS OF FERTILITY USED FOR THE COUNTRIES WITH ECONOMIES IN TRANSITION

Model	Percentage of total fertility by age group							Total	Mean age at childbirth
	15-19	20-24	25-29	30-34	30-39	40-45	45-49		
1	7.9	35.3	38.4	15.9	2.4	0.1	0.0	100	26.0
2	5.6	29.5	39.3	21.0	4.4	0.2	0.0	100	27.0
3	4.0	24.1	38.4	25.6	7.3	0.6	0.0	100	28.0
4	2.8	19.4	36.2	29.5	10.8	1.3	0.0	100	29.0
5	2.0	15.4	33.1	32.1	14.8	2.5	0.1	100	30.0

The third differential equation captures how the number of infected persons (Y) changes over time:

$$\frac{dY(t)}{dt} = \left[\frac{rY(t)}{N(t)} + \theta(t)\right] Z(t) - \int_0^t \left[\frac{rY(s)}{N(s)} + \theta(s)\right] Z(s)\, M(t-s)\, ds \qquad (3)$$

In order to start the epidemic in this model, an external pulse is required, implemented here as parameter $\theta(t)$. It is set to a positive value when the epidemic starts, and becomes zero thereafter.

The three sub-populations in this model are adult populations (age 15 and over), so they need to be connected to births to allow for the renewal of the population. $E(t)$ in formula 1 represents the number of individuals entering the population aged 15 or over at time t. $E(t)$ is therefore the number of persons reaching exact age 15 at time t. $E(t)$ can be estimated as:

$$E(t) = l(15, t-15)\, b(t-15) \left[X(t-15) + Z(t-15) + (1-\nu)\, \xi\, Y(t-15) \right] \qquad (4)$$

where $l(15, t\text{-}15)$ is the probability of surviving from birth to age 15 among persons born at time t-15, $b(t\text{-}15)$ is the birth rate at time t-15, ν is the probability of HIV transmission from mother to child, and ξ is a factor reflecting the reduction of fertility among HIV positive women. The infected population Y at time t-15 is reduced by the transmission rate from mother to child and the fertility reduction factor, which is equivalent to assuming that no child born with HIV will survive to age 15.

Not all persons reaching age 15 are susceptible to being infected with HIV. The fraction that becomes part of the susceptible population is a function of the proportion of the population that is not susceptible and is defined as:

$$F\left(\frac{X(t)}{N(t)}\right) = \frac{\Omega\left(\frac{X(t)}{N(t)}\right)}{\left(\exp\left[\Phi\left(\frac{X(t)}{N(t)} - 1 + f_0\right)\right] - 1 + \frac{1}{f_0}\right)} \qquad (5)$$

In formula 5, f_0 is the fraction of individuals who entered the susceptible group at age 15 just as the HIV epidemic started:

$$f_0 = \frac{X(0)}{N(0)} \qquad (6)$$

The parameter Φ *(Phi)* captures the recruitment of persons into the susceptible group. In addition, μ represents the mortality rate among the population not infected with HIV (the background mortality) and the rest of the expression in parenthesis represents the decrement of $Z(t)$ caused by the transfer of persons from the susceptible group to the group of those infected with HIV.

The parameter r represents the force of infection, that is, the probability that an interaction between an infected individual and a susceptible one results in the infection of the latter.

TABLE VI.6. MODELS FOR MORTALITY IMPROVEMENT. QUINQUENNIAL GAINS IN LIFE EXPECTANCY AT BIRTH ACCORDING TO INITIAL LEVEL OF LIFE EXPECTANCY

Initial life expectancy level (years)	*Very fast pace*		*Fast pace*		*Medium pace*		*Slow pace*		*Very slow pace*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
40.0-42.5.....	2.5	2.6	2.1	2.3	1.9	2.0	1.3	1.4	1.1	1.1
42.5-45.0.....	2.8	3.0	2.4	2.5	2.0	2.1	1.4	1.5	1.1	1.2
45.0-47.5.....	3.0	3.1	2.5	2.6	2.1	2.2	1.8	1.9	1.2	1.3
47.5-50.0.....	3.0	3.2	2.6	2.7	2.2	2.3	1.8	1.9	1.3	1.4
50.0-52.5.....	3.2	3.4	2.7	2.9	2.3	2.4	1.9	2.0	1.4	1.5
52.0.5-55.....	3.6	3.7	2.7	3.0	2.4	2.6	2.0	2.0	1.5	1.7
55.0-57.5.....	3.7	3.7	2.6	3.0	2.4	2.6	2.0	2.0	1.5	1.8
57.5-60.0.....	3.8	4.0	2.6	3.0	2.4	2.6	2.0	2.0	1.5	1.8
60.0-62.5.....	3.4	3.8	2.5	3.0	2.2	2.6	1.7	2.0	1.0	1.7
62.5-65.0.....	3.2	3.6	2.3	2.8	1.9	2.4	1.5	2.0	0.9	1.5
65.0-67.5.....	3.2	3.5	2.0	2.6	1.6	2.3	1.0	1.8	0.7	1.0
67.5-70.0.....	2.0	3.3	1.5	2.6	1.2	2.1	1.0	1.5	0.6	1.0
70.0-72.5.....	1.5	3.0	1.2	2.0	1.0	1.8	0.8	1.2	0.5	0.8
72.5-75.0.....	1.3	2.0	1.0	1.5	0.9	1.2	0.8	0.9	0.5	0.8
75.0-77.5.....	1.1	1.8	0.8	1.2	0.6	1.0	0.5	0.8	0.5	0.7
77.5-80.0.....	1.0	1.6	0.5	1.0	0.5	0.9	0.4	0.7	0.4	0.5
80.0-82.5.....	0.9	1.4	0.5	0.8	0.5	0.6	0.4	0.5	0.4	0.5
82.5-85.0.....	0.8	1.3	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.4
85.0-87.5.....	0.7	1.3	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.2
87.5-90.0.....	0.6	1.2	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.2
90.0-92.5.....	0.6	0.8	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.2

The integral in equation (3) represents the cumulative number of deaths among individuals infected by HIV since the start of the epidemic. The function $M(t)$ is the instantaneous probability of dying at time t by all causes (AIDS or other causes) and is given by:

$$M(t) = \left(\mu + \frac{\alpha t^{\alpha-1}}{\beta^{\alpha}} \right) \exp\left[-\mu t - \left(\frac{t}{\beta} \right)^{\alpha} \right] \qquad (7)$$

That is, the probability of dying is modelled as a Weibull density function with shape parameter α and position parameter β. In equation (7), μ represents the force of mortality due to causes other than AIDS (background mortality).

With the model just specified, four essential parameters r, f_0, Φ, t_0 (the time of the start of the epidemic) are then estimated from the empirical prevalence data. All other information captured in the model is assumed to be known or is set to plausible values.

b. Models of adult HIV/AIDS

The age-specific infection pattern for the adult population has been parameterized as a Weibull function with the following parameters

TABLE VI.7. PARAMETERS FOR ADULT HIV INFECTION PATTERNS BY SEX

Parameter	*Males*	*Females*
Alpha	1.51	1.45
Beta.....	17.91	14.34
Median	31.2	28.0
Mean	29.1	26.1

The net adult survival patterns describes the survival of an infected person from infection to the onset of full blown AIDS, that is from clinical stage 1 to clinical stage 3. It was modelled by a Weibull function, for each sex separately and for both sexes combined.

TABLE VI.8. PARAMETERS FOR ADULT INCUBATION PERIOD BY SEX

Parameter	*Males*	*Females*	*Both sexes combined*
Alpha.....	2.17	2.66	2.42
Beta.....	10.18	10.81	10.48
Median	8.6	9.4	9.0
Mean	9.0	9.6	9.3

The net survival in clinical stage 4, that is from the onset of full blown AIDS to death, is modelled by a Weibull function with parameters alpha and beta as shown in table VI.9.

TABLE VI.9. PARAMETERS FOR SURVIVAL FROM FULL-BLOWN AIDS TO DEATHS, BY TREATMENT STATUS

		Annual survival with ART treatment	
Parameter	*No treatment*	*80 per cent*	*90 per cent*
Alpha.....	1.00	1.00	1.00
Beta.....	1.00	4.50	9.50
Median	0.7	4.5	9.5
Mean	1	3.1	6.6

It should be noted that the above function is equivalent to a simple exponential function, since the Weibull function becomes an exponential function when alpha is set to 1.0. In the practical implementation of the model in abcDIM, Weibull functions are used throughout abcDIM.

c. Models of paediatric HIV/AIDS

Survival of children infected at birth with HIV is modelled with a double Weibull function (Marston et al. 2005):

$$s(x) = 1 - \left[p\left(1 - \exp(-(\beta_1 x)^{\alpha_1})\right) + (1-p)\left(1 - \exp(-(\beta_2 x)^{\alpha_2})\right) \right] \qquad (8)$$

In (8), subscript 1 denotes the fast progressor group and subscript 2 the slow progressor group (see VI.C.2.c, step 5). Infected children that follow the fast progression schedule have a median survival time of just 0.8 years, while children that follow the slow progression schedule have a median survival time of 8.8 years. Together, this function implies a median survival time for all infected children of about 2 years; that is, about half of all infected children will not survive to their second birthday. The current survival model for children also implies that none of the infected children will survive past age 15, and that there is no significant difference between the male and female child. Table VI.11 shows the parameters of the two Weibull function for child mortality, adapted from the model fitted to all data in (Marston et al, 200, p. 225).

TABLE VI.10. PARAMETERS FOR MODELLING THE EFFECTS OF TREATMENT AND BEHAVIOURAL CHANGE

		Antiretroviral treatment coverage		*Halving of MTCT level*	*People on ART surviving annually*
		2004[1]	*2015*		
Major area, country or area		*Per cent*		*Years*	*Per cent*
Africa					
1	Angola	10	70	6	80
2	Benin	17	70	6	80
3	Botswana	50	80	4	80
4	Burkina Faso	7	70	6	80
5	Burundi	9	70	6	80
6	Cameroon	14	70	6	80
7	Central African Republic	1	40	10	80
8	Chad	…	40	10	80
9	Congo	…	40	10	80
10	Côte d'Ivoire	5	40	10	80
11	Dem. Republic of the Congo	2	40	10	80
12	Djibouti	15	70	6	80
13	Equatorial Guinea	…	40	10	80
14	Eritrea	…	40	10	80
15	Ethiopia	5	40	10	80
16	Gabon	29	80	4	80
17	Gambia	14	70	6	80
18	Ghana	4	40	10	80
19	Guinea	4	40	10	80
20	Guinea-Bissau	…	40	10	80
21	Kenya	13	70	6	80
22	Lesotho	5	40	10	80
23	Liberia	…	40	10	80
24	Madagascar	0	40	10	80
25	Malawi	8	40	10	80
26	Mali	…	40	10	80
27	Mozambique	4	40	10	80
28	Namibia	28	80	4	80
29	Niger	…	40	10	80
30	Nigeria	2	40	10	80
31	Rwanda	18	70	6	80
32	Sierra Leone	…	40	10	80
33	South Africa	7	40	10	80
34	Sudan	…	40	10	80
35	Swaziland	16	70	6	80
36	Togo	12	70	6	80

TABLE VI.10 (*continued*)

	Major area, country or area	Antiretroviral treatment coverage 2004[1] (Per cent)	Antiretroviral treatment coverage 2015 (Per cent)	Halving of MTCT level (Years)	People on ART surviving annually (Per cent)
37	Uganda	52	80	4	80
38	United Republic of Tanzania	1	40	10	80
39	Zambia	13	70	6	80
40	Zimbabwe	3	40	10	80
Asia					
1	Cambodia	23	80	4	80
2	China	7	50	10	80
3	India	4	50	10	80
4	Myanmar	3	50	10	80
5	Thailand	44	80	4	90
Latin America and the Caribbean					
1	Bahamas	25	80	6	90
2	Barbados	64	85	4	85
3	Belize	39	85	4	80
4	Brazil	88	85	4	90
5	Dominican Republic	7	70	10	80
6	Guatemala	30	80	6	80
7	Guyana	28	80	6	80
8	Haiti	8	70	10	80
9	Honduras	30	80	6	80
10	Jamaica	18	80	6	80
11	Suriname	25	80	6	80
12	Trinidad and Tobago	16	80	6	80
More developed countries					
1	Russian Federation	3	50	10	90
2	Ukraine	2	50	10	90
3	United States of America[2]	98	98	-	95

[1] As of December 2004. *Source*: WHO (2005).

[2] Mother-to-child transmission declined drastically in the 1990s due to administration of zidovudine. It was set to level off at 2 per cent in 2010 and to stay constant thereafter.

TABLE VI.11. PARAMETERS FOR CHILD SURVIVAL FUNCTION

Parameter	*Fast progressors*	*Slow progressors*	*Combined*
Shape parameter α[1]	1.13	3.75	-
Position parameter β[2]	1.15	9.59	-
Proportion p[3]	0.58	0.42	1.00
Median (years)	0.8	8.7	2.1
Mean (years)	1.1	8.7	4.3

[1] The shape parameter is denoted λ in Marston et al, 2005. Note that $\alpha=1/\lambda$.

[2] The position parameter is denoted with μ in Marston et al, 2005.

[3] The proportion of children in the rapid progression group is denoted with π in Marston et al 2005.

VII. SOURCES OF DATA AND DEMOGRAPHIC METHODS

In preparing the *2004 Revision* of the official United Nations population estimates and projections, the Population Division considered the most recent demographic data available for each and every country and area of the world. Standard demographic techniques were used to estimate the population by age and sex for the base year (2005) as well as trends in total fertility, life expectancy at birth, infant mortality and international migration up to 2004. The resulting estimates provided the basis for the population projections. A full description of the methodology used in deriving the population projections can be found in chapter VI.

This chapter presents, for each country and area, a brief description of the data sources and demographic methods used to make the base-year estimates for each country or area. Sources of data and methods are given for every country and area of the world, although for those with a population of fewer than 100,000 inhabitants in 2000, information is provided for the total population only. These descriptions assume that the reader has knowledge of the types of data and methods employed by demographers to obtain population estimates and refer to those data types and methods using the most widely recognized demographic terminology. An in-depth description of these methods can be found in previous United Nations publications (United Nations, 1982, 1983, 1988a, 1988b and 1990).

The annual editions of the Demographic Yearbook as produced by the United Nations Statistics Division, which collects on a regular basis demographic data from the national statistics offices of the world, were widely used in the production of the World Population Prospects. Official government estimates as well as those encountered in the different national census reports also constitute a crucial source of information in the production of the demographic time-series.

Surveys are often the source of the most recent demographic information for developing countries. Since the 1970s, there have been several multinational survey programmes whose results provide key information about fertility or mortality in a number of countries. For the period from 1972 to 1984, the World Fertility Survey (WFS) programme, the predecessor of the current Demographic and Health Surveys Programme (DHS), has been an important source of information for the estimates included in the *2004 Revision*. The DHS, which started in 1984, and under whose auspices close to 200 surveys have been carried out in more than 70 countries in Africa, Asia, Latin America and the Caribbean and parts of Europe, has proven to be an important source of information. The key results of the surveys conducted under the DHS Programme are normally published in national reports. In addition, special tabulations of the survey data are available in most cases. When any of those sources of information was consulted in preparing the population estimates and projections for a country, the text below states the name of the country, the acronym DHS and the year to which the survey refers. National reports as well as any other data emanating from the DHS surveys can be obtained from ORC Macro, the institution coordinating the survey programme.[1] It should be noted that several countries use different names or acronyms for their national reports and that in a few cases, countries have produced so-called Demographic and Health Surveys without the direct collaboration of ORC Macro.

Another survey programme has been the Pan Arab Project for Child Development (PAPCHILD) of the League of Arab States, working in collaboration with several international agencies. Its purpose was to gather information on the determinants of maternal and child health in Arab countries. The main results of the PAPCHILD surveys are normally included in national reports published by the countries undertaking such survey. In the present volume, when results of such surveys were used in preparing the population estimates and projections of a country, they are identified by the name of the country, the acronym PAPCHILD and the year to which the survey refers. The Pan Arab Project for Family Health (PAPFAM) and Gulf Family Health Survey (GFHS) continue the task initiated by the PAPCHILD programme.

During the 1990s, UNICEF embarked on a process of helping countries assess progress for children at end-decade in relation to the *World Summit for Children* goals, held in 1990 (see UNICEF, 1991). Since then, two rounds of Multiple Indicator Cluster Surveys (MICS-1 and MICS-2), which collected and estimated, inter alia, information on infant and child mortality, have been carried out. The mid-decade assessment led to around 100 countries collecting data using the Multiple Indicator Cluster Surveys, household surveys developed to obtain specific mid-decade data or via MICS questionnaire modules carried by other surveys. By 1996, more than 60 countries had carried out stand-alone MICS, and another 40 had incorporated some of the MICS modules into other surveys. In the second phase of the data collection process (MICS-2), the so-called end-decade assessment, the list of countries participating in the programme was extended (around 65 surveys).[2] A third round of surveys was undertaken in more than 50 countries around the year 2005.

Finally, in preparing the *2004 Revision*, demographic information as produced by other United Nations agencies or bodies, such as the Economic and Social Commissions for Asia and the Pacific (ESCAP), for Latin America and the Caribbean (ECLAC/CELADE) and for Western Asia (ESCWA), as well as the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO), was also used or considered. Data from regional organizations such as the Statistical Office of the European Communities (EUROSTAT), the *Institut National de la Statistique et des Études Économiques* (INSEE) and the *Centre d'Études et de Recherche sur la Population et le Développement (*CERPOD), have also been consulted.

AFGHANISTAN

Total population (2005): Estimated to be consistent with the 1979 census adjusted for underenumeration, with the structure by age and sex from the 2003 Afghanistan Multiple Indicator Cluster Survey (MICS-2), and with estimates of the subsequent trends in fertility, mortality and international migration. There is considerable uncertainty about the size of the population in 1979 because the census enumerated only the settled population and the number of nomads, reported to be of about 2 million at the time, is not exactly known.

Total fertility: Based on births in the preceding 12 months to the 1979 census, classified by age of mother, and on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1972-1973 Afghanistan Demographic Survey as well as the 2000 and 2003 Afghanistan MICS. Reproductive health studies conducted in Afghan refugee settlements in Pakistan were also considered.

Infant and/or child mortality: Based on data on births and infant deaths in the past 12 months from the 1979 census, adjusted for underreporting, on data on children ever born and children surviving produced by the 1972-1973 Afghanistan Demographic Survey as well as the 2000 and 2003 Afghanistan MICS (adjusted for underreporting) and on estimates from UNICEF.

Life expectancy at birth: Based on a life table, calculated from adjusted deaths in the past 12 months by age and sex on the population by age and sex from the 1979 census and on estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables.

International migration: Based on UNHCR statistics on the number of Afghan refugees in the main countries of asylum (Pakistan, India and Iran) and on assumptions about the subsequent return of refugees.

ALBANIA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on the number of births registered through 2001, classified by age of mother.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 2000 Albania Multiple Indicator Cluster Survey (MICS-2).

Life expectancy at birth: Based on a life table for 1988-1990, calculated from registered deaths by age and sex, and on observed trends in infant and child mortality. Adjustments were made for underreporting of deaths in infancy and at older ages.

International migration: After 1990, based on estimates of immigration of Albanians to Greece, Italy and the rest of Europe. For the future, emigra-

tion of Albanians is expected to continue but at lower levels.

ALGERIA

Total population (2005): Estimated to be consistent with the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates, derived from births registered from 1990 to 1999.
Infant and/or child mortality: Based on births and infant deaths registered through 2001. Estimates from 1998 to 2001 were revised by the National Statistical Office of Algeria. Estimates from UNICEF were also taken into consideration.
Life expectancy at birth: Based on the official national life table for 1985 and on official estimates derived from the number of deaths registered through 2001.
International migration: Based on data on the number of Algerians admitted by France, on estimates of emigration of Algerians to other Arab countries and on UNHCR statistics on the number of refugees in Algeria.

AMERICAN SAMOA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on an application of the P/F ratio method to data on children ever born and births during the year preceding the 2000 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 census.
Life expectancy at birth: Based on the estimated level of infant and child mortality, on tabulations of parental survivorship (orphanhood) by age of respondent from the 2000 census and on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

ANDORRA

Total population (2005): Estimated to be consistent with the 1994 census, with 2000 and 2003 official population estimates and with estimates of the subsequent trends in fertility, mortality and international migration.

ANGOLA

Total population (2005): Estimated to be consistent with the 1970 census adjusted for underenumeration, with an official 1992 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born from the 1996 Angola Multiple Indicator Cluster Survey (MICS-1).
Infant and/or child mortality: Based on data from the 1996 and 2001 Angola Multiple Indicator Cluster Surveys (MICS-1 & 2) and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on the number of Angolan refugees in neighbouring countries and on the number of refugees from other countries in Angola as indicated by the historical database on the refugee stock maintained by UNHCR. It is assumed that the refugees will return to their country of origin.

ANGUILLA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

ANTIGUA AND BARBUDA

Total population (2005): Estimated to be consistent with the 1991 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

ARGENTINA

Total population (2005): Estimated to be consistent with the 2001 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on registered births, classified by age of mother, through 2001.

Infant and/or child mortality: Based on births and infant deaths registered through 2001.

Life expectancy at birth: Based on a life table for 2000-2001 calculated from registered deaths through 2001 and on the underlying 2001 census population.

International migration: Based on net international migration estimates derived from border statistics, administrative records and 2001 census information.

ARMENIA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on registered births, classified by age of mother through 2003, and on the 2000 Armenia DHS.

Infant and/or child mortality: Based on maternity-history data from the 2000 Armenia DHS.

Life expectancy at birth: Based on a life table using reported deaths by age and sex in 2001 and on the 2001 census population, adjusted for underreporting of infant and child deaths.

International migration: Based on estimates of net international migration, derived as the difference between overall population change and natural increase during the 1989-2001 intercensal period.

ARUBA

Total population (2005): Estimated to be consistent with a 2002 official population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

AUSTRALIA [3]

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official registration data of births by age of mother through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on an official estimate of life expectancy for the period 2000-2002.

International migration: Based on reported number of long-term and permanent arrivals and departures by age and sex through 2002.

AUSTRIA

Total population (2005): Estimated to be consistent with the 1991 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2002, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on deaths registered through 1998, classified by age and sex, on the underlying population by age and sex and on official estimates of life expectancy at birth through 2002.

International migration: Based on registered net international migration through 2001 and on officially assumed subsequent trends in international migration.

AZERBAIJAN

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2002, classified by age of mother, adjusted for underregistration to achieve consistency with the 1999 census.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 2000 Azerbaijan MICS and on maternity-history data from the 2001 Reproductive Health Survey.

Life expectancy at birth: Based on deaths registered through 2002, classified by age and sex, and on the underlying population by age and sex. Death rates were adjusted for underregistration. The age pattern of mortality is based on an official life table for 1990, adjusted for underregistration.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1989-1999 intercensal period.

BAHAMAS

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 1999.

Infant and/or child mortality: Based on births and infant deaths registered through 1999 and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a life table for 1990, calculated from deaths registered by age and sex, and on the 1990 population by age and sex. Total deaths registered through 1999 were also taken into account. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration since 1990, derived from data inflows and outflows during the year preceding the 1991 census, and on information on persons born in the Bahamas admitted by the United States of America.

BAHRAIN

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 1998, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 1995.

Life expectancy at birth: Based on deaths registered through 1995 by age and sex and on the underlying population by age and sex.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1991-2001 intercensal period.

BANGLADESH

Total population (2005): Estimated to be consistent with the age distribution of the 1991 census, adjusted using the Demeny-Shorter method by comparison with the 1981 census age distribution, and with estimates of the subsequent trends in fertility, mortality and international migration. The preliminary total population from the 2001 census and the official adjustment factor for undercount were also considered

Total fertility: Based on maternity-history data for 1997-1999, derived from the 1999-2000 Bangladesh DHS, and for 1998-2000 from the 2001 Bangladesh Maternal Health Services and Maternal Mortality Survey.

Infant and/or child mortality: Infant mortality estimates are derived from the child mortality rates using the West model of the Coale-Demeny Model Life Tables and are consistent with national and UNICEF estimates. Child mortality estimates are based on data on births and deaths under five calculated from maternity-history data of the 1993-1994 Bangladesh DHS (for the period 1989-1993) and the 2001 Bangladesh Maternal Health Services and Maternal Mortality Survey (BMMS) (for the period 1999-2000). Levels and trends since the mid-1980s are consistent with under-five mortality estimates based on the 2001 BMMS sibling history and on data gathered from Matlab Health and Demographic Surveillance System up to 2002.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Estimates are consistent with those provided by the Sample Registration System through 1998 and with a life table for 1998-2000 calculated from sex and age-specific death rates from the 2001 BMMS.

International migration: Based on data on persons originating in Bangladesh and migrating to selected developed countries, on the number of persons born in Bangladesh enumerated by the censuses of India and on information on the number of workers receiving clearances to work abroad.

BARBADOS

Total population (2005): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 1988, classified by age of mother, and on total births registered through 2000.

Infant and/or child mortality: Based on births and infant deaths registered through 2000 and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Estimates are consistent with total deaths registered through 2000. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-1990 intercensal period, and on assumed subsequent trends.

BELARUS

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates through 2000.

Infant and/or child mortality: Based on births and infant deaths registered through 2002, adjusted by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that does not conform to international standards.

Life expectancy at birth: Based on official estimates of life expectancy by sex through 2002. The age pattern of mortality is based on an official life table for 1997-1998. Both estimates incorporate an adjustment to infant mortality, as described above.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1989-1999 intercensal period.

BELGIUM

Total population (2005): Estimated to be consistent with the 2004 official estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official life expectancy estimates through 2002.

International migration: Based on official estimates of international migration by sex through 2002.

BELIZE

Total population (2005): Estimated to be consistent with the 1991 census adjusted for underenumeration, with the preliminary total population from the 2000 census and official estimates for 2004 and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2000, adjusted for underregistration, and on results from the 1999 Family Health Survey.

Infant and/or child mortality: Based on births and infant deaths registered through 2002, adjusted for underregistration, on the results from the 1999 Family Health Survey and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Latin American model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1991-2000 intercensal period, and on official estimates of foreign-born and emigrants from the 2000 census.

BENIN

Total population (2005): Estimated to be consistent with the 1992 and 2002 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1992 and 2002 censuses and on maternity-history data from the 1996 and 2001 Benin DHS.

Infant and/or child mortality: Based on an analysis of the 1961 Demographic Survey, on the results of the 1981-1983 multi-round survey (Enquête Nationale Démographique) and on estimates of child mortality obtained from maternity-history data from the 1996 and 2001 Benin DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1979-1992 and 1992-2002 intercensal periods, and on information on the number of citizens of Benin enumerated in neighbouring countries.

BERMUDA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

BHUTAN

Total population (2005): Estimated to be consistent with the 1969 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on estimates from the 1984 Demographic Sample Survey, the 1994 Health Sample Survey and the 2000 National Health Survey.
Infant and/or child mortality: Based on infant mortality estimates produced by the 1984 Demographic Sample Survey, the 1994 Health Sample Survey and the 2000 National Health Survey. Child mortality estimates are derived from the infant mortality rates using the North model of the Coale-Demeny Model Life Tables and are consistent with national and UNICEF estimates.
Life expectancy at birth: Derived from estimates of life expectancy at birth for the period 1950-1985 provided by the Central Statistical Office, modified so as to ensure consistency with reported changes in population size over time. For the early 1990s, results from the 1994 National Health Survey allowed the estimation of child and adult mortality, providing the basis for the selection of the North model of the Coale-Demeny Model Life Tables as the best approximation to the experience of Bhutan. Official estimates from the 2000 National Health Survey were also considered for the year 2000.
International migration: Based on UNHCR data on movements of refugees.

BOLIVIA

Total population (2005): Estimated to be consistent with the 2001 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1994 and 1998 Bolivia DHS. Also considered were estimates derived from reverse projection of the 2001 census and from births in the last year and parity reports from the 2001 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1988 Encuesta Nacional de Población y Vivienda, the 1989 Bolivia DHS, the 1992 census, the 1994 Bolivia DHS and the 1998 Bolivia DHS. Direct estimates from the last two sources were also considered.
Life expectancy at birth: Based on: (*a*) a life table estimated on the basis of data on maternal orphanhood for 1974-1981 from the 1988 Encuesta Nacional de Población y Vivienda (ENPV); (*b*) deaths by age and sex referring to 1991 from the 1992 census; (*c*) deaths by age and sex referring to 2000-2001 from the 2001 census; and (*d*) estimates of infant and child mortality.
International migration: Based on estimated net international migration for the intercensal period 1992-2001, taking into account the number of persons born in Bolivia and enumerated by other censuses in the Americas.

BOSNIA AND HERZEGOVINA

Total population (2005): Estimated to be consistent with the 1981 census, adjusted to show the de facto population, with a 2002 official population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates through 2002.
Infant and/or child mortality: Based on births and infant deaths registered through 2002 and on child mortality estimates from UNICEF.
Life expectancy at birth: Based on official estimates of life expectancy at birth for 1988-1989. The age pattern of mortality was derived from an official life table for 1988-1989.
International migration: Based on statistics on the number of refugees and asylum-seekers from Bosnia and Herzegovina in other European countries as reported by UNCHR.

BOTSWANA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates from the Central Statistics Office of Botswana, derived from the 2001 and 1991 censuses, and on maternity-history data from the 1988 Family Health Survey II.

Infant and/or child mortality: Based on official infant mortality estimates from the Central Statistics Office of Botswana derived from the 1991 and 2001 censuses. Child mortality estimates are based on data from the 2000 Botswana (MICS) and estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on data on the number of migrant workers in South Africa.

BRAZIL

Total population (2005): Estimated to be consistent with the 2000 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2001, classified by age of mother, on data on fertility from the 1992, 1993, 1995, 1996 and 2001 Pesquisa Nacional por Amostra de Domicilios (PNAD) and on census information by age of mother.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a life table for 1999-2001 estimated from registered births and deaths by age and sex for 1999-2001, adjusted for underregistration by using the growth-balance equation method, and from the 2000 census population by age and sex and on estimates of infant and child mortality. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-2000 intercensal period.

BRITISH VIRGIN ISLANDS

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

BRUNEI DARUSSALAM

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on live births by age of mother through 2000.

Infant and/or child mortality: Based on births and infant deaths registered through 2000 and on child mortality estimates from UNICEF.

Life expectancy at birth: Based on a life table using registered deaths by age and sex for the period 1993-1997 and on the estimated underlying population.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1981-1991 intercensal period, and on assumed subsequent trends.

BULGARIA

Total population (2005): Estimated to be consistent with the 2001 census, with an official population estimate for 31 December 2003 and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates through 2003.

Infant and/or child mortality: Based on official estimates of infant mortality through 2002 and on child mortality estimates from UNICEF.

Life expectancy at birth: Based on official estimates of life expectancy through 2002. Age pattern of mortality is based on an official life table for the population of Bulgaria referring to 1995-1997.

International migration: Based on estimates of net international migration, derived as the difference

between overall population growth and natural increase through 2001.

BURKINA FASO

Total population (2005): Estimated to be consistent with the 1996 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, and on maternity-history and completed family size data from the 1993 Burkina Faso DHS, the 1998-1999 Burkina Faso DHS and the 2003 Burkina Faso DHS.

Infant and/or child mortality: Infant mortality estimates are derived from the child mortality rates using the South model of the Coale-Demeny Model Life Tables. Child mortality estimates are based on data on children ever born and surviving, classified by age of mother, on maternity-history data from the 1992-1993, 1998-1999 and 2003 Burkina Faso DHS and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Estimated on the basis of the stock of persons from Burkina Faso enumerated in Côte d'Ivoire, taking into account the results of the CERPOD migration surveys and incorporating estimates of refugee flows derived from UNHCR data.

BURUNDI

Total population (2005): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data for the preceding 15 years from the 1987 Burundi DHS.

Infant and/or child mortality: Based on a 1990-1995 life table, taking into account the high number of deaths due to the 1993 civil war. The 2000 Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme has also been taken into consideration. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables, taking into account the number of deaths due to civil strife. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on the historical database on refugee stocks maintained by UNHCR and on the assumption that the Burundian refugees abroad will return to Burundi during 2005-2010.

CAMBODIA

Total population (2005): Estimated to be consistent with the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (*a*) maternity-history data from the 2000 Cambodia DHS; (*b*) fertility assumptions from Cambodia's population projections for 1998-2020 published by the National Institute of Statistics; and (*c*) the consistency of fertility estimates with population growth between the 1962 and 1998 censuses corrected for the effects of mortality and migration.

Infant and/or child mortality: Based on: (*a*) data on children ever born and surviving from the 1998 census; (*b*) maternity-history data from the 2000 Cambodia DHS; and (*c*) child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on UNHCR data on movements of refugees between Cambodia and neighbouring countries through 2000 and on assumed subsequent trends.

CAMEROON

Total population (2005): Estimated to be consistent with the 1987 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1978 Cameroon WFS, the 1991 Cameroon DHS and the 1998 Cameroon DHS.
Infant and/or child mortality: Based on maternity-history data from the 1978 Cameroon WFS and the 1991 and 1998 Cameroon DHS and on data on children ever born and children surviving from the 2000 Cameroon MICS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Net international migration was estimated on the basis of UNHCR statistics on refugees.

CANADA

Total population (2005): Estimated to be consistent with the 2000, 2001 and 2004 mid-year population estimates of Statistics Canada and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2002, classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on registered deaths through 2001 and on the estimated population, classified by age and sex.
International migration: Based on estimates of international migration through 2004.

CAPE VERDE

Total population (2005): Estimated to be consistent with the 1990 and 2000 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1998 Demographic and Reproductive Health Survey and on the total fertility estimate from the 2000 census.
Infant and/or child mortality: Based on data on children ever born and children surviving from the 1998 Demographic and Reproductive Health Survey.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. An official estimate of life expectancy at birth by sex for 1990 was also considered.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-1990 and 1990-2000 intercensal periods.

CAYMAN ISLANDS

Total population (2005): Estimated to be consistent with the 1989 and 1999 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

CENTRAL AFRICAN REPUBLIC

Total population (2005): Estimated to be consistent with the 1988 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1994-1995 Central African Republic DHS.
Infant and/or child mortality: Based on maternity-history data from the 1994-1995 Central African Republic DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Estimates of net international migration were derived from information on the stock of refugees from the historical database maintained by UNHCR. The refugees in the Central African Republic in 2003 were assumed to leave the country by 2010 and citizens of the Central African Republic recognized as refugees in countries of the region were assumed to return to their country by 2010.

CHAD

Total population (2005): Estimated to be consistent with the 1993 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data for 1992-1996 from the 1996-1997 Chad DHS.
Infant and/or child mortality: Based on maternity-history data from the 1996-1997 Chad DHS and on data on children ever born and children surviving from the 2000 Chad MICS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Estimates of net international migration were derived from information on the stock of refugees from the historical database maintained by UNHCR and on recent flows through November 2004. Refugees in Chad were assumed to leave the country by 2015 and citizens of the Chad recognized as refugees in countries of the region were assumed to return to their country by 2010.

CHANNEL ISLANDS

Total population (2005): Estimated to be consistent with the 2001 census of Jersey and Guernsey and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on registered births by age of mother through 2000 for Guernsey and through 1994 for Jersey.
Infant and/or child mortality: Based on births and infant deaths registered through 2000 for Guernsey and through 1994 for Jersey.
Life expectancy at birth: Based on a life table for 1989-1993 calculated from registered deaths by age and sex and the underlying population and on registered deaths through 2000 for Guernsey and through 1994 for Jersey.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1996-2001 intercensal period.

CHILE

Total population (2005): Estimated to be consistent with the 2002 census adjusted for underenumeration and the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2002, classified by age of mother, and on data from the 2002 census on births in the 12 months preceding enumeration, classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 2002 and on the 2002 census.
Life expectancy at birth: Based on a life table for 2000-2002 constructed from registered deaths by age and sex for the period 2000-2002 and on the population by age and sex from the 2002 census.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during each intercensal period.

CHINA [4]

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1997 China Annual Survey of Population Change and on the adjusted number of births reported 12 months prior to the 2000 census.
Infant and/or child mortality: Based on retrospective information on births and infant deaths from the 1986 Demographic Change Survey, the 1988 Population Survey and the 1990 census (adjusted for underreporting of female deaths) and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on an estimated life table for 1990 calculated for ages 1 and over from 1990 census data on deaths during the previous six months and on an estimate of infant mortality. The level of mortality was estimated taking into account life tables derived from vital registration data for 1990-1994, the results of the 1995 intercensal survey and the annual surveys conducted by the National Bureau of Statistics over the period 1990-1998, assessed for the underenumeration of deaths. Life expectancy values from mortality data derived from the 2000 census were also taken into consideration. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on estimates of net international migration, derived as the difference

between overall population growth and natural increase during the 1982-1990 intercensal period and the number of international migrants admitted by the United States of America.

CHINA, HONG KONG SAR [5]

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on total fertility estimates through 2003 provided by the Census and Statistics Department, Hong Kong.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on registered deaths by age and sex through 2003 and on the underlying population by age and sex.
International migration: Based on estimates given in Hong Kong Population Projections: 2004-2033, Census and Statistics Department, Hong Kong, and on assumed subsequent trends in international migration.

CHINA, MACAO SAR [6]

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered in 2001-2003, classified by age of mother, and on estimates of the female population by age.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on official estimates of life expectancy at birth derived from registered deaths through 2001.
International migration: Based on the inflow of legally admitted migrants, including legal immigrants from China, on the number of foreigners authorized to reside in Macao SAR through 2003 and on the number of migrant workers. The number of migrants with illegal entry into Macao SAR, legalized by the authorities during 1978 and 1991, was also taken into consideration, as was the number illegal immigrants repatriated over the 2001-2003 period.

COLOMBIA

Total population (2005): Estimated to be consistent with the 1993 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1995 Colombia DHS and on data on births in the preceding 12 months, classified by age of mother, from the 1993 census.
Infant and/or child mortality: Based on maternity-history data from the 1995 Colombia DHS, on births and infant deaths registered in 1992-1996 and on indirect estimates from the 1993 census.
Life expectancy at birth: Based on a 1990-1995 life table constructed from registered deaths by age and sex for 1990-1995, adjusted for underregistration by the growth-balance equation method, from the 1993 census population by age and sex and from estimates of infant and child mortality.
International migration: Based on the number of Colombians reported by the 1990 censuses of Venezuela and the United States of America and on the difference between overall population growth and natural increase during each intercensal period.

COMOROS

Total population (2005): Estimated to be consistent with the 2003 census of the three islands of the Comoros, with the 2002 census of Mayotte, and with estimates of the subsequent trends in fertility, mortality and international migration. The age structure is based on the 1991 censuses of Comoros and Mayotte.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1991 census, and on maternity-history data from the 1996 Comoros DHS.
Infant and/or child mortality: Based on maternity-history data from the 1996 Comoros DHS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on information on migrants from the Comoros in Réunion.

CONGO

Total population (2005): Estimated to be consistent with the 1984 census and with estimates of the subsequent trends in fertility, mortality and international migration. Total population from the 1996 census was also taken into consideration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1974 and 1984 censuses.
Infant and/or child mortality: Based on estimates for the 1970s derived from 1974 census data on children ever born and children surviving, both classified by age of mother, and on similar estimates reported by the 1984 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on data on refugees compiled by UNHCR.

COOK ISLANDS

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2003, classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on a 1996-2001 life table calculated using the average number of registered deaths by age and sex for the years 1996-2001 and the estimated mid-period population by age and sex.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1996-2001 intercensal period.

COSTA RICA

Total population (2005): Estimated to be consistent with the 2000 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000, classified by age of mother, and on the results of the 1993 National Survey on Reproductive Health and Family Formation.
Infant and/or child mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on a life table for 1999-2001 estimated from registered deaths by age and sex for 2000, from the 2000 census population by age and sex and from adjusted estimates of infant and child mortality derived from vital registration.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during each intercensal period. In addition, the following information was taken into account: (*a*) tabulations of births by nationality of mother for 1980-1990; (*b*) data on arrivals and departures of Costa Rican nationals and registration of foreigners for 1987-1996; (*c*) the number and characteristics of the foreign-born population enumerated in the 1973, 1984 and 2000 census counts; and (*d*) the number and characteristics of Costa Ricans enumerated by the censuses of major receiving countries in the Americas.

CÔTE D'IVOIRE

Total population (2005): Estimated to be consistent with the 1988 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data from the 1988 census on births in the preceding 12 months classified by age of mother; on data on children ever born and on births in the preceding 12 months, both classified by age of mother and on maternity-history data from the 1994 and 1998-1999 DHS. Official estimates for 2000-2004 were also considered.
Infant and/or child mortality: Infant mortality estimates are derived from the child mortality rates using the South model of the Coale-Demeny Model Life Tables. Child mortality estimates are based on data on children ever born and children surviving, both classified by age of mother, on maternity-history data from the 1994 and 1998-1999 DHS and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on: (*a*) statistics on refugees compiled by UNHCR; (*b*) the stock of foreigners enumerated by the censuses of Côte d'Ivoire; (*c*) the number of migrants originating in Côte d'Ivoire according to the statistics of developed countries; and (*d*) the results of the migration surveys conducted by CERPOD (Enquête REMUAO).

CROATIA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2002, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on reported deaths registered through 2002 by age and sex and on the underlying population by age and sex. The age pattern of mortality is based on a life table calculated from average deaths in 2000-2002 and the 2001 population by age and sex.

International migration: Based on the estimated number of refugees entering Croatia from Bosnia-Herzegovina and Yugoslavia and on the number of persons leaving Croatia and entering other European countries and countries of immigration overseas.

CUBA

Total population (2005): Estimated to be consistent with the 2003 population register and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2003, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on deaths registered through 2003 classified by age and sex and on the underlying population by age and sex.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during each intercensal period. In addition, the number and characteristics of Cubans enumerated by the censuses of major receiving countries in the Americas and the number of Cuban immigrants received by the United States of America were taken into account.

CYPRUS

Total population (2005): Estimated to be consistent with the 2001 census, with an official 2003 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2002, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on an official life table for the year 2000.

International migration: Based on reported number of permanent arrivals and departures by age and sex through 2002.

CZECH REPUBLIC

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on official estimates of life expectancy through 2003. The age pattern of mortality is based on an official life table for 1998-1999.

International migration: Based on official estimates of net international migration through 2002.

DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Total population (2005): Estimated to be consistent with the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births in the 12 months preceding the 1993 census and on estimates of total fertility that are consistent with the age distribution of the 1993 census population (that is, total fertility estimates for the past that produce the age distribution recorded by the 1993 census adjusted for underenumeration).

Infant and/or child mortality: Derived from estimates of life expectancy at birth by assuming that the age pattern of mortality conforms to the Far

Eastern model of the United Nations Model Life Tables. Child mortality levels are consistent with estimates from UNICEF.

Life expectancy at birth: Based on official estimates of life expectancy at birth adjusted for underreporting.

International migration: Net international migration was estimated based on secondary sources.

DEMOCRATIC REPUBLIC OF THE CONGO

Total population (2005): Estimated to be consistent with the 1984 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born, classified by age of mother, from the 1984 census.

Infant and/or child mortality: Based on estimates of children ever born and children surviving from the Demographic Survey of Western Zaire conducted in 1974-1977 and from the Multiple Indicator Cluster Surveys conducted in 1995 and 2000. A 1984 census estimate was also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The unusual numbers of deaths due to war in the late 1990s were also taken into account. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on UNHCR data on the number of refugees.

DEMOCRATIC REPUBLIC OF TIMOR-LESTE

Total population (2005): Estimated to be consistent with the 1990 census, with the 1995 Indonesian Intercensal Population Survey and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1994 and 1997 DHS for Indonesia, with special tabulations for the Democratic Republic of Timor-Leste, and on preliminary results from the 2003 Timor-Leste DHS.

Infant and/or child mortality: Based on an official estimate for 1985-1990 produced by the Government of Indonesia and on child mortality estimates from UNICEF.

Life expectancy at birth: Based on an official estimate for 1985-1990 produced by the Government of Indonesia.

International migration: Based on estimated international migration during 1990-1995 and on data on refugees and repatriations from UNHCR.

DENMARK

Total population (2005): Estimated to be consistent with an official population estimate for 1 January 2004 and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on an official life table for 2002/2003.

International migration: Based on official estimates of international migration through 2003.

DJIBOUTI

Total population (2005): Estimated to be consistent with the 1983 census and the 1991 Intercensal Demographic Survey, both adjusted for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on 1998 estimates from DISEP (Direction des Statistiques et des Études de Population, Djibouti).

Infant and/or child mortality: Based on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on the historical database on refugee stocks maintained by UNHCR and on reports of additional migration flows of persons not qualifying as refugees. Projected migration is based on the assumption that refugees in Djibouti will return to their countries of origin by 2015 and that persons who migrated to Djibouti as

a result of conflict in their countries will return to them by 2020.

DOMINICA

Total population (2005): Estimated to be consistent with the 1991 and 2001 censuses, with 1995 and 1998 official population estimates and with estimates of the subsequent trends in fertility, mortality and international migration.

DOMINICAN REPUBLIC

Total population (2005): Estimated to be consistent with the 1993 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1996 Encuesta Demográfica y de Salud (ENDESA/DHS).

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1986, 1991 and 1996 Dominican Republic DHS (ENDESA). The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on estimates of adult mortality derived from maternal orphanhood reports in the 1996 Dominican Republic DHS (ENDESA) and on estimates of mortality in childhood from the same source. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on information on immigrants to the United States of America, on the stock of Dominican migrants in the United States (from censuses and the Current Population Survey) and on information on international migration provided by the 1991 Dominican Republic DHS.

ECUADOR

Total population (2005): Estimated to be consistent with the 2001 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2000 and on maternity-history data and data on children ever born, classified by age of mother, from the 1994 and 1999 Encuesta Demográfica y de Salud Materna e Infantil (ENDEMAIN).

Infant and/or child mortality: Based on births and infant deaths registered through 2002, on data on children ever born and children surviving, both classified by age of mother, from the 1990 and 2001 censuses and on estimates from the 1994 and 1999 Encuesta Demográfica y de Salud Materna e Infantil (ENDEMAIN).

Life expectancy at birth: Based on a life table for 2000-2002 estimated from registered deaths by age and sex for 2000-2002 adjusted for underregistration by growth-balance techniques, from the 2001 census population by age and sex and from estimates of infant and child mortality.

International migration: Net international migration for the period 1990-2000 was estimated on the basis of information on Ecuadorians abroad, mainly those enumerated in Spain and the United States of America.

EGYPT

Total population (2005): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1988, 1992, 1995 and 2000 Egypt DHS and from the 1991 PAPCHILD Survey of Egypt.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1995 and 2000 Egypt DHS and on estimates from UNICEF.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables. Official estimates for the years 1996, 2002 and 2003 were also considered.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1986-1996 intercensal period.

EL SALVADOR

Total population (2005): Estimated to be consistent with the 1992 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born, classified by age of mother, on data on births in the preceding 12 months classified by age of mother, from the 1992 census and on births classified by age of mother and registered through 1993. Estimates for later periods were compared with those yielded by the Encuesta Nacional de Salud Familiar

(FESAL-98) and were found to be consistent with the latter.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from FESAL-93. Results from FESAL-98 were also taken into account.
Life expectancy at birth: Based on a 1991-1993 life table calculated from registered deaths by age and sex for 1991-1993, adjusted for underregistration with the growth balance technique, from the 1992 census population by age and sex and from estimates of infant and child mortality.
International migration: Based on estimates of international migration produced by research institutions in El Salvador and on refugee data from UNHCR.

EQUATORIAL GUINEA

Total population (2005): Estimated to be consistent with the 1983 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration. Results of the 1994 census were also considered.
Total fertility: Based on data on children ever born, classified by age of mother, and on date of birth of last child from the 1983 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1983 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Estimated to be consistent with refugee flows as derived from the UNHCR historical database.

ERITREA

Total population (2005): Estimated to be consistent with the results relative to Eritrea from the 1984 Population and Housing Census of Ethiopia and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1992-1995 from the 1995 Eritrea DHS and from the results of the 2002 Eritrea DHS, adjusted by applying the P/F ratio method.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1995 and 2002 Eritrea DHS, and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on data on refugee movements between Eritrea and neighbouring countries derived from the database maintained by UNHCR.

ESTONIA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2002.
Infant and/or child mortality: Based on births and infant deaths registered through 2002, adjusted upward through 1994 by a factor of 1.25 to compensate for infant deaths omitted owing to the use of a definition of infant death that did not conform to international standards.
Life expectancy at birth: Based on official estimates of life expectancy by sex available through 2002. The age pattern of mortality was derived from an official life table for the year 1996.
International migration: Based on official national estimates of international migration through 2000.

ETHIOPIA

Total population (2005): Estimated to be consistent with the 1994 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 2000 Ethiopia DHS and on data on births during the past 12 months, classified by age of mother, from the 1994 census. Estimates were adjusted upward for underreporting of births.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1990 Family and Fertility Survey and the 2000 Ethiopia DHS,

and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on data on refugee movements between Ethiopia and neighbouring countries derived from the database maintained by UNHCR and on assumed levels of emigration.

FAEROE ISLANDS

Total population (2005): Estimated to be consistent with the 1977 census, with official population estimates produced by the national statistical office of Denmark for 1987-2002 and with estimates of the subsequent trends in fertility, mortality and international migration.

FALKLAND ISLANDS (MALVINAS)

Total population (2005): Estimated to be consistent with the 1996 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

FIJI

Total population (2005): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on the analysis of the 1986 and 1996 census results and on the application of the own-children method and the P/F ratio method to the results of the 1986 and 1996 censuses.

Infant and/or child mortality: Based on data on children ever born and children surviving by age of mother from the 1996 census and on the number of registered births by sex and infant deaths by age and sex for 1995-1997.

Life expectancy at birth: Based on a life table calculated from registered deaths by age and sex for 1995-1997 and on the underlying population by age and sex, smoothed by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1986-1996 intercensal period.

FINLAND [7]

Total population (2005): Estimated to be consistent with an official population estimate for 31 December 2003 and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 2003. The age pattern of mortality was obtained from an official 2002 life table.

International migration: Based on official estimates of net international migration through 2003.

FRANCE

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration. Population estimates exclude the overseas departments, namely, French Guyana, Guadeloupe, Martinique and Réunion.

Total fertility: Based on official total fertility estimates available through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on an official life table for 2003, calculated from registered deaths, and on the results of the 1999 census.

International migration: Based on official estimates of net international migration through 2003.

FRENCH GUIANA

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility through 1999.

Infant and/or child mortality: Based on births and infant deaths registered through 1997.

Life expectancy at birth: Derived from official estimates of life expectancy and from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of

the Coale-Demeny Model Life Tables. Registered deaths through 1997 were also taken into account.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-1999 intercensal period. Official migration statistics for the period 1990-1999 were also considered.

FRENCH POLYNESIA

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2002 classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on official estimates of life expectancy at birth derived from registered deaths through 1996.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase through 2002.

GABON

Total population (2005): Estimated to be consistent with the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 2000 Gabon DHS.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 2000 Gabon DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1970-1993 intercensal period.

GAMBIA

Total population (2005): Estimated to be consistent with the 1993 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on estimates from the 1990 Contraceptive Prevalence Survey and on data on births in the past year from the 1993 census. Children ever born data from the 2000 Gambia Multiple Indicator Cluster Survey (MICS-2) were also considered.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1993 census and the 2000 Gambia MICS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to a North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1983-1993 intercensal period.

GEORGIA

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility through 2002, adjusted by 5 per cent for underregistration.

Infant and/or child mortality: Based on maternity-history data from the 1999 Reproductive Health Survey.

Life expectancy at birth: Based on official estimates of life expectancy through 2002, adjusted for underregistration. The age pattern of mortality is based on a life table using data on deaths in 2001, adjusted for underregistration, and on the underlying population by age and sex.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1989-2002 intercensal period.

GERMANY

Total population (2005): Estimated to be consistent with a 2003 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002.

International migration: Based on net international migration estimates derived from flow statistics available through 2001.

GHANA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, and maternity-history data from the 1979-1980 Ghana WFS and the 1988, 1993, 1998 and 2003 Ghana DHS.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1968-1969 National Demographic Survey, the 1979-1980 Ghana WFS, and the 1988, 1993, 1998 and 2003 Ghana DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on the inflow and outflow of refugees as indicated by the UNHCR historical database on the stock of refugees and on the number of Ghanaians migrating to selected developed countries.

GIBRALTAR

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

GREECE

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2001.

Infant and/or child mortality: Based on infant deaths and births registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2001. The age pattern of mortality is based on an official life table for 1998.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase between 1990 and 2000.

GREENLAND

Total population (2005): Estimated to be consistent with the 1976 census, with an official 2003 population estimate produced by Statistics Greenland and with estimates of the subsequent trends in fertility, mortality and international migration.

GRENADA

Total population (2005): Estimated to be consistent with the 1981, 1991 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

GUADELOUPE

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2000.

Infant and/or child mortality: Based on births and infant deaths registered through 1997.

Life expectancy at birth: Based on a life table for 1990 calculated using data on registered deaths by age and sex and the 1990 mid-year population by age and sex and on the trends implied by estimates of life expectancy available for 1996 and 1997. Official estimates of life expectancy for 2000 were also considered.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural in-

crease during the 1982-1990 and 1990-1999 intercensal periods.

GUAM

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2003, classified by age of mother and adjusted downward to account for births to non-resident women in Guam hospitals and to be consistent with children under age five enumerated in the 2000 census.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on a 1990 life table calculated using the average number of registered deaths by age and sex of the years 1988-1992 and the 1990 census population by age and sex and on the trends implied by the number of deaths registered through 2003.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period. Data on the reduction in the number of military personnel and their dependants were also taken into account.

GUATEMALA

Total population (2005): Estimated to be consistent with the 2002 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (*a*) data on children ever born and births during the 12 months preceding interview, classified by age of mother, from the 1987 and the 1995 Encuestas Nacionales de Salud Materno Infantil (ENSMI), the 1987 and 1989 Encuestas Nacionales Socio-demográficas (ENSD), and the 1994 census; (*b*) data from the 2002 Encuestas Nacionales de Salud Materno Infantil (ENSMI); and (*c*) vital registration and estimates from the 2002 census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1995 and 2002 Encuestas Nacionales de Salud Materno Infantil (ENSMI), the 1987 and 1989 Encuestas Nacionales Socio-demográficas (ENSD) and the 1994 and 2002 census. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a series of life tables for the period 1950-2001 calculated from registered deaths. The most recent life table is calculated from registered deaths by age and sex for 1999-2001 and estimates of infant and child mortality through 2001. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates derived from the number and characteristics of Guatemalans enumerated by the censuses of Costa Rica, Honduras, Mexico and the United States of America and from data from the International Organization for Migration (IOM) survey.

GUINEA

Total population (2005): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, and maternity-history data from the 1992 and 1999 Guinea DHS. Estimates from the 1983 and 1996 censuses were also considered.

Infant and/or child mortality: Based on maternity-history data and on data on children ever born and children surviving, both classified by age of mother, from the 1992 and 1999 Guinea DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on data on refugees compiled by UNHCR.

GUINEA-BISSAU

Total population (2005): Estimated to be consistent with the 1979 census adjusted for underenumeration, with the total population enumerated by the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: In the absence of statistics indicative of fertility levels and trends, total fertility was assumed to have levels and to follow trends similar to those estimated for neighbouring countries with socio-economic conditions similar to those of Guinea-Bissau. An estimate of total fertility derived from data on children ever born from the 2000 Guinea-Bissau MICS was also taken into account.

Infant and/or child mortality: Derived from the level of life expectancy by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. An indirect estimate of infant mortality derived from data on children ever born and children surviving from the 2000 Guinea-Bissau MICS was also taken into account. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: In the absence of statistics indicative of mortality levels and trends, life expectancy was assumed to have levels and to follow trends similar to those estimated for neighbouring countries with socio-economic conditions similar to those of Guinea-Bissau. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on data on refugees compiled by UNHCR.

GUYANA

Total population (2005): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born, classified by age of mother, on and births in the 12 months preceding enumeration, classified by age of mother, from the 1980 and 1991 censuses, on results from the 1986 Guyana Demographic Survey and on the number of births registered during 1990.

Infant and/or child mortality: Based on: (*a*) data on children ever born and children surviving, both classified by age of mother; information on the survival of the last-born child of female respondents; and deaths within the household during the five years preceding the survey; all from the 1986 Guyana Demographic Survey; (*b*) tabulations on the survival of the last-born child from the 1991 census; (*c*) data on children ever born and children surviving from the 2000 Guyana MICS; and (*d*) child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a life table for 1986, derived from the number of deaths by age and sex for the period 1981-1986 recorded by the 1986 Guyana Demographic Survey, from estimates of infant and child mortality and from registered deaths through 1998. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-1991 intercensal period, on registered number of arrivals and departures (excluding visitors) through 1998 and on number of immigrants admitted to the United States of America through 2002.

HAITI

Total population (2005): Estimated to be consistent with the 1982 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1977 Enquête Haitienne sur la Fécondité (EHF), from the 1983 Enquête Haitienne sur la Prévalence de la Contraception (EHPC) and from the 1987 and 1994-1995 Enquêtes de Mortalité, Morbidité et Utilisation des Services (EMMUS-I and II/DHS).

Infant and/or child mortality: Based on maternity-history data from the 1994-1995 DHS (EMMUS-II). The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a 1970-1971 life table derived from registered deaths by age and sex, adjusted for incompleteness using the growth-balance method, from the 1971 census population by age and sex and from estimated trends in infant mortality. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Estimated on the basis of the number and characteristics of Haitians enumerated in the 1980 round of censuses of Canada, the Dominican Republic and the United States of America.

HOLY SEE

Total population (2005): Estimated to be consistent with official population data provided by the Vatican City State for 1954-1998 and with estimates of the subsequent trends in mortality and international migration.

HONDURAS

Total population (2005): Estimated to be consistent with the 1988 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1996 Encuesta Nacional de Epidemiología y Salud Familiar (ENESF).
Infant and/or child mortality: Based on maternity-history data from the 1996 ENESF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on a life table for 1988 derived from registered deaths by age and sex for 1988, adjusted for underregistration using the growth-balance method, from the population by age and sex from the 1988 census and from estimates of infant and child mortality. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on official estimates of international migration through 1990.

HUNGARY

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is based on an official life table for 1998.
International migration: Based on official estimates of international migration through 2001.

ICELAND

Total population (2005): Estimated to be consistent with an official population estimate for 31 December 2003 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2003, classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on an official life table for 2001-2003.
International migration: Based on official estimates of international migration through 2003.

INDIA

Total population (2005): Estimated to be consistent with the 1991 and 2001 censuses, adjusted for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data from the Sample Registration System for age-specific fertility rates through 1998, for total fertility estimates up to 2000 and for crude birth rates through 2002, and on maternity-history data from the 1992-1993 and 1998-1999 India National Family Health Surveys (NFHS-1 and 2/DHS).
Infant and/or child mortality: Based on data from the Sample Registration System through 1999 and the 1992-1993 and 1998-1999 India National Family Health Surveys (NFHS-1 and 2/DHS). The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on a life table constructed from age and sex-specific mortality rates from the Sample Registration System for 1993-97. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on emigration data from India to developed countries and on labour migration data from India to other Asian countries.

INDONESIA

Total population (2005): Estimated to be consistent with the 2000 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1991, 1994, 1997 and 2002 DHS, on own children estimates from the 1971, 1980 and 1990 censuses and on estimates from the 1976 Indonesia Fertility Survey and the 1987 National Indonesia Contraceptive Prevalence Survey.

Infant and/or child mortality: Based on maternity-history data from the 1991, 1994, 1997 and 2002 DHS, on indirect estimates from the 1971, 1980 and 1990 censuses, the 1976 Indonesia Fertility Survey and the 1987 National Indonesia Contraceptive Prevalence Survey and on estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on information regarding Indonesians admitted by the main countries of immigration, on data on labour migration and on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-1990 intercensal period.

IRAN (ISLAMIC REPUBLIC OF)

Total population (2005): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on fertility estimates from the 1996 census and the 2000 Iran Demographic Health Survey.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1973 Baseline Population Growth Survey, the 1973-1976 Population Growth Survey of Iran, the 1986 census and the 1996 census and on estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to that of the East model of the Coale-Demeny Model Life Tables.
International migration: Based on data on refugees compiled by UNHCR and on data on migrants from Iran to developed countries.

IRAQ

Total population (2005): Estimated to be consistent with the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration. The population estimates refer to the whole of Iraq, including the three northern governorates.
Total fertility: Based on data on children ever born, classified by age of mother from the 1987 census and on the age pattern of fertility derived from that census and from birth registration data. Estimates from ESCWA were taken into account for the 1995-2000 period.
Infant and/or child mortality: Based on estimates from ESCWA, UNICEF and WHO.
Life expectancy at birth: Derived from registered deaths for 1985-1987 classified by age and sex and the 1987 census population, adjusting the former for underregistration. For 1990-1995, the estimates of life expectancy were revised in light of a study conducted in 1992 so as to take into account the consequences of the Gulf war. For 1995-2000, levels by sex are based on 1998 estimates from ESCWA; the age pattern of mortality is based on the East model of the Coale-Demeny Model Life Tables.
International migration: Based on data on refugees compiled by UNHCR and on data on migrants from Iraq to developed countries.

IRELAND

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2002.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 2002. The age pattern of mortality was derived from an official life table for 2001-2003.
International migration: Based on an official estimate of international migration through 2003.

ISLE OF MAN

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

ISRAEL

Total population (2005): Estimated to be consistent with the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration. Population figures exclude the Arab population residing in East Jerusalem and include the Israeli citizens residing in the Occupied Palestinian Territory. Official population estimates

for the years 2000 and 2003 from the Israeli Central Bureau of Statistics were also considered.
Total fertility: Based on births registered through 2002, classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on official life expectancy estimates and on a life table derived from age specific mortality rates for the 2000-2002 period.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1995-2003 period. Assumptions on migration levels made in the official Israeli population projections were also considered.

ITALY

Total population (2005): Estimated to be consistent with the 2001 census, with an official estimate for 2003 and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on official estimates of life expectancy, derived from registered deaths through 2001. The age pattern of mortality is based on an official life table for 1998.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase through 2003.

JAMAICA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2000, classified by age of mother.
Infant and/or child mortality: Based on estimates from WHO and UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on an official life table for the year 2000 prepared by WHO. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1991-2001 intercensal period.

JAPAN

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2001 classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on an official life table for 2001. Projected using a model of very fast change and assuming an ultimate convergence to West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived from official information on emigration of Japanese to the main receiving countries, and from information on the change in the numbers of registered foreigners through 2001.

JORDAN

Total population (2005): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration. Population figures refer to Jordan proper (they do not include the West Bank). Official population estimates through 2003 from the Jordanian Department of Statistics were also considered.
Total fertility: Based on maternity-history data from the 1990, 1997 and 2002 Jordan Population and Family Health Surveys (DHS).
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1994 Post-Enumeration Survey conducted after the 1994 census, on the 1995 Jordanian Society Survey and on the 1999 Jordan Annual Fertility Survey. Estimates from UNICEF and the 1997 and 2002 Jordan Population and Family Health Surveys (DHS) were also considered.
Life expectancy at birth: Based on infant mortality estimates and on a 1994 life table derived from the number of deaths, classified by age and sex during

the 12 months preceding the 1994 census, adjusted for underreporting.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1994-2003 period.

KAZAKHSTAN

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on the 1999 Kazakhstan DHS and on official total fertility estimates available through 2002.

Infant and/or child mortality: Based on maternity-history data from the 1999 Kazakhstan DHS.

Life expectancy at birth: Based on a life table calculated from registered deaths by age and sex for 2003, adjusting infant and child mortality rates to be consistent with rates from the 1999 Kazakhstan DHS.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase through 2003.

KENYA

Total population (2005): Estimated to be consistent with the 1999 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1989, 1993, 1998, and 2003 Kenya DHS.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 1989, 1993, 1998 and 2003 Kenya DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on the number of migrants from Kenya to developed countries.

KIRIBATI

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on an application of the P/F ratio method to data on children ever born and on births during the year preceding the 2000 census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 census.

Life expectancy at birth: Based on the estimated level of infant and child mortality, on tabulations of parental survivorship (orphanhood) by age of respondent from the 2000 census and on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1995-2000 intercensal period.

KUWAIT

Total population (2005): Estimated to be consistent with the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration. Official population estimates from 1996 and 2000 were also considered.

Total fertility: Based on births registered through 1999, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2000.

Life expectancy at birth: Based on a 1987 life table derived from registered deaths by age and sex for 1987 and from the underlying population by age and sex. Estimates from WHO and ESCWA were also considered.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1995-2000 period.

KYRGYZSTAN

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates available through 2002. Estimates from the 1997 Kyrgyzstan DHS were also considered.
Infant and/or child mortality: Based on maternity-history data from the 1997 Kyrgyzstan DHS.
Life expectancy at birth: Based on official estimates of life expectancy through 2002, adjusted to take into account underreporting of infant and child mortality.
International migration: Based on official estimates of net international migration through 1995 and on estimates derived as the difference between overall population growth and natural increase through 2001.

LAO PEOPLE'S DEMOCRATIC REPUBLIC

Total population (2005): Estimated to be consistent with the 1995 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Estimated to be consistent with the adjusted 1995 census age distribution and with children ever born data and maternity-history data from the 1994 Fertility and Birth Spacing Survey and the 2000 Lao Reproductive Health Survey.
Infant and/or child mortality: Based on maternity-history data from the 1994 Fertility and Birth Spacing Survey and from the 2000 Lao Reproductive Health Survey.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of international migration for the 1985-1995 intercensal period and UNHCR estimates.

LATVIA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 2002. The age pattern of mortality is derived from an official life table for 1998.
International migration: Based on official migration statistics available through 2003.

LEBANON

Total population (2005): Estimated to be consistent with the 1970 population count, with the population obtained from the 1996 Population and Housing Survey and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on age-specific fertility rates from the 1970 Lebanon Labour Force Survey, on data from the 1996 Lebanon Maternal and Child Health Survey, on data from the 1996 Lebanon Population and Housing Survey and on estimates from ESCWA.
Infant and/or child mortality: Based on data from the 1996 Lebanon Maternal and Child Health Survey and from the 2001 Lebanon MICS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Estimates from WHO were also considered.
International migration: Through 2000, based on official estimates of net international migration and on estimates derived as the difference between overall population growth and natural increase. For subsequent periods, data on refugee flows compiled by UNHCR were taken into account.

LESOTHO

Total population (2005): Estimated to be consistent with the 1996 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1986 census and on fertility estimates from the 1991 Lesotho Demographic and Health Survey.
Infant and/or child mortality: Based on: (*a*) data on children ever born and children surviving, both classified by age of mother, from the 1996 census; (*b*) data from the 2001 Lesotho MICS; (*c*) data from the 2001 Lesotho Demographic Survey; and (*d*) estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on refugee statistics compiled by UNHCR and on data on the number of migrant workers in South Africa.

LIBERIA

Total population (2005): Estimated to be consistent with the 1984 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1986 Liberia DHS.
Infant and/or child mortality: Based on maternity-history data from the 1986 Liberia DHS. Mortality levels were adjusted for the 1990s to take into account the consequences of the civil war. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Mortality levels were adjusted for the 1990s to take into account the consequences of the civil war. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on refugee statistics compiled by UNHCR.

LIBYAN ARAB JAMAHIRIYA

Total population (2005): Estimated to be consistent with the total population of the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data for 1990-1995 from the 1995 PAPCHILD Survey of the Libyan Arab Jamahiriya.
Infant and/or child mortality: Based on maternity-history data from the 1995 PAPCHILD Survey of the Libyan Arab Jamahiriya and on estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1984-1995 intercensal period.

LIECHTENSTEIN

Total population (2005): Estimated to be consistent with the 1990 census, with a 2000 official population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

LITHUANIA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2002, adjusted upward by a factor of 1.25 prior to 1991 to compensate for infant deaths omitted owing to the use of a definition of infant death that did not conform to international standards.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths and available through 2003. The age pattern of mortality is derived from an official life table for 1998.
International migration: Based on official estimates of international migration through 2003.

LUXEMBOURG

Total population (2005): Estimated to be consistent with the 2001 census, with 2002 and 2004 official population estimates and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on official estimates of life expectancy derived from registered deaths through 2003.
International migration: Based on official estimates of international migration through 2003.

MADAGASCAR

Total population (2005): Estimated to be consistent with the 1993 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1992 and 1997 Madagascar DHS and on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1993 census. Census estimates were adjusted upwards by applying the P/F ratio method.

Infant and/or child mortality: Based on maternity-history data from the 1992 and 1997 Madagascar DHS, on data on children ever born and children surviving, both classified by age of mother, from the 1993 Census and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on data on persons born in Madagascar and enumerated by the censuses of key countries of destination, especially France.

MALAWI

Total population (2005): Estimated to be consistent with the 1998 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 2000 Malawi DHS.

Infant and/or child mortality: Infant mortality estimates based on data on children ever born and children surviving, both classified by age of mother, from the 1998 census, and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. Estimates from the 1987 and 1998 censuses were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on data on the number of migrant workers in South Africa.

MALAYSIA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates through 2000.

Infant and/or child mortality: Based on births and infant deaths registered through 2004.

Life expectancy at birth: Based on preliminary official estimates through 2004.

International migration: Based on data on inflows and outflows of refugees and on information on Malaysian emigrants admitted by the main countries of immigration.

MALDIVES

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1985, 1990, 1995 and 2000 censuses and on the crude birth rate and the number of births registered through 2002.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 census and on official infant mortality estimates through 2002.

Life expectancy at birth: Based on official estimates of life expectancy through 2002.

International migration: Net international migration was assumed to be zero.

MALI

Total population (2005): Estimated to be consistent with the 1987 census, with the preliminary results of the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data and data on children ever born from the 1987, 1995-1996 and 2001 Mali DHS.

Infant and/or child mortality: Based on maternity-history data and data on children ever born and

children surviving, both classified by age of mother, from the 1987, 1995-1996 and 2001 Mali DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR on the number of Malians enumerated in other countries of the region and on the results of the REMUAO surveys carried out by CERPOD.

MALTA

Total population (2005): Estimated to be consistent with the 1995 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates available through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on official estimates of life expectancy based on registered deaths and available through 2002. The age pattern of mortality was based on the average of life tables for the period 1995-1998, smoothed to remove fluctuations caused by small numbers.

International migration: Based on international migration registered through 2003.

MARSHALL ISLANDS

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on an application of the P/F ratio method to data on children ever born and on births during the year preceding the 1999 census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1999 census.

Life expectancy at birth: Based on the estimated level of infant and child mortality, on tabulations of parental survivorship (orphanhood), classified by age of respondent, from the 1999 census and on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1988-1999 intercensal period.

MARTINIQUE

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on a life table for 1989-1991, calculated from registered deaths by age and sex, on the 1990 mid-year population by age and sex and on an estimate of life expectancy from deaths registered through 2001.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-1999 intercensal period.

MAURITANIA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 2000 census, the 1990 Maternal Child and Health Survey and the 2000 Mauritania DHS.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 1981 Fertility Survey of Mauritania and the 2000 Mauritania DHS, on results of the 1990 Maternal and Child Health Survey and on estimates from UNICEF.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1988-2000 intercensal period.

MAURITIUS [8]

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2002, classified by age of mother.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy through 2001. The age pattern of mortality is based on an official life table for 1999-2001.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period, and on reported arrivals and departures of resident population through 2002.

MEXICO

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2000, classified by age of mother, on maternity-history data from the 1987 Encuesta Nacional sobre Fecundidad y Salud (DHS), the 1992 Encuesta Nacional de la Dinámica Demográfica (ENADID) and the 1995 Encuesta Nacional de Planificación Familiar and on data on children ever born from the 2000 census.

Infant and/or child mortality: Based on maternity-history data from the 1992 Encuesta Nacional de la Dinámica Demográfica (ENADID) and on data on children ever born and children surviving, both classified by age of mother, from the 2000 census.

Life expectancy at birth: Based on a life table for 1999-2000 calculated from registered deaths by age and sex for 1999 and 2001, the 2000 census population by age and sex and estimates of infant and child mortality.

International migration: Based on estimates derived from the number and characteristics of the population born in Mexico and enumerated by the censuses of the United States of America and from statistics compiled by the Immigration and Naturalization Service of the United States on the number of Mexican admitted legally to that country and adjusted for undocumented migration.

MICRONESIA (FEDERATED STATES OF)

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 2000 census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 census.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1994-2000 intercensal period.

MONACO

Total population (2005): Estimated to be consistent with the 2000 official population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

MONGOLIA

Total population (2005): Estimated to be consistent with the 2000 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births by age of mother registered through 2000 and on maternity-history data and data on children ever born, classified by age of mother, from the 1998 Reproductive Health Survey.

Infant and/or child mortality: Based on registered births and infant deaths through 1999 and on data on children ever born and children surviving, both classified by age of mother, from the 1998 Reproductive Health Survey.

Life expectancy at birth: Based on 1990 registered deaths by age and sex, on the adjusted 1990 population by age and sex and on the total number of deaths registered through 1999.

International migration: Based on information on migration flows in and out of Mongolia from the 2000 census, on estimates of net international migration, derived as the difference between overall population growth and natural increase during the

1989-2000 intercensal period, and on assumptions from official population projections.

MONTSERRAT

Total population (2005): Estimated to be consistent with the 1991 census and with estimates of the subsequent trends in fertility, mortality and international migration. Estimates were adjusted to take into account the impact of the volcanic eruptions that affected Montserrat since 1995.

MOROCCO

Total population (2005): Estimated to be consistent with the 1994 and 2004 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1987 and 1992 Enquêtes Nationales sur la Population et la Santé (ENPS-I and II/DHS), the 1995 Enquête de Panel sur la Population et la Santé (EPPS/DHS), the 1997 PAPCHILD Survey of Morocco and the 1998-1999 Living Standards Survey.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1992 Enquêtes Nationales sur la Population et la Santé (ENPS-I and II/DHS) and the 1995 Enquête de Panel sur la Population et la Santé (EPPS/DHS) and on estimates from UNICEF.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Estimates from WHO were also considered.

International migration: Based on: (*a*) refugee statistics compiled by UNHCR; (*b*) the number of Moroccan migrants to developed countries (including France); (*c*) the number of Moroccans whose status was regularized in selected European countries; (*d*) the number of Moroccan residents in European countries; and (*e*) estimates of Moroccan migrants to Western Asia.

MOZAMBIQUE

Total population (2005): Estimated to be consistent with the 1997 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1997 census and on maternity-history data from the 1997 and 2003 Mozambique DHS; and (c) official estimates derived from the 2002-2003 Inquérito de Agregados Familiares.

Infant and/or child mortality: Infant mortality estimates for the period 2000-2005 are based on the preliminary results of the 2003 DHS. Child mortality estimates are based on data on children ever born and children surviving, both classified by age of mother, from the 1997 census and on maternity-history data from the 1997 Mozambique DHS. Official estimates from INS-Mozambique and UNICEF were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. Official estimates from the 1997 census were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR, data on migration of workers to South Africa and the results of the 1997 census regarding persons residing abroad five years before the enumeration.

MYANMAR

Total population (2005): Estimated to be consistent with the 1983 census, with a 1997 official population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data from the 2001 and 1997 Fertility and Reproductive Health Surveys and the 1991 Myanmar Population Change and Fertility Survey. Levels were adjusted to produce an estimated population for 1997 that is close to the official estimate.

Infant and/or child mortality: Based on maternity-history data from the 1997 Fertility and Reproductive Health Survey and from the 1991 Myanmar Population Change and Fertility Survey. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on the life tables and infant mortality estimates produced by the 1991 Myanmar Population Change and Fertility Survey, assuming that the age pattern of mortality

conforms to the Latin American model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on assumed trends in labour migration.

NAMIBIA

Total population (2005): Estimated to be consistent with the 1991 and 2001 censuses, adjusted for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates from Statistics Namibia, available through 2001.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 2000 Namibia DHS and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Official estimates from Statistics Namibia were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on statistics on refugee flows compiled by UNHCR and on assumed immigration levels.

NAURU

Total population (2005): Estimated to be consistent with the 1992 census and with estimates of the subsequent trends in fertility, mortality and international migration.

NEPAL

Total population (2005): Estimated to be consistent with the 2001 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1991 and 2001 censuses and on the 1996 Nepal Family Health Survey and the 2001 Nepal DHS, adjusted for underreporting.

Infant and/or child mortality: Infant mortality estimates are derived from the child mortality rates using the West model of the Coale-Demeny Model Life Tables and are consistent with national and UNICEF estimates. Child mortality estimates are based on data on children ever born and surviving children, classified by age of mother, and on maternity-history data from the 1996 Nepal Family Health Survey and the 2001 Nepal DHS.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on information on household members abroad gathered by the 1981, 1991 and 2001 censuses and on information on refugee flows to and from the country.

NETHERLANDS

Total population (2005): Estimated to be consistent with the population yielded by the population register through 1 January 2004 and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates available through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on official life expectancy estimates derived from registered deaths through 2003.

International migration: Based on official estimates of net international migration through 2003.

NETHERLANDS ANTILLES

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on tabulations of children ever born by age of mother and of births by age of mother in the preceding 12 months before the 2001 census.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Derived from an official life table for the period 1998-2002.

International migration: Based on estimates of net international migration, derived as the difference

between overall population growth and natural increase during the 1992-2001 intercensal period.

NEW CALEDONIA

Total population (2005): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on a life table for 1995-1997 estimated from registered deaths classified by age and sex and on the underlying population by age and sex, on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables and on the total number of deaths registered through 1998.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1989-1996 intercensal period.

NEW ZEALAND

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of subsequent trends in fertility, mortality and international migration.
Total fertility: Based on total fertility and age-specific fertility estimates derived from registered births available through 2004.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on an official life table for 2001-2003.
International migration: Based on net international migration estimates derived from flow statistics through 2003.

NICARAGUA

Total population (2005): Estimated to be consistent with the 1995 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother from the 1995 census, and on maternity-history data from the 1998 and 2001 Encuesta Nicaraguense de Demografía y Salud (ENDESA/DHS).
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1995 census and the 1998 and 2001 Nicaragua DHS (ENDESA).
Life expectancy at birth: Based on a life table estimated from the deaths in the past year recorded by the 1995 census and on infant and child mortality estimates the 1995 census and the 1998 and 2001 Nicaragua DHS (ENDESA).
International migration: Based on border statistics and other administrative statistics of Nicaragua, on the number and characteristics of persons born in Nicaragua and enumerated by the 1988 census of Honduras, the 1990 and 2000 census of the United States of America and the 2000 census of Costa Rica and on estimates of net international migration, derived as the difference between overall population growth and natural increase during each intercensal period.

NIGER

Total population (2005): Estimated to be consistent with the 1988 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, and on maternity-history data from the 1992 and 1998 Niger DHS and the 2000 Niger Multiple Indicator Cluster Survey (MICS-2). Adjustments were made for the underreporting of births. Estimates based on data from the 1988 and 2001 censuses were also considered.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1992 and 1998 Niger DHS and from the 2000 Niger MICS-2. Estimates based on the 1996 Niger MICS and the 2001 census were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on estimates of net international migration, derived as the difference

between overall population growth and natural increase during the 1988-2001 intercensal period.

NIGERIA

Total population (2005): Estimated to be consistent with the 1991 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, and on maternity-history data from the 1990, 1999 and 2003 Nigeria DHS. Adjustments were made for the underreporting of births. National estimates from the 1991 census and the 1994 and 2000 Nigeria Sentinel Surveys were also considered.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1990 and 2003 Nigeria DHS. Estimates based on the 1995 and 1999 Nigeria MISC, the 1999 Nigeria DHS and the 2000 Nigeria Sentinel Survey were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Net international migration was estimated on the basis of information on Nigerian-born persons enumerated in neighbouring countries, on flows of Nigerians to selected developed countries and on information obtained at the time of the repatriation of undocumented migrants that took place in 1983 and 1985.

NIUE

Total population (2005): Estimated to be consistent with the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration.

NORTHERN MARIANA ISLANDS

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

NORWAY [9]

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates available through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on official estimates of life expectancy through 2003.

International migration: Based on migration statistics available through 2003.

OCCUPIED PALESTINIAN TERRITORY

Total population (2005): Estimated to be consistent with the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration. Population figures include the Arab population residing in East Jerusalem and exclude Israeli citizens residing in the Occupied Palestinian Territory. Official population estimates for the year 2000 from the Palestinian Central Bureau of Statistics were also considered.

Total fertility: Based on official total fertility estimates for 1997 and 1999 produced by the Palestinian Central Bureau of Statistics. The 1997 estimate is derived by the P/F ratio method using births in the year preceding the 1997 census and average parity as measured by the census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1995 Demographic Survey and from the 2000 Health Survey in the Palestinian Territory.

Life expectancy at birth: Based on official estimates for 1997 and 2001 produced by the Palestinian Central Bureau of Statistics.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1997-2000 period. For subsequent periods, data on refugee flows compiled by UNHCR were taken into account.

OMAN

Total population (2005): Estimated to be consistent with the 1993 and 2003 censuses, adjusted upward for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration. Official population estimates for

the years 2000, 2001 and 2002 from the Omani Ministry of National Economy were also considered.

Total fertility: Based on official total fertility estimates for the period 2000-2002 provided by the Omani Ministry of National Economy.

Infant and/or child mortality: Based on official infant mortality estimates for the period 2000-2002 provided by the Omani Ministry of National Economy.

Life expectancy at birth: Based on official life expectancy at birth estimates for the period 2000-2002 provided by the Omani Ministry of National Economy.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1993-2003 intercensal period. Official population estimates for the years 2000, 2001 and 2002 from the Omani Ministry of National Economy were also considered for the estimation of the net migration levels.

PAKISTAN

Total population (2005): Estimated to be consistent with the 1981 and 1998 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on estimates from the 1996-1997 Pakistan Fertility and Family Planning Survey, the 2000-2001 Pakistan Reproductive Health and Family Planning Survey, the Pakistan Demographic Survey (PDS) from 1984 up to 2001 and from previous surveys and censuses.

Infant and/or child mortality: Based on: (*a*) data on children ever born and surviving, classified by age of mother, from the 1975 PFS, 1984-1985 CPS, 1990-1991 Pakistan DHS, and 2000-01 Pakistan RHFPS; (*b*) data on births and infant deaths in the preceding 12 months from the 1984-2001 Pakistan Demographic Surveys; and (*c*) maternity-history data for 1982-1990 from the 1990-1991 Pakistan DHS and for 1990-1999 from the 2000-2001 Pakistan Reproductive Health and Family Planning Survey.

Life expectancy at birth: Based on life tables derived from the 1984-2001 Pakistan Demographic Surveys, adjusted for underreporting of deaths, and on estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South-Asian model of the United Nations Model Life Tables.

International migration: Based on information on the outflow of migrant workers, on data on Pakistani immigrants admitted by the main countries of immigration and on data on refugee flows compiled by UNHCR.

PALAU

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2000.

Infant and/or child mortality: Based on infant mortality estimates through 2002.

Life expectancy at birth: Based on the estimated level of infant and child mortality and on the estimated level of adult mortality, the last derived from data on parental survivorship (orphanhood) by age of respondent from the 2000 census.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

PANAMA

Total population (2005): Estimated to be consistent with the 2000 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births classified by age of mother, registered through 2000, and on preliminary data for 2000.

Infant and/or child mortality: Based on data on children ever born and children surviving by age of mother from the 2000 census and on births and infant deaths registered through 2000.

Life expectancy at birth: Based on a life table for 1999-2000 calculated from registered deaths by age and sex for 1999-2000, adjusted for underregistration by using the growth-balance method, from the 2000 census population by age and sex and from estimates of infant and child mortality.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period. Counts of Panamanians residing in other countries

in Latin America and the United States of America were also considered.

PAPUA NEW GUINEA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on an application of the P/F ratio method to data on children ever born and on births during the year preceding the 2000 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 census and on child mortality estimates from UNICEF.
Life expectancy at birth: Based on the estimated level of infant and child mortality, on tabulations of parental survivorship (orphanhood) by age of respondent from the 2000 census and on the assumption that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

PARAGUAY

Total population (2005): Estimated to be consistent with the 1992 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1990 Encuesta Nacional de Demografía y Salud (ENDS/DHS) and the 1995-1996 Encuesta Nacional de Demografía y Salud Reproductiva, on fertility data from the 1998 Encuesta Nacional de Salud Materno-Infantil and on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1992 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1992 census and the 1995/1996 National Demographic and Reproductive Health Survey.
Life expectancy at birth: Based on a 1991-1993 life table calculated using: (*a*) registered deaths by age and sex for 1991-1993, adjusted for underregistration by using the growth-balance method; (*b*) the 1992 census population by age and sex; (*c*) deaths by age and sex estimated from the 1990 Encuesta National de Demografía y Salud (ENDS); and (*d*) estimated levels of infant and child mortality.
International migration: Based on estimated net international migration through 1994 calculated from border statistics, on the number of persons born in Paraguay and enumerated by the censuses of Argentina and the United States of America and on other administrative statistics.

PERU

Total population (2005): Estimated to be consistent with the 1993 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1991-1992, 1996 and 2000 Encuestas Demográficas y de Salud Familiar (ENDES-II, III and IV/DHS) and on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1993 census.
Infant and/or child mortality: Based on data on children ever born and children surviving by age of mother from the 1991-1992, 1996 and 2000 Encuestas Demográficas y de Salud Familiar (ENDES/DHS) and on the 1993 census.
Life expectancy at birth: Based on a 1991-1992 life table calculated from registered deaths by age and sex for 1991-1992 adjusted for underregistration by using the growth-balance method, from the 1993 census population by age and sex and from the estimated level of infant and child mortality.
International migration: Net international migration was estimated for 1982-1990 from border statistics and other administrative statistics and from the number and characteristics of persons born in Peru and enumerated by the 1990 censuses of Argentina, Canada, Chile, Venezuela and the United States of America.

PHILIPPINES

Total population (2005): Estimated to be consistent with the 1995 and 2000 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1993 National Demographic Survey and the 1998 Philippines DHS and on official data on total fertility through 2004, consistent with the age distributions produced by the 1990, 1995 and 2000 census counts.

Infant and/or child mortality: Based on maternity-history data from the 1993 National Demographic Survey and the 1998 Philippines DHS. Preliminary results from the 2003 Philippines DHS and child mortality estimates from UNICEF were also considered.
Life expectancy at birth: Based on a life table for 1987-1989, calculated using data on deaths by age and sex registered in 1987-1989, adjusted for underregistration, and on the underlying population by age and sex.
International migration: Estimated from data on Filipino emigrants admitted by the main countries of immigration and from data on clearances of Filipino workers, taking into account refugee flows. Levels were adjusted to be compatible with intercensal population change once fertility and mortality were taken into account.

PITCAIRN

Total population (2005): Estimated to be consistent with the 1991 census, with a 1999 official population figure provided to the United Nations General Assembly (UN Document Symbol: A/AC.109/2002/2) and with estimates of the subsequent trends in fertility, mortality and international migration.

POLAND

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official total fertility estimates available through 2002.
Infant and/or child mortality: Based on official infant mortality estimates through 2002.
Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is derived from the official life table for 1997.
International migration: Based on official estimates of net migration through 2002.

PORTUGAL

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility available through 2002.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is derived from an official life table for 1996-1997.
International migration: Based on official estimates of international migration and on estimates of net international migration, derived as the difference between overall population growth and natural increase through 2002.

PUERTO RICO

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2003.
Life expectancy at birth: Based on official life tables for 1992-1994 and on official estimates of life expectancy available through 2003.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

QATAR

Total population (2005): Estimated to be consistent with the 1997 and 2004 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered in 1997, classified by age of mother, and on the number of women enumerated in the 1997 census. The total numbers of live births, registered through 2002, were also considered, as well as estimates from the 1998 Gulf Family Health Survey (GFHS).
Infant and/or child mortality: Based on estimates from ESCWA and UNICEF.
Life expectancy at birth: Based on an official life table prepared by WHO, adjusted for child mortality.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1986-1997 and 1997-2004 intercensal periods.

REPUBLIC OF KOREA

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2001, adjusted for underreporting.

Life expectancy at birth: Based on an official life table for 1995 and on official life expectancies at birth through 2001.

International migration: Based on estimates of migration of Koreans to the main countries of immigration and on labour migration statistics of the Republic of Korea.

REPUBLIC OF MOLDOVA

Total population (2005): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002, adjusted to compensate for infant deaths omitted owing to the use, prior to 1991, of a definition of infant death that did not conform to international standards. Adjustments are still thought necessary although the definition of infant death has been changed.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is derived from a life table constructed on the basis of 1996 data.

International migration: Based on flow statistics available through 2002.

RÉUNION

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy through 2001. The age pattern of mortality is based on a 1980-1984 life table derived from registered deaths by age and sex and from the 1982 census population by age and sex.

International migration: Based on official estimates of net international migration (from passenger data) through 2002.

ROMANIA

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is based on an official life table for 1993-1996.

International migration: Based on estimates of net international migration, derived as the difference between overall population change and natural increase during the 1992-2002 intercensal period.

RUSSIAN FEDERATION

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002 and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on official estimates of life expectancy through 2002. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population change and natural increase during the 1989-2002 intercensal period.

RWANDA

Total population (2005): Estimated to be consistent with the 2002 census adjusted for underenumeration and with estimates of subsequent trends in fertility, mortality and international migration.

Total fertility: Based on estimates derived from data on children ever born and on births in the previous three years, both classified by age of mother, from the 1992 and 2000 Rwanda DHS and on data on children ever born by age of mother from the 1996 Socio-Demographic Survey.
Infant and/or child mortality: Based on data on children ever born and children surviving from the 1996 Socio-Demographic Survey, adjusted to reflect the effects of the 1993-1994 civil war, and from the 2000 Rwanda DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on the estimated level of infant mortality, taking into account the unusual numbers of deaths caused by the 1993-1994 civil war. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on refugee statistics compiled by UNHCR.

SAINT HELENA [10]

Total population (2005): Estimated to be consistent with the 1998 census and with estimates of the subsequent trends in fertility, mortality and international migration.

SAINT KITTS AND NEVIS

Total population (2005): Estimated to be consistent with the 1991 census, with a 2000 official population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

SAINT LUCIA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates through 2001.
Infant and/or child mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on official estimates of life expectancy through 2001. The age pattern of mortality is based on a life table for 1989 derived from registered deaths by age and sex and from the underlying population by age and sex derived from the 1991 census.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the intercensal period 1991-2001.

SAINT PIERRE ET MIQUELON

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

SAINT VINCENT AND THE GRENADINES

Total population (2005): Estimated to be consistent with the 1991 census, with the preliminary total population from the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births classified by age of mother registered through 1992.
Infant and/or child mortality: Based on births and infant deaths registered through 1992.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the intercensal period 1991-2001.

SAMOA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 2001 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1999 Samoa DHS.
Life expectancy at birth: Based on reported deaths by age and sex for 1997 and 1998 from the 1999 Samoa DHS, on the underlying population and on the assumption that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. The age pattern of mortality derived from the DHS data could not be accepted because of the random variations associated with small numbers.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1991-2001 intercensal period.

SAN MARINO

Total population (2005): Estimated to be consistent with official population estimates for 1950-2000 and with estimates of the subsequent trends in fertility, mortality and international migration.

SAO TOME AND PRINCIPE

Total population (2005): Estimated to be consistent with the 1991 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1993.
Infant and/or child mortality: Child mortality estimates are based on maternity-history data from the 2000 Sao Tome and Principe Multiple Indicator Cluster Survey (MICS) and on estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. Official estimates from WHO were also considered.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1991-2001 intercensal period.

SAUDI ARABIA

Total population (2005): Estimated to be consistent with: (*a*) the 1992 census; (*b*) the 1999 demographic survey; (*c*) the preliminary results of the 2004 census adjusted upward for underenumeration; and (*d*) estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1996 Saudi Arabia Family Health Survey (GFHS) and on estimates prepared by ESCWA. Births by age of mother as reported for the year 2000 were also considered.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1999 Demographic Survey and on estimates from UNICEF.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1992-1999 period, taking into account the return of Yemeni citizens to their country during the aftermath of the Gulf War. For subsequent periods, data on refugee flows compiled by UNHCR were taken into account.

SENEGAL

Total population (2005): Estimated to be consistent with the 1988 census, with the preliminary results of the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1986, 1992-1993, 1997 and 1999 DHS.
Infant and/or child mortality: Based on maternity-history data from the 1986, 1992-1993, 1997 and 1999 DHS.
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1988-2002 intercensal period.

SERBIA AND MONTENEGRO

Total population (2005): Estimated to be consistent with the 1981 census, adjusted to reflect the de facto population, and with estimates of the subsequent trends in fertility, mortality and international migration. Data from the 2002 census of Serbia, the 2003 census of Montenegro and national estimates for 2002 were also considered.
Total fertility: Based on official estimates of total fertility available through 2001.
Infant and/or child mortality: Based on births and infant deaths registered through 2001.
Life expectancy at birth: Based on official estimates of life expectancy available through 2001. The age pattern of mortality was derived from an official life table for 1997.
International migration: Based on refugee statistics compiled by UNHCR.

SEYCHELLES

Total population (2005): Estimated to be consistent with the 1997 census and with estimates of the subsequent trends in fertility, mortality and international migration.

SIERRA LEONE

Total population (2005): Estimated to be consistent with the 1985 census adjusted for underenumeration, with the 2003 pilot census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1985 census and the 2003 pilot census. Estimates based on the 1992 Demographic and Social Monitoring survey and the 2000 Sierra Leone MICS-2 were also considered.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1985 census and the 2003 pilot census. Results from the 2000 Sierra Leone MICS were also considered. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR.

SINGAPORE

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy at birth by sex for 2000-2002.

International migration: Obtained from intercensal estimates, taking into account changes in both the number of permanent residents and non-residents.

SLOVAKIA

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The pattern of mortality is based on an official life table for 1998.

International migration: Based on official statistics on international migration and on estimates of net migration between the Czech and Slovak areas of the former Czechoslovakia.

SLOVENIA

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is based on an official life table for 1993-1994.

International migration: Based on official statistics on international migration available through 2002.

SOLOMON ISLANDS

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on the own-children method applied to the 1976 and 1986 censuses, on maternity-history tabulations from the 1995 KAP Survey (Knowledge, Attitude and Practices) and on data on children ever born and on births in the past 12 months from the 1999 census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1986 and 1999 censuses.

Life expectancy at birth: Based on data on children ever born and children surviving from the 1986 and

1999 censuses, on data on orphanhood from the 1986 and 1999 censuses and on the assumption that the pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. Indirect estimation was used to construct a life table referring to the period 1980-1984.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the intercensal period 1986-1999.

SOMALIA

Total population (2005): Estimated to be consistent with the 1975 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration. Estimates from the 2002 Somalia Socio-Economic Survey were also considered and adjusted upward.

Total fertility: Based on: (*a*) the 1980-1981 National Survey of Population; (*b*) the provisional results from the 1986-1987 census for Mogadishu; (*c*) the 1999 Safe Motherhood Baseline Survey conducted in the North-West region of Somalia; (*d*) the 1999 Reproductive Health Survey conducted in the North-West and North-East regions of Somalia; and (*e*) data on children ever born from the 1999 Somalia MICS-1. Estimates were adjusted taking into account population levels and trends.

Infant and/or child mortality: Based on the results of the 1999 Somalia MICS and on estimates from UNICEF.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. Estimates from WHO were also considered. Additional deaths due to the famine of 1992 and the war have been factored into the mortality estimates.

International migration: Based on refugee statistics compiled by UNHCR and on estimates of Somali nationals residing in neighbouring countries.

SOUTH AFRICA

Total population (2005): Estimated to be consistent with the 1996 and 2001 censuses, adjusted for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration. The populations of Transkei, Bophuthatswana, Venda and Ciskei are included in the estimates. Official population estimates for the year 2004 from Statistics South Africa were also considered.

Total fertility: Based on official total fertility estimates from Statistics South Africa, available through 2004.

Infant and/or child mortality: Based on official infant mortality estimates from Statistics South Africa. Child mortality estimates are based on maternity-history data from the 1998 South Africa DHS and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on: (*a*) the number of immigrants from South Africa to developed countries; (*b*) immigration and emigration statistics for South Africa; (*c*) data on migrant workers compiled by the Chamber of Mines; (*d*) refugee statistics provided by UNHCR; and (*e*) estimates of illegal migration to South Africa. Estimates produced by the Actuarial Society of South Africa were also considered.

SPAIN

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality is based on an official life table for 1998-1999.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase through 2003, and on official data on international migration.

SRI LANKA

Total population (2005): Estimated to be consistent with the 1981 census, with the preliminary results of the 2001 census and with estimates of the subse-

quent trends in fertility, mortality and international migration.

Total fertility: Based on births by age of mother registered through 2001, on maternity-history data from the 1975 Sri Lanka WFS, the 1987, 1993 and 2000 Sri Lanka DHS and on official total fertility estimates through 2000.

Infant and/or child mortality: Infant mortality estimates are based on births and infant deaths registered through 2001 and on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1971 census, the 1975 Sri Lanka WFS, the 1987 and 1993 and Sri Lanka DHS. Child mortality estimates are derived from the infant mortality rates using the West model of the Coale-Demeny Model Life Tables and are consistent with national and UNICEF estimates.

Life expectancy at birth: Based on official estimates of registered deaths and life expectancy and on the assumption that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1963-1981 intercensal period, on official estimates of net international migration for 1980-1995 prepared by the Sri Lanka Department of Census and Statistics and on refugee data from UNHCR.

SUDAN

Total population (2005): Estimated to be consistent with the 1983 census, with the 1993 census adjusted for the lack of coverage of the population in the Southern provinces and with estimates of the subsequent trends in fertility, mortality and international migration. Estimates for the year 2003 from the New Sudan Centre for Statistics and Evaluation were also considered.

Total fertility: Based on the maternity-history data from the 1989-1990 Sudan DHS and from the 1992-1993 SUDMCHS/PAPCHILD Survey of Sudan. Estimates for the year 2001 from the New Sudan Centre for Statistics and Evaluation were also considered.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1973 and 1993 censuses, the 1978-1979 Sudan WFS, the 1989-1990 Sudan DHS, the 1992-1993 SUDMCHS/PAPCHILD Survey of Sudan and the 1999 Safe Motherhood Survey. Adjustments were made to take into account the mortality levels in Southern Sudan. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics provided by UNHCR and on estimated levels of worker migration to Western Asia starting in 1970.

SURINAME

Total population (2005): Estimated to be consistent with the 1980 census, with an official 2000 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 1980, classified by age of mother, and the total number of registered births through 2000.

Infant and/or child mortality: Based on official statistics on registered births and infant deaths through 2000 and on data on children ever born and children surviving from the 2000 Suriname MICS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a life table constructed from deaths registered during 1979-1981, classified by age and sex, and from the 1980 census population classified by age and sex and on trends implied by registered deaths through 2000. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on official estimates produced by the Netherlands Central Office of Statistics available through 2000.

SWAZILAND

Total population (2005): Estimated to be consistent with the 1997 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates derived from the 1976, 1986 and 1997 censuses and on re-

sults from the 1991 Demographic and Housing Survey.

Infant and/or child mortality: Based on infant mortality estimates derived from the 1976 and 1997 censuses. Estimates from the 2000 Swaziland MICS were also considered. Child mortality estimates are based on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on information on migrant workers to South Africa.

SWEDEN

Total population (2005): Estimated to be consistent with the 1990 census, with an official 2003 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates through 2003.

Infant and/or child mortality: Based on births and infant deaths registered through 2003.

Life expectancy at birth: Based on official estimates of life expectancy available through 2003. The age pattern of mortality was based on an official life table for 2002.

International migration: Based on statistics on immigrants and emigrants available through 2003.

SWITZERLAND

Total population (2005): Estimated to be consistent with the 1990 census, with an official 2003 population estimate and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2002.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy available through 2002. The age pattern of mortality was based on an official life table for 1995-1996.

International migration: Based on statistics on immigrants and emigrants available through 2002 and on assumptions made in official population projections.

SYRIAN ARAB REPUBLIC

Total population (2005): Estimated to be consistent with the 1994 census, with the preliminary results of the 2004 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data and on data on children ever born, classified by age of mother, from the 1993 PAPCHILD Survey of the Syrian Arab Republic, on results from the 1999 Multi-Purpose Survey and on registered births through 1994. Estimates from ESCWA were also considered.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 1981 Syrian Arab Republic WFS, the 1981 census, and the 1993 PAPCHILD Survey of the Syrian Arab Republic and on estimates from UNICEF.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Estimates from ESCWA and WHO were also considered.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase through 1994. For subsequent periods, data on refugee flows compiled by UNHCR were taken into account.

TAJIKISTAN

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates of total fertility available through 2000, adjusted for underregistration of births.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 2000 Tajikistan Multiple Indicator Cluster Survey.

Life expectancy at birth: Based on official estimates of life expectancy available through 1999, adjusted for underregistration of deaths.

International migration: Based on estimates of net international migration, derived as the difference between overall population change and natural increase during the 1989-2000 intercensal period.

THAILAND

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on: (*a*) estimates from the 1995-1996 Survey of Population Change; (*b*) estimates from the 1987 Thailand DHS; (*c*) prior census and survey estimates; and (*d*) official fertility estimates up to 2000.

Infant and/or child mortality: Based on estimates derived from the 1995-1996 Survey of Population Change and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a life table for 1995-1996 calculated from age-specific death rates obtained by the 1995-1996 Survey of Population Change. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on: (*a*) refugee statistics provided by UNHCR; (*b*) information on the number of Thai workers cleared to work abroad; (*c*) the estimated stock of foreigners in Thailand; and (*d*) official statistics on the number of arrivals and departures from Thailand.

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official total fertility estimates available through 2002, adjusted downward to correspond to a de facto definition.

Infant and/or child mortality: Based on births and infant deaths registered through 2002.

Life expectancy at birth: Based on official estimates of life expectancy at birth available through 2001. The age pattern of mortality is based on an official life table for 1995-1997.

International migration: Based on statistics on international migration available through 1998.

TOGO

Total population (2005): Estimated to be consistent with the 1981 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data and data on children ever born from the 1988 and 1998 Togo DHS.

Infant and/or child mortality: Based on data on children ever born and children surviving from the 1988 and 1998 Togo DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics provided by UNHCR.

TOKELAU

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.

TONGA

Total population (2005): Estimated to be consistent with the 1996 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1996 census.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1996 census.

Life expectancy at birth: Based on the estimated level of infant and child mortality, on tabulations of parental survivorship (orphanhood) by age of respondent from the 1996 census and on the assumption that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1986-1996 intercensal period.

TRINIDAD AND TOBAGO

Total population (2005): Estimated to be consistent with the 1990 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on registered births classified by age of mother through 1997.

Infant and/or child mortality: Based on births and infant deaths registered through 1997, adjusted for underregistration and to ensure consistency with the empirical life table, and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Based on a life table derived from deaths registered in 1989-1991, classified by age and sex, and on the 1990 mid-year population by age and sex. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-1990 intercensal period. Also, border statistics of number of people from Trinidad and Tobago admitted by the United States of America were considered.

TUNISIA

Total population (2005): Estimated to be consistent with the 1994 census and with estimates of the subsequent trends in fertility, mortality and international migration. Official population estimates for the year 2000 from lNS Tunisia (Institut National de la Statistique) were also considered.

Total fertility: Based on official estimates of total fertility through 2002.

Infant and/or child mortality: Based on official estimates of infant mortality rates through 2002.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables. Official estimates of life expectancy at birth from 1995 to 2002 were also considered.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1994-2000 period.

TURKEY

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1993 and 1998 Turkey DHS and on official estimates from the Turkish Institute of Statistics.

Infant and/or child mortality: Based on maternity-history data from the 1993 and 1998 Turkey DHS and on official estimates from the Turkish Institute of Statistics and UNICEF.

Life expectancy at birth: Based on official estimates for the period 1995-2003 from the Turkish Institute of Statistics. The age pattern of mortality conforms to the East model of the Coale-Demeny Model Life Tables.

International migration: Based on data on the migration of Turks to and from European countries and the overseas countries of immigration and on refugee statistics compiled by UNHCR. Estimates from the Council of Europe were also considered.

TURKMENISTAN

Total population (2005): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 2000 Turkmenistan DHS.

Infant and/or child mortality: Based on maternity-history data from the 2000 Turkmenistan DHS.

Life expectancy at birth: Based on official estimates of life expectancy through 1998, adjusted for underregistration of deaths.

International migration: Based on official estimates of net international migration through 1995.

TURKS AND CAICOS ISLANDS

Total population (2005): Estimated to be consistent with the 1990 and 2001 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

TUVALU

Total population (2005): Estimated to be consistent with the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on births registered through 2003, classified by age of mother.
Infant and/or child mortality: Based on registered births and infant deaths through 2003.
Life expectancy at birth: Based on a 1997-2002 life table calculated using the average number of registered deaths by age and sex for the years 1997-2002 and the estimated mid-period population by age and sex.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1991-2002 intercensal period.

UGANDA

Total population (2005): Estimated to be consistent with the 1991 census adjusted for underenumeration, with the preliminary results of the 2002 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1988-1989, 1995 and 2000-2001 Uganda DHS and on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1991 census.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1988-1989, 1995 and 2000-2001 Uganda DHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on refugee statistics provided by UNHCR and on the estimated number of Ugandans who were expelled from the country in the early 1970s.

UKRAINE

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2002.
Infant and/or child mortality: Based on births and infant deaths registered through 2002 and on estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on official estimates of life expectancy through 2001. The age pattern of mortality is based on a life table calculated using data on deaths in 2001 classified by age and sex and on the underlying population by age and sex. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on estimates of net international migration, derived as the difference between overall population change and natural increase during the 1989-2001 intercensal period.

UNITED ARAB EMIRATES

Total population (2005): Estimated to be consistent with the 1995 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration. Official population estimates for the years 2000, 2001, 2002 and 2003 from the Ministry of Planning of the United Arab Emirates were also considered.
Total fertility: Based on official estimates of total fertility, derived from births by age of mother registered through 2003.
Infant and/or child mortality: The more recent infant and child mortality estimates are derived from official life expectancy estimates by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables. Official infant mortality estimates have also been considered, as well as estimates derived from data on children ever born and children surviving, both classified by age of mother, from the 1987-1988 Child Health Survey and the 1995 census.
Life expectancy at birth: Based on official estimates of life expectancy available through 2003. Past estimates are derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1985-1995 intercensal period. The 1995-2000 and 2000-2005 estimates were adjusted in order to approximate official population

estimates as provided by the Ministry of Planning of the United Arab Emirates.

UNITED KINGDOM

Total population (2005): Estimated to be consistent with the 2001 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates available through 2003.
Infant and/or child mortality: Based on births and infant deaths registered through 2002.
Life expectancy at birth: Based on official estimates of life expectancy available through 2001 and an official life table for 1997.
International migration: Based on net international migration estimates derived from border statistics available through 2003.

UNITED REPUBLIC OF TANZANIA

Total population (2005): Estimated to be consistent with the 2002 census adjusted for underenumeration and with estimates of subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1991-1992 and 1996 United Republic of Tanzania DHS and on the 1999 Reproductive and Child Health Survey (RCHS).
Infant and/or child mortality: Based on maternity-history data from the 1991-1992 and 1996 United Republic of Tanzania DHS and on the 1999 RCHS. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the South model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on refugee statistics provided by UNHCR.

UNITED STATES OF AMERICA

Total population (2005): Estimated to be consistent with the 2000 census, which includes the population in the territory of the United States and United States citizens serving in the overseas armed forces, and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2002.
Infant and/or child mortality: Based on official estimates of infant mortality through 2002. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
Life expectancy at birth: Based on official estimates of life expectancy through 2002. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1980-1990 and 1990-2000 intercensal periods.

UNITED STATES VIRGIN ISLANDS

Total population (2005): Estimated to be consistent with the 2000 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered by age of mother through 2000.
Infant and/or child mortality: Based on births and infant deaths registered through 2000.
Life expectancy at birth: Based on the total number of deaths registered through 2000 and on the assumption that the age pattern of mortality conforms to the Far Eastern model of the Coale-Demeny Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1990-2000 intercensal period.

URUGUAY

Total population (2005): Estimated to be consistent with the 1996 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 1998, classified by age of mother.
Infant and/or child mortality: Based on births and infant deaths registered through 1996.
Life expectancy at birth: Based on a life table constructed from registered deaths by age and sex for 1995-1996 and from the 1996 census population by age and sex, taking into account deaths registered through 1998.
International migration: Based on the number and characteristics of persons born in Uruguay and enumerated by the censuses of receiving countries

in the Americas and on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1985-1996 intercensal period.

UZBEKISTAN

Total population (2005): Estimated to be consistent with the 1989 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on official estimates of total fertility through 2001.
Infant and/or child mortality: Based on maternity-history data from the 2002 Uzbekistan Health Examination Survey.
Life expectancy at birth: Based on official estimates of life expectancy through 2002, adjusted for underregistration of deaths.
International migration: Based on estimates of net international migration, derived as the difference between overall population change and natural increase through 2001.

VANUATU

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on data on children ever born and on births in the preceding 12 months, both classified by age of mother, from the 1989 and 1999 censuses.
Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1999 census.
Life expectancy at birth: Based on the estimated level of infant and child mortality on tabulations of parental survivorship (orphanhood) by age of respondent from the 1999 census and on the assumption that the age pattern of mortality conforms to the Far Eastern model of the United Nations Model Life Tables.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1989-1999 intercensal period.

VENEZUELA

Total population (2005): Estimated to be consistent with the 2001 census adjusted for underenumeration and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on births registered through 2001, classified by age of mother, on estimates from the 1998 Encuesta de Población y Familia (ENPOFAM) and on the 2001 census.
Infant and/or child mortality: Based on births and infant deaths registered through 2001, adjusted for underregistration, on data on children ever born and children surviving, both classified by age of mother, from the 2001 census and on estimates from the 1998 Encuesta de Población y Familia (ENPOFAM).
Life expectancy at birth: Based on a life table using data on registered deaths by age and sex for 2000-2002, adjusted for underregistration by using the growth-balance method, and from the 2000 census population by age and sex.
International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during each intercensal period.

VIET NAM

Total population (2005): Estimated to be consistent with the 1999 census and with estimates of the subsequent trends in fertility, mortality and international migration.
Total fertility: Based on maternity-history data from the 1997 and 2002 Viet Nam DHS.
Infant and/or child mortality: Based on maternity-history data from the 1997 and 2002 Viet Nam DHS and on information from the 1999 census.
Life expectancy at birth: Based on a life table for 1988-1989 based on data on deaths during the 12 months preceding the enumeration and on the population enumerated by the 1989 census, both classified by age and sex, on information from a 1998-1999 life table from the 1999 census and on official population projections.
International migration: Based on refugees resettled in the major countries of immigration, on refugee statistics complied by UNHCR and on the number of immigrants from Viet Nam to developed countries.

WALLIS AND FUTUNA ISLANDS

Total population (2005): Estimated to be consistent with the 1996 and 2003 censuses and with estimates of the subsequent trends in fertility, mortality and international migration.

WESTERN SAHARA

Total population (2005): Estimated to be consistent with the coverage of the territory of Western Sahara by the 1994 census of Morocco and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: In the absence of statistics indicative of fertility levels and trends, total fertility was assumed to have levels and to follow trends similar to those estimated for neighbouring countries with socio-economic conditions similar to those of Western Sahara. Fertility estimates for sub-regions of Western Sahara were also considered.

Infant and/or child mortality: In the absence of statistics indicative of mortality in childhood, infant mortality was assumed to have levels and to follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Western Sahara.

Life expectancy at birth: In the absence of statistics indicative of mortality levels and trends, life expectancy was assumed to have levels and to follow trends similar to those estimated for neighbouring countries with similar socio-economic conditions as those of Western Sahara.

International migration: Based on estimates of net international migration, derived as the difference between overall population growth and natural increase during the 1982-1994 intercensal period. Data on refugee flows compiled by UNHCR were also taken into account.

YEMEN

Total population (2005): Estimated to be consistent with the 1994 census, with the preliminary total population from the 2004 census and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1979 Yemen WFS, the 1991-1992 and 1997 Yemen DHS and on the preliminary results from the 2003 Yemen Family Health Survey (YFHS/PAPFAM).

Infant and/or child mortality: Based on maternity-history data from the 1997 Yemen DHS and the preliminary results from the 2003 Yemen Family Health Survey (YFHS/PAPFAM). Estimates from UNICEF and WHO were also considered.

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the West model of the Coale-Demeny Model Life Tables.

International migration: Based on estimates of the number of Yemeni migrants who returned to Yemen during the aftermath of the Gulf War and on refugee statistics compiled by UNHCR.

ZAMBIA

Total population (2005): Estimated to be consistent with the 1990 and 2000 censuses, adjusted for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on official estimates from the 1969, 1980, 1990 and 2000 censuses and on maternity-history data from the 1992, 1996 and 2001-2002 Zambia DHS.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1992, 1996 and 2001-2002 Zambia DHS and on child mortality estimates from UNICEF. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on data on Zambians migrating to selected developed countries.

ZIMBABWE

Total population (2005): Estimated to be consistent with the 1992 and 2002 censuses, adjusted for underenumeration, and with estimates of the subsequent trends in fertility, mortality and international migration.

Total fertility: Based on maternity-history data from the 1988, 1994 and 1999 Zimbabwe DHS and from age-specific fertility rates estimated from the 1969, 1982, 1992 and 2002 censuses.

Infant and/or child mortality: Based on data on children ever born and children surviving, both classified by age of mother, from the 1969, 1992 and 2002 censuses and from the 1988, 1994 and 1999 Zimbabwe DHS and on child mortality estimates from UNICEF. The demographic impact of

AIDS has been factored into the mortality estimates (see chapter IV).

Life expectancy at birth: Derived from estimates of infant and child mortality by assuming that the age pattern of mortality conforms to the North model of the Coale-Demeny Model Life Tables. The demographic impact of AIDS has been factored into the mortality estimates (see chapter IV).

International migration: Based on refugee statistics compiled by UNHCR and on data on Zimbabweans migrating to selected developed countries.

NOTES

[1] The programme is currently named Measure DHS. Information and tabulations are accessible through their website at www.measuredhs.com.

[2] For more information, see UNICEF's website at www.childinfo.org.

[3] Including Christmas Island, Cocos (Keeling) Islands and Norfolk Island.

[4] For statistical purposes, the data for China do not include Hong Kong and Macao Special Administrative Regions (SAR) of China.

[5] As of 1 July 1997, Hong Kong became a Special Administrative Region (SAR) of China.

[6] As of 20 December 1999, Macao became a Special Administrative Region (SAR) of China.

[7] Including Åland Islands.

[8] Including Agalega, Rodrigues and Saint Brandon.

[9] Including Svalbard and Jan Mayen Islands.

[10] Including Ascension and Tristan da Cunha.

VIII. ORDERING THE WORLD POPULATION PROSPECTS DATA ON CD-ROM

The *2004 Revision* of the *World Population Prospects*, prepared by the United Nations Population Division, provides a comprehensive and consistent set of population data for the world's countries and their aggregates.

The results of this Revision are available on three CD-ROM editions that differ with regard to the data included and their prices (table 1). All three CDs contain estimates and projections of national populations by five-year age groups and sex for 1950-2050 and demographic indicators for the same period. Data for 1950-2005 are estimates and those thereafter are projections.

The Basic CD-ROM contains all essential data from the medium variant (total births, total deaths, total net number of migrants, the respective crude rates, life expectancy at birth by sex, infant and child mortality, total fertility, net reproduction rate and population growth rates for 1950-2050 by five-year periods). It also includes population figures by five-year age groups and sex for every fifth year, beginning in 1950, as well as interpolated annual total population. The data are tabulated in Excel worksheets and correspond to the first three datasets listed in table 1.

The Comprehensive CD-ROM includes all the data from the Basic CD, plus the same data for the low, high and constant-fertility projection variants, births and deaths by five-year age groups, the corresponding age-specific fertility and mortality rates and abridged life tables (survivors and life expectancies at specific ages). It also comprises a standard set of demographic indicators and population by age groups and sex for the instant-replacement-fertility, constant-mortality and zero-migration variants as well as for different AIDS scenarios. All data on this CD are presented in Excel worksheets and correspond to the datasets 1 to 3 and 5 to 13 listed in table 1.

The Extended CD-ROM contains all the data from the Comprehensive CD, plus population figures by single calendar year and single age groups for 1950-2050. This CD also provides interpolated demographic indicators for single calendar years (total births and deaths, their respective crude rates, life expectancy at birth by sex, infant and child mortality, survivors to age 1, total fertility), urban population, population density and interpolated total population by main age groups and sex, and their respective percentage distributions and sex ratios. The data are presented in Excel and database formats (ASCII comma delimited format for all datasets and Microsoft Access for interpolated population by age and sex) and correspond to all datasets listed in table 1.

All CDs show data for 228 countries and areas, 33 country aggregates, including the world as a whole, the more and the less developed regions, and the major areas. For the AIDS scenarios (datasets 10-13), special aggregations by region and HIV prevalence level in 2003 are provided for 60 countries affected by the HIV/AIDS epidemic. The Microsoft Excel files correspond to version 5.0/95 and later of this software. For a detailed listing of the contents of each CD, see table 2. Data files in database formats are shown in table 3. All CDs include the images of volumes I and II of *World Population Prospects: The 2004 Revision* in Adobe Acrobat PDF format.

For information on how to order this CD-ROM please see the order form at the end.

Table 1. Summary contents of each CD-ROM

Description: Datasets included on CD-ROM	Basic CD (Medium variant only)	Comprehensive CD	Extended CD
1. Period indicators, five-year periods	X	X	X
2. Stock indicators, five-year periods (and annual population)	X	X	X
3. Population by five-year age groups and sex, five-year periods	X	X	X
4. Population by five-year age groups and sex, annual			X
5. Mortality indicators by age and sex, five-year periods		X	X
6. Fertility indicators by age, five-year periods		X	X
7. Zero-migration variant		X	X
8. Constant-mortality variant		X	X
9. Instant-replacement-fertility variant		X	X
10. No-AIDS mortality scenario		X	X
11. AIDS mortality scenario (medium/default)		X	X
12. High-AIDS mortality scenario		X	X
13. AIDS-Vaccine mortality scenario		X	X
14. Interpolated demographic and population indicators, annual			X
15. Population (by sex and both sexes combined) interpolated by single years of age and single calendar years			X
Price ($US)	$50	$250	$800

TABLE 2. CONTENTS OF DATASETS IN DIGITAL FORM

Dataset and File	Indicators	CD-ROM Edition[1]	Number of countries or areas	Projection variants or scenarios (starting in 2005) Note: Basic dataset includes only the medium variant	Periods covered	Age groups
Dataset 1.	**Period indicators, five-year periods**					
F1.	Total fertility	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F2.	Net reproduction rate	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F3.	Crude birth rate	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F4.	Births	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F5.	Life expectancy at birth by sex	B/C/E	192	Medium	1950-1955,….2045-2050	---
F6.	Infant mortality, q(1)	B/C/E	192	Medium	1950-1955,….2045-2050	---
	Under-five mortality, q(5)	B/C/E	192	Medium	1995-2000,….2045-2050	---
F7.	Crude death rate	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F8.	Total number of deaths (both sexes)	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F8.	Total number of male deaths	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F8.	Total number of female deaths	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F9.	Net migration rate	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F10.	Net number of migrants (both sexes)	B/C/E	192	Medium	1950-1955,….2045-2050	---
F11.	Average annual rate of population change	B/C/E	228	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F12.	Rate of natural increase	B/C/E	192	Low, medium, high, constant-fertility	1950-1955,….2045-2050	---
F13.	Sex ratio at birth	B/C/E	192	Medium	2000-2005,….2045-2050	---
Dataset 2.	**Stock indicators**					
F1.	Total population (both sexes), annual	B/C/E	228	Low, medium, high, constant-fertility	1950, 1951,….2049, 2050	---
F2.	Male population, annual	B/C/E	192	Low, medium, high, constant-fertility	1950, 1951,….2049, 2050	---
F3.	Female population, annual	B/C/E	192	Low, medium, high, constant-fertility	1950, 1951,….2049, 2050	---
F4.	Sex ratio of the population	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
F5.	Dependency ratio (0-14 and 65+ by 15-64)	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
F6.	Median age of the population	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
F7.	Total population by main age groups	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	0-4, 5-14, 0-14, 15-24, 15-59, 15-64, 60+, 65+, 80+, 90+
F8.	Percentage total population by main age groups	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	0-4, 5-14, 0-14, 15-24, 15-59, 15-64, 60+, 65+, 80+, 90+
F9.	Sex ratio and feminity ratio by main age groups	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	0-4, 5-14, 0-14, 15-24, 15-59, 15-64, 60+, 65+, 80+, 90+
F10.	Population density	B/C/E	228	Low, medium, high, constant-fertility	1950, 1955,….2045, 2050	---
Dataset 3.	**Population by age and sex, five-year periods**					
F1.	Population by five-year age groups	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
	(both sexes)				1995, 2000,….2045, 2050	0-4, 5-9, …95-99, 100+

TABLE 2. CONTENTS OF DATASETS IN DIGITAL FORM

Dataset and File	Indicators	CD-ROM Edition[1]	Number of countries or areas	Projection variants or scenarios (starting in 2005) Note: Basic dataset includes only the medium variant	Periods covered	Age groups
F2.	Male population by five-year age groups	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
F3.	Female population by five-year age groups	B/C/E	192	Low, medium, high, constant-fertility	1950, 1955,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
Dataset 4.	**Population by age and sex, annual**					
F1.	Population by five-year age groups (both sexes)	E	192	Medium	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2050	0-4, 5-9,….95-99, 100+
F2.	Population by five-year age groups (male)	E	192	Medium	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2050	0-4, 5-9,….95-99, 100+
F3.	Population by five-year age groups (female)	E	192	Medium	1950, 1951,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2050	0-4, 5-9,….95-99, 100+
Dataset 5.	**Mortality indicators by age and sex, five-year periods**					
F1.	Deaths by five-year age groups (both sexes)	C/E	192	Low, medium, high, constant-fertility	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
F2.	Deaths by five-year age groups (male)	C/E	192	Low, medium, high, constant-fertility	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
F3.	Deaths by five-year age groups (female)	C/E	192	Low, medium, high, constant-fertility	1995-2000,….2045-2050	0-4, 5-9,….90-94, 95+
F4.	Life table l(x) values by sex	C/E	192	Medium	1995-2000,….2045-2050	0, 1, 5, 10,….80, 85
F5.	Life expectancy at age (x) by sex	C/E	192	Medium	1995-2000,….2045-2050	0, 1, 5, 10,….95, 100
Dataset 6.	**Fertility indicators by age, five-year periods**					
F1.	Births by five-year age groups of mother	C/E	192	Medium	1995-2000,….2045-2050	15-19, 20-24,…45-49
F2.	Age-specific fertility rates	C/E	192	Medium	1995-2000,….2045-2050	15-19, 20-24,…45-49
Dataset 7.	**Zero-migration variant**					
F1.	Population by five-year age groups and sex	C/E	192	Zero-migration	2010, 2015,… 2045, 2050	0-4, 5-9, ...95-99, 100+
F2.	Total population (both sexes)	C/E	192	Zero-migration	1950, 1955,… 2045, 2050	---
F3.	Median age of the population	C/E	192	Zero-migration	1950, 1955,… 2045, 2050	---
F4.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	192	Zero-migration	1950, 1955,… 2045, 2050	---
F5.	Crude birth rate	C/E	192	Zero-migration	1950-1955, … 2045-2050	---
F6.	Crude death rate	C/E	192	Zero-migration	1950-1955, … 2045-2050	---
F7.	Average annual rate of population change	C/E	192	Zero-migration	1950-1955, ….2045-2050	---
Dataset 8.	**Constant-mortality variant**					
F1.	Population by five-year age groups and sex	C/E	192	Constant-mortality	2010, 2015,… 2045, 2050	0-4, 5-9, ...95-99, 100+
F2.	Total population (both sexes)	C/E	192	Constant-mortality	1950, 1955,….2045, 2050	---
F3.	Median age of the population	C/E	192	Constant-mortality	1950, 1955,….2045, 2050	---
F4.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	192	Constant-mortality	1950, 1955,….2045, 2050	---

TABLE 2. CONTENTS OF DATASETS IN DIGITAL FORM

Dataset and File	Indicators	CD-ROM Edition[1]	Number of countries or areas	Projection variants or scenarios (starting in 2005) Note: Basic dataset includes only the medium variant	Periods covered	Age groups
F5.	Deaths by five-year age groups and sex	C/E	192	Constant-mortality	2005-2010, … 2045-2050	0-4, 5-9, ...95+
F6.	Life expectancy at birth by sex	C/E	192	Constant-mortality	1950-1955, ….2045-2050	---
F7.	Crude birth rate	C/E	192	Constant-mortality	1950-1955, ….2045-2050	---
F8.	Crude death rate	C/E	192	Constant-mortality	1950-1955, ….2045-2050	---
F9.	Average annual rate of population change	C/E	192	Constant-mortality	1950-1955, ….2045-2050	---
Dataset 9.	**Instant-replacement-fertility variant**					
F1.	Population by five-year age groups and sex	C/E	192	Instant-replacement-fertility	2010, 2015,… 2045, 2050	0-4, 5-9, ...95-99, 100+
F2.	Total population (both sexes)	C/E	192	Instant-replacement-fertility	1950, 1955,….2045, 2050	---
F3.	Median age of the population	C/E	192	Instant-replacement-fertility	1950, 1955,….2045, 2050	---
F4.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	192	Instant-replacement-fertility	1950, 1955,….2045, 2050	---
F5.	Total fertility	C/E	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
F6.	Crude birth rate	C/E	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
F7.	Crude death rate	C/E	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
F8.	Average annual rate of population change	C/E	192	Instant-replacement-fertility	1950-1955, ….2045-2050	---
AIDS Scenarios for 60 countries affected by the HIV/AIDS epidemic and 13 special aggregations (by region and HIV prevalence level in 2003)						
Dataset 10.	**No-AIDS scenario**					
10.1	**Period indicators**					
F2.	Net reproduction rate	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F3.	Crude birth rate	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F4.	Births	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F5.	Life expectancy at birth by sex	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F6.	Infant mortality, q(1)	C/E	60	No-AIDS	1980-1985,….2045-2050	---
	Under-five mortality, q(5)	C/E	60	No-AIDS	1995-2000,….2045-2050	---
F7.	Crude death rate	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F8.	Total number of deaths (both sexes)	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F8.	Total number of male deaths	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F8.	Total number of female deaths	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F11.	Average annual rate of population change	C/E	60	No-AIDS	1980-1985,….2045-2050	---
F12.	Rate of natural increase	C/E	60	No-AIDS	1980-1985,….2045-2050	---
10.2	**Stock indicators**					
F1.	Total population (both sexes), annual	C/E	60	No-AIDS	1980, 1981,….2049, 2050	---
F2.	Male population, annual	C/E	60	No-AIDS	1980, 1981,….2049, 2050	---
F3.	Female population, annual	C/E	60	No-AIDS	1980, 1981,….2049, 2050	---
F4.	Sex ratio of the population	C/E	60	No-AIDS	1980, 1985,….2045, 2050	---

TABLE 2. CONTENTS OF DATASETS IN DIGITAL FORM

Dataset and File	Indicators	CD-ROM Edition[1]	Number of countries or areas	Projection variants or scenarios (starting in 2005) Note: Basic dataset includes only the medium variant	Periods covered	Age groups
F5.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	60	No-AIDS	1980, 1985,….2045, 2050	---
F6.	Median age of the population	C/E	60	No-AIDS	1980, 1985,….2045, 2050	---
10.3	**Population by age and sex, five-year periods**					
F1.	Population by five-year age groups (both sexes)	C/E	60	No-AIDS	1980, 1985,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
F2.	Male population by five-year age groups	C/E	60	No-AIDS	1980, 1985,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
F3.	Female population by five-year age groups	C/E	60	No-AIDS	1980, 1985,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
10.4	**Population by age and sex, annual**					
F1.	Population by five-year age groups (both sexes)	C/E	60	No-AIDS	1980, 1981,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2050	0-4, 5-9,….95-99, 100+
F2.	Population by five-year age groups (male)	C/E	60	No-AIDS	1980, 1981,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2050	0-4, 5-9,….95-99, 100+
F3.	Population by five-year age groups (female)	C/E	60	No-AIDS	1980, 1981,….1994	0-4, 5-9,…75-79, 80+
					1995, 1996,….2050	0-4, 5-9,….95-99, 100+
10.5	**Mortality indicators by age and sex, five-year periods**					
F1.	Deaths by five-year age groups (both sexes)	C/E	60	No-AIDS	1980-1985,….2045-2050	0-4, 5-9,….90-94, 95+
F2.	Deaths by five-year age groups (male)	C/E	60	No-AIDS	1980-1985,….2045-2050	0-4, 5-9,….90-94, 95+
F3.	Deaths by five-year age groups (female)	C/E	60	No-AIDS	1980-1985,….2045-2050	0-4, 5-9,….90-94, 95+
F4.	Life table l(x) values by sex	C/E	60	No-AIDS	1995-2000,….2045-2050	0, 1, 5, 10,….80, 85
F5.	Life expectancy at age (x) by sex	C/E	60	No-AIDS	1995-2000,….2045-2050	0, 1, 5, 10,….95, 100
10.6	**Fertility indicators by age, five-year periods**					
F1.	Births by five-year age groups of mother	C/E	60	No-AIDS	1995-2000,….2045-2050	15-19, 20-24,…45-49
F2.	Age-specific fertility rates	C/E	60	No-AIDS	1995-2000,….2045-2050	15-19, 20-24,…45-49
Dataset 11.	**AIDS scenario (medium/default)**					
F1.	Population by five-year age groups and sex	C/E	60	AIDS (medium)	1980, 1985,….1985, 1990	0-4, 5-9,…75-79, 80+
					1995, 2000,….2045, 2050	0-4, 5-9,….95-99, 100+
F2.	Total population (both sexes)	C/E	60	AIDS (medium)	1980, 1985,….2045, 2050	---
F3.	Median age of the population	C/E	60	AIDS (medium)	1980, 1985,….2045, 2050	---
F4.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	60	AIDS (medium)	1980, 1985,….2045, 2050	---
F5.	Deaths by five-year age groups and sex	C/E	60	AIDS (medium)	1980, 1985,….2045, 2050	0-4, 5-9, ...95+
F6.	Life expectancy at birth by sex	C/E	60	AIDS (medium)	1980-1985, ….2045-2050	---
F7.	Crude birth rate	C/E	60	AIDS (medium)	1980-1985, ….2045-2050	---

TABLE 2. CONTENTS OF DATASETS IN DIGITAL FORM

Dataset and File	Indicators	CD-ROM Edition[1]	Number of countries or areas	Projection variants or scenarios (starting in 2005) Note: Basic dataset includes only the medium variant	Periods covered	Age groups
F8.	Crude death rate	C/E	60	AIDS (medium)	1980-1985, ….2045-2050	---
F9.	Average annual rate of population change	C/E	60	AIDS (medium)	1980-1985, ….2045-2050	---
Dataset 12. High-AIDS scenario (2005 situation constant until 2050)						
F1.	Population by five-year age groups and sex	C/E	60	High-AIDS	2010, 2015,… 2045, 2050	0-4, 5-9, ...95-99, 100+
F2.	Total population (both sexes)	C/E	60	High-AIDS	1980, 1985,….2045, 2050	---
F3.	Median age of the population	C/E	60	High-AIDS	1980, 1985,….2045, 2050	---
F4.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	60	High-AIDS	1980, 1985,….2045, 2050	---
F5.	Deaths by five-year age groups and sex	C/E	60	High-AIDS	1980, 1985,….2045, 2050	0-4, 5-9, ...95+
F6.	Life expectancy at birth by sex	C/E	60	High-AIDS	1980-1985, ….2045-2050	---
F7.	Crude birth rate	C/E	60	High-AIDS	1980-1985, ….2045-2050	---
F8.	Crude death rate	C/E	60	High-AIDS	1980-1985, ….2045-2050	---
F9.	Average annual rate of population change	C/E	60	High-AIDS	1980-1985, ….2045-2050	---
Dataset 13. AIDS-Vaccine scenario (no new HIV infection starting in 2006)						
F1.	Population by five-year age groups and sex	C/E	60	AIDS-Vaccine	2010, 2015,… 2045, 2050	0-4, 5-9, ...95-99, 100+
F2.	Total population (both sexes)	C/E	60	AIDS-Vaccine	1980, 1985,….2045, 2050	---
F3.	Median age of the population	C/E	60	AIDS-Vaccine	1980, 1985,….2045, 2050	---
F4.	Dependency ratio (0-14 and 65+ by 15-64)	C/E	60	AIDS-Vaccine	1980, 1985,….2045, 2050	---
F5.	Deaths by five-year age groups and sex	C/E	60	AIDS-Vaccine	1980, 1985,….2045, 2050	0-4, 5-9, ...95+
F6.	Life expectancy at birth by sex	C/E	60	AIDS-Vaccine	1980-1985, ….2045-2050	---
F7.	Crude birth rate	C/E	60	AIDS-Vaccine	1980-1985, ….2045-2050	---
F8.	Crude death rate	C/E	60	AIDS-Vaccine	1980-1985, ….2045-2050	---
F9.	Average annual rate of population change	C/E	60	AIDS-Vaccine	1980-1985, ….2045-2050	---
Dataset 14. Interpolated annual Indicators (SUPPLEMENT)						
F1.	Total number of deaths (both sexes)	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Crude death rate	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Life expectancy at birth by sex	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Infant deaths (under age 1)	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Infant mortality, q(1)	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Survivors to age 1	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Under-five mortality, q(5)	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Births	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Crude birth rate	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Total fertility	E	192	Medium	1950, 1951,….2029, 2030	---
F1.	Rate of natural increase	E	192	Medium	1950, 1951,….2029, 2030	---

TABLE 2. CONTENTS OF DATASETS IN DIGITAL FORM

Dataset and File	Indicators	CD-ROM Edition[1]	Number of countries or areas	Projection variants or scenarios (starting in 2005) Note: Basic dataset includes only the medium variant	Periods covered	Age groups
F2.	Interpolated population by main age groups	E	192	Medium	1950, 1951,… 2029, 2030	< 1, < 5, < 15, < 18, 5-14, 6-11, 12-14, 15-17, 15-24, 18-23, 15-59, 15-64, 60+, 65+, 80+, 90+
F2.	Interpolated female population in reproductive ages	E	192	Medium	1950, 1951,… 2029, 2030	15-49
F2.	Interpolated total population	E	192	Medium	1950, 1951,… 2029, 2030	---
F2.	Interpolated urban population	E	192	Medium	1950, 1951,… 2029, 2030	---
F3.	Percentage of total population by main age groups	E	192	Medium	1950, 1951,… 2029, 2030	< 1, < 5, < 15, < 18, 5-14, 6-11, 12-14, 15-17, 15-24, 18-23, 15-59, 15-64, 60+, 65+, 80+, 90+
F3.	Percentage of female population in reproductive ages in total population	E	192	Medium	1950, 1951,… 2029, 2030	15-49
F3.	Interpolated percentage urban population	E	192	Medium	1950, 1951,… 2029, 2030	---
F3.	Interpolated population density	E	192	Medium	1950, 1951,… 2029, 2030	---
Dataset 15. Interpolated annual populations by single age (INTERPOLATED)						
F1.	Population by single age (both sexes)	E	192	Medium	1950, 1951,….1994	0, 1, 2,… 79, 80+
					1995, 1996,….2050	0, 1, 2,… 98, 99, 100+
F2.	Population by single age (male)	E	192	Medium	1950, 1951,….1994	0, 1, 2,… 79, 80+
					1995, 1996,….2050	0, 1, 2,… 98, 99, 100+
F3.	Population by single age (female)	E	192	Medium	1950, 1951,….1994	0, 1, 2,… 79, 80+
					1995, 1996,….2050	0, 1, 2,… 98, 99, 100+

Note: (1) CD-ROM editions are: B = Basic, C = Comprehensive, E = Extended

Datasets 10 to 13 present, in addition to the default AIDS mortality scenario (medium), three other AIDS scenarios for 60 countries affected by the HIV/AIDS epidemic: (1) the No-AIDS scenario applies the mortality likely to be exhibited by the non-infected population to the whole population, thus excluding the direct impacts of the epidemic; (2) the High-AIDS scenario assumes that the AIDS modelling parameters determining the path of the HIV/AIDS epidemic remain constant at their 2005 level; and (3) the AIDS-Vaccine scenario assumes that there are no new HIV infections starting in 2006. The estimates associated with the No-AIDS scenario (that is, the figures for 1980-2005) differ from the estimates of the other variants because AIDS started affecting the populations in the majority of the highly affected countries around 1980. By comparing these results with those of the estimates and medium variant that include explicitly the effects of the HIV/AIDS epidemic, the user can infer the impact of the epidemic. The two other AIDS scenarios (High-AIDS mortality and AIDS-Vaccine mortality) provide alternative bounds on the possible course of the epidemic.

TABLE 3. DATA FILES IN DATABASE FORMAT INCLUDED IN THE EXTENDED CD-ROM EDITION

Topic / Data file	Description	Data file format[1]	Number of indicators[2]	Number of records
DB01. Period indicators				
DB01_Period_Indicators.csv	All period indicators (total fertility, net reproduction rate, crude birth rate, births, life expectancy at birth, infant mortality, under-five mortality, crude death rate, number of deaths (by sex), net migration rate, net number of migrants, average annual rate of population change, rate of natural increase, sex ratio at birth) by major area, region and country, for estimates and all 10 projection variants or scenarios, 1950-2050. Data only for 1980-2050 for AIDS scenarios.	CSV	18	25,067
DB02. Stock indicators				
DB02_Populations_Annual.csv	Total population (by sex and both sexes combined) and average annual rate of population change, by major area, region and country, for estimates and all 10 projection variants or scenarios, annually for 1950-2050. Data only for 1980-2050 for AIDS scenarios.	CSV	4	125,744
DB02_Populations_Main_Age_Groups.csv	Total population by main age groups (by sex and both sexes combined) by major area, region and country, for estimates and all 10 projection variants or scenarios, 1950-2050. Data only for 1980-2050 for AIDS scenarios.	CSV	54	22,452
DB02_Stock_Indicators.csv	All stock indicators (total population by sex, dependency ratio, sex ratio, median age, population density, percentage by main age groups, sex ratio (M/F) and feminity ratio (F/M) by main age groups), by major area, region and country, for estimates and all 10 projection variants or scenarios, 1950-2050. Data only for 1980-2050 for AIDS scenarios.	CSV	92	22,452
DB03. Population by age and sex, five-year periods	Population by age group and sex, by major area, region and country, for estimates and all 10 projection variants or scenarios, 1950-2050. Data only for 1980-2050 for AIDS scenarios.			
DB03_Population_Quinquennial.csv	Database format with sex and age in rows.	CSV	1	1,430,136
DB03_Population_By_Sex_Quinquennial.csv	Database format with sex in column and age in row.	CSV	3	476,712
DB03_Population_By_Age_Quinquennial.csv	Database format with sex in row and age from 0 to 100+ in column.	CSV	21	70,020
DB04. Population by age and sex, annual	Population by age group and sex, by major area, region and country, annually for 1950-2050 (estimates and 6 projection variants or scenarios: Medium, Instant-replacement-fertility, and 4 AIDS mortality scenarios). Data only for 1980-2050 for AIDS scenarios.			
DB04_Population_Annual.csv	Database format with sex and age in rows.	CSV	1	3,229,434
DB04_Population_By_Sex_Annual.csv	Database format with sex in column and age in row.	CSV	3	1,076,478
DB04_Population_By_Age_Annual.csv	Database format with sex in row and age from 0 to 100+ in column.	CSV	21	163,374
DB05. Mortality indicators by age and sex	Total deaths by age group and sex, by major area, region and country, for estimates and all 10 projection variants or scenarios, 1995-2050. Data only for 1980-2050 for AIDS scenarios.			
DB05_Deaths.csv	Database format with sex and age in rows.	CSV	1	1,203,240
DB05_Deaths_By_Sex.csv	Database format with sex in column and age in row.	CSV	3	401,080
DB05_Deaths_By_Age.csv	Database format with sex in row and age from 0 to 100+ in column.	CSV	21	60,162

TABLE 3. DATA FILES IN DATABASE FORMAT INCLUDED IN THE EXTENDED CD-ROM EDITION

Topic / Data file	Description	Data file format[1]	Number of indicators[2]	Number of records
	Life Table (by sex and both sexes combined) by major area, region and country,1995-2050 (estimates, medium variant and No-AIDS scenario).			
DB05_Life_Table.csv	Life table survivors, (l(x)), and life expectancy at exact age, e(x) (by sex and both sexes combined). Database format with sex and age in rows.	CSV	2	217,074
DB05_Life_Table_lx_By_Age.csv	Life table survivors, (l(x)), at exact age (x) (by sex and both sexes combined). Database format with sex in row and age from 0 to 85 in column.	CSV	18	9,867
DB05_Life_Table_ex_By_Age.csv	Life expectancy at exact age, e(x) (by sex and both sexes combined). Database format with sex in row and age from 0 to 100 in column.	CSV	21	9,867
DB06. Fertility indicators by age	Births by age group of mother and age-specific fertility rates, by major area, region and country, for estimates and all 10 projection variants or scenarios, 1995-2050. Data only for 1980-2050 for AIDS scenarios.			
DB06_Fertility_Indicators.csv	Database format with indicators in column and age groups in row.	CSV	2	140,378
DB06_Fertility_Indicators_By_Age.csv	Database format with indicators by age groups in column.	CSV	14	20,054
DB14. Interpolated annual indicators				
WPP2004_SUP_F1_Annual_Demographic_Indicators.csv	Interpolated demographic indicators by major area, region and country, annually for 1950-2050 (estimates and medium variant).	CSV	16	22,725
WPP2004_SUP_F2_Annual_Population_Indicators.csv	Interpolated total population by main age groups and urban population, by major area, region and country, annually for 1950-2050 (estimates and medium variant).	CSV	21	22,725
WPP2004_SUP_F3_Annual Population Indicators_Percentage.csv	Percentage of total population by main age groups, percentage urban and population density, by major area, region and country, annually for 1950-2050 (estimates and medium variant).	CSV	19	22,725
DB15. Interpolated annual populations by single age	Population (by sex and both sexes combined) interpolated by single years of age and single calendar years, by major area, region and country, annually for 1950-2050 (estimates and medium variant).			
WPP2004_AnnualAgeSex.mdb	Microsoft Access 2000 database tables, with simple user interface for querying and downloading data for population interpolated by single years of age and single calendar years, by major area, region and country, annually for 1950-2050 (estimates and medium variant).	MDB	101	241MB
WPP2004_INT_Population_Annual_Single.csv	Database format with sex and age in rows.	CSV	1	6,278,175
WPP2004_INT_Population_By_Sex_Annual_Single.csv	Database format with sex in column and age in row.	CSV	3	2,092,725
WPP2004_INT_Population_By_Age_Annual_Single.csv	Database format with sex in row and age from 0 to 100+ in column.	CSV	101	68,175

(1) File format is: CSV for ASCII comma delimited data files (.csv) with field names in header, or MDB for Microsoft Access 2000 compatible database files.

(2) Number of indicators does not include descriptive fields like codes and names for location, projection variant/scenario, calendar year or period, age group and/or sex.

UNITED NATIONS NATIONS UNIES

POPULATION DIVISION
Department of Economic and Social Affairs

World Population Prospects: The 2004 Revision - CD-ROM Edition

Date: _____

Order Form

CD-ROM requested

CD	Description	Price in US$	Quantity	Total Price in US$
[ ]	Basic dataset (Excel and PDF files)	$50	…	…
[ ]	Comprehensive dataset (Excel and PDF files)	$250	…	…
[ ]	Extended dataset (Excel and PDF files, and data in database format)	$800	…	…
		Total	…	…

SHIP TO:

Name: .....

Institution: .....

Address: .....

.....

Telephone: ..... Fax No: .....

E-mail address .....

For overnight or express mail delivery, please provide a billing account number: .....…….....

Notes

1. Data contained in the above datasets are copyrighted by the United Nations. No portion of the data files contained on diskettes or CD-ROMs can be reproduced, distributed or used to prepare derivative works or for any other purpose without the express permission of the United Nations, to be obtained from the Secretary of the United Nations Publications Board. For further information, please contact the Director, Population Division/DESA, United Nations, New York, NY 10017, U.S.A., telephone no. 1-212-963-3179; fax no. 1-212-963-2147.

2. The order form should be accompanied by a cheque or an international money order in **US dollars drawn on a United States Bank** for the correct amount, payable to the UNITED NATIONS POPULATION DIVISION and mailed to: The Director, Population Division/DESA, United Nations, DC2-1950, New York, NY 10017, U.S.A. **Credit cards are not accepted**.

Bedford, Richard (2005). *Country Profile. New Zealand: The Politicization of Immigration*. Migration Information Source (Washington, D. C.). http://www.migrationinformation.org/Profiles/display.cfm?ID=86. Accessed on 2 December 2005.

Billari, Francesco C., and Hans-Peter Kohler (2004). Patterns of low and very low fertility in Europe. *Population Studies* (London), vol. 58, No. 2, pp. 161-176.

Birdsall, Nancy, A. C. Kelley and S. Sinding, eds. (2003). *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*. Oxford: Oxford University Press.

Black, Robert E., Saul S. Morris and Jennifer Bryce (2003). Where and why are 10 million children dying every year? *The Lancet* (Oxford), vol. 361, pp. 2226-2234. http://www.thelancet.com/journals/lancet/article/PIIS0140673603137798/fulltext. Accessed on 5 December 2005.

Blacker, John (2004). The impact of AIDS on adult mortality: evidence from national and regional statistics. *AIDS* (London), vol. 18, Supplement 2, pp. S19-S26.

Bloom, David E., D. Canning and P. N. Malaney (2000). Demographic change and economic growth in Asia. *Population and Development Review* (New York), vol. 26 (Supplement), pp. 257–290.

Bloom, David E., and J. G. Williamson (1998). Demographic transitions and economic miracles in emerging Asia. *The World Bank Economic Review* (Washington, D. C.), vol. 12, No. 3, pp. 419–455. http://www.worldbank.org/research/journals/wber/revsep98/pdf/article%203.pdf. Accessed on 2 December 2005.

Bongaarts, J., and R. G. Potter (1983). *Fertility, biology, and behavior: an analysis of the proximate determinants*. New York: Academic Press.

Bongaarts, John (1998). Global population growth: demographic consequences of declining fertility. *Science* (Washington, D. C.), vol. 282, Issue 5388 (16 October), pp. 419-420.

_____ (2002). The end of the fertility transition in the developing world. In *Completing the Fertility Transition*. New York: United Nations, Department of Economic and Social Affairs, Population Division, pp. 288–307. ESA/P/WP.172/Rev.1. http://www.un.org/esa/population/publications/completingfertility/RevisedBONGAARTSpaper.PDF. Accessed on 2 December 2005.

Bongaarts, John, and Griffith Feeney (1998). On the quantum and tempo of fertility. *Population and Development Review* (New York), vol. 24, No. 2, pp. 271-291. http://www.popcouncil.org/pdfs/councilarticles/pdr/PDR242Bongaarts.pdf. Accessed on 2 December 2005.

Buettner, Thomas (2002). Approaches and experiences in projecting mortality patterns for the oldest-old. *North American Actuarial Journal*, vol. 3, No. 3, pp. 14-29.

Casterline, John B. (2001). The pace of fertility transition: national patterns in the second half of the twentieth century. In *Global Fertility Transition*, Rodolfo Bulatao and John Casterline, eds. *Population and Development Review* (New York), vol. 27 (Supplement), pp.17-52.

Castles, Stephen, and Mark J. Miller (2003). *The Age of Migration: International Population Movements in the Modern World*. Third edition. New York: Guilford Press.

Centers for Disease Control and Prevention (2001). Revised Guidelines for HIV Counseling, Testing, and Referral and Revised Recommendations for HIV Screening of Pregnant Women. *MMWR 2001*, vol. 50, No. RR-19.

Coale, Ansley J., and Paul Demeny (1966). *Regional Model Life Tables and Stable Populations*. Princeton, New Jersey: Princeton University Press.

Coale, Ansley J., Paul Demeny, and Barbara Vaughn (1983). *Regional Model Life Tables and Stable Population*. New York: Academic Press.

Coale, Ansley J., and Guang Guo (1989). Revised Regional Model Life Tables at Very Low Levels of Mortality. *Population Index*, vol. 55, pp. 613–43.

European Economic Advisory Group (2005). *Report on the European Economy 2005*. EEAG Report, Paul Kremmel, ed. Munich: Ifo Institute for Economic Research. http://www.cesifo-group.de/portal/page?_pageid=36,286932&_dad=portal&_schema=PORTAL. Accessed on 2 December 2005.

Feeney, Griffith (2001). The impact of HIV/AIDS on adult mortality in Zimbabwe. *Population and Development Review*, vol. 24, No. 4, pp. 771-780.

Garcia-Calleja, J. M., E. Zaniewski, P. D. Ghys, K. Stanecki and N. Walker (2004). A global analysis of trends in the quality of HIV sero-surveillance. *Sexually Transmitted Infections* (London), vol. 80, Supplement 1, pp. i25-i30. http://sti.bmjjournals.com/cgi/reprint/80/suppl_1/i25. Accessed on 2 December 2005.

Ghys, P. D., T. Brown, N. C. Grassly, G. Garnett, K. A. Stanecki, J. Stover and N. Walker (2004). The UNAIDS Estimation and Projection Package: a software package to estimate and project national HIV epidemics. *Sexually Transmitted Infections*, vol. 80 (Suppl I), pp. i5-9.

Glynn, Judith R., Anne Buvé, Michel Caraël, Rosemary M. Musonda, Maina Kahindo, Isaac Macauley, Francis Tembo, Léopold Zekeng and the Study Group on Heterogeneity in HIV Epidemics in African Cities (2001). Factors influencing the difference in HIV prevalence between antenatal clinic and general population in sub-Saharan Africa. *AIDS*, vol. 15, pp. 1717-1725.

Goldstein, Joshua, Wolfgang Lutz and Maria Rita Testa (2003). The emergence of sub-replacement family size ideals in Europe. *Population Research and Policy Review*, vol. 22, Nos. 5-6, pp. 479-496.

Grassly, N. C., M. Morgan, N. Walker, G. Garnett, K. A. Stanecki, J. Stover, T. Brown and P. D. Ghys (2004). Uncertainty in estimates of HIV/AIDS: the estimation and application of plausibility bounds. *Sexually Transmitted Infections* (London), vol. 80, Supplement 1, pp. i31-i38. http://sti.bmjjournals.com/cgi/reprint/80/suppl_1/i31. Accessed on 2 December 2005.

Gregson, Simon, and Basia Zaba (1998). Measuring the impact of HIV on fertility in Africa. *AIDS* (London), vol. 12, Supplement 1, pp. S41-S50.

Gregson, Simon, Basia Zaba and S. Hunter (2002). The impact of HIV-1 on fertility in sub-Saharan Africa: causes and consequences. In Expert Group Meeting on Completing the Fertility Transition, 11-14 March 2002, New York (ESA/P/WP.172/Rev.1).

Groenewald, Pam, Nadine Nannan, David Bourne, Ria Laubscher and Debbie Bradshaw (2005). Identifying deaths from AIDS in South Africa. *AIDS*, vol. 19, No. 2, pp. 193-201.

Heuveline, Patrick (2003). HIV and population dynamics: A general model and maximum-likelihood standards for East-Africa. *Demography*, vol. 40, No. 2, pp. 217-245.

Heuveline, Patrick (2004). Impact of the HIV epidemic on population and household structure: the dynamics and evidence to date. *AIDS*, vol. 18, Supplement 2, pp. S45-S54.

Horiuchi, Shiro (1999). Epidemiological transitions in developed countries: past, present, and future. In *Health and Mortality: Issues of Global Concern.* New York: United Nations. Sales No. E.99.XIII.17.

Im-Em, W. (2003). Use of vital registration data to estimate the contribution of HIV to mortality trends. Paper presented at the conference on Empirical Evidence for the Demographic and Socioeconomic Impact of AIDS, Durban, South Africa, 26-28 March.

Inglis, Christine (2004). *Australia's Continuing Transformation*. Migration Information Source (Washington, D. C.). http://www.migrationinformation.org/Profiles/display.cfm?ID=242. Accessed on 2 December 2005.

Jones, Gareth, Richard W. Steketee, Robert E. Black, Zulfiqar A. Bhutta, Saul S. Morris and the Bellagio Child Survival Study Group (2003). How many child deaths can we prevent this year? *The Lancet* (Oxford), vol. 362, pp. 65-71. http://www.thelancet.com/journals/lancet/article/PIIS0140673603138111/fulltext. Accessed on 2 December 2005.

Kholoud Porter and Basia Zaba (2004). The empirical evidence for the impact of HIV on adult mortality in the developing world: data from serological studies. *AIDS*, vol. 18 (suppl. 2), pp. S9-S17.

Kinsella, K., and Y. J. Gist (1995). *Older Workers, Retirement, and Pensions: A Comparative International Chartbook*. Washington, D. C.: United States Bureau of the Census (IPC/95-RP). http://www.census.gov/ipc/www/ipc95_2.html. Accessed on 2 December 2005.

Kohler, Hans-Peter, Francesco Billari and Jose Antonia Ortega (2002). The emergence of lowest-low fertility in Europe during the 1990s. *Population and Development Review* (New York), vol. 28, No. 4, pp. 641-680.

Lee, Ronald (2003). "Mortality Forecasts and Linear Life Expectancy Trends" (March 25, 2003). Center for the Economics and Demography of Aging. CEDA Papers: Paper 2003-0003CL. Downloaded from http://repositories.cdlib.org/iber/ceda/papers/2003-0003CL

Marston, Milly, Basia Zaba, Joshua a. Salomon, Heena Brahmbhatt, Danstan Bagenda (2005). Estimating the net effect of HIV on child mortality in African populations affected by generalized HIV epidemics, *Journal of Acquired Immune Deficiency Syndromes*, vol.38, No. 2, pp. 219-227.

Meyer, Perrin S; Jason W. Yung and Jesse H. Ausubel (1999). A Primer on Logistic Growth and Substitution: The Mathematics of the Loglet Lab Software. *Technological Forecasting and Social Change*, vol. 61, No. 3, pp. 247-271.

Montgomery, Mark R., and B. Cohen, eds. (1998). *From Death to Birth: Mortality Decline and Reproductive Change*. Washington, DC: National Academy Press.

Morgan, D. L., T. L. Schuster and E.W. Butler (1991). Role reversals in the exchange of social support. *Journal of Gerontology* (Washington, D. C.), vol. 46, No. 5, pp. S278-S287.

Morgan, S. Philip (2003). Is low fertility a twenty-first century demographic crisis? *Demography* (Washington, D. C.), vol. 40, No. 4, pp. 589-604.

Nathanson, C.A. (1984). Sex differences in mortality. *Annual Review of Sociology* (Palo Alto, California), vol. 10, pp. 191-213.

National Research Council (1986). *Population Growth and Economic Development: Policy Questions*. Washington, D. C.: National Academy Press.

_____ (2000). *Beyond Six Billion: Forecasting the World's Population*, John Bongaarts and Rodolfo Bulatao, eds. Washington, D. C.: National Academy Press. http://www.nap.edu/openbook/0309069904/html/. Accessed on 2 December 2005.

Oeppen, J., and J. W. Vaupel (2002). Broken limits to life expectancy. *Science*, vol. 296, No. 5570, pp. 1029-1031.

Pampel, Fred C. (2002). Cigarette use and the narrowing sex differential in mortality. *Population and Development Review* (New York), vol. 28, No. 1, pp. 77-104.

Philipov, Dimiter, and Hans-Peter Kohler (2001). Tempo effects in the fertility decline in Eastern Europe: evidence from Bulgaria, the Czech Republic, Hungary, Poland and Russia. *European Journal of Population*, vol. 17, No. 1, pp. 37-60.

Plane, David A., and Peter A. Rogerson (1994). *The Geographical Analysis of Population with Applications to Planning and Business.* New York, Chichester, Brisbane, Toronto and Singapore: John Wiley & Sons, Inc.

Preston, Samuel H. (1984). Children and the elderly: divergent paths for America's dependents. *Demography* (Washington, D. C.), vol. 21, No. 4, pp. 435–457.

Preston, Samuel H., Patrick Heuveline and Michel Guillot (2001). *Demography: Measuring and Modeling Population Processes.* Malden, Massachusetts and Oxford: Blackwell Publishers.

Ravenstein, E. G. (1885). The laws of migration. *Journal of the Statistical Society of London*, vol. 48, No. 2, pp. 167-235.

_____ (1889). The laws of migration: second paper. *Journal of the Royal Statistical Society*, vol. 52, No. 2, pp. 241-305.

Rogers, Andrei, and Luis J. Castro (1986). *Migration and Settlement: A Multiregional Comparative Study*. Dodrecht, Boston, Lancaster and Tokyo: D. Reidel Publishing Company.

_____ and Megan Lea (2005). Model migration schedules: three alternative linear parameter estimation methods. *Mathematical Population Studies*, vol. 12, No. 1, pp. 17-22.

Rogers, Andrei, and Jani S. Little (1993). Parameterizing age patterns of demographic rates with the multiexponential model schedule. *Mathematical Population Studies* (Philadelphia), vol. 4, No. 3, pp. 175-195.

Saad, P. M. (2001). Support transfers between elderly parents and adult children in two Brazilian settings. Paper presented at the Twenty-fourth IUSSP General Population Conference, Salvador da Bahia, Brazil, 18-24 August 2001. Paris: International Union for the Scientific Study of Population.

Siegel, Jacob S., and David A. Swanson (2004). *The methods and materials of demography*. Academic Press.

Sobotka, Tomas (2004). Is lowest-low fertility in Europe explained by the postponement of childbearing? *Population and Development Review* (New York), vol. 30, No. 2 (June), pp. 195-220.

Statistics South Africa (2005). *Mortality and Causes of Death in South Africa, 1997–2003: Findings from Death Notification*. Statistical Release P0309.3. Pretoria, South Africa. http://www.statssa.gov.za/Publications/P03093/P03093.pdf. Accessed on 2 December 2005.

Stover, J. (2004). Projecting the demographic consequences of adult HIV prevalence trends: the Spectrum Projection Package. *Sexually Transmitted Infections*, vol. 80, Suppl. 1, pp. i14-18.

Tabutin, Dominique, and Michel Willems (1998). Differential mortality by sex from birth to adolescence: the historical experience of the West (1750-1930). In *Too Young to Die: Genes or Gender?* New York: United Nations, Sales No. E.98.XIII.13, pp. 17-52.

Tuljapurkar, S. and Nan Li (2004) Using the Lee-Carter Method to Explain Linear Increases in Life Expectancy. Paper presented at the 2004 Meeting of the Population Association of America, Boston. Retrieved on 1 May 2004 at http://paa2004.princeton.edu/download.asp?submissionId=40776.

UNAIDS (2002). Improved methods and assumptions for estimation of the HIV/AIDS epidemic and its impact: Recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. *AIDS*, vol. 16, No. 9, pp. W1-W14.

_____ (2004). *2004 Report on the global AIDS epidemic*. Geneva: Joint United Nations Program on HIV/AIDS. http://www.unaids.org/bangkok2004/report.html. Accessed on 2 December 2005.

UNAIDS/WHO (2004). *AIDS Epidemic Update: 2004*. Geneva: Joint United Nations Program on HIV/AIDS and WHO. http://www.unaids.org/wad2004/report.html. Accessed on 2 December 2005.

_____ (2005). *AIDS Epidemic Update: 2005*. Geneva: Joint United Nations Program on HIV/AIDS and WHO. http://www.unaids.org/Epi2005/doc/report.html. Accessed on 2 December 2005.

UNHCR (2005). *2004 Global Refugee Trends*. Geneva. http://www.unhcr.ch/cgi-bin/texis/vtx/statistics/opendoc.pdf?tbl=STATISTICS&id=42b283744. Accessed on 2 December 2005.

UNICEF (1991). World Declaration on the Survival, Protection and Development of Children and Plan of Action for Implementing the World Declaration on

the Survival, Protection and Development of Children, both adopted at the World Summit for Children, September 30, 1990. Reprinted in United Nations Children's Fund, *The State of the World's Children 1991*. New York: Oxford University Press, pp. 51-74.

United Nations (1982). *Model Life Tables for Developing Countries* (United Nations publication, Sales No. E.81.XIII.7).

_____ (1983). *Manual X: Indirect Techniques for Demographic Estimation*. Population Studies, No. 81 (United Nations publication, Sales No. E.83.XIII.2).

_____ (1988a). *MORTPAK: The United Nations Software Package for Mortality Measurement: Batch-oriented Software for the Mainframe Computer* (United Nations publication, ST/ESA/SER.R/78).

_____ (1988b). *MORTPAK-LITE: The United Nations Software Package for Mortality Measurement: Interactive Software for the IBM-PC and Compatibles* (United Nation publication, Sales No. E.88.XIII.2).

_____ (1988c). *World Population Prospects, 1988* (United Nations publication, Sales No. E.88.XIII.7).

_____ (1990). *Step-by-Step Guide to the Estimation of Child Mortality*. Population Studies, No. 107 (United Nations publication, Sales No. E.89.XIII).

_____ (1998). Levels and trends of sex differentials in infant, child and under-five mortality. In *Too Young to Die: Genes or Gender?* New York: United Nations, Sales No. E.98.XIII.13, pp. 84-108,

_____ (2000). *Below Replacement Fertility*. *Population Bulletin of the United Nations*, Special Issue Nos. 40/41 (United Nations publication, Sales No.E.99.XIII.13).

_____ (2001). *Replacement Migration: Is It a Solution to Declining and Ageing Populations?* (United Nations publication, Sales No. E.01.XIII.19). http://www.un.org/esa/population/publications/migration/migration.htm. Accessed on 2 December 2005.

_____ (2001). United Nations Workshop on Prospects for Fertility Decline in High-Fertility Countries, New York, 9-11 July 2001. Working Paper No. ESA/P/WP.167.

_____ (2002a). Methods for estimating adult mortality. Working Paper No. ESA/P/WP.175.

_____ (2002b). *World Population Ageing 1950-2050* (United Nations publication, Sales No. E.02.XIII.3).

_____ (2002c). Completing the Fertility Transition, New York, 11-14 March 2002 (United Nations, ESA/P/WP.172/Rev.1).

_____ (2003a). *World Population Policies, 2003* (United Nations publication, Sales No. E.04.XIII.3).

_____ (2003b). *Partnership and Reproductive Behaviour in Low-Fertility Countries* (United Nations publication, Sales No. E.03.XIII.5). http://www.un.org/esa/population/publications/reprobehavior/partrepro.pdf. Accessed on 2 December 2005.

_____ (2004a). *World Population Prospects: The 2002 Revision*, vol. III: *Analytical Report* (United Nations publication, Sales No. E.03.XIII.10).

_____ (2004b). *World Population to 2300* (United Nations publication, Sales No. E.04.XIII.11).

_____ (n.d.) Small Island Developing States (SIDS). http://www.un.org/esa/sustdev/sids/sids.htm. Accessed on 2 December 2005.

Waldron, Ingrid (1985). What do we know about causes of sex differences in mortality? A review of the literature. *Population Bulletin of the United Nations*, No. 18, pp. 59-76.

Walker, N., J. Stover, K. Stanecki, E. Zaniewski, N. C. Grassly, J. M. Garcia-Calleja and P. D. Ghys (2004). The workbook approach to making estimates and projecting future scenarios of HIV/AIDS in countries with low level and concentrated epidemics. *Sexually Transmitted Infections* (London), vol. 80, Supplement 1, pp. i10-i13. http://sti.bmjjournals.com/cgi/reprint/80/suppl_1/i10. Accessed on 2 December 2005.

WHO (2004a). *The World Health Report 2004: Changing History*. Geneva. http://www.who.int/whr/2004/en/. Accessed 2 December 2005.

_____ (2004b). Scaling up. Antiretroviral therapy in resource-limited settings. Guidelines for a public health approach. 2003 Revision. World Health Organization, Geneva. Available at http://www.who.int/3by5/publications/documents/arv_guidelines/en/index.html

_____, and UNAIDS (2004c). *"3 by 5" Progress Report*. Geneva: WHO. http://www.who.int/3by5/ProgressReportfinal.pdf. Accessed on 2 December 2005.

_____ (2005a). *The 3 by 5 initiative*. Geneva. http://www.who.int/3by5/en/. Accessed on 2 December 2005.

_____ (2005b). *The World Health Report 2005: Make Every Mother and Child Count*. Geneva. http://www.who.int/whr/2005/en/. Accessed on 2 December 2005.

Zlotnik, Hania (1987). Measuring international migration: theory and practice. *International Migration Review*, vol. 21, No. 4, pp. v-xii.

LIST OF *REVISIONS* OF THE WORLD POPULATION PROSPECTS

"The past and future growth of world population—a long-range view", *Population Bulletin of the United Nations*, No. 1—December 1951 (United Nations publication, Sales No. 52.XIII.2), pp. 1-12.

"The past and future population of the world and its continents" and "Framework for the future population estimates, 1950-1980, by world regions", *Proceedings of the World Population Conference, 1954*, vol. III (United Nations publication, Sales No. 55.XIII.8), pp. 265-282 and 283-328.

The Future Growth of World Population (United Nations publication, Sales No. 66.XIII.2).

World Population Prospects as Assessed in 1973 (United Nations publication, Sales No. E.76.XIII.4 and corrigenda).

World Population Trends and Prospects by Country, 1950-2000: Summary Report of the 1978 Assessment (ST/ESA/SER.R/33).

Selected Demographic Indicators by Country, 1950-2000: Demographic Estimates and Projections as Assessed in 1978 (ST/ESA/SER.R/38).

World Population Prospects as Assessed in 1980 (United Nations publication, Sales No. E.81.XIII.8).

Demographic Indicators of Countries: Estimates and Projections as Assessed in 1980 (United Nations publication, Sales No. E.82.XIII.5 and corrigendum).

World Population Prospects: Estimates and Projections as Assessed in 1982 (United Nations publication, Sales No. E.83.XIII.5).

World Population Prospects: Estimates and Projections as Assessed in 1984 (United Nations publication, Sales No. E.86.XIII.3).

World Population Prospects 1988 (United Nations publication, Sales No. E.88.XIII.7).

The Sex and Age Distributions of Population: The 1990 Revision (United Nations publication, Sales No. E.90.XIII.33).

World Population Prospects: The 1990 Revision (United Nations publication, Sales No. E.91.XIII.4).

The Sex and Age Distribution of the World Populations: The 1992 Revision (United Nations publication, Sales No. E.93.XIII.3).

World Population Prospects: The 1992 Revision (United Nations publication, Sales No. E.93.XIII.7).

The Sex and Age Distribution of the World Populations: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.2).

World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

The Sex and Age Distribution of the World Populations: The 1996 Revision (United Nations publication, Sales No. E.98.XIII.2).

World Population Prospects: The 1996 Revision (United Nations publication, Sales No. E.98.XIII.5).

World Population Prospects: The 1998 Revision, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.99.XIII.9).

World Population Prospects: The 1998 Revision, vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.99.XIII.8).

World Population Prospects: The 1998 Revision, vol. III, *Analytical Report* (United Nations publication, Sales No. E.99.XIII.10).

World Population Prospects: The 2000 Revision, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.01.XIII.8 and corrigendum).

World Population Prospects: The 2000 Revision, vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.01.XIII.9 and corrigendum).

World Population Prospects: The 2000 Revision, vol. III, *Analytical Report* (United Nations publication, Sales No. E.01.XIII.20).

World Population Prospects: The 2002 Revision, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.03.XIII.6).

World Population Prospects: The 2002 Revision, vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.03.XIII.7).

World Population Prospects: The 2002 Revision, vol. III, *Analytical Report* (United Nations publication, Sales No. E.03.XIII.10).

World Population Prospects: The 2004 Revision, vol. I, *Comprehensive Tables* (United Nations publication, Sales No. E.05.XIII.5).

World Population Prospects: The 2004 Revision, vol. II, *Sex and Age Distribution of the World Population* (United Nations publication, Sales No. E.05.XIII.6).