

Chapter 4

The changing world

Economic and social gains during the past 50 years have been dramatic and unprecedented, particularly for developing countries. Though the global population doubled during the period, per capita gross domestic product (GDP) increased by at least 2.5 times, GDP more than five times and exports more than 10 times (Table 7). Considerable progress has been made in reducing the incidence of absolute poverty (with a more modest reduction in the number of poor) and in achieving somewhat better living standards for those who have remained in poverty.

Social gains have also been significant during the past 50 years. Life expectancy at birth increased from 46 years in the early 1950s to 64 in the early 1990s, and infant mortality rates declined from 156 per 1000 live births to 62 per 1000 during the same period. Food supply has more than doubled in the past 40 years, much faster than population growth, and the proportion of people chronically undernourished fell from about one in three to one in five. Adult literacy rates rose

from less than 50% in 1970 to more than 75% in the early 1990s; and the proportion of children attending school rose from less than half to more than three-quarters. During the last two decades, coverage of infants with immunization against the six major vaccine-preventable diseases reached more than 80%. However, the pace of such postwar progress has been neither steady nor uniform, as the following analysis will show.

Economic trends

Growth of the economy

During the period **1950-1973**, the world experienced a golden age of unparalleled prosperity with unusually favourable performance of the economy and dynamism observable in all regions. World per capita GDP grew by about 3% a year – more than three times as fast as during the earlier half of the 20th century – from about \$ 2140 in 1950 to \$ 4120 in 1973. However, the overall long-run pattern of income spreads between 1950 and 1973 was strikingly divergent. The intercountry spread in per capita GDP grew steadily larger from 35 to 1 in 1950, to 40 to 1 in 1973 (but then there was also a “catch-up” phenomenon). Economic growth was interrupted around 1975 by a sharp reduction, possibly resulting from strong inflationary pressure, the breakdown of the fixed exchange rate system and the sudden rise in oil prices. The momentum of the earlier period has never been regained since, except in East Asia.

This chapter is largely based on the latest available publications of other international agencies with respect to areas under their responsibility. Detailed references can be found in the statistical annex.

Table 7. Growth of GDP and GDP per capita,^a

	Growth of GDP (annual percentage change)		GDP per capita (US \$)		
	1981-1990	1991-1996	1980	1996	1997
World	3.1	3.3	4 883	5 966	6 123
Developed market economies	2.8	1.7	16 547	21 995	22 497
Economies in transition ^b	2.0	-6.4	5 464	4 012	4 062
Developing countries	3.8	5.8	2 102	3 147	3 282
of which LDCs	2.4	3.5	1 097	1 132	1 159

^a On the basis of purchasing power parity.

^b Including the former German Democratic Republic until 1990.

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During the period **1973-1993**, most of the world economy operated below its potential (possibly accentuated by a retardation of technical progress). This was particularly true of eastern Europe, Africa and Latin America. Asia was the brightest spot in the world economy during the period. Average GDP growth was the same as in the golden age, but population growth slowed down and per capita growth accelerated. Average per capita production rose by 80%. Western European countries had much slower growth than in the golden age. The deceleration in GDP, per capita GDP and labour productivity was quite sharp. However, the results were in most cases superior to anything these countries had experienced before the postwar golden age. They continued to increase the openness of their economies after 1973, and the ratio of trade to GDP increased substantially and continued their catch-up on American productivity. However, they began experiencing rising rates of unemployment. As governments concentrated on policies for the restoration of price stability to counter the threat of hyperinflation, economic growth and full employment became secondary considerations. In Australia, Canada, New Zealand and the United States, there was also a slowdown in growth after 1973, an acceleration in inflation and a rise in unemployment rates.

During the period **since 1993**, when the economic recovery started, the world economy has been growing at an annual rate of about 3.5%. World output is expected to expand by more than 4% in both 1997 and 1998, the strongest pace in a decade; the global economy has been enjoying the fourth episode of relatively rapid growth since the early 1970s.

The rate of growth of the developing countries as a group has been at its highest in many years. This accelera-

tion has been due more to a broadening of the numbers of growing countries than to faster rates of growth in a limited number of countries. While such a broadening of the reach of economic growth in developing countries to include an increasing number of the lower-income countries represents a heartening contrast to the situation in the 1980s, many least developed countries have not yet achieved these higher rates of growth. For many low-income African countries, maintaining higher rates of growth is imperative for achieving even a moderate level of income per capita within a reasonable time. Although output per capita in Africa fell on average in the 1980s and in the early 1990s, the stronger growth of output at about 4% over the past two years, and the expectation that such an improvement in economic growth could also be sustained, is a dramatic change from the past.

In spite of earlier experiences with episodes of relatively rapid growth followed by widespread slowdown and even recession in many countries, the IMF visualizes that, with the combination of the strong catch-up potential of the developing and transition countries, and the beneficial effects on productivity of technological advances and increasing globalization, the current expansion of the world economy can be sustained possibly into the next decade. The sustainable rate of growth of world output may also be somewhat stronger than in the quarter-century since the first oil shock of the mid-1970s.

Beneath the apparently modest performance of the world economy in the early 1990s were political, economic and technological upheavals which will have a far-reaching impact on future prosperity for the world. The changes include the increasing global integration of economic activities and market-oriented institutional reforms in many countries. More

countries are looking to global integration as an important vehicle for improving their economic performance. However, history suggests that without a sufficiently broad social consensus in favour of integration, and international macroeconomic stability, further improvements in economic performance could be undermined.

A main driving force behind many recent political and economic changes has been the acceleration in technological innovation, especially the revolutionary changes in information technology. Technological innovations will not only improve productivity and economic structures, they will also have an important impact on economic institutions and will bring changes in social superstructure. With such an improvement in productivity through technology, there are grounds for optimism about the future of the world economy. A major issue is whether there will be a “convergence”, with the poorer countries achieving a faster economic growth than the richer.

Increasing inequalities and global debt burden

A recent review by the United Nations Conference on Trade and Development (UNCTAD) suggests that since the early 1980s, the global economy has been experiencing rising inequality. Income gaps between countries have continued to widen. In 1965, the average per capita income of the G7 industrialized countries was 20 times that of the world's poorest seven countries. By 1995 it was about 50 times greater. Though a number of developing countries have been growing faster than the developed market economies, growth rates were not fast enough to narrow the absolute per capita income gap. UNCTAD

estimates that the middle strata of developing countries (with incomes between 40% and 80% of the average in developed countries) are shrinking today more than in the 1970s, not because they have graduated to the status of more advanced countries but because for many of them rates of growth of per capita income have not been fast enough even to stay in that intermediate category.

A major constraint inhibiting further economic growth and international macroeconomic stability has been the debt burden of the developing countries, particularly of the heavily indebted ones. However, 13 of the 51 countries classified by the World Bank as severely indebted were middle-income countries – an indication that debt vulnerability was not an exclusive feature of the poorest countries. 19 of the 51 countries are from regions other than Africa, reaffirming the broader scope of the problem. Continued domestic policy efforts to ensure better utilization of the existing capacity to produce goods and services, combined with external debt relief and the transfer of new services, are essential for a broad-based recovery in these countries, particularly the heavily indebted poor countries (HIPCs) in Africa. It is expected that with a speedy and flexible implementation of the HIPCs Debt Initiative, a lasting solution to the debt crises of the HIPCs in all regions (including Africa) may be possible.

Polarization among countries has also been accompanied by increasing income inequality *within* countries. The income share of the richest 20% of the population has risen almost everywhere since the early 1980s, in many cases reversing a postwar trend. In more than half of the developing countries the richest 20% today receive over 50% of the national income. Those at the lower end of the

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income scale have failed to see real gains in living standards, and in some cases have had to endure real losses. In many countries, the per capita income of the poorest 20% now averages less than one-tenth that of the richest 20%. Such a trend towards a widening of gaps between income groups is apparent in both more and less successful developing countries. Evidence is mounting that slow growth and rising inequalities determining international and national divisions can no longer be considered as merely temporary adjustments to a rapidly changing world economy – they are becoming more permanent features. If this situation continues, there is a real threat of a political backlash following radical differences in thought, action, values, tastes and feelings that will create a new political geography divorcing the interests of the rich from the welfare of the poor. Increasing unemployment among the educated is another factor which should not be overlooked. This may wipe out several of the benefits of recent economic reforms in developed and developing countries alike.

Sectoral changes and emerging opportunities

Though economic convergence is not a global characteristic, there has been convergence among certain groups of countries (particularly in what are today developed countries and regions) in a large part of Asia and, to a lesser extent, in Latin America where growth has recently been faster than that of the developed ones. Apart from investments in education and in research and development that have contributed to more rapid economic growth, these countries highlight the importance of policies and institutions that allow them to capture po-

tential gains of specialization through changes in production structure and division of labour.

A large-scale shift in the world production structure has already occurred in all regions. By 1992, agriculture accounted for only 7% of world production, compared with almost 14% in 1960, while services reached 58%. The share of the developed market economies in manufacturing declined from 87% in 1960 to 77% in 1992. In petroleum refining and mining, about 25% of the total capacity of the developed market economies “shifted” to the developing countries, mainly Latin America. There were also relative shifts of 15-20% from developed to developing countries of world production in textile and wearing apparel, in non-ferrous metals and steel production. These interregional shifts were accompanied by large-scale domestic restructuring in most regions. Such a process of worldwide structural change is driven by technical advance and increased global interdependence. Research in this area shows that investment in human capital – health and education – and in technology has been a major factor contributing to more rapid growth and to a faster “convergence” of countries through accelerated improvements in long-run economic performance.

Thus, technological advances offer opportunities that could be exploited. Developing countries could judiciously take advantage of the multitude of technologies already available to “catch up”, and of a healthy workforce to sustain growth and build on it their prosperity. Poor countries whose main resource is labour could make their workforces more productive, not just through rising education standards but also through “learning by doing” as new production techniques are introduced. This requires the creation of

an environment that would facilitate substantial investments both domestically and internationally, to create jobs and raise education standards. *The World Health Report 1995* identified enhancement of the health potential of the current workforce and future workforce (schoolchildren) as a top priority for achieving not only social progress but also sustainable economic growth through increased labour productivity, and for ensuring that the poor *earn* their way out of poverty.

Population trends

The newly revised estimates by the United Nations Population Division of the global population confirm broadly the conclusions of the earlier revision, notably slower population growth, lower levels of fertility, more diverse trends in mortality and greater migration flows during the first half of the 1990s than experienced in previous decades. The 1996 revision showed a more rapid decline in population growth, national fertility declines were broader and deeper, and migration flows were larger than previous estimates.

Population size and growth

The global population was 5.8 billion in 1997. It was about 2.8 billion in 1955, 4.1 billion in 1975 and 5.7 billion in 1995, and is expected to reach 8 billion by 2025. The developing countries, excluding the least developed ones, had a population of 1.7 billion (60% of the global population) in 1955, 2.6 billion (64.7%) in 1975, 3.9 billion (68.1%) in 1995 and are expected to reach 5.6 billion (69.2%) by 2025. The global share of what are today called least developed countries (LDCs) was 217 million (7.9% of the global population) in 1955, 350 mil-

lion (8.6%) in 1975, 579 million (10.2%) in 1995 and is expected to reach more than 1.2 billion (14.4%) in 2025.

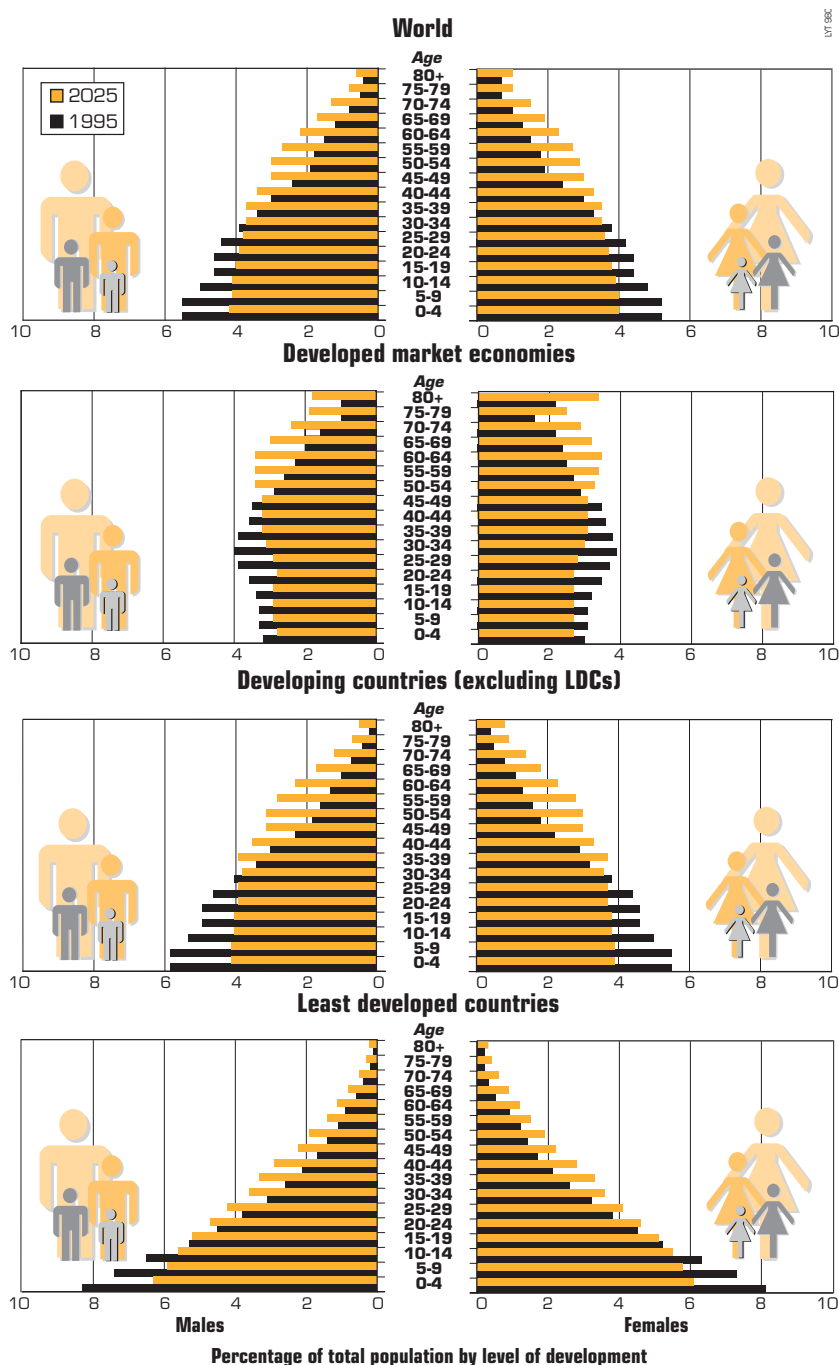
The world population grew at an annual rate of 1.98% during 1955-1975, 1.67% during 1975-1995 and is expected to grow annually by 1.16% during 1995-2010. Despite the decline in the rate of growth, the annual increment to the world population will remain steady at about 80 million per year until 2010, when it will gradually decline to about 40 million per year between 2045 and 2050, about half of the current annual increment. The 48 LDCs are, however, characterized by higher fertility, higher mortality and higher population growth rates than the other developing countries. Between 1955 and 1975, the population of what are today LDCs increased by 61% compared with 59% for other developing countries. For 1975-1995, percentage increases were respectively 66% and 47%, and for 1995-2025, they are expected to be 100% and 44%. Overall, for every 100 persons added annually to the world population, the contribution of developing countries (other than LDCs) was 74 during 1955-1975 and 77 during 1975-1995, but is expected to decline to 72 during 1995-2025. Similar figures for the LDCs are 10, 14 and 25 respectively.

International migration and refugees

Internal conflicts and disintegration of nation-states resulted in significant population movements particularly in respect of refugees, asylum seekers and displaced persons. The United Nations Population Division has estimated that the number of international migrants in the world rose from 75 million in 1965 to 120 million in 1990 – an annual growth rate of 1.9%.

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Fig. 13. Population by age and sex, 1995 and 2025



The rate rose from 1.2% during 1965-1975 to 2.2% during 1975-1985 and reached 2.6% during 1985-1990. Despite this accelerating growth, by 1990 international migrants accounted for only 2.3% of the world's total population. However, their distribution by region was far from uniform.

In Australia and New Zealand, international migrants made up 18% of the total population in 1990; in western Asia, nearly 11%; in North America, less than 9%; in the traditional market economy countries of Europe, over 6%; and in Asia (excluding western Asia), Africa and Latin America, less than 2.5%.

Net international migration contributed 45% of the overall population growth in the developed world for 1990-1995, but it lowered slightly the overall growth rate of the population in the developing world by 3%. Whereas the annual growth rate of international migrant stock in the developed world increased only moderately from 2.3% per year during 1965-1975 to 2.4% during 1985-1990, the annual growth rate of the total number of migrants in the developing world increased ninefold, from 0.3% during 1965-1975 to 2.7% during 1985-1990. Despite the rapid growth of the number of international migrants in the developing world, by 1990 the proportion of international migrants among the total population of the developing world remained low at 1.6%, as against 4.5% of the population in the developed world. However, in Europe almost 88% of the population growth during the period 1990-1995 was attributable to international migration, with unemployment of the educated in the developing countries being a contributing factor.

Refugees are an important component of the number of international migrants in the world. The total number of refugees worldwide is esti-

mated to have increased markedly during 1985-1990, going from 10.5 million to 14.9 million and accounting for 12.4% of the world's migrant stock in 1990. In fact, the refugee stock reached a maximum early in 1993, when it stood at 18.2 million. Since then, the number of refugees has been decreasing so that by early 1996 it stood at 13.2 million. This decline has resulted from major repatriations made possible by the solution of several long-standing conflicts and from the growing reluctance of countries of asylum to grant refugee status.

Age composition and dependency ratios

In 1997, there were about 2.3 billion young persons aged less than 20 years in the world (40% of the total population). Children under 5 constituted 10% of the world population, and older persons 7% (389 million). The rest were aged 20-64 years.

Population growth not only varies by level of development, there are also differential rates of growth of various components of the global population (Fig 13). For example, the global population of children grew at 1.57% per year between 1955 and 1975, 0.6% between 1975 and 1995 and is expected to grow by 0.25% between 1995 and 2025. The older population aged 65 and above, however, increased by 2.3%, 2.4% and 2.6% respectively during these periods. Of the 140 million increase between 1975 and 1995 in the population aged 65 and above, 46 million (33%) is attributable to the developed countries and 7 million (5%) to the LDCs. Increases for the period 1995-2025 are estimated to be 91 million (21%) for the developed countries and 28 million (6%) for LDCs.

Though the child population decreased by 8 million in the developed

countries during 1975-1995, there was an overall increase of 74 million in the developing world, more than 40% of which concerned the LDCs. During 1995-2025, however, it is expected that the child population will decrease by 6 million in the developed countries but increase by 54 million in the developing world, more than 90% of which will concern the LDCs.

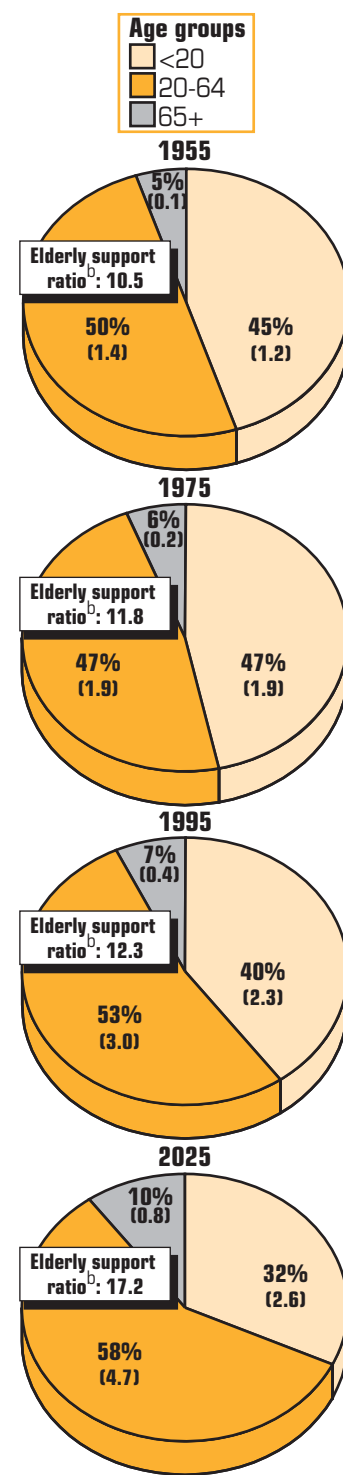
Overall there is also a shift in the composition of the dependency ratios (Fig 14). For every 100 young dependants aged less than 20 years in 1955, there were 12 older dependants aged 65 and above. In 1975 the ratio was 100 to 12, in 1995 it was 100 to 16 and by 2025 there are expected to be 31 older dependants for every 100 young dependants.

The number of women of child-bearing age (15-49 years) increased annually by 1.8% during 1955-1975 and by 2.1% during 1975-1995, and is expected to increase by 1% per year during 1995-2025, an increase of 522 million. Adolescent women aged 15-19 account for about 20% of all women of reproductive age now in the developing world, but are expected to represent 16% by 2025. Worldwide the number of these women will increase by at least 56 million during 1995-2025, rising to 307 million by 2025, most of them in the developing countries..

fertility

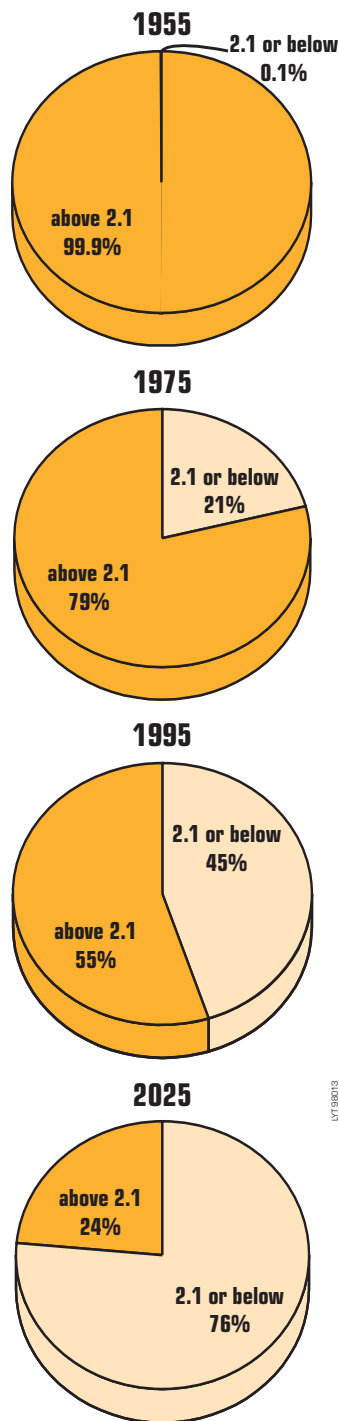
The total fertility rate (TFR) – the number of births per woman of child-bearing age – has been declining from 5 in 1955 to 4.2 in 1975 and to 2.9 in 1995. It is expected to reach 2.3 by 2025. The world average, however, conceals large differences among countries and regions. TFRs in 1995 ranged from 1.2 in Italy to 7.6 in Yemen. In 1995 the TFR for the developed world was only 1.7 compared

Fig.14. Age structure of the global population, 1955-2025^a



^a Percentages of total global population; figures in brackets refer to the number of persons in billions.
^b Elderly support ratio: population aged 65 and above as a percentage of the population aged 20-64.

Fig. 15. Replacement-level fertility, 1955-2025^a



^a - Replacement-level fertility is the total fertility rate of 2.1 children per woman.
 - Percentages of total global population.

with 5.4 for the LDCs. However, there is convergence in the TFRs among countries, mainly due to increasing contraceptive prevalence worldwide. While the TFR for the LDCs was about 4 times that of the western European value in 1980, it was only 3.7 times in 1995. This ratio is expected to decline further to 1.8 by 2025. The TFR declined in all regions except North America, which recorded an increase from 1.8 in 1980 to 2 in 1995. During the same period Africa continued to have a high fertility rate, although it decreased from 6.4 to 5.5 compared with decreases of 4.1 to 2.8 in Latin America and 4 to 2.7 in Asia. However, large regional differences also prevail within Africa, particularly between northern and southern Africa and the rest of Africa. While in the 1970s sub-Saharan countries had high TFRs in the 1990s most of them experienced substantial declines, the largest being in Kenya, where it fell from 8 in 1977-1978 to 5.4 in 1990-1993.

It is also expected that if this trend continues, the number of countries achieving a level less than or equal to the replacement level of 2.1 births per woman would increase from 3 countries (0.1% of the global population) in 1955 to 102 countries (76%) by 2025 (Fig. 15).

Contraceptive prevalence is strongly related to the level of fertility, explaining about 90% of variance in TFR; it is estimated that current contraceptive use – the percentage currently using contraception among couples with the woman of reproductive age – is now approaching 60% globally, compared with about 57% in 1990. In the developing countries prevalence reached 53% in 1990 and 56% in 1995. In the developed world it averaged 72% in 1990 and 73% in 1995. Recent estimates show that in those countries that have reported, at least 50% of the population have ac-

cess to temporary methods of contraception. In Latin America and the Caribbean and in Asia, the proportion was over 80% and in Africa nearly 60%. However, at least 350 million couples worldwide now lack access to the full range of modern family planning methods – sterilization, IUD, pill and condom. Globally 120-150 million married women wish either to have no more children or to delay their next birth at least two years, but are not using any method of family planning.

For the world as a whole, the number of women of reproductive age in 2025 is expected to be 1.6 times higher than in 1990, and the number of married women to grow slightly less (to 1.5 times the number in 1990). It is also expected that contraceptive prevalence among them will increase globally to 62% by the year 2000 and to 70% by 2025. Similar figures for the developed world are 74% and 75%, and for the developing world 60% and 70% respectively. This means that the number of contraceptive users will need to increase by 50% even to maintain prevalence at the current level. To increase it from 60% to 70%, the number of contraceptive users among married women will have to be nearly twice as high in 2025 as in 1990, a challenge for the reproductive health movement.

Adolescent fertility – babies born to young women aged 15-19 – is an emerging concern throughout the developing and the developed world. In 1995, 17 million (or 13%) of babies worldwide were born to adolescents. Nine in every 10 of these babies (13 million) are born in the developing world, and they constitute about 13% of all children born in these countries. These are high-risk births from the perspective of the health of both mother and child, and also high-cost births when associated negative effects on the quality of life

and role of women in society are considered. It is estimated that infant mortality for babies born to this age group could be as much as 80% higher than for women in the age group 20-29. Adolescents account for 18% of all women of reproductive age in most of the developing regions of the world and their numbers are expected to grow worldwide by at least 60 million between 1995 and 2025. Nearly 90% of adolescent women aged 15-19 will be in the developing world by 2025. Adolescent fertility is estimated at 66 births per 1000 women aged 15-19 years in 1995 worldwide (it is falling compared with overall fertility rates). It is expected to reach 52 births per 1000 adolescent women by 2025, with projected births declining by 6% of the number occurring in 1995 over the course of the next 30 years, mainly due to rising age at marriage, increasing educational and economic opportunities for young women and increased use of contraception.

Infertility – defined as inability to ensure childbearing when it is wanted – is as much a reproductive health issue as the inability to avoid childbearing when it is not wanted. Infertility affects both men and women of reproductive age. It is estimated that 8-12% of all couples experience some form of infertility during their reproductive lives, affecting at least 50 million people worldwide. While for a small proportion of couples (less than 5%) the underlying causes of infertility are attributable to anatomical, genetic, endocrinological and immunological factors, problems of infertility in women arise primarily because of untreated infections, frequently linked to pelvic inflammatory disease. Sexually transmitted diseases, such as gonorrhoea or chlamydia, are the most common source of pelvic inflammatory disease. The risk of pelvic inflammatory dis-

ease is also fairly high as a consequence of postpartum complications following infection when childbirth takes place in unhygienic conditions involving untrained personnel. Little information is available about male infertility resulting primarily from low sperm count, often caused by untreated genital infections. Available data indicate that primary infertility – inability to conceive or bear any children at all – seems low and occurs among 2-4% of women aged 40-44. In the past decade, dramatic advances have been made in the investigation and treatment of infertility.

Social trends

It is becoming increasingly clear that health improvements are influenced and conditioned by socioeconomic factors and developments in such areas as urbanization, environment, employment, education and nutrition, which are major driving forces behind health trends (*Box 22*).

Environment and housing

Urbanization has been the essential part of most nations' development towards a stronger and more stable economy over the past few decades, and it has helped underpin improvements in living standards for a considerable proportion of the world population. The countries in the South that urbanized most rapidly in the past 10-20 years are generally also those with the most rapid economic growth. Associated with this has also been the growth of urban poverty during the 1980s and early 1990s, and limited successes in improving housing and living conditions, including the provision of safe and sufficient water supplies and adequate sanitation and drainage. Urbanization thus holds out both the bright promise of

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both a bright promise
and a grave threat.

Box 22. Alcohol and socioeconomic stress

The period of transition to democracy in the countries of the former USSR has been associated with a catastrophic increase in mortality. Between 1987 and 1994 male life expectancy at birth in the Russian Federation fell by over seven years, to 57.6 years. In some parts of the country, the drop was even greater and life expectancy fell to 49 years, a figure comparable with many parts of sub-Saharan Africa. Life expectancy at birth for women also fell, although to a much smaller extent, resulting in 1994 in a 13-year difference between men and women – the largest sex difference ever documented.

These changes are unprecedented in an industrialized country in peacetime. Theories about their cause have included inaccurate data, collapse of the health care system, environmental damage, alcohol and psychosocial stress. A team of Russian, British and French researchers, using a reconstructed series of previously unpublished mortality data, has recently shown that the trends are real and has accumulated compelling evidence for the important role of alcohol.

Alcohol consumption has always been a feature of Russian life. In 1985, decisive action was taken to address the social consequences of high levels of alcohol consumption, with a major anti-alcohol campaign, leading to a dramatic reduction in supply. Within a few years, however, the amount of alcohol available began to rise again, largely due to illegal production.

The fall in age-specific death rates from a variety of causes after the anti-alcohol campaign was almost an exact mirror image of the rise after 1989, strongly suggesting that the same factors are involved in both. Many of the causes of death affected, such as accidents and violence, alcoholic poisoning and pneumonia, have recognized links with alcohol. The one surprise was cardiovascular disease, where the prevailing consensus is that moderate alcohol consumption is protective. Evidence is emerging, however, that binge drinking has specific effects on the heart, with a recent Finnish study reporting a seven-fold increased risk of sudden cardiac death among those drinking three or more litres of beer at a time. This is consistent with a key finding from the Russian data of a significant increase in sudden cardiovascular deaths at weekends, especially among young and early middle-aged men. Other work has shown that a high proportion of Russian men dying suddenly have specific evidence of alcoholic damage to their heart muscle.

These findings have implications for other countries undergoing social and economic transition. They also highlight the importance of considering alcohol as a major cause of premature death in other countries. Alcohol consumption has been shown to be a major cause of the failure by Hungary to match the gains in life expectancy of neighbouring countries such as Poland and the Czech Republic. A better understanding of the linkage between excessive alcohol consumption, social and economic stresses, and health is likely to be of relevance to some other regions and countries in the world undergoing periods of rapid transition.

Personal communication from Martin McKee & David Leon, European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine, United Kingdom.

an unequalled future and the grave threat of unparalleled disaster. Recent years have witnessed a re-emergence of a positive view of urbanization. As the world approaches the 21st century with close to 6 billion inhabitants and with nearly half this number living in urban centres, it is now accepted that a predominantly urban population is not only an inevitable part of a wealthy economy, but also one that brings many advantages. The challenge is how to manage cities and other human settlements and ensure healthy living conditions in an increasingly urbanizing world.

About 45% of the world's population now live in urban areas and in a few years, for the first time in history, urban dwellers will outnumber those in the traditionally rural areas as the global urban population increases from 2.6 billion in 1995 to about 4 billion in 2015. The United Nations Centre for Human Settlements (UNCHS-Habitat) estimates that by the end of the 21st century, more people will be in urban areas of the developing world than are alive on the planet today. The number of persons living in urban areas increased globally from 872 million (32% of the world population) in 1955 to 1.5 billion (38%) in 1975, and to 2.6 billion (45%) in 1995. It is expected to reach 4 billion (54%) by 2015 (*Fig. 16*). Although there is a growing number of what are termed "megacities" (with a population exceeding 10 million) they represented only 3% of the world population in 1995. New kinds of urban systems are also developing in many parts of the world, often around the largest cities where a denser network of smaller cities develop and become more dynamic than the large city itself. While the growth of the urban population is faster than overall population growth in the developing world, the annual growth rate declined from 4% during 1955-1975 to

3.8% during 1975-1995, and is expected to decline further and reach 2.9% per year between 1995 and 2015. However, the composition and distribution of urban agglomerations have been changing dramatically during the past few decades. While the number of megacities increased from one in 1955 to five in 1975, and to 14 in 1995, the number of urban agglomerations with a population exceeding 1 million increased from 90 in 1955 to 178 in 1975, and to 324 in 1995. There are expected to be 408 in 2015. The proportion of the urban population living in these agglomerations has also increased from 26% in 1955 to 36% in 1995, and may be 37% in 2015. This means that a significant proportion of the world's urban population live in small market towns and administrative centres, strengthening urban-rural linkages in economic and social support systems. It also reflects the steadily declining proportion of the world's population making a living from agriculture and related areas. The "city summit" in Istanbul in 1996 outlined new directions for human settlements and an enabling approach that could also ensure satisfaction of the social, economic and environmental goals of sustainable development.

The occurrence of the major vector-borne diseases is closely related to naturally existing **environmental conditions**. In addition, the incidence, severity and distribution of vector-borne diseases are affected substantially by human activities such as water and agricultural development, and by urbanization. As nearly all malaria is associated with environmental conditions, it is estimated that 90% of the global burden of this disease (e.g. an estimated 1.5-2.7 million deaths and 300-500 million cases globally) is attributable to environmental factors. Schistosomiasis is another tropical disease which is strongly re-

lated to environmental conditions. Spread via a parasite in freshwater snails, it infects more than 200 million people. Other major vector-borne diseases influenced by environmental conditions include lymphatic filariasis, dengue fever, leishmaniasis and Chagas disease. Diarrhoeal diseases which are closely associated with lack of access to clean water and food, and personal hygiene, cause 3 million deaths annually.

Fig. 16. Urban and rural population, world, 1955-2015

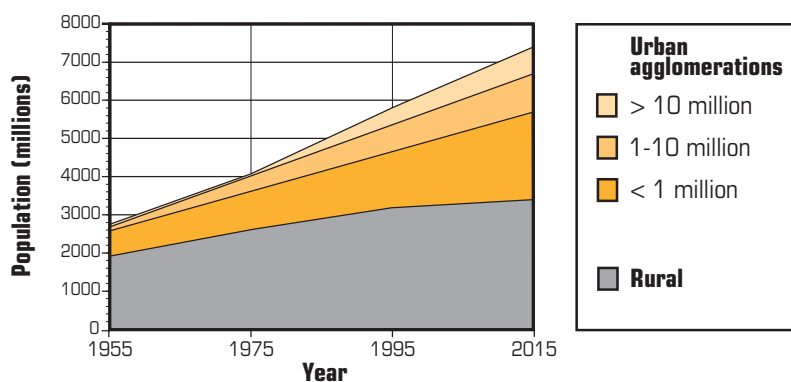


Table 8 summarizes the multiple linkages between exposure situations and the major diseases/conditions they can cause. Most of these are potentially related to several environmental exposure situations. Poor environmental quality is estimated to be directly responsible for around 25% of all preventable ill-health in the world today, with diarrhoeal diseases and acute respiratory infections heading the list. Up to two-thirds of preventable ill-health due to environmental conditions occurs among children.

Driving forces create the conditions in which environmental health threats can either develop or be averted. Government policies and programmes – which will vary according to the prevailing value system – change the direction and/or magnitude of driving forces and can there-

Table 8. Potential relationships between exposure situations and diseases/conditions

Health conditions of concern	Exposure situations					
	Polluted air	Excreta and household wastes	Polluted water or deficiencies in water management	Polluted food	Unhealthy housing	Global environmental change
Acute respiratory infections	●				●	
Diarrhoeal diseases		●	●	●		
Malaria and other vector-borne diseases		●	●	●		●
Other infections		●	●	●	●	
Cancer	●			●		●
Cardiovascular diseases	●					●
Mental disorders					●	
Chronic respiratory diseases	●					●
Injuries and poisonings	●		●	●	●	●

fore alleviate or exacerbate a broad array of environmental health threats. The main driving forces are: population dynamics; urbanization; poverty and inequity; technical and scientific developments; consumption and production patterns; and economic development. Environmental threats to human health can be divided into “traditional hazards” associated with lack of development and “modern hazards” associated with unsustainable development.

Traditional hazards related to poverty and insufficient development include: lack of access to safe drinking-water; inadequate basic sanitation in the household and the community; indoor air pollution from cooking and heating, using coal or biomass fuel; and inadequate solid waste disposal.

Modern hazards are related to development that lacks health-and-environment safeguards, and to unsustainable consumption of natural resources. They include: water pollution from populated areas, industry and intensive agriculture; urban air pollution from motor vehicles, coal power stations and industry; climate change; stratospheric ozone de-

pletion and transboundary pollution.

Water, food and air are the principal exposure routes of environmental health hazards. Also heavily implicated are the manner in which household wastes and sewage are handled, and the conditions in which people live and work.

More than 1 billion people do not have ready access to an adequate and safe water supply, and a variety of physical, chemical and biological agents render many water sources unhealthy. Today, more than 800 million of those unserved live in rural areas (Fig. 17). Water supply also varies widely in terms of region and country. For instance, urban areas generally have higher coverage than rural areas. In cities, water is often provided to districts whose populations can pay for services. Water supply and sanitation coverage has changed considerably over the years. In the mid-1970s, of the approximately 2.5 billion people in the developing world, only 38% had safe drinking-water, and 32% adequate sanitation. At the beginning of the 1980s, water supply coverage was 75% in urban areas and 46% in rural

areas, while sanitation reached 60% in urban centres and 31% in rural environments. In developing countries, 61% of the population now has access to water supply and only 36% has access to sanitation.

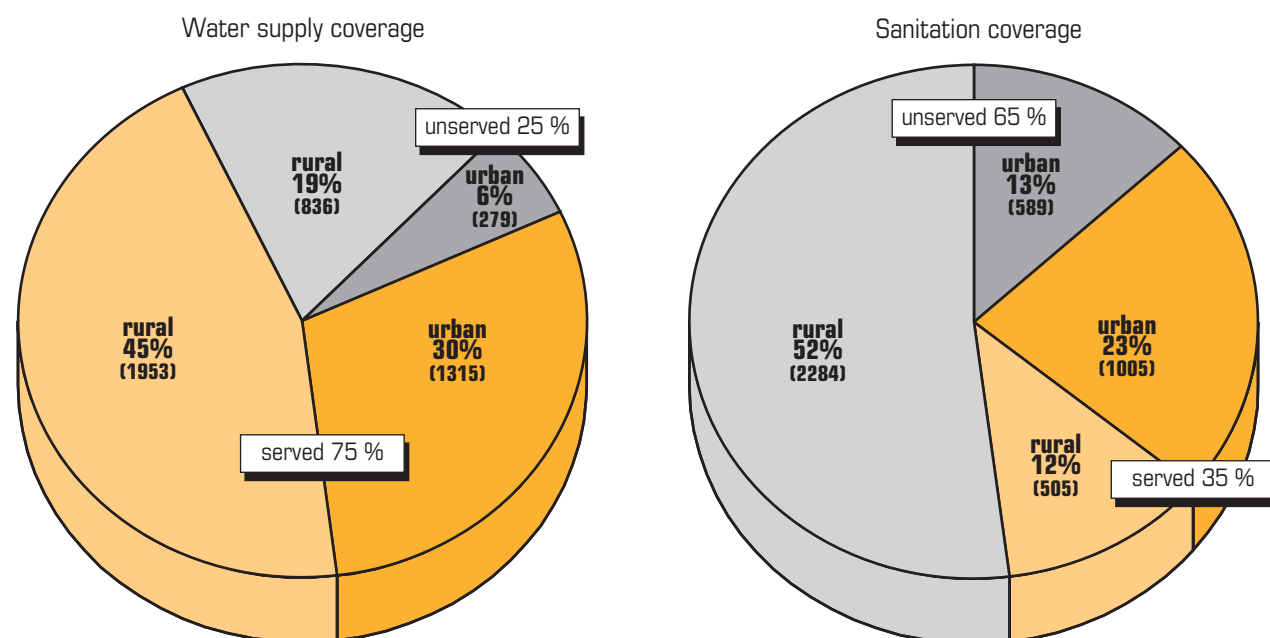
Food is essential to a healthy life, but it can also be a major route of exposure for many pathogens and toxic chemicals. These contaminants may be introduced into food during cultivation, harvesting, processing, storage, transportation and final preparation. Biological and chemical agents in food represent the two major types of foodborne hazard. Biological agents tend to pose acute hazards with incubation periods of a few hours to several weeks before the onset of disease, whereas chemical hazards usually involve long-term, low-level exposures.

Air pollution, both indoor and outdoor, leads to an estimated 3 million premature deaths globally. For

example, the acute and long-term consequences for health of the recent forest fires in South-East Asia are a case in point of the serious threats to health from air pollution on a regional scale. When inhaled, air pollutants affect the lungs and respiratory tract; they are also taken up by the blood and transported throughout the body. And since air pollutants are deposited on soil and plants and in water, they can contribute to further human exposure if contaminated food and water are ingested. Indoor air pollution can be particularly hazardous to health because it is released in close proximity to people. The most prominent source of indoor air pollution in developing countries is household use of biomass and coal for heating and cooking, usually involving open fires or stoves without proper chimneys.

Ozone layer depletion due to use of chlorofluorocarbons has increased rapidly in recent years and the “ozone

Fig. 17. Water and sanitation coverage, rural and urban population, 1994^a



^a Percentages relate to global population in rural and urban areas concerned; figures in brackets refer to population in millions.

Box 23. Climate change – Health risks for the 21st century

Unprecedented changes taking place in the global climate because of greenhouse gas emissions could lead to wide-ranging impacts on human health, according to some leading scientists. Such climate changes are gradual and complex, and their environmental consequences are difficult to predict, but they could result in marked increases in death and illness from both infectious and noninfectious diseases. Various recent scientific studies based on mathematical models indicate that a global mean temperature increase of 1-2 degrees C would enable mosquitos to extend their range to new geographical areas, leading to increases in cases of malaria and several other infectious diseases - especially in populations living just outside the areas where these diseases currently occur.

The proportion of the world's population at risk of malaria, presently estimated at 2.4 billion people, could increase from around 45% to 60% by the year 2050. The estimated number of annual deaths from malaria would rise from between the present 2-3 million to 3.5-5 million. There is already some evidence that malaria incidence is increasing in a number of highland regions, for example in Kenya, in a manner that is compatible with recent regional warming - although other ecological factors may also be involved.

Dengue, another mosquito-borne disease, currently threatens 1.8 billion people. An estimated 50 million people are infected annually, and the disease causes about 25 000 deaths. A temperature rise of 1-2 degrees C could result in an increase of the at-risk population by several hundred million, with 20 000-30 000 more dengue deaths a year in 2050. A recent study by the World Resources Institute, in conjunction with WHO experts, predicted that by 2020 - if the current trends in greenhouse gas emission continue - there would be 700 000 avoidable deaths occurring annually because of additional exposure to atmospheric particulate matter (PM) produced by the burning of fossil fuels, with 80% of these deaths occurring in developing countries. The health effects of PM include cardiovascular and respiratory illness. The researchers have calculated that up to 8 million PM-related deaths worldwide in the first 20 years of the next century could be prevented by the implementation of a climate policy designed to reduce carbon emissions significantly. They have concluded that regardless of how or when greenhouse gases alter climate, reducing them now will save lives worldwide by lessening particulate air pollution, and that the beneficial effects of reduced particulate pollution appear to be far greater in rapidly developing countries than in developed countries, although they are substantial in both regions. The study was presented at a United Nations climate change conference in Kyoto, Japan, in 1997.

Some effects of global climate change and stratospheric ozone layer depletion (a separate but coexistent problem) could be beneficial. For example, in areas with relatively colder climates, an increase in ambient temperature could result in a decrease in cardiovascular mortality. But most effects are expected to be adverse. For example, stratospheric ozone depletion would increase skin cancer incidence, but scientists calculate that the excess mortality involved from increases in skin cancer would be much less than that due to the expected rise in malaria deaths from climate change.

hole" over the South Pole now reaches populated areas. A similar trend is seen around the North Pole and the associated increase of solar UV-radiation exposure may in the next decades cause an increase of cataracts, skin cancer and immune system damage. The Intergovernmental Panel on Climate Change has concluded that a warming of the Earth's surface due to human activities producing greenhouse gases is occurring (Box 23).

The number and quantities of chemicals used, both in developed and developing countries, are constantly increasing. The total number of chemicals on the market is now close to 100 000, while the value of the total global annual production of chemicals is about \$1.5 trillion. The population groups most affected by chemicals are poor, illiterate people with little or no access to appropriate training or basic information on the risks posed by chemicals to which they are exposed directly or indirectly every day. Although both men and women are exposed to the health risks related to the use of chemicals in the rural environment and to chemicals used in cottage industries and in the home, women's health can be particularly affected. Infants and children are more susceptible to a variety of chemicals, such as heavy metals and several persistent organic pollutants.

In favourable circumstances, work contributes to good health and economic achievement. With economic development, many countries have experienced a shift from the hazards that characterized work in agriculture, mining and other primary industries, to those that characterize manufacturing industries or service industries. Many workers, however, are exposed to health hazards that contribute to respiratory diseases, cancer, reproductive disorders, allergies, cardiovascular disease, psychological

stress, eye damage and hearing loss, as well as some communicable diseases. New occupational disease problems have emerged, and the incidence of reported occupational disease has accordingly increased in certain developed countries.

Housing is of central importance to quality of life. Ideally, it minimizes disease and injury, and contributes much to physical, mental and social well-being. The home environment should afford protection against the hazards to health arising from the physical and social environment. Yet numerous factors in the home environment may influence health negatively (*Box 24*). At least 600 million urban dwellers in Africa, Asia and Latin America live in life- and health-threatening homes and neighbourhoods. Most live in cramped, overcrowded dwellings with four or more persons to a room in tenements, cheap boarding houses or shelters built on illegally occupied or subdivided land. Tens of millions are homeless and sleep in public or semi-public spaces – for instance pavement dwellers and those sleeping in bus shelters, train stations or parks. Perhaps as many as 600 million also have inadequate or no access to effective health care, which means that the economic impact of disease or injury is magnified.

The combustion of raw biomass products produces hundreds of chemical compounds including suspended particulate matter, such as carbon monoxide, oxides of nitrogen and sulfur. The principal adverse effects of these compounds on health are respiratory, but in poorly ventilated dwellings, especially when fuels such as charcoal and coal are used to heat rooms in which people sleep, carbon monoxide poisoning is a serious hazard.

Estimating levels of poverty based on poor-quality housing – **housing**

Box 24. The health burden of poor housing

Any study of the health burden of poor housing has to consider the health burden arising not only within the home but also in the area around the home. Here are nine features of the housing environment that WHO has singled out as having important direct or indirect effects on the health of their occupants:

- The structure of the shelter (which includes consideration of the extent to which the shelter protects the occupants from extremes of heat or cold, insulation against noise and invasion by dust, rain, insects and rodents).
- The extent to which the provision for water supplies is adequate – both from a qualitative and a quantitative point of view.
- The effectiveness of provision for the disposal (and subsequent management) of excreta and liquid and solid wastes.
- The quality of the housing site, including the extent to which it is structurally safe for housing and provision is made to protect it from contamination (of which provision for drainage is among the most important aspects).
- Overcrowding which can lead to household accidents and increased transmission of airborne infections such as acute respiratory infectious diseases, pneumonia and tuberculosis.
- The presence of indoor air pollution associated with fuels used for cooking and/or heating.
- Food safety standards – including the extent to which the shelter has adequate provision for storing food to protect it against spoilage and contamination.
- Vectors and hosts of disease associated with the domestic and peri-domestic environment.
- The home as a workplace – where the use and storage of toxic or hazardous chemicals and unsafe equipment may present health hazards.

poverty – and on absence of basic infrastructure and services gives a more realistic picture of urban poverty, particularly in the developing world (as elaborated in *The World Health Report 1997*). For a significant proportion of more than 600 million people living in life- and health-threatening homes and neighbourhoods, improvements in levels of infrastructure and service provision and support can be achieved at low cost. UNCHS-Habitat points out that such improvements are often with

Investing in people's
health and their
environment is a
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sustainable
development.

good possibility of cost recovery. The reason for the very poor housing and living conditions in which a sizeable proportion of people live is not that they are unable to pay for housing with basic services, but that such housing is unnecessarily expensive or simply not available.

The eradication of poverty, particularly housing poverty, is essential for sustainable human settlements and thus for sustainable development. Science and technology have a crucial role in shaping housing conditions and living and working environments, and in sustaining ecosystems. Quality of life depends on the indoor and outdoor conditions and spatial characteristics of villages, towns and cities. However, it is imperative that governments recognize their role as active agents in building an enabling environment for applying knowledge and experience in these areas for sustainable human settlement development. The challenge is for society to be willing to meet these needs and for governments to formulate innovative policies and programmes for action to make our human settlements safe and liveable. A plan to this end was elaborated at the United Nations Conference on Human Settlements (Habitat V), held in Istanbul in 1996.

WHO's response

From 1950 to 1970, WHO emphasized environmental sanitation. In 1971, the Fifth general programme of work noted that a dark side of industrialization and urbanization was the emergence of factors detrimental to health, e.g. pollution, road accidents and stressful city life, and that the previous concept of environmental sanitation had evolved into that of environmental health. During the 1980s, considerable impetus was given to the improvement of commu-

nity water supply and sanitation by the International Drinking Water Supply and Sanitation Decade (1981-1990). Recently however, sanitation has been given very low priority in comparison to other general development needs, including water supply. Rapid population growth in developing countries, particularly in urban areas, has contributed significantly to the dramatic proportions of the sanitation deficit. For this reason, the World Health Assembly will consider a new strategy on sanitation for high-risk communities in 1998.

The Earth Summit held in Rio de Janeiro, Brazil, in 1992 heralded a new approach to national and international development and environment planning. World leaders recognized the importance of investing in improvements to people's health and their environment as a prerequisite for sustainable development. Continuing commitment to securing human health and a healthy environment is now widespread, as evidenced by a number of declarations and statements that have emanated from recent international conferences. WHO's Commission on health and environment provided a substantive input into the preparation of Agenda 21, the blueprint for action towards human-centred sustainable development, and WHO's global strategy on health and environment was developed as a response. As part of the follow-up process, a worldwide effort is under way to prepare national plans for sustainable development. Conferences of health and environment ministries convened by WHO in the Americas, Eastern Mediterranean and Europe have been instrumental in accelerating the process, and agreements have been reached on deadlines for completing such plans. For example, in Europe, by the end of 1997 more than 50% of all countries had prepared national environmen-

tal health action plans.

In 1997, WHO published *Health and environment in sustainable development: five years after the Earth Summit*, which brings together quantitative data on health-and-environment issues with examples from regions and countries. Other publications include *Linkage methods for environment and health analysis – technical guidelines*, which, together with its companion volume, the *General guidelines*, was used in teaching workshops on epidemiology for decision-making. Other activities have contributed to further strengthening the international and national systems for radiation emergency medical preparedness and response, the medical and epidemiological monitoring of populations affected by the Chernobyl accident, and the understanding of biological and health effects of low-dose radiation.

In response to growing public health concerns in Member States, WHO is coordinating and encouraging research into possible associations between low-frequency electromagnetic fields and a number of diseases such as childhood leukaemia, breast cancer, and diseases of the central nervous system. In 1997, the representatives of 31 agencies from 17 countries identified the most important gaps in the existing scientific knowledge. This has enabled WHO to make recommendations to the international scientific community concerning research priorities in this field over the next four years.

A sanitation promotion kit was developed in 1997 as the foundation of a new WHO strategy on sanitation. Country workshops and hygiene education seminars were held in all regions to promote sanitation as a major instrument to reduce diarrhoeal mortality in infants. A comprehensive guidebook was issued on the management of health care wastes.

Following international concern about the dangers posed by chemicals to humanity and the environment expressed by the United Nations Conference on the Human Environment in 1972, the International Programme on Chemical Safety (IPCS) was established in 1980 as a collaborative programme of WHO, ILO and UNEP. During the past two decades, IPCS has made full evaluations of some 200 chemicals. Guidance has been provided on safe levels of some 100 chemicals in drinking-water, 35 chemicals in air, 655 pesticides and 30 veterinary drug residues in food, and of 1205 food additives. Guidance has also been provided on diagnosis and treatment of toxic exposures to some 250 chemicals, and on the safe use of 1300 chemicals in the workplace. In 1993, IPCS initiated a project to globally harmonize approaches used by different countries for the assessment of risk. IPCS issues, on a biannual basis, a CD-ROM containing the various published outputs of the chemical programmes of WHO and its partners. International organizations are also cooperating with IPCS to develop a global information network on chemicals, and to provide information electronically, with access through the Internet.

Twelve environmental health criteria monographs were published in 1997. These are comprehensive documents which provide internationally peer-reviewed assessments of risk to human health and the environment from exposure to chemicals. The IPCS chemical incidents project provides guidance to the health sector on preparedness for and response to direct or indirect exposure of populations. A harmonized format for international exchange of data on chemical incidents is currently being field-tested with the assistance of a WHO collaborating centre (University of Wales Institute, Cardiff).

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In almost all countries
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Major investment in international work will have to be made if the goal of evaluating a further 500 chemicals by the year 2000, as requested by the UN Conference on Environment and Development, is to be met. Research is also needed to better elucidate the etiology of diseases caused by chemicals, including those which may be caused by endocrine-disrupting chemicals, as well as other impacts of chemicals on the health of vulnerable population groups, particularly women, children and the elderly.

food and nutrition

Food security, defined as the access for all people at all times to enough food for an active and healthy life, underpins the “food for all” initiative launched at the World Food Summit in 1996. Much of the work in this area was concerned mainly with food security and until recently focused on the adequacy (or inadequacy) of food availability to meet the nutritional needs of the population.

In almost all countries there are people who suffer from hunger and malnutrition – a pathological state resulting from too little consumption of essential nutrients – but the extent and the pattern differ substantially from country to country. One way to examine the nutrition situation and monitor developments in world food security is to look at the food supply available for consumption. Average dietary energy supply in calories derived from national food balance sheets and population data show that, although enough food is supplied globally, at least 840 million people in the developing world had inadequate access to food in the early 1990s (i.e. below the nutrition threshold that represents a minimum level of energy requirements). This figure, though high, reflects a substantial degree of

progress since the beginning of the 1970s, when the number of persons with inadequate access to food was about 920 million. In relative terms it declined from 35% of the population in the developing world to 21%, primarily as a result of progress in East Asia (including China) and parts of South Asia, such as India and Pakistan. Worldwide average daily per capita dietary energy supply increased from less than 2300 calories in 1961-1963 to 2440 in 1969-1971, to 2720 in 1990-1992 and is expected to reach a value of 2900 calories by 2010. The population with an average dietary energy supply per capita per day of more than 2700 calories increased from 145 million in 1969-1971 to more than 1.8 billion in 1990-1992 and is expected to be 2.7 billion by 2010.

For several developing countries, the 1970s was a decade of improvement, faster than that of the 1960s, with rapid progress continuing up to about the mid-1980s but at a slower pace thereafter. However, several countries and even whole regions failed to make progress and even experienced outright reversals. The situation is most serious in Africa, where the number of classically undernourished people in sub-Saharan countries more than doubled during this period. Even though the global average may increase to 2800 calories per day by 2010, there may not be significant nutrition progress. The population with inadequate access to food may decline only from 840 million to 680 million, although this would represent a reduction from the present 21% of the population of the developing countries to 12% in 2010.

The green revolution which began in the 1960s has been seen as a global technological achievement, the effects of which are still being felt today. Innovative approaches focusing on economic, social and environ-

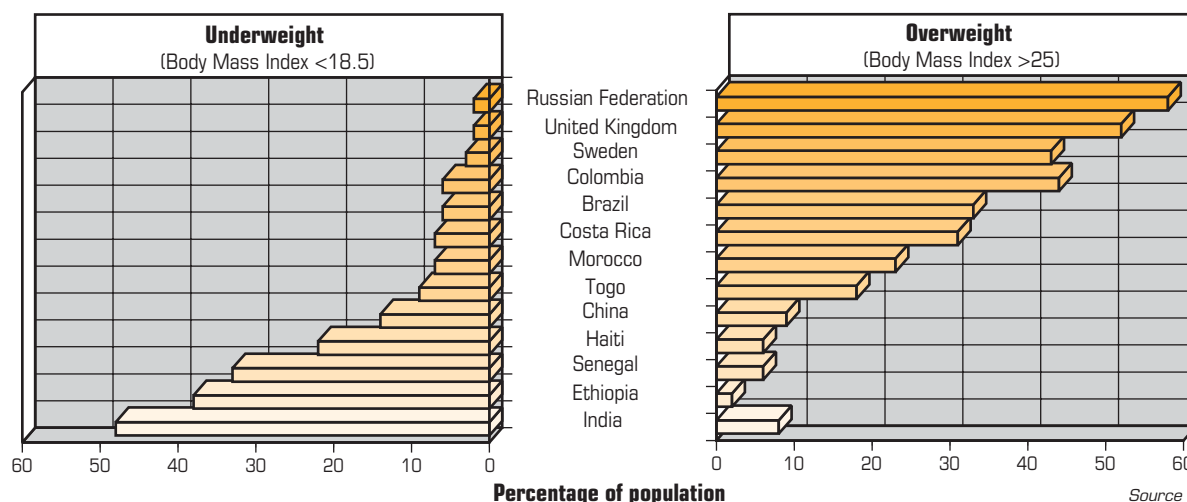
mental factors that affect the food production process should also be addressed, however. To this end FAO proposes **urban agriculture** as a possible solution to the concerns related to food insecurity in the next 25 years.. Urban agriculture is defined as food production that occurs within the confines of cities, for example in backyards, community vegetable gardens or unused spaces, and is mostly small-scale and scattered. City farming has a long tradition in many societies, especially in Asia and Europe. The contribution of urban agriculture to food security (defined as the holding of a certain supply of food to be available and accessible at all times) appears to be substantial in many developing cities. 200 million urban farmers worldwide supply food to 700 million people, or about 12% of the world population. Surveys have shown for example that urban farming provides 50% of vegetable consumption in Karachi and 85% in Shanghai. Women form the bulk of producers in both Africa and Latin America.

Nutritional status of the population depends on food consumption and not solely on production and availability of food. Dietary energy

supply measurements assume that available food is distributed and consumed in relation to requirements, which is rarely the case. Several measurements of the human body directly related to intake have therefore been developed. Children's body measurements, for example, are particularly sensitive to changes in the intake of protein and calories as well as to the onset of disease. Protein-energy malnutrition (PEM), generally referred to simply as malnutrition, is an imbalance between the supply of protein and energy and the body's demand for them to ensure optimal growth and function. Such an imbalance leads to wasting, stunting and underweight when energy intake is inadequate, and to overweight and obesity when it is excessive (*Fig. 18*).

The most commonly used indicator of PEM is the percentage of children whose weight-for-age falls below a reference value (international growth curves) usually set by WHO and the United States National Center for Health Statistics. Underweight prevalence in children under 5 has declined in developing countries, from 46% in 1975 to 31% in 1995, but progress has not been uniform. Recent WHO estimates suggest

Fig. 18. Percentage of population underweight and overweight, selected countries, around 1993



Source : WHO

Growth in the number
of severely
overweight adults
is expected
to be double that of
underweight adults.

that worldwide in 1995, 168 million children under 5 were classified as underweight (31% of the total). In developing countries, about 206 million (38%) were stunted, and about 49 million (9%) wasted. The risk of being malnourished as measured by underweight is 1.2 times higher in Asia than in Africa, and 3 times higher in Africa than in Latin America. The number of under-5s living in each geographical area – 54 million in Latin America, 121 million in Africa, and 363 million in Asia – renders the distribution among regions even more unequal. South-central Asia has by far the highest malnutrition levels, both in terms of prevalence rates and absolute numbers. In this subregion alone, about 50% of under-5s (86 million) are malnourished, accounting for half the total number of malnourished children in developing countries.

Mortality rates in children under 5 are 2.5 times higher in those that are moderately underweight, and 5 times higher in the severely underweight. About 50% of deaths among these children were associated with malnutrition, while for about 300 000 under-5 deaths in developing countries, malnutrition was the direct cause. It is also estimated that about 22 million children under 5 years are overweight. WHO estimates that in developing countries about 245 million adults are moderately underweight and 93 million severely underweight. At the same time, there are over 200 million adults who are moderately or severely overweight, of whom 58 million are in developing countries. Overall it appears that in any country – developed or developing – prevalence of malnutrition (underweight and overweight) is about 50%.

WHO estimates that underweight prevalence in developing countries should decline to about 28% (165 mil-

lion) among children under 5 years by 2025. For adults, even the most optimistic trend gives a global value for 2025 of 82 million for severely underweight and 131 million for moderately underweight; severe overweight prevalence in 2025 is estimated at 300 million adults. Growth in the number of severely overweight adults is expected to be double that of underweight adults during 1995-2025. In order to assess the implications of these trends for the future health of mankind, the following figures should be considered: excess adult mortality in 1995 attributable to undernutrition is estimated at about 0.5 million deaths and to overnutrition at about 1 million; mortality rates increase by about 25% and 100% respectively in underweight and overweight persons.

Prevalence of micronutrient malnutrition in respect of iron, iodine and vitamin A is more widespread than PEM (*Table 9*). An estimated 2 billion people are anaemic, with nearly 3.6 billion iron-deficient. Anaemia prevalence is highest (around 50%) in pregnant women and preschool-age children in developing countries. Iodine deficiency disorders affect about 15% of the world's population, 834 million having goitre, 16.5 million cretinism. Vitamin A deficiency (sub-clinical) affects about 285 million (42%) of under-5 children globally; about 0.5% are severely affected (xerophthalmia). Iodine deficiency disorders are declining rapidly however, thanks to near-universal salt iodization. Sustainable elimination by 2000 or 2010 is possible. Clinical vitamin A deficiency could with sustained effort be eliminated by 2025. The main problem is in dealing with iron deficiency, but with widespread iron fortification programmes, slow reduction would be possible.

WHO's response

A safe food supply that will not endanger consumer health through chemical, biological or other forms of contamination is essential for proper nutrition. WHO has provided leadership in the field of food safety assurance over the past 50 years by giving guidance on food safety and quality control systems, promoting good manufacturing practices and educating food retailers and consumers about appropriate food handling. Activities have included providing Member States with expert scientific opinion, and advising them on the development and enforcement of food legislation, jointly with FAO as the Secretariat of the Codex Alimentarius Commission. WHO has also provided leadership at the international level, with the development of guidelines for the implementation of the hazards analysis and critical control point system as a management tool for food safety assurance, and in the assessment of food technologies (e.g. food irradiation and fermentation) that prevent foodborne infections and intoxications and reduce post-harvest losses. More recently WHO has dealt with the safety evaluation of foods produced using modern biotechnology, through collaboration with other international agencies, national governments and NGOs.

In 1997, WHO prepared a document on *Food safety and globalization of trade in food* in cooperation with WTO, which draws the attention of public health authorities to the implications of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures for national food legislation (see also *Box 5*). Other consultations (convened jointly with FAO) concerned risk management and food safety, and food consumption and exposure assessment to chemicals in food. A study group con-

Table 9. Micronutrient malnutrition, developing countries, 1995 and 2025

Prevalence	Number of persons (millions)	
	1995	2025
Goitre	834	350
Iron deficiencies	3 580	2 750
Vitamin A deficiencies	2.85	0.17

vened with FAO and IAEA concluded that food irradiated to any dose appropriate to achieve the intended technological objective is both safe to consume and nutritionally adequate, and no upper dose limit need be imposed.

To strengthen and support surveillance of foodborne diseases, WHO has issued a document entitled *Surveillance of foodborne diseases: what are the options?* A databank on foodborne disease outbreaks was established to collect epidemiological data on foodborne disease outbreaks, and a consultation was held on prevention and control of enterohaemorrhagic *E. coli* O157:H7 infections.

Education

In the 21st century, the world will be shaped by new and powerful forces that include the globalization of economic activity and the growing importance of knowledge as a prerequisite for participation in fundamental human activity. During the 1990s, the global development community renewed its search for ways to broaden the scope and improve the quality and accessibility of basic education. Worldwide primary and secondary school enrolments rose from about 250 million children in 1960 to more than 1 billion in 1995. Enrolments in higher education have more than doubled since 1975, and the number of literate adults tripled from 1 billion in 1960, to more than 3 billion in 1995.

Over 120 million
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unemployed.

The worldwide adult literacy rate increased from 70% of the population aged 15 years and over in 1980 to 78% in 1995, and it is expected to reach about 83% in 2010 (*Fig. 19*). While progress is narrowing the gender gap, striking disparities between males and females and among countries still persist. While increased enrolments of children in formal schooling are crucial, masses of illiterate and poorly-educated adults are still inadequately prepared as parents, workers and citizens in the emerging global society. Improvements in literacy rates have been more pronounced among the younger age group. Both developed and developing countries are therefore paying more attention to the basic education of adults. Nonformal or out-of-school education is increasingly seen as a necessary component of a comprehensive strategy to provide education for all.

Unemployment

The International Labour Organization (ILO) estimated the world labour force at about 2.7 billion in 1995, with 78% in developing countries. As a result of both demographic factors and behavioural changes, developing countries' share in the total world labour force is expected to continue to increase, reaching 81% by 2010 (2.8 billion), but the average annual rate of growth is expected to slow from 2.2% (over the period 1950-1995) to 1.9% over the next 15 years, with variations among countries.

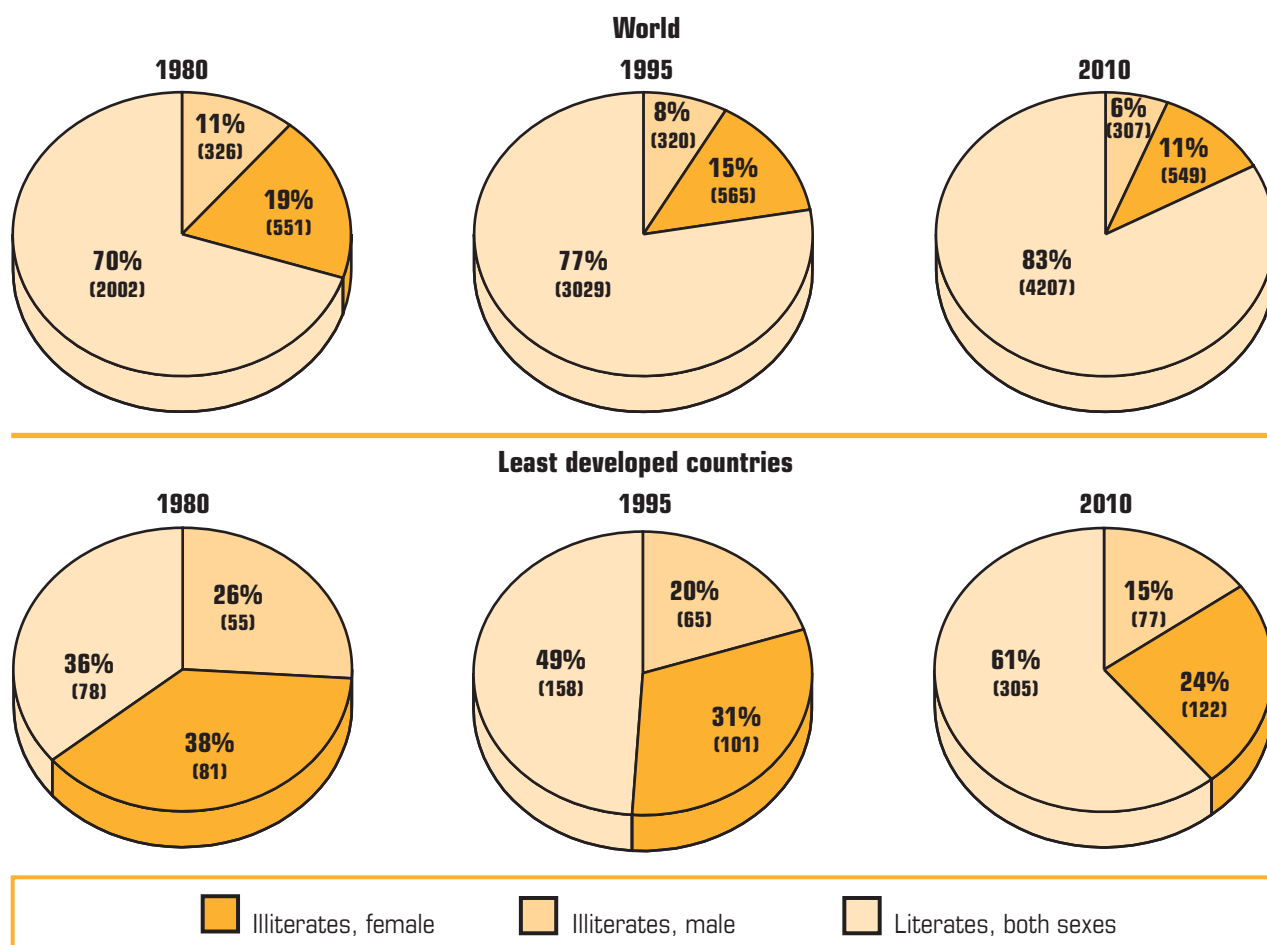
While the world economy continues to absorb the bulk of a rapidly rising global workforce, which is better educated, possesses greater skills and is more mobile than at any time in the past, unemployment has emerged as a problem and the effectiveness of labour markets has become a policy issue. Approaches to solving the problem of unemployment are being for-

mulated in the context of rapid changes in economic conditions and in the quantity and quality of labour.

Since the 1970s, changes in the technology and organization of production in the developed economies and a slower rate of productivity and real output growth have made the achievement of low unemployment in a non-inflationary environment much more difficult than had been anticipated, and certainly much more difficult than it appeared to be 50 years ago. At that time, the Universal Declaration of Human Rights provided for the right of individuals to productive employment, and many developed economies adopted policies aimed at achieving full employment, or at least high levels of employment.

Over 120 million people worldwide are officially unemployed and many more underemployed, causing massive personal suffering, increased poverty, marginalization, exclusion, inequalities, reduced well-being, loss of dignity, widespread social disintegration and huge economic waste. The ILO considers an individual to be unemployed if he or she is currently without employment, is actively seeking employment and is available for employment within some time period mutually acceptable to both the prospective employee and a prospective employer. In many developing countries, unemployment remains a major unresolved problem and there has been a rise in underemployment, with a majority of the labour force remaining in low-productivity work that offers no escape from poverty. In a majority of industrialized countries, unemployment has persisted for over two decades while most transition economies have experienced a rapid rise in unemployment since 1990.

Youth unemployment is a serious problem in several developing countries, where at least 20% of male

Fig. 19. Adult literacy, 1980-2010^a

107 58014

^a Percentage of total adult population; figures in brackets refer to the number of literates and illiterates in millions.

Source: UNESCO.

youth aged 20-24 years are unemployed. The relative share of people seeking their first job, the majority of whom are young workers and women, within the total unemployed population has been increasing over the past decade. Economies in many regions, particularly in Africa, have not been able to absorb new labour market entrants.

Economic restructuring in many countries has contributed to reducing demand for *educated labour*, particularly where the public sector used to represent the main source of demand for such skills. Growth alone is no guarantee that employment will

rise – the pattern of growth must be labour-absorptive, and this in turn is determined in part by the quality and quantity of labour. Lack of employment opportunities among the highest skilled labour and educated professionals are pushing them to leave their country in search of work abroad – a phenomenon known as the “brain drain”.

The problems of unemployment, underemployment and poverty are severe in the developing world. The majority of the labour force remains trapped in low-productivity employment in the rural and informal sectors which offer little relief from pov-

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erty. On average, unemployment in the industrialized countries is also much higher now than it was in 1950-1970. It is 50% higher in the United States and about seven times higher in Germany than in the 1960s. With the increasing integration of the world economy, issues of employment and labour standards have assumed a global dimension, since trade and investment flows have become an increasingly important influence on domestic employment prospects and policy options. The scope for national policy autonomy is restricted and the effectiveness of traditional policy instruments reduced, particularly in labour and social policy.

Poverty

Although there have been setbacks and difficulties, the global economic expansion of recent decades has brought great economic and social progress to many areas of the world. Mass poverty has been eliminated in the economically more advanced countries and significantly reduced in many developing countries. Measured in constant terms, incomes per capita in 1995 were about 90% higher in the developing countries than they were in 1970. The figure for the developed countries was about 60%. Infant mortality rates have fallen and life expectancy has risen. There have been advances in education, health care, living conditions and technology.

However, this prosperity has not been universal. Economic growth has been slow or non-existent in many poorer countries. Recent estimates by the World Bank of the number of people living below a common global poverty line indicates that in West Asia and sub-Saharan Africa per capita incomes had fallen to 80-90% of their 1970 level, in North Africa and Latin America incomes had risen by 25-50% of the 1970 levels, in South

Asia incomes had risen by more than 60% of the 1970 level, while in East Asia (including China) 1995 per capita incomes were more than twice the 1970 levels. The countries that saw a decline in their per capita incomes over the period constituted about 12.5% of the total population of developing countries in 1990, most of these being low-income countries. About a quarter of the world population lives in dire poverty and in many regions it is increasing. There is also a widening gap between the living standards of this quarter and those of the more privileged who enjoy rising standards of living. There is, however, an increasing international commitment to ensure that the poor share the benefits of economic expansion and social development, and in many countries special attention is now being paid to those living in absolute poverty and those who are disadvantaged as a result of discrimination, age, disability or infirmity (Box 25).

Both the absolute poor and the non-poor are trapped in a situation where economic growth and social development are interdependent. Low incomes mean limited capacity to save and invest, limited means for obtaining health services, high risk of personal illness, limitations on mobility, and limited access to education, information and training. Poor parents cannot provide their children with the opportunities for better health and education to improve their lot. Lack of motivation, hope and incentives creates a barrier to growth, and poverty is passed from one generation to the next. To rise out of poverty, the poor need the enhanced opportunities provided by faster economic growth as well as improved ability to respond to the opportunities available.

The central goal of development is increasingly recognized as the strengthening of human resources so

Box 25. Vulnerability reduction – A new approach

The World Health Report 1995 – Bridging the gaps drew attention to the widening gap between the health of privileged and underprivileged groups and concluded that poverty is the world's "deadliest disease". Noting that health and socioeconomic development are inextricably linked, the report also presented compelling arguments for focusing on the needs of vulnerable groups as a strategy for achieving sustainable human development.

The practical relevance of this strategy was demonstrated in late 1997, when WHO inaugurated the Mediterranean Centre for Vulnerability Reduction and thus formally launched a new approach to the prevention and management of major risks in vulnerable groups. The approach recognizes that certain communities are at "chronic" risk of emergencies due to factors that range from geographical location and climate, through the proximity of dams, industry, and other technological hazards, to poverty and the social exclusion it imposes.

While some of these factors cannot be altered, communities can nonetheless be helped to protect themselves, to cope and recover, and thus to prevent risks from turning into emergencies, and emergencies into disasters. The approach aims, in short, to stop the downward spiral of adverse event, emergency relief, dependence, withdrawal of short-term aid, deterioration of conditions, increased vulnerability, emergencies, and recurrence of disaster, with even worse results.

Although comparatively new, vulnerability reduction is firmly rooted in what WHO, the United Nations Development Programme, and other development agencies have learned about the dangers of fragmented sectoral assistance and the advantages of seeking long-term results.

The approach draws on strategies that are known to work. Efforts to reduce vulnerability and to manage risks

are fully compatible with the principles of sustainable human development. Both rely on participatory techniques applied to local communities at risk. Both are closely linked to environmental concerns and adopt people-centred strategies. Both acknowledge that the best help is self-help, and both aim to achieve community self-reliance through decentralized and integrated multisectoral approaches.

The Mediterranean Centre for Vulnerability Reduction was created to serve as a regionwide technical institution and centre of reference and excellence for the Mediterranean basin. The Centre's primary concern is to develop the technical approaches and programmes needed to help communities at risk to strengthen their own capacity for vulnerability reduction and risk management.

The scope of activity includes the following types of risks:

- epidemics caused by infectious diseases;
- technological risks, including chemical and radiological hazards;
- natural risks, such as floods, earthquakes, cyclones, and landslides;
- societal risks, such as those caused by social exclusion and extreme poverty.

Tunisia, which provides the Centre's premises and infrastructure, has close links to the concept of vulnerability reduction and nationwide experience in its practical application. In recent years, the entire Tunisian population has mobilized support for a wide-ranging initiative aimed at fighting poverty and eradicating social exclusion by the year 2000. In the view of the government, such a programme, accompanied by broad popular support, represents the surest strategy for preventing social instability, which so often has its roots in inequalities, social exclusion, and extreme poverty.

as to improve education, health and productivity. The economic and social benefits of literacy are obvious. The cost to society of preventable illness and premature death is both economic and personal. Moreover, when all groups do not share equally in opportunities, the cost is borne not only by those discriminated against but by society as a whole. For this reason,

policies directed at strengthening human resources, improving health and enhancing interaction on the basis of equity are the key to economic growth and poverty reduction.

Poverty reduction for those of working age has focused on increasing productivity through investment in human and physical capital, leading to higher levels of output and in-

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come. The connection between education, health and earning capacity is better understood. Policies are being formulated to prepare the unskilled for better jobs, augment the supply of scarce skills, upgrade the training of the poor, improve the functioning of the labour markets and improve the health status of the population of working age. For the full benefits of such policies to be reaped by the poor, a major effort may be needed to upgrade schools, clinics, sanitation and other public services.

Recent evidence suggests that raising literacy levels and reducing mortality and ill-health rates is more difficult for countries with a lower level of GNP per capita. Even so, policy interventions have been launched to increase literacy and survival prospects, even at low levels of per capita income. Raising incomes through faster economic growth, combined with appropriate social development policies, has contributed to a decline in poverty in the world and even in some regions, to

an elimination of the manifestations of poverty.

National strategies for combating absolute poverty should include a modernization process that could accelerate and sustain long-term growth of labour productivity and enhance individuals' health and knowledge potential to contribute to society. To ensure that workers' output and earnings increase, the labour force must be better educated and more adaptable and be supported by improved technology and management, all of which require investment in human and physical capital.

Above all, good governance – the rule of law, equity, participation by all in society and the provision of efficient basic services – is essential if growth is to take place rapidly and provide maximum benefit for the poor. At the community level, implementation of poverty programmes should be in support of the activities carried out by local and self-governing institutions and should facilitate local involvement to raise productivity and the material conditions of the poor.