PROGRESS FOR CHILDREN

A REPORT CARD ON IMMUNIZATION

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For every child
Health, Education, Equality, Protection
ADVANCE HUMANITY

unicef

IMMUNIZATION REMAINS VITAL TO CHILD SURVIVAL

The world has just 10 years in which to fulfil the promise of the Millennium Declaration and the Millennium Development Goals. These Goals provide a blueprint for human progress on the most important issues of our time – including hunger and poverty, child and maternal health and survival, education, gender equality, combating deadly diseases and protecting the environment. Making headway on an individual goal can yield results on others, and an integrated approach to interventions is the surest pathway to sustainable development.

Children are at the heart of the Millennium Development Goals, for they are the most vulnerable in society and their needs are often the greatest. Achieving the Goals will mean a better future for children and a more secure world in which they will live. Yet, for all the progress that has been made in our world of ingenuity and innovation, it is unconscionable that there are still 10.6 million children who die each year, mainly of preventable causes.

Few things yield greater benefits for the health, well-being and survival of children than immunization. This report card – part of a series in which UNICEF monitors progress for children in the lead-up to 2015 – measures the world's performance in this critical area.

The benefits of immunization are indisputable. It is a proven, cost-effective means of reducing morbidity, disability and mortality among children. In 2003 alone, it prevented more than 2 million deaths. Immunization also stimulates the development of health systems and represents a sound economic investment, contributing to better health and to poverty reduction.

The consequences of failing to sustain and enhance immunization cannot be overstated: the re-emergence of diseases that were formerly under control, the spread of diseases to countries where they had already been eliminated, and the continuing toll taken by death and disability upon millions of children in developing countries.

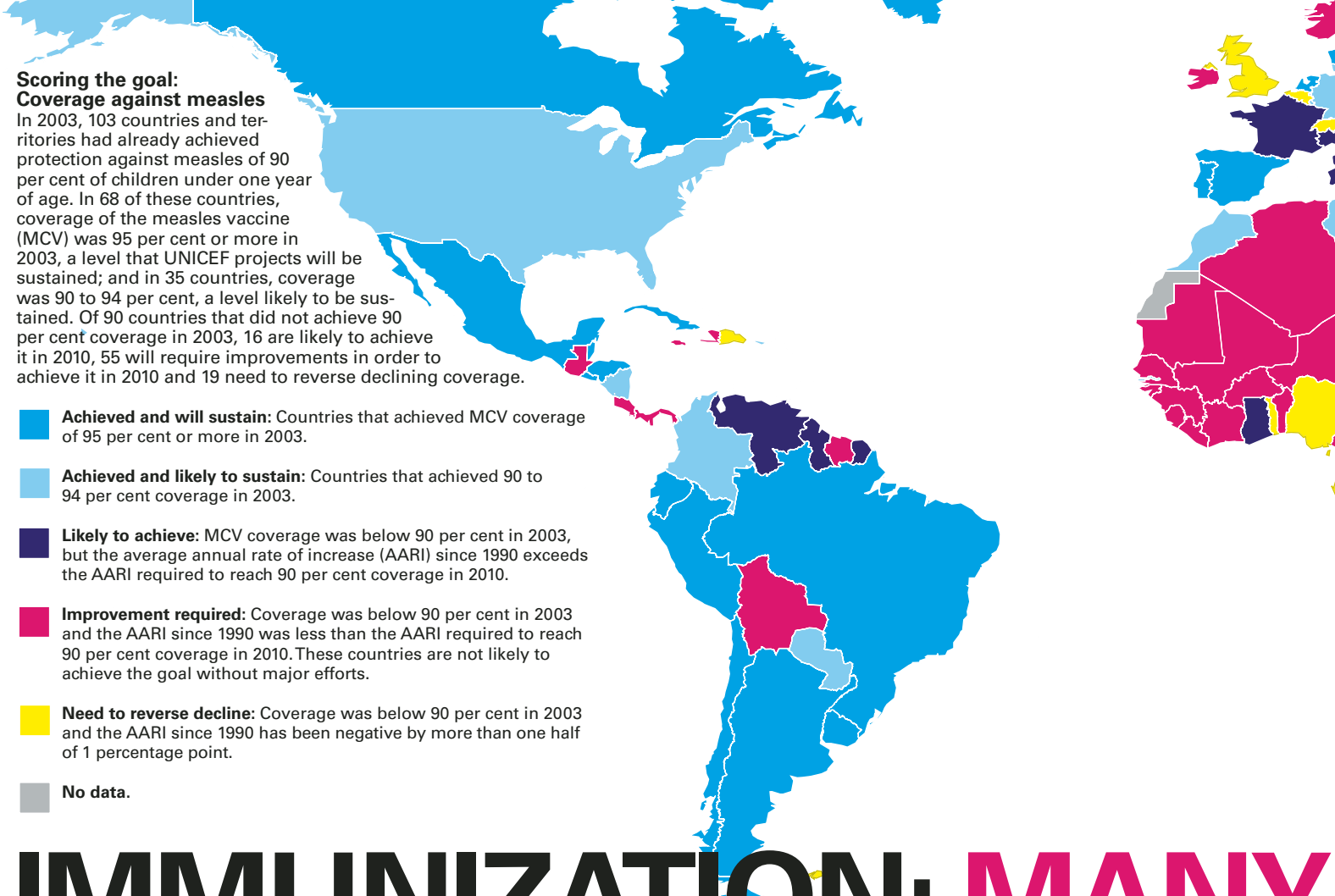
Vast progress was made during the 1980s, leveling off in the 1990s. Recapturing that momentum is vital to one critical Millennium Development Goal – reducing under-five mortality by two thirds between 1990 and 2015 – and will undoubtedly make significant contributions to others.

In the years since the Millennium Declaration, new vigour has been invested in the drive towards universal immunization. Several global partnerships have had conspicuous success in mobilizing substantial resources for immunization and in bringing together both the public and private sectors in the pursuit of shared goals.

In addition, in May 2005 the World Health Organization and UNICEF launched a Global Immunization Vision and Strategy for the period 2006 to 2015. More recently, UNICEF joined others to announce a Partnership for Maternal, Newborn and Child Health, which will galvanize valuable leadership on these issues.

We hope that these partnerships, and this infusion of new energy, will make significant and sustained contributions to child survival. The children of the world are counting on us all.

Ann M. Veneman
Executive Director, UNICEF



Scoring the goal: Coverage against measles
In 2003, 103 countries and territories had already achieved protection against measles of 90 per cent of children under one year of age. In 68 of these countries, coverage of the measles vaccine (MCV) was 95 per cent or more in 2003, a level that UNICEF projects will be sustained; and in 35 countries, coverage was 90 to 94 per cent, a level likely to be sustained. Of 90 countries that did not achieve 90 per cent coverage in 2003, 16 are likely to achieve it in 2010, 55 will require improvements in order to achieve it in 2010 and 19 need to reverse declining coverage.

- **Achieved and will sustain:** Countries that achieved MCV coverage of 95 per cent or more in 2003.
- **Achieved and likely to sustain:** Countries that achieved 90 to 94 per cent coverage in 2003.
- **Likely to achieve:** MCV coverage was below 90 per cent in 2003, but the average annual rate of increase (AARI) since 1990 exceeds the AARI required to reach 90 per cent coverage in 2010.
- **Improvement required:** Coverage was below 90 per cent in 2003 and the AARI since 1990 was less than the AARI required to reach 90 per cent coverage in 2010. These countries are not likely to achieve the goal without major efforts.
- **Need to reverse decline:** Coverage was below 90 per cent in 2003 and the AARI since 1990 has been negative by more than one half of 1 percentage point.
- **No data.**

IMMUNIZATION: MANY

Vaccines have saved the lives of millions of children over the last three decades. But there are still millions more who are unprotected by immunization.

Millennium Development Goal (MDG) 4 is to reduce child mortality by two thirds between 1990 and 2015. Immunization plays a key part in this, as well as contributing significantly to MDG 5 – improving maternal health and reducing maternal mortality, and MDG 6 – combating HIV/AIDS, malaria and other diseases.

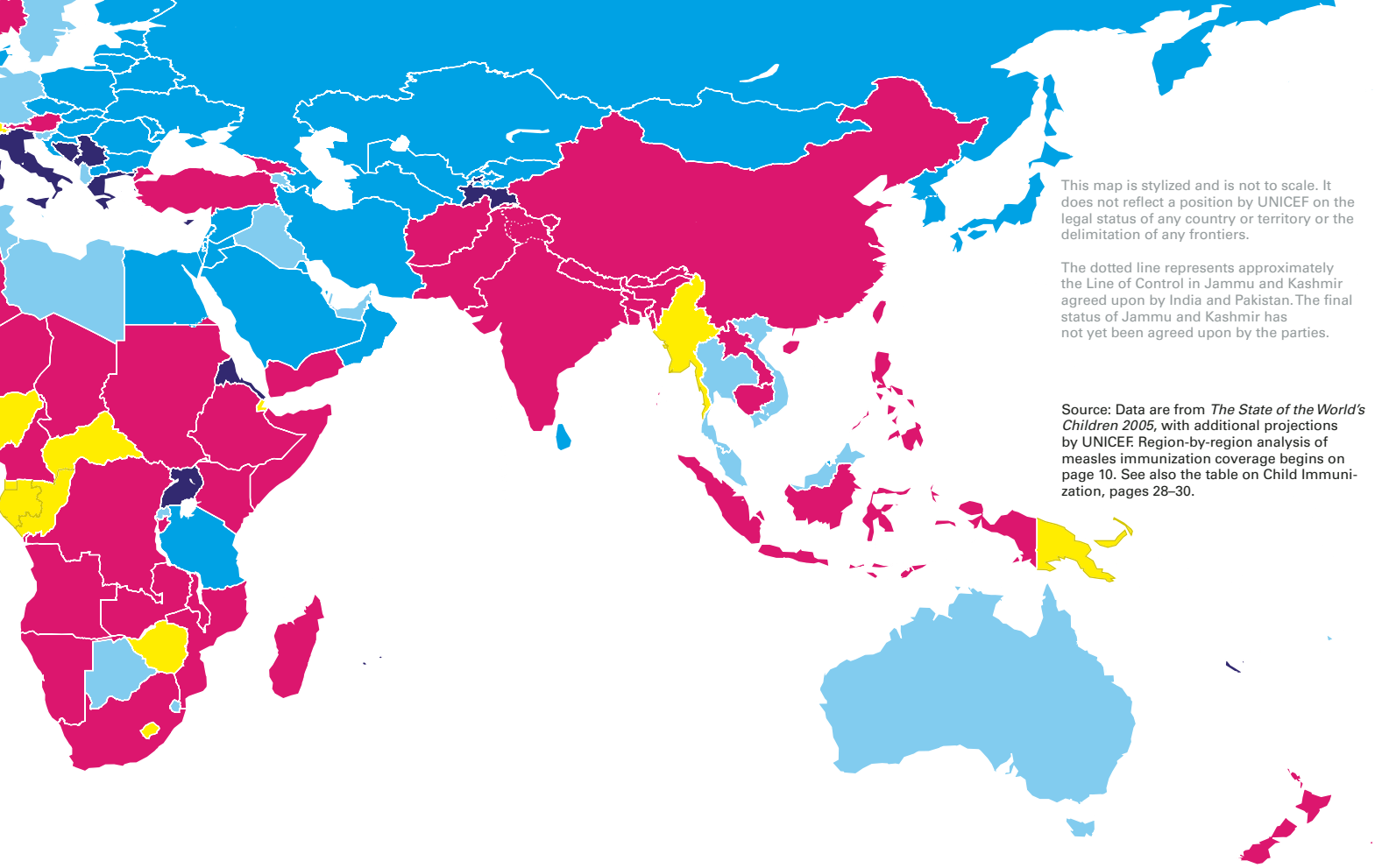
Immunization has saved the lives of millions of children in the three decades since the launch of the Expanded Programme on Immunization (EPI) in 1974. Yet over 27 million children below the age of one and 40 million pregnant women worldwide are still overlooked by routine immunization services.[1]

As a result, vaccine-preventable diseases are estimated to cause more than 2 million deaths every year. These include 1.4 million deaths of children under five, and of these, the 395,000 who currently die from measles, the 290,000 who fall to pertussis (whooping cough) and the 257,000 who perish as a result of neonatal tetanus.[2]

A further 1.1 million young children die from infections of pneumococcus and rotavirus, for which vaccines will soon be available. It is expected that improvements and cost reductions in the current vaccines will make them available in the near future to all children who need them.

The effectiveness of immunization is thoroughly proven. Unlike most other health and development interventions, immunization does not simply raise the chances that children will resist a disease: it virtually guarantees they will.

Each year since 1990, routine immunization with vaccines against diphtheria, pertussis and tetanus has reached more than 70 per cent of all children, an extraordinary accomplishment considering that more than 130 million children are born each year and need to be immunized. Combined with accelerated disease control programmes, routine services have contributed significantly to child survival, averting more than 2 million deaths a year and preventing countless episodes of illness and disability.



This map is stylized and is not to scale. It does not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Source: Data are from *The State of the World's Children 2005*, with additional projections by UNICEF. Region-by-region analysis of measles immunization coverage begins on page 10. See also the table on Child Immunization, pages 28–30.

MORE LIVES TO SAVE

Immunization also provides a network and a mechanism by which health services can make contact with the children and women whom they need to reach with other interventions, such as vitamin A supplementation, the delivery of insecticide-treated bednets to combat malaria, and deworming medicine.

Such an integrated approach is not only the most effective way to protect the health of all children, including the most marginalized. It is also a cost-effective way of building up health systems through which the overall impact of immunization on child survival becomes far greater than the sum of its parts.

PROGRESS TOWARDS IMMUNIZATION GOALS

The year 2005 is a milestone in which to assess not only progress towards the specific immunization goals and the MDG of reducing under-five mortality by 2015, but other international goals and targets for immunization as well.

At the UN General Assembly Special Session on Children in 2002, the international community adopted the specific target of ensuring by 2010 the full immunization of children under one year of age at 90 per cent nationally, with at least 80 per cent coverage in every district or equivalent administrative unit. Other key immunization targets formed part of the 'World Fit for Children' agenda:

- Reduce measles deaths by half by 2005
- Certify the global eradication of polio by 2005
- Eliminate maternal and neonatal tetanus by 2005
- Extend the benefits of new and improved vaccines and other preventive initiatives to children in all countries.

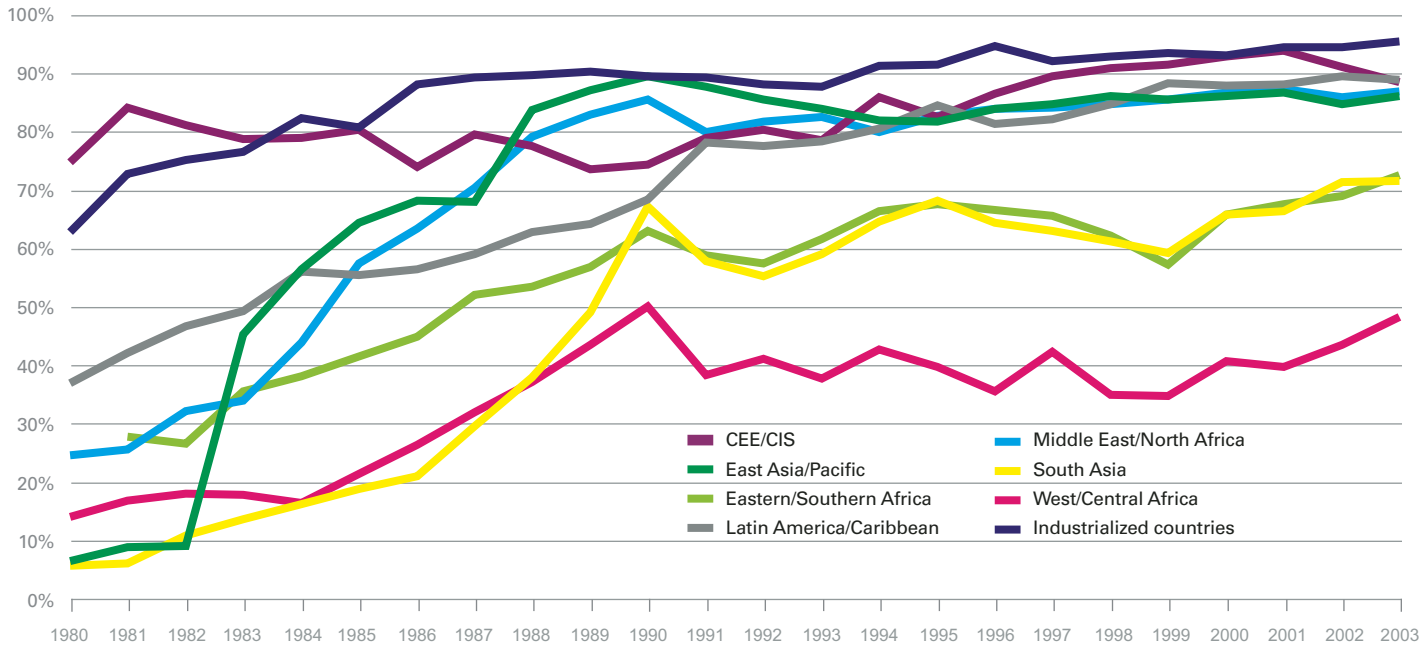
National and district coverage (DPT3)

Global immunization coverage increased dramatically during the 1980s but then levelled out during the 1990s. An estimated 20 per cent of children under one year of age in 1980 were immunized with DPT3 (three doses of the combined vaccine against diphtheria, pertussis and tetanus); coverage

DPT3 coverage, 1980-2003

Coverage of the DPT3 vaccine is lower in Eastern/Southern Africa, South Asia and West/Central Africa than in other regions.

Source: *The State of the World's Children 2005.*



rose to 75 per cent by 1990 and remained between 70 per cent and 75 per cent until 2000, keeping up with population growth. In 2003 coverage was slightly higher: 78 per cent, although well short of the 2010 target of 90 per cent.[3]

The global data refer to annual routine immunization coverage levels of DPT3, which is a proxy indicator. (Routine immunization against measles is analysed region by region beginning on page 10.)

With coverage in the mid- to high-80s per cent, three regions – East Asia/Pacific, Latin America/Caribbean and Middle East/North Africa – are inching toward the 90 per cent target for DPT3; coverage in the Central and Eastern Europe/Commonwealth of Independent States (CEE/CIS) region has declined to 88 per cent in 2003 from a high of 91 per cent in 1988. Coverage in South Asia (71 per cent) and sub-Saharan Africa is substantially lower, and of the two African regions, Eastern/Southern Africa (72 per cent) has performed better than West/Central Africa (48 per cent).

In some developing countries – such as Bangladesh, Bolivia and Brazil – immunization rates increased substantially in the 1990s. In others, particularly in sub-Saharan Africa where conflict and natural disasters have caused large population displacements, coverage plummeted, leaving millions of young children vulnerable to disease. In addition, the political and economic changes that followed the break-up of the Soviet Union led to tumbling immunization rates in Central and Eastern Europe and Central Asia. One result was a major epidemic of diphtheria in the early 1990s, in which 30,000 people died.[4]

Forty-one developing countries have now met the target for 2010 established at the UN Special Session on Children of 80 per cent coverage in every district for DPT3. Many other countries, in Africa and elsewhere, have made progress towards increasing coverage in their lowest-performing districts and developed strategies for accessing the hard-to-reach with immunization.

Constraints of health delivery systems; a lack of needed human and financial resources; rapid turnover of trained health workers, especially at district levels; weak supervision and use of data; competing health priorities; as well as the inability of some public health programmes to fully reach very poor families, minorities and those living in remote locations or amid conflict, these are some of the reasons why routine coverage has plateaued.

To improve coverage, national and district planning needs to target underserved and unreached populations in all areas as a priority and be accompanied by specific strategies and sufficient resources to reach them. Many countries, for example, use the Reach Every District (RED) approach, which seeks greater equity and availability of routine immunization services. Most countries use a combination of routine services and supplementary activities.

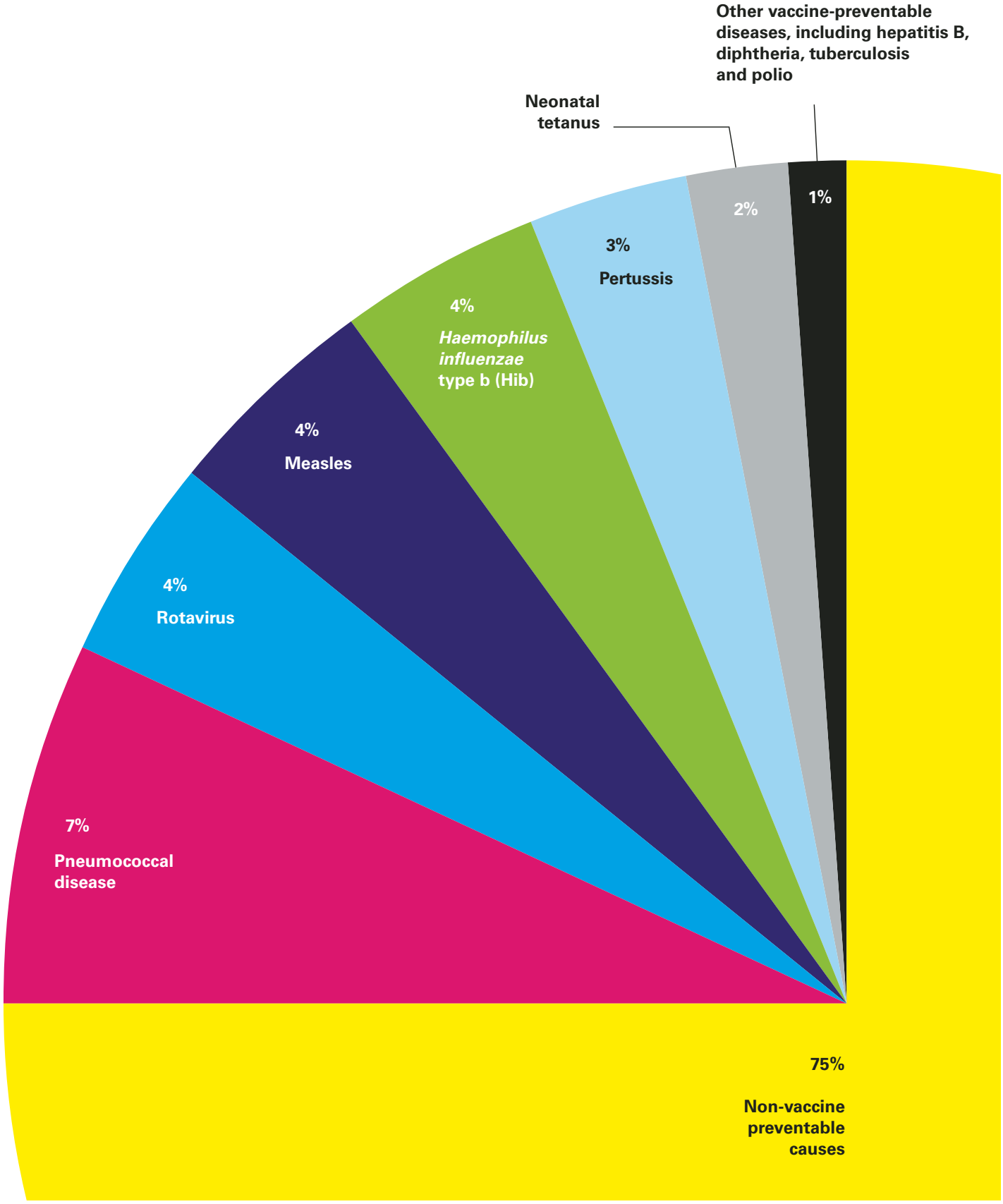
Measles mortality reduction

Measles is one of the biggest single killers among the vaccine-preventable diseases, causing an estimated 530,000 deaths in 2003, with 395,000 of these in children under five: around 4 per cent of under-five deaths globally.[5] But progress has been made in reducing the number of child

Under-five deaths by cause, 2000-2003

Vaccine-preventable diseases cause an estimated 1.4 million deaths in children under five each year, with a further 1.1 million deaths from pneumococcal disease and rotavirus. Vaccines against pneumococcal disease and rotavirus may be widely available in developing countries by 2008–2009.

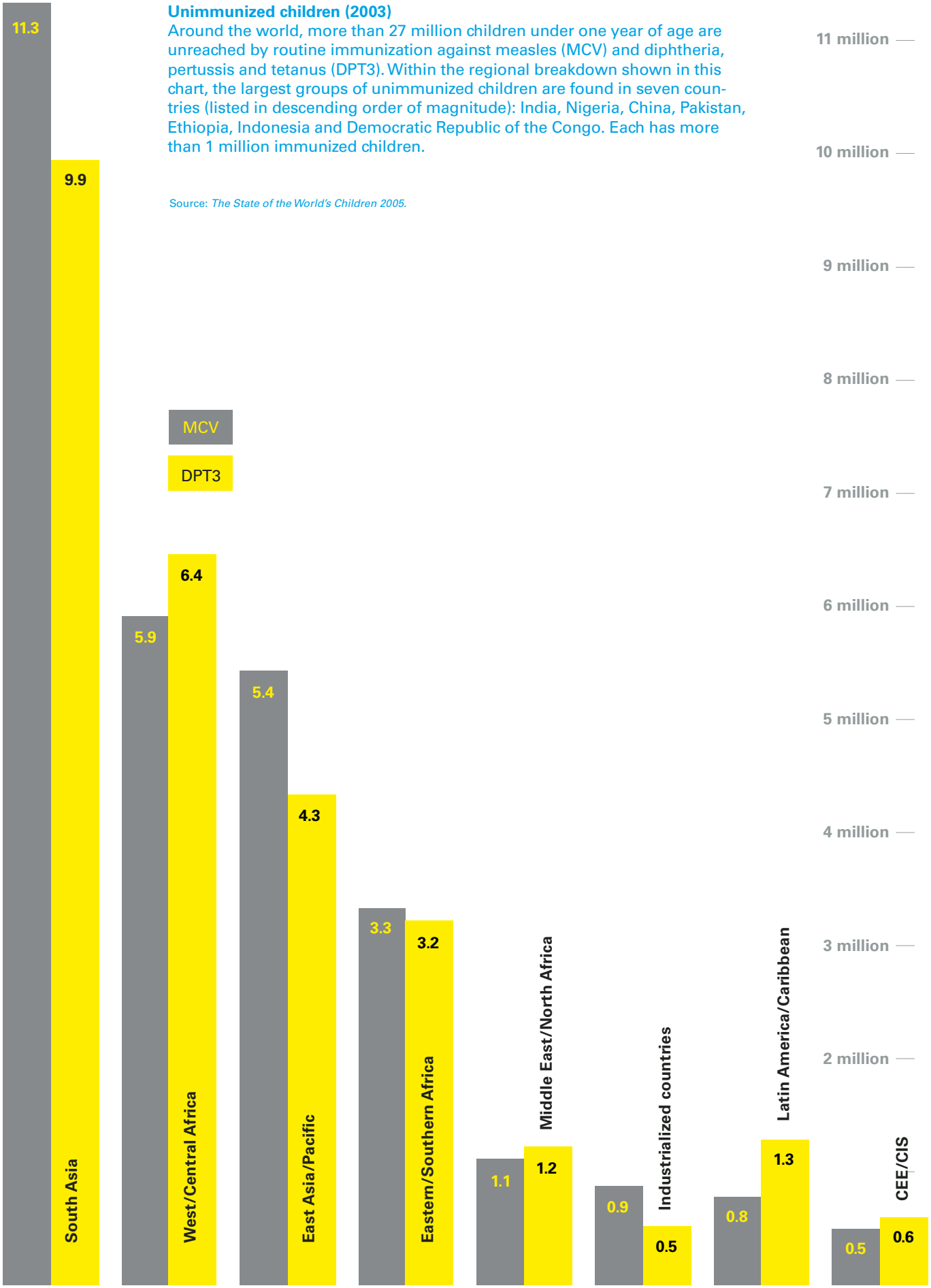
Sources: *World Health Report 2005* and 'Facts and Figures: Global Immunization Data'.



Unimmunized children (2003)

Around the world, more than 27 million children under one year of age are unreached by routine immunization against measles (MCV) and diphtheria, pertussis and tetanus (DPT3). Within the regional breakdown shown in this chart, the largest groups of unimmunized children are found in seven countries (listed in descending order of magnitude): India, Nigeria, China, Pakistan, Ethiopia, Indonesia and Democratic Republic of the Congo. Each has more than 1 million immunized children.

Source: *The State of the World's Children 2005.*



lives lost to measles: There were an estimated 873,000 deaths from measles worldwide in 1999.[6] In short, the worldwide goal of reducing measles mortality by half between 1999 and 2005 is on track.

Much of this global success is due to supplementary activities: frequent, accelerated programmes and campaigns at the national level targeting children of a wide age range – up to 15 years old – and reaching out to marginalized groups, including children affected by emergencies. The Measles Initiative[7] has supported supplementary activities in priority countries in sub-Saharan Africa and elsewhere.

Africa is on track to meet the goal. Measles deaths fell to 282,000 in 2003 from 519,000 in 1999, a 46 per cent reduction. National measles campaigns were key to this achievement, immunizing an additional 200 million children in 2001–2004.[8]

Polio

In 1988, when the World Health Assembly resolved to eradicate polio, 350,000 children were being crippled by the virus in 125 countries. Since then, the incidence of polio has been slashed by 99 per cent, thanks to mass immunization campaigns that have brought the oral polio vaccine to more than 2 billion children. In 2004, only 1,255 cases were reported worldwide.[9] The Americas were certified polio-free in 1994, the Western Pacific in 2000 and Europe in 2002.

Six countries have yet to stop the transmission of the indigenous wild poliovirus: Afghanistan, Egypt, India, Niger, Nigeria and Pakistan. Strong progress is being made, but challenges remain. In a setback in 2004, a polio outbreak originating in West Africa spread to several countries that were polio-free; its advance was fuelled by low immunity levels and a breakdown of services caused by civil conflict in some countries of the region. Countries as far afield as Indonesia and Yemen have reported cases linked to the outbreak.

Achieving polio eradication will depend upon countries' capacity to launch focused immunization campaigns, including massive, targeted social mobilization activities, to stop any cases from spreading, especially in the poorest areas where immunity gaps persist. Vital in that regard is the support of public- and private-sector partners in the Global Polio Eradication Initiative: the World Health Organization (WHO), Rotary International, the US Centers for Disease Control and Prevention, and UNICEF.

The polio goal will be reviewed in October 2005 by partners in the Global Polio Eradication Initiative. Once polio transmission has been stopped in every region, a strong, ongoing surveillance system must confirm three polio-free years have passed before global eradication can be certified.

Maternal and neonatal tetanus

With an estimated 257,000 neonatal tetanus deaths annually and 30,000 women dying each year from tetanus infection after they have given birth,[10] the goal to eliminate maternal and neonatal tetanus (MNT) – that is, to reduce incidence to less than 1 case per 1,000 live births at the national level and in all districts of a country – will not be achieved in 2005, not least because of uncertainties over future funding.

However, the number of countries still to eliminate MNT has been substantially reduced, from 90 in 1990 to 58 in 2003. Of these, 34 countries have initiated or expanded tetanus immunization activities in the past four years, leading to the effective protection of an estimated 46 million women and their newborn babies at risk in areas that are hard to reach.[11] Furthermore, MNT elimination in at least six additional countries – Eritrea, Malawi, Namibia, Rwanda, South Africa and Zimbabwe – has been provisionally validated. Ten other countries have completed elimination activities and their elimination status will be assessed and validated by 2006.[12]

Accelerated disease-control strategies for measles, polio and MNT have demonstrated that it is possible to reach the marginalized and excluded through analysing district performance data, microplanning and budgeting, and community-based communication strategies. Mortality reduction will also depend on strengthening routine immunization services in order to sustain the gains made.

New vaccines

The introduction of the hepatitis B vaccine has been very successful, with global coverage rates rising steadily. By April 2005, 158 countries had introduced the vaccine into their routine immunization programmes.[13] This major turnaround came about because disease burden data are now well-established and because of a sharp drop in cost.

Low-income countries received assistance for the purchase and delivery of hepatitis B vaccine from the Global Alliance for Vaccines and Immunization (GAVI), a public-private partnership, and its financing arm, The Vaccine Fund. GAVI's target is for all countries to introduce the vaccine by 2007.

Use of the conjugate vaccine against *Haemophilus influenzae* type b (Hib) is gradually increasing but still falls far short of what is needed, particularly in the poorest countries, again because of competing priorities at country level, lack of sustainable financing, high cost and low demand. By April 2005, 96 countries immunized children against Hib as part of their routine immunization programme.[14]

Vaccines against pneumococcal and meningococcal diseases and rotavirus are being improved. These vaccines have the potential to save millions of children from death and disability and may be more widely available in developing countries by 2008–2009.

New vaccines are far more expensive than the traditional vaccines, and most developing countries still lack the necessary financial and technical resources to introduce and sustain their use in routine immunization programmes. Expanding cold chain and delivery capacity, determining disease burdens and accurate forecasting present additional challenges.

In that regard, GAVI has had a large measure of success in mobilizing resources for countries seeking to introduce new and underused vaccines as part of its immunization programmes. Since it was launched in 2000, it has committed five-year grants totalling about $1.4 billion to 72 eligible countries for all supports.[15] A further challenge will be to ensure countries' continued financial sustainability in immunization with new vaccines once GAVI support ends.

THE WAY FORWARD

In May 2005, WHO and UNICEF launched the Global Immunization Vision and Strategy (GIVS) for 2006–2015 in response to the challenges described above. The aims and component strategies of GIVS fall into four broad areas:

1. Immunize more people against more diseases, through an appropriate mix of routine and campaign strategies, with unprecedented attention to targeting the unreached.

2. Introduce a range of newly available vaccines and technologies, focusing on promoting their development and supporting countries in evaluating need, planning and establishing priorities, and obtaining the necessary financing.

3. Provide a number of critical health interventions along with immunization, with emphasis on the role of immunization in strengthening health systems by building human resource capacity, improving logistics and securing financial resources.

4. Achieve a secure, equitable supply of resources for immunization through collaboration among governments, international organizations, donors and vaccine manufacturers in both industrialized and developing countries.

GIVS builds on the decades-long close collaboration between WHO, UNICEF, host governments and other partners. Guiding principles include equity in access to vaccines; a strong, district-based service delivery; sustainability through capacity-building, both technical and financial; government responsibility; and accountability of stakeholders. Specific activities will be undertaken in accordance with national priorities and funding status.

Clearly, more resources are needed if such a vision is to be realized. About $1 billion was spent on routine immunization with traditional vaccines in 2000; that cost is expected to double by 2006, both because of the introduction of new vaccines and because of the push to reduce mortality further through expanded use of existing vaccines. By 2015, if all goals have been reached, it is estimated that the annual cost of immunization will be triple the 2006 figure — about $6 billion.[16]

But what the world will gain in return for this investment – in terms of lives saved and disability avoided – is priceless. By 2015, immunization could be preventing 4 to 5 million child deaths each year.[17] It is increasingly being combined with other health interventions during child health days, outreach services and campaigns. For these reasons, immunization continues to be one of the most cost-effective health investments.

The last decade has seen the emergence of innovative financing mechanisms: the Pan American Health Organization's Vaccine Revolving Fund, ARIVA (Support for the Strengthening of Vaccine Independence in Africa), the Vaccine Independence Initiative, The Vaccine Fund (GAVI) and the inclusion of immunization in individual countries' Poverty Reduction Strategy Papers. In the near future, new broad-based funding mechanisms – such as the front-loading of immunization support through international financing facilities – may stimulate further expansion.

The contributions of GAVI, the Global Polio Eradication Initiative and the Measles Initiative, among other global partnerships, have already been acknowledged in this report card. Local governments, non-governmental organizations, traditional and religious leaders, and civil society organizations are critical allies on the ground, especially in efforts to reach the hard to reach, improve district performance, leverage resources and achieve optimum coordination.

Increasing the coverage of the existing and new vaccines that can contribute to reduced child mortality will continue to be a challenge both for the governments of developing countries and their partners in international organizations. But the challenge is by no means insurmountable. Now is not the time to balk at the extra cost of universal immunization but rather to seize on it as the most feasible, cost-effective way of reducing child deaths – thereby, bringing one of the key Millennium Development Goals within reach.

A NOTE ON THE REGIONAL ANALYSES

The regional analyses beginning on the next page focus on routine coverage of the measles-containing vaccine (MCV) rather than DPT3 as the primary indicator of progress towards the goal of 90 per cent immunization coverage nationally.

Measles immunization coverage – along with under-five mortality and infant mortality rates – is one of the key indicators used to track progress towards MDG 4. Measles is also one of the largest killers of children under five among the vaccine-preventable diseases. Routine coverage is crucial to prevent measles deaths in subsequent birth cohorts, so it is an important indicator.

On the whole, both the Latin America/Caribbean and CEE/CIS regions, as well as the industrialized countries, have achieved the goal of 90 per cent coverage against measles and are likely to sustain these levels. Middle East/North Africa is also likely to improve quickly enough to meet the target by 2010. But East Asia/Pacific will need to make significant improvements, while South Asia and sub-Saharan Africa are substantially behind and would have to improve by average annual rates of increase of 3.2 percentage points and 4.1 percentage points, respectively, in order to reach 90 per cent coverage by 2010.

The broad brushstroke regional averages do not tell the whole story, however, missing out both success stories within underperforming regions and pockets of failure within high-achieving areas. Both Latin America/Caribbean and CEE/CIS, for example, include individual countries that give cause for concern, while there has been substantial progress in many countries in Africa.

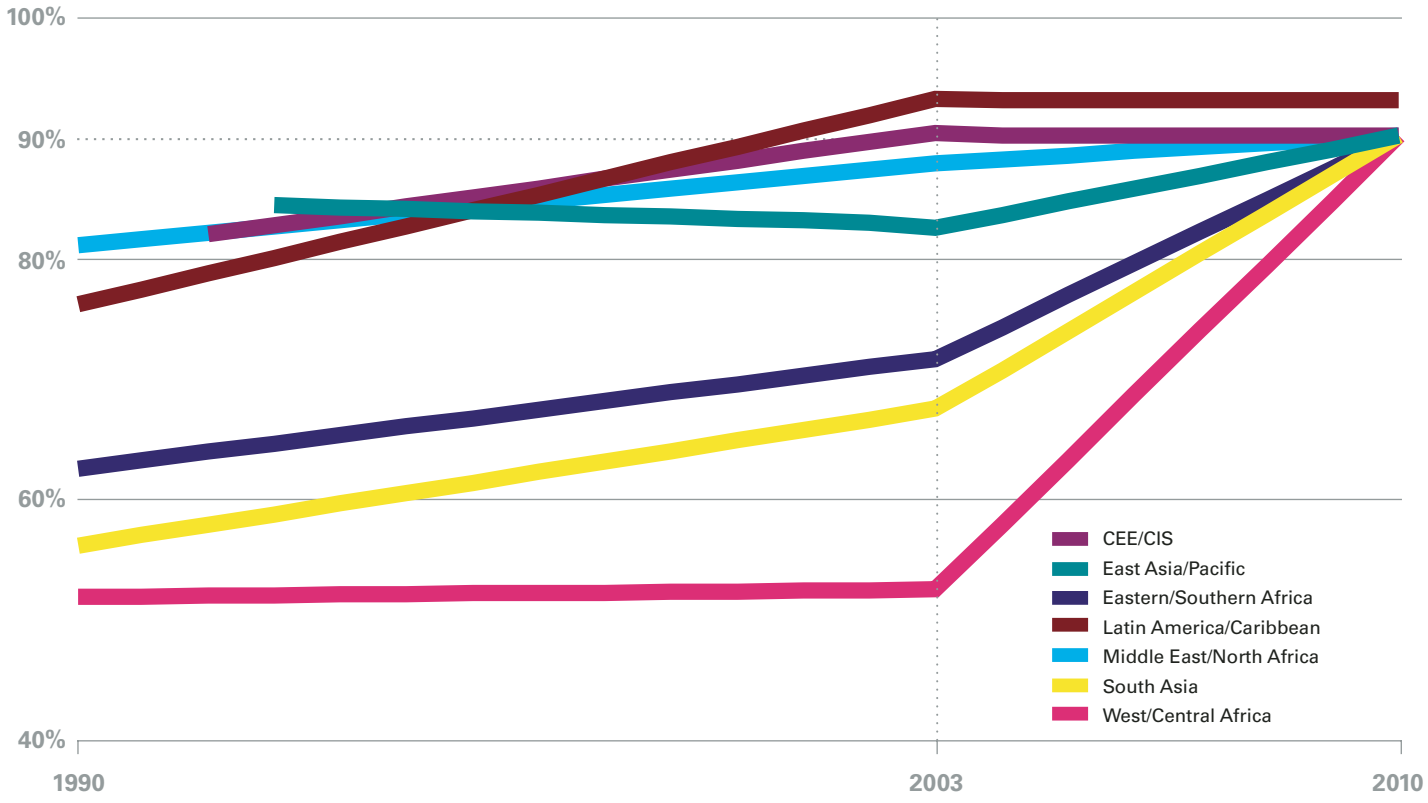
Routine coverage does not reflect the enormous numbers of children and women who are reached through supplementary immunization activities – special campaigns to reduce mortality and morbidity, especially among groups missed by routine programmes.

The success of non-routine measles immunization campaigns – described in the section on measles mortality reduction, above – illustrates that routine measles coverage does not alone predict a reduction in child deaths from vaccine-preventable diseases.

Trends in routine MCV coverage, 1990–2010

Region-by-region progress toward 90 per cent coverage of measles-containing vaccine. The trend lines for 1990–2003 show observed coverage levels. The trend lines for 2004–2010 show the average annual rate of increase required to meet the goal in 2010.

Source: *The State of the World's Children 2005.*



Higher rates of immunization are needed.

Eastern/Southern Africa immunizes 71 per cent of its children against measles through routine services; coverage has increased at an average annual rate of 0.7 percentage points between 1990 and 2003. A long distance remains if the goal of 90 per cent coverage is to be met. The average rate of increase will need to rise by 2.6 percentage points each year until 2010.

Higher rates of immunization are desperately needed. With 156 child deaths per 1,000 live births, Eastern/Southern Africa has a higher rate of under-five mortality than any world region except West/Central Africa.

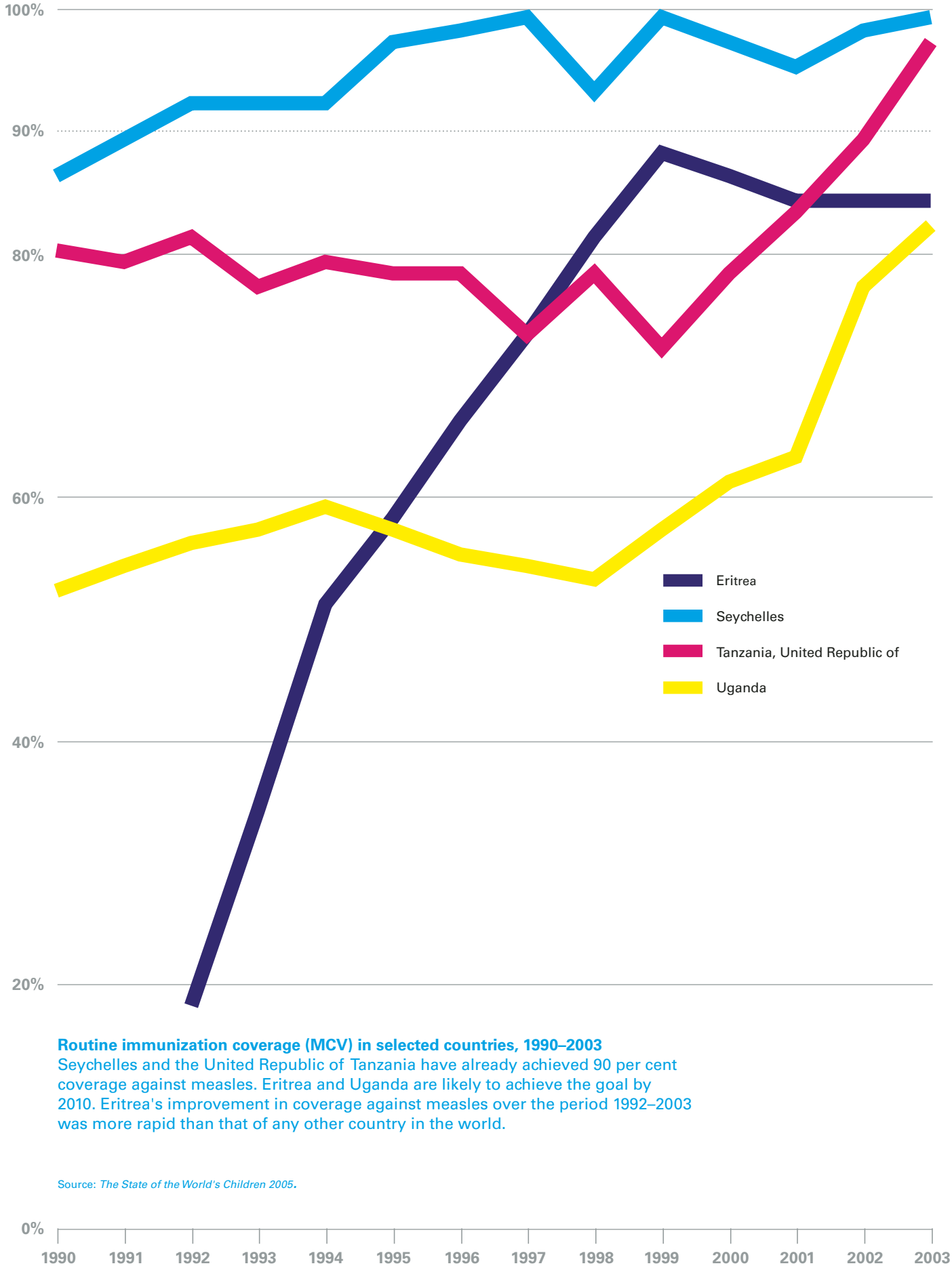
In coverage against measles, the best performing countries in the region are Seychelles, which immunizes 99 per cent of its children, and the United Republic of Tanzania, which immunizes 97 per cent.

Eritrea and Uganda have not yet reached the goal but are considered likely to do so by 2010. Eritrea deserves particular credit since, as recently as 1992, measles immunization had reached only 18 per cent of children. Yet in the ensuing decade, coverage increased at a phenomenal average rate of 6 percentage points per year – by far the most rapid improvement in the world over that period. Closer attention shows that Eritrea achieved similar impressive growth in coverage for all major vaccines by 1999 but that coverage has diminished slightly since.

The other 14 countries in the region will need to improve their average annual rate of increase if they are to reach the goal of 90 per cent measles immunization coverage. In four countries – Angola, Ethiopia, Madagascar and Somalia – improvement will have to be substantial: an average 4 percentage points or more per year. Somalia, which has farthest to go, would need an even more dramatic transformation than Eritrea to achieve 90 per cent coverage; routine coverage was at 40 per cent in 2003.

To date, the WHO/UNICEF Reach Every District (see page 4) approach to immunization has been launched in about half of the countries of the region.

EASTERN/SOUTHERN AFRICA: A LONG ROAD TO TRAVEL



Routine immunization coverage (MCV) in selected countries, 1990–2003
Seychelles and the United Republic of Tanzania have already achieved 90 per cent coverage against measles. Eritrea and Uganda are likely to achieve the goal by 2010. Eritrea's improvement in coverage against measles over the period 1992–2003 was more rapid than that of any other country in the world.

Source: *The State of the World's Children 2005*.

No improvement was registered between 1990 and 2003.

West/Central Africa needs to take the most urgent action to improve immunization coverage. It has by far the lowest coverage in the world – just 52 per cent of children in 2003 were reached with measles vaccine through routine immunization services – but it also failed to register any improvement at all between 1990 and 2003.

The region also has by some distance the highest under-five mortality rate, with 193 child deaths per 1,000 live births, compared with an average of 87 per 1,000 live births for all countries in the developing world.

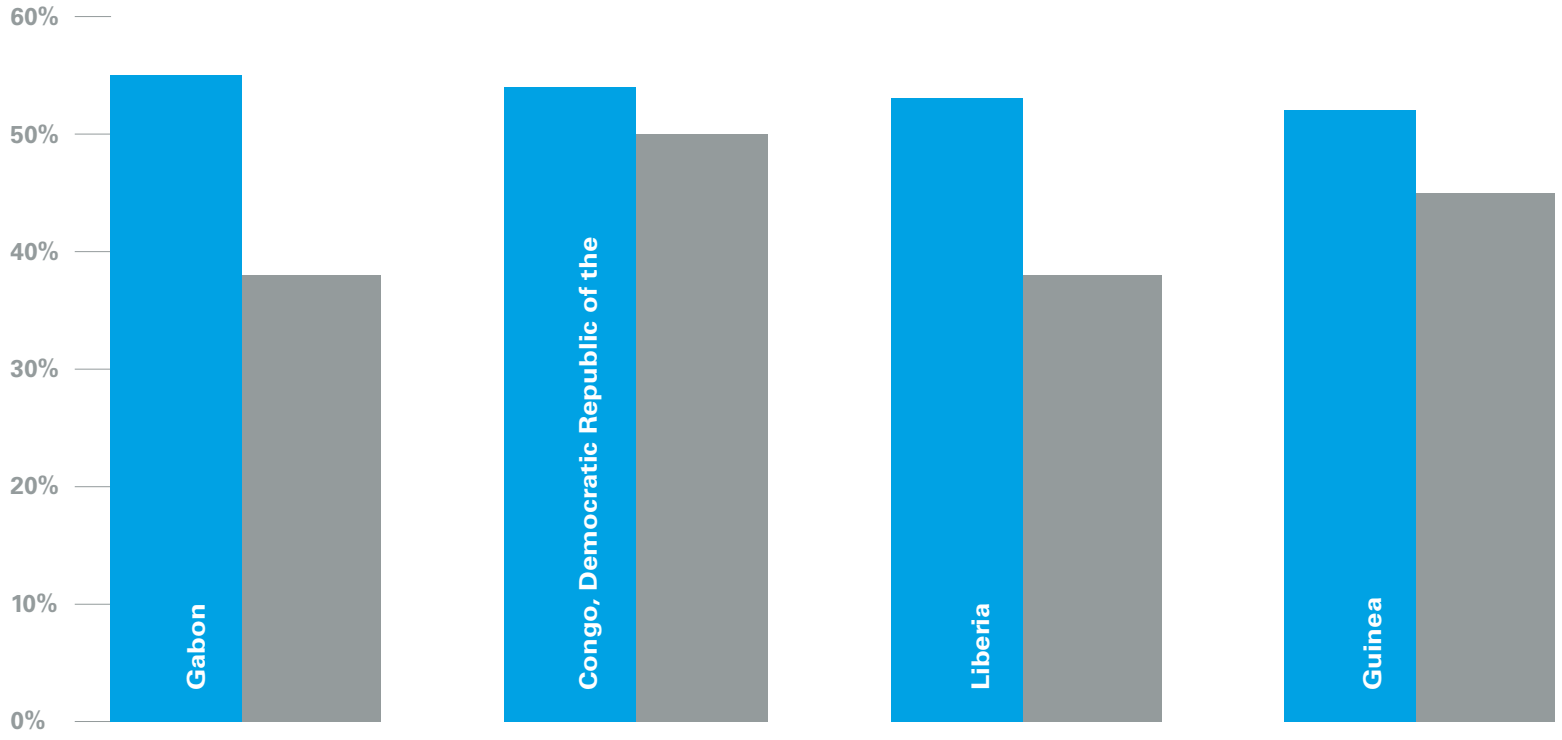
Only three of the region's countries are likely to achieve the goal of 90 per cent immunization against measles – Gambia, which has already attained the target, plus Ghana and Sao Tome and Principe, which are considered on course to achieve it by 2010. All the other 21 countries require major improvements.

Routine measles immunization coverage is just 35 per cent in the Central African Republic and Nigeria, making them the two countries in the world with the lowest coverage against measles; the average annual rate of increase needed in both countries will be 7.9 percentage points. In both these countries, moreover, along with Burkina Faso, Cape Verde, Congo, Equatorial Guinea, Gabon and Togo, immunization coverage actually declined between 1990 and 2003.

The situation is particularly disturbing in Nigeria because of that country's large population: with 2.9 million children under one year of age unprotected against measles, it has more unimmunized children than any other country in the world except India.

Emergencies, instability and insecurity in half of the region's countries are major constraints to developing regular immunization activities. Another constraint is lack of funds to finance vaccines for routine immunization. Of the 24 countries in the region, eight (Benin, Central African Republic, Congo, Democratic Republic of the Congo, Equatorial Guinea, Guinea-Bissau, Liberia and Togo) depend entirely on external donors to finance the traditional EPI vaccines and to support immunization activities.

WEST/CENTRAL AFRI
REQUIRED



A lack of health personnel to implement immunization activities at district and peripheral levels is another major cause of low performance, especially in countries covering large geographic areas and in which there are difficulties in reaching remote areas.

Nevertheless, there have been many positive achievements. Notable improvements over the period 1990 to 2003 include Niger, with 3 percentage points gained in measles immunization coverage each year, and Mauritania, with 2.5.

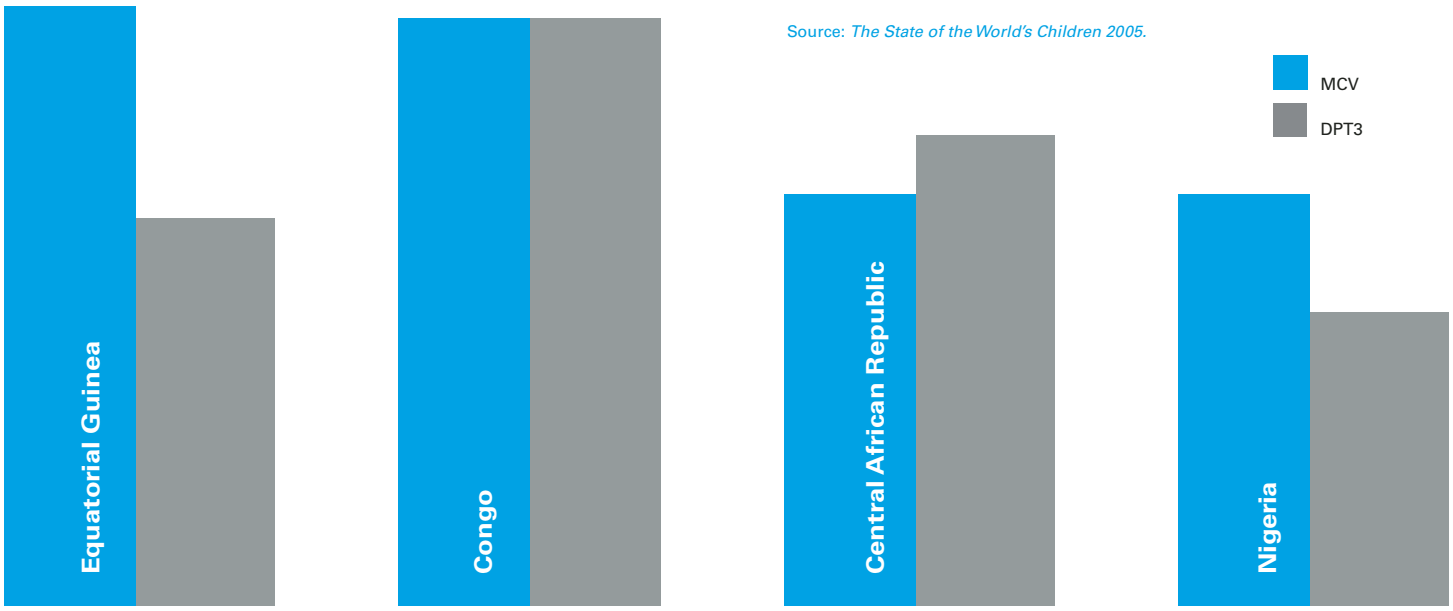
The Measles Initiative supported nationwide campaigns in 2004 in an effort to supplement low routine immunization coverage and speed mortality reduction. Burkina Faso, Mali, Mauritania and Togo all achieved near universal coverage.

The integrated health campaign targeting children under five in Togo in December 2004 was an opportunity not only to immunize against measles and polio but also to offer other health interventions, such as long-lasting insecticide-treated bednets and deworming medicine.

A strategic priority for UNICEF in the region has been the Accelerated Child Survival and Development Programme, which currently focuses on more than 16 million people in selected districts in 11 countries that have high under-five mortality rates. Measles and DPT3 immunization have been core interventions, along with vitamin A supplementation and supplying insecticide-treated bednets to pregnant women and children under five.

CA: URGENT ACTION

MCV and DPT3 coverage in selected countries, 2003
Eight countries in the region will need an average annual rate of increase of 5 percentage points or more in order to achieve 90 per cent coverage in measles immunization. DPT3 coverage in these countries is usually lower and will also require improvement in order to meet the goal.



Source: *The State of the World's Children 2005.*

The region will have to step up the pace in order to meet the target.

South Asia increased routine immunization coverage faster between 1990 and 2003 than any other region except Latin America/Caribbean, with an average annual rise of 0.9 percentage points in coverage against measles. Yet with measles immunization coverage of just 67 per cent in 2003, the region will have to step up the pace significantly if it is to meet the target of 90 per cent coverage by 2010.

The Maldives and Sri Lanka have both already achieved the goal and are predicted to sustain their levels of coverage. Coverage in Bhutan has slipped just below 90 per cent in recent years. All the other countries in the region will have to improve substantially if they are to have a chance of reaching the target, with Afghanistan and Pakistan requiring the biggest increases of all. Although Afghanistan had the lowest measles immunization coverage, about 50 per cent in 2003, this represented huge progress on the mere 20 per cent achieved in 1990 and included a 6-percentage-point rise between 2002 and 2003 alone.

India's large population, together with its two-thirds immunization coverage, means that it contains over twice as many unimmunized children as any other country: about 7.8 million unprotected against measles. Pakistan has about 1.9 million unimmunized children.

Afghanistan still has a high under-five mortality rate – 257 child deaths per 1,000 live births, a rate exceeded only by Angola, Niger and Sierra Leone. Immunization of 11.2 million Afghan children between 6 months and 12 years of age – including a major campaign in 2002–2003 – has reduced the number of reported measles cases and has averted an estimated 35,000 measles deaths annually.[18]

Despite its ongoing civil conflict, Nepal has achieved a relatively high average annual rate of increase in measles immunization coverage of 1.4 percentage points between 1990 and 2003.

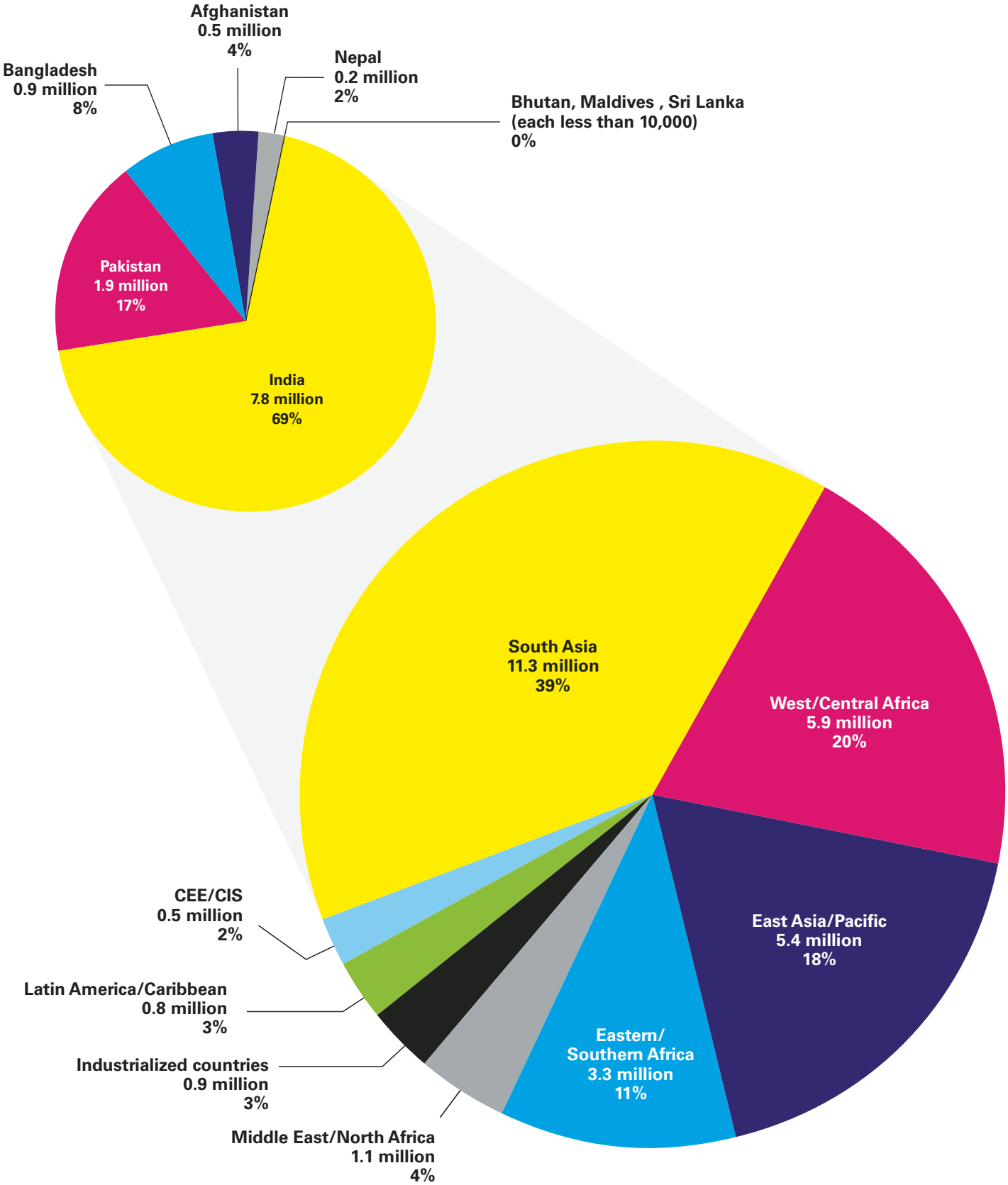
Routine immunization coverage remains low in some areas of the region. In part this is because districts lack planning capacities, funds to conduct outreach and supervision and monitoring systems to track progress. But there are also weaknesses in the wider health systems in the region, with poor basic facilities and low salaries for health staff that give them little incentive to stay in the more remote areas.

In India, the National Rural Health Mission (2005–2010) has been launched to counter declining immunization coverage and reduce the number of disease outbreaks. It seeks to expand the base of current approaches, which focus primarily on polio, and make routine services more equitable. The mission was launched in response to recent outbreaks of measles, pertussis and diphtheria in the northern part of the country.

SOUTH ASIA: IMPROVEMENT NEEDE

Children unimmunized against measles, region by region and in South Asia, 2003
Of all regions, South Asia has the largest numbers of children without protection against the vaccine-preventable diseases, including an estimated 7.8 million in India and 1.9 million in Pakistan unimmunized against measles.

Source: *The State of the World's Children 2005,* with additional calculations by UNICEF.



D

Yet, some countries will not meet the target.

With routine coverage against measles at 88 per cent in 2003, the Middle East/North Africa region is well on course to achieve the goal of 90 per cent coverage. Maintaining its average annual rate of improvement since 1990 would be more than enough to see it through. Nevertheless, as is often the case, the broad-brush regional average conceals the fact that there are some countries in the region that will not reach the target without a substantial improvement over the next few years.

Of the 20 countries and territories in the region, 16 have already achieved the 90 per cent coverage goal for measles immunization. Almost all of these finance their immunization campaigns entirely from their own budgets, which indicates both the commitment of governments to this aspect of child health and the likely sustainability of their efforts.

Among the successful, the most notable are arguably those recovering from or still subject to conflict. Kuwait and Lebanon recovered swiftly during the 1990s from major wars and now have near-universal coverage of most key vaccines. The Occupied Palestinian Territory has managed to achieve very high coverage since 1995 and now has 99 per cent immunization against measles. Iraq's recovery from 13 years of sanctions and two wars is more problematic, but the cold-chain system that had been destroyed has been reinstalled; coverage in 2003 was at 90 per cent against measles.

Algeria, Djibouti, Sudan and Yemen will all require major improvements if their children are to be adequately protected against disease. Algeria has better coverage for other vaccines than for measles, at 84 per cent. Djibouti had substantially lower measles immunization coverage in 2003 than it did in 1990, although the last few years have actually shown significant rises following a catastrophic drop to little better than 20 per cent in 1998–1999 due to a breakdown in the cold chain.

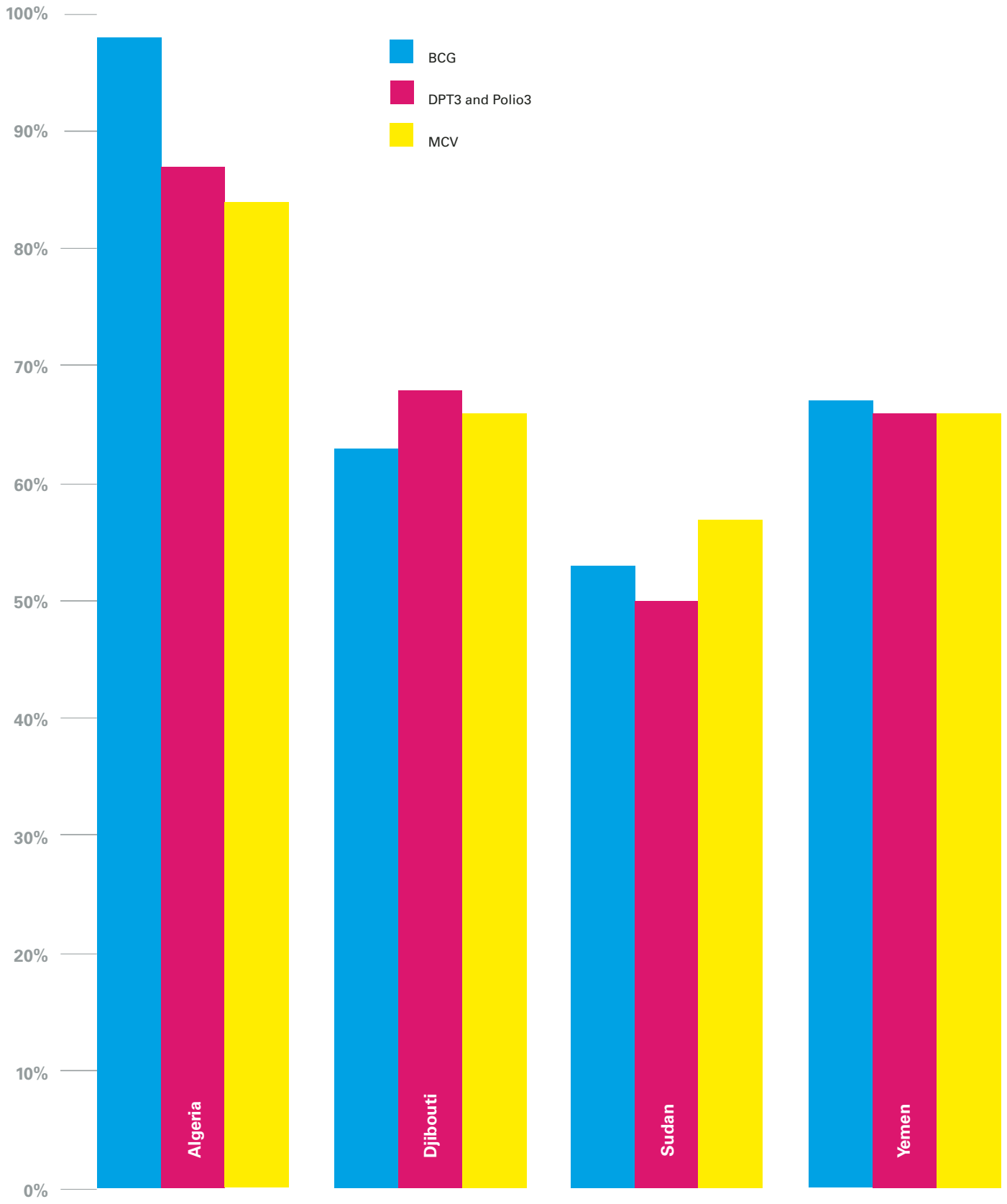
Yemen also suffered a marked drop in the mid-1990s because of a fall in donor support and a period of civil unrest; it is still not maintaining a consistent upward trend, having improved in the early 2000s, dropped again and recovered in 2004. The country now finances campaigns entirely from its own resources. Sudan has never reached immunization coverage above two thirds (in 2001) for the measles vaccine, but even that has now suffered a decline, made worse in 2004 by further conflict and lack of access in Darfur.

MIDDLE EAST/ NORTH AFRICA: ON COURSE

Routine immunization coverage in selected countries, 2003

Four countries of the region will require improvement in order to reach 90 per cent measles immunization coverage by 2010. Below, protection levels against tuberculosis (BCG), diphtheria-pertussis-tetanus (DPT3), polio (three doses of the polio vaccine, Polio3) and measles (MCV) immunization.

Source: *The State of the World's Children 2005.*



The region is likely to sustain and even extend coverage.

The CEE/CIS region as a whole has achieved the goal of 90 per cent immunization coverage against measles by 2003. The challenge now is to reach the last 10 per cent of children – those in remote areas, the urban poor, minorities and children in conflict situations – who still do not benefit from basic immunization. These children often have the greatest need of vaccines but can only be reached by applying different strategies.

Protection against measles in CEE/CIS has improved at an average rate of 0.8 percentage points since 1992. The region is likely to be able to sustain and even extend this coverage. Cases of vaccine-preventable disease are falling, and in 2002 Europe – including all CEE/CIS countries – was certified polio-free.

Of the 20 countries in the region, 15 have already achieved the 90 per cent goal for measles immunization and 3 others – Bosnia and Herzegovina, Serbia and Montenegro, and Tajikistan – are likely to reach it, each needing an annual rate of increase smaller than it has already realized between 1992 and 2003. Bosnia and Herzegovina's improvement in immunization from the end of the civil war in 1995 was dramatic; it actually exceeded the target of 90 per cent coverage in 2001 before falling beneath it in 2003.

Nevertheless, even in a region with such positive overall indicators for immunization, there are two countries in which improvements are required if they are to meet the goal: Turkey and Georgia. Turkey has sustained nearly 90 per cent coverage of the BCG vaccine against tuberculosis for more than a decade, proving what is possible, but its reach with other vaccines has been much more hit-and-miss. Its measles immunization actually attained the 90 per cent mark in 2001 before falling away to 75 per cent in 2003. With routine coverage against measles at 73 per cent in 2003, Georgia will have to double its average annual rate of increase: from 1.2 percentage points for the period 1990–2003 to 2.4 percentage points during the period 2004–2010.

Major mass campaigns to immunize children against measles took place in 2004 in Georgia, Tajikistan and Turkey, which achieved coverage of 95 per cent. In Azerbaijan and Georgia, immunization against measles, mumps and rubella became part of the standard immunization programme in 2004. In the 11 GAVI-eligible countries of the region, autodisable syringes are now standard, but the use of these syringes in the region's other countries, including the Russian Federation and Turkey, is close to zero.[19]

A second major constraint remains the quality of immunization and the absence of adequate mechanisms in all countries to detect and manage adverse reactions. This has led to frequent negative media reports and rumours about the quality of vaccines, which have seriously affected public trust. The absence of national regulatory authorities for vaccine control and safety in most newly independent states contributes to this kind of speculation.

The generally high immunization coverage in the region has enabled a focus on children who have hitherto been hard to reach. National monitoring and surveillance systems have been adapted to support disaggregated data. In addition, Georgia and Serbia and Montenegro carried out targeted catch-up campaigns for immunization of children of the Roma ethnic group and of internally displaced children.

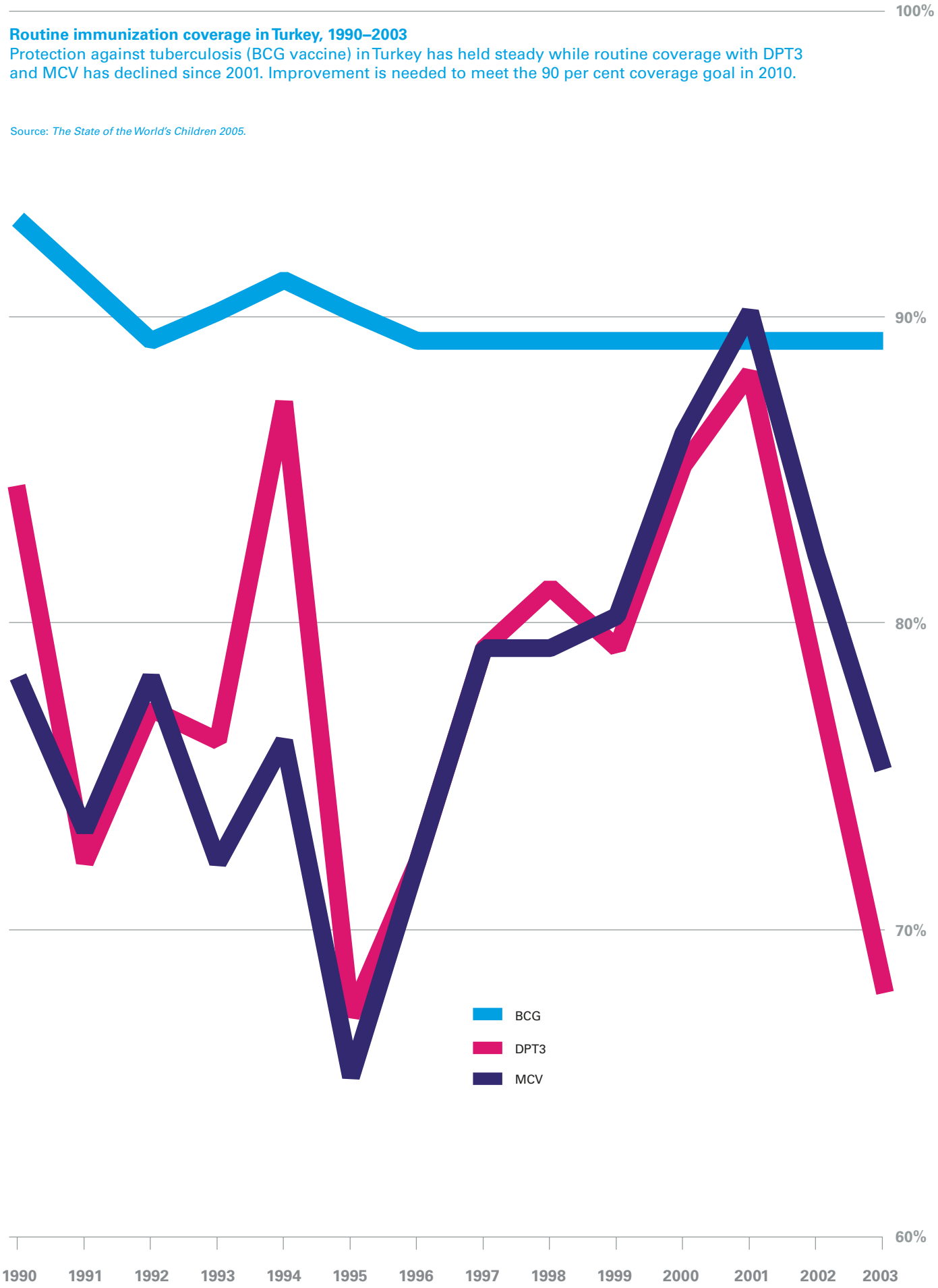
CEE/CIS: REACHING THE LAST 10 PER CENT

The focused campaign in Serbia and Montenegro was particularly effective and also involved the birth registration of all previously unregistered children.

Routine immunization coverage in Turkey, 1990–2003

Protection against tuberculosis (BCG vaccine) in Turkey has held steady while routine coverage with DPT3 and MCV has declined since 2001. Improvement is needed to meet the 90 per cent coverage goal in 2010.

Source: *The State of the World's Children 2005.*



Two thirds of countries have achieved 90 per cent coverage against measles.

Not only has the Latin America/Caribbean region reached the goal, with measles immunization coverage of 93 per cent in 2003, but its coverage is also better than that of any other region, surpassing that of industrialized countries. To bring this about, the region had by far the largest average annual rate of increase in coverage between 1990 and 2003 – 1.3 percentage points.

In addition, Latin America/Caribbean has the lowest under-five mortality of any of the world's developing regions, with 32 deaths per 1,000 live births – although in this respect the region is still far behind the industrialized countries' average of 6 child deaths per 1,000 live births.

Two thirds of the region's countries have already achieved 90 per cent coverage against measles, and another three – Guyana, Trinidad and Tobago and Venezuela – are likely to achieve it by 2010. Of the high-performing countries, Ecuador and Peru are among the most notable, having improved since 1990 at average annual rates of 3.0 and 2.4 percentage points, respectively, for measles immunization coverage. In both countries there was consistent progress in all the main types of immunization over two decades from the minimal levels attained in 1980. But in Ecuador, the 99 per cent coverage first achieved in 1999 needs to be sustained with care since there were substantial dips in both 2000 and 2002.

Even in this generally successful region, however, the broad-brush averages can be misleading and equity remains an important issue. There are still seven countries in which substantial improvements will be required in measles immunization coverage levels if the goal is to be met by 2010: Bolivia, Dominican Republic, Guatemala, Haiti, Jamaica, Panama and Suriname.

Guatemala has never achieved consistently high coverage against measles. Following a dramatic surge in the 1980s, Suriname reached a peak in measles immunization of 90 per cent in 1992 but has now sunk again to the level that applied in 1983 (71 per cent).

Haiti, which lags behind the rest of the region on most human development indicators, including under-five mortality (118 per 1,000 live births), also has very low levels of measles immunization coverage, at 53 per cent.

Political and economic crises in the region, along with ineffectual efforts in some countries to reform and decentralize health systems, will challenge gains made in immunization and in primary health care. Several countries require a major investment in cold-chain equipment. Peru concluded a countrywide inventory of its cold chain, a major achievement, and plans to invest $10 million in upgrading it as a result. Injection safety policies and practices are outdated in much of Latin America/Caribbean, and there is an urgent need to upgrade injection safety standards and practices in the region's immunization programmes.

In Venezuela, the Barrio Adentro ('inside the neighbourhood') model of primary health care delivery is becoming the backbone of the country's public health system, expanding the health care network into poor and under-served communities. The model could make Venezuela the first South American country no longer dependent on supplementary immunization campaigns to maintain its achievements in the control or elimination of vaccine-preventable diseases.

LATIN AMERICA/ CARIBBEAN: EQUITY STILL AN ISSUE

Routine immunization coverage (MCV) in selected countries, 2003

Seven countries of the region will require improvement in order to reach 90 per cent coverage against measles by 2010. Their under-five mortality rates range from 118 in Haiti to 20 in Jamaica.

Source: *The State of the World's Children 2005.*

For some countries the target seems very distant.

East Asia/Pacific was the only region in the world that, in terms of overall coverage, took a small step backwards between 1990 and 2003, with routine coverage against measles declining from 84 per cent to 82 per cent. Improvement is, therefore, required for the region to meet the 90 per cent immunization goal for measles by 2010. For some countries, moreover, the target seems very distant indeed, and major work will be required if it is to be attained.

Just over half the region's countries and territories have already achieved the goal, and all of these are likely to sustain their coverage. The fastest progress in recent years has been shown in the Cook Islands and Marshall Islands, which improved at average annual rates of 2.5 percentage points and 2.9 percentage points, respectively. Closer attention to results year by year shows that the Cook Islands actually suffered a major drop in measles immunization coverage in 1999 before recovering to near-universal reach in 2003. In the Marshall Islands, measles immunization rates were erratic before 1998 but have now achieved some consistency. China's huge population clearly has a vast impact on the overall regional statistics. Measles immunization coverage is at 84 per cent.[20] In 2004, in a welcome move, the government issued a new infectious disease law requiring basic immunization to be provided free for all citizens. China is one of the 14 countries in the region that funds immunization programmes entirely from its own budget.

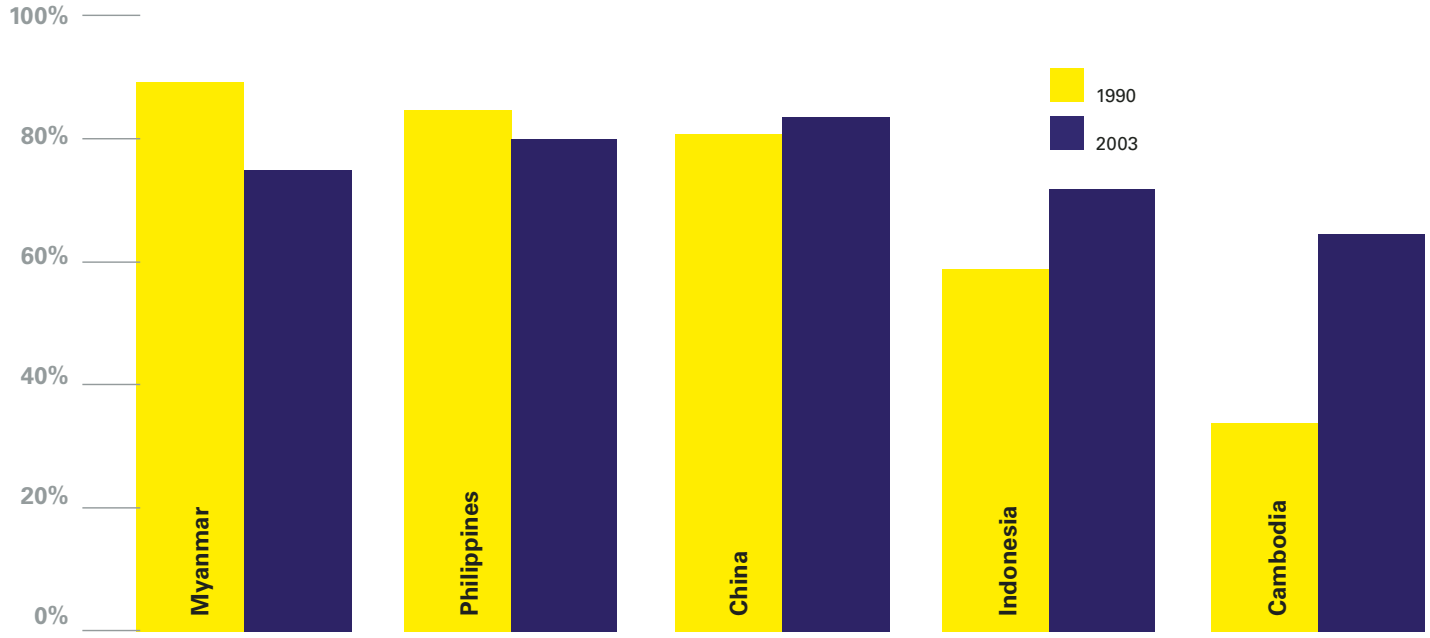
Improvements will be required in Cambodia, China, Indonesia, Lao People's Democratic Republic, Myanmar, Nauru, Niue, Papua New Guinea, the Philippines, the Solomon Islands and Vanuatu if they are to reach 90 per cent coverage of measles vaccine in 2010. In Timor-Leste, immunization programmes are still in their relative infancy following the country's independence in 2002. However, between 2002 and 2003, measles immunization coverage rose by about a quarter to 60 per cent. So there is hope that progress will be rapid.

Four countries in the region are cause for particular concern. In Papua New Guinea, significant new impetus is required: immunization against measles peaked here in 1995, at 75 per cent, but all forms of immunization have struggled to surpass 50 per cent in the succeeding years. Vanuatu has suffered an alarming fall in coverage from levels of around 90 per cent for most vaccines in 2001 to around 50 per cent in 2003. In Lao People's Democratic Republic, a boost in coverage to 73 per cent in 1994, following substantial financial support from UNICEF and other donors, has in the early 2000s fallen away to 42 per cent for measles. Nauru's coverage has varied but it clearly has the capacity to reach the target, having achieved measles immunization coverage of 99 per cent in 1997 and 95 per cent in 2001.

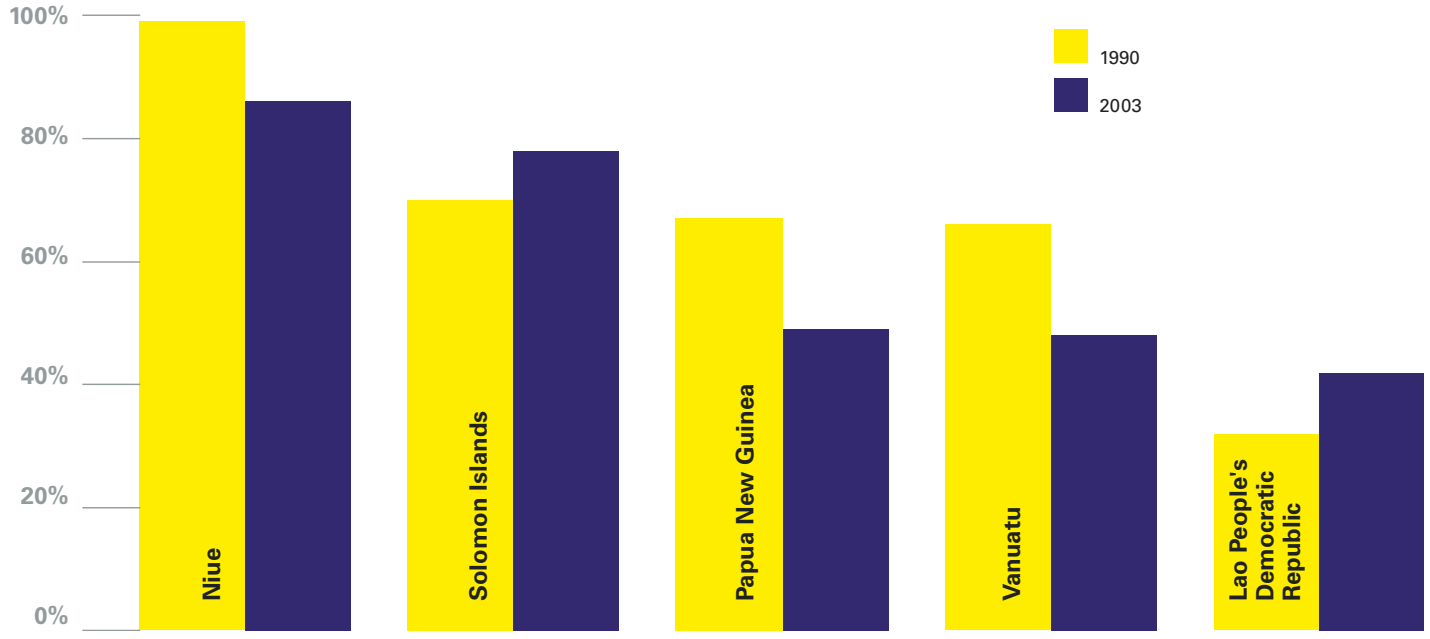
EAST ASIA/PACIFIC: W

Routine immunization coverage (MCV) in selected countries, 1990 and 2003
Twelve countries of the region will require improvement in order to achieve 90 per cent coverage against measles in 2010; shown here are 10 of the 12 countries (1990 coverage estimates were not available for Nauru and Timor-Leste). China's coverage shown in the first bar is from 1993.

Source: *The State of the World's Children 2005.*



ORK TO BE DONE



Diseases can make a comeback if immunization levels slip.

Taken as a whole, the industrialized world has already achieved the immunization goal of 90 per cent coverage against measles and is likely to sustain the coverage until and beyond 2010. It averages 90 per cent or more for all the basic vaccines. Yet there is no room for complacency, as diseases can all too easily make a comeback if immunization levels slip, and improvement is still required in a few countries.

The 26 industrialized countries that have already achieved 90 per cent MCV coverage include all those from Central and Eastern Europe that joined the European Union in May 2004. The Czech Republic, Hungary, Latvia and Slovakia were among six countries with 99 per cent coverage against measles in 2003.

Four industrialized countries need improvement: Austria, Belgium, Ireland and the United Kingdom. Each of them warrants slightly different causes for concern. In Austria, there has been a waning in immunization coverage for all

INDUSTRIALIZED COUNTRIES: POCKETS OF CONCERN

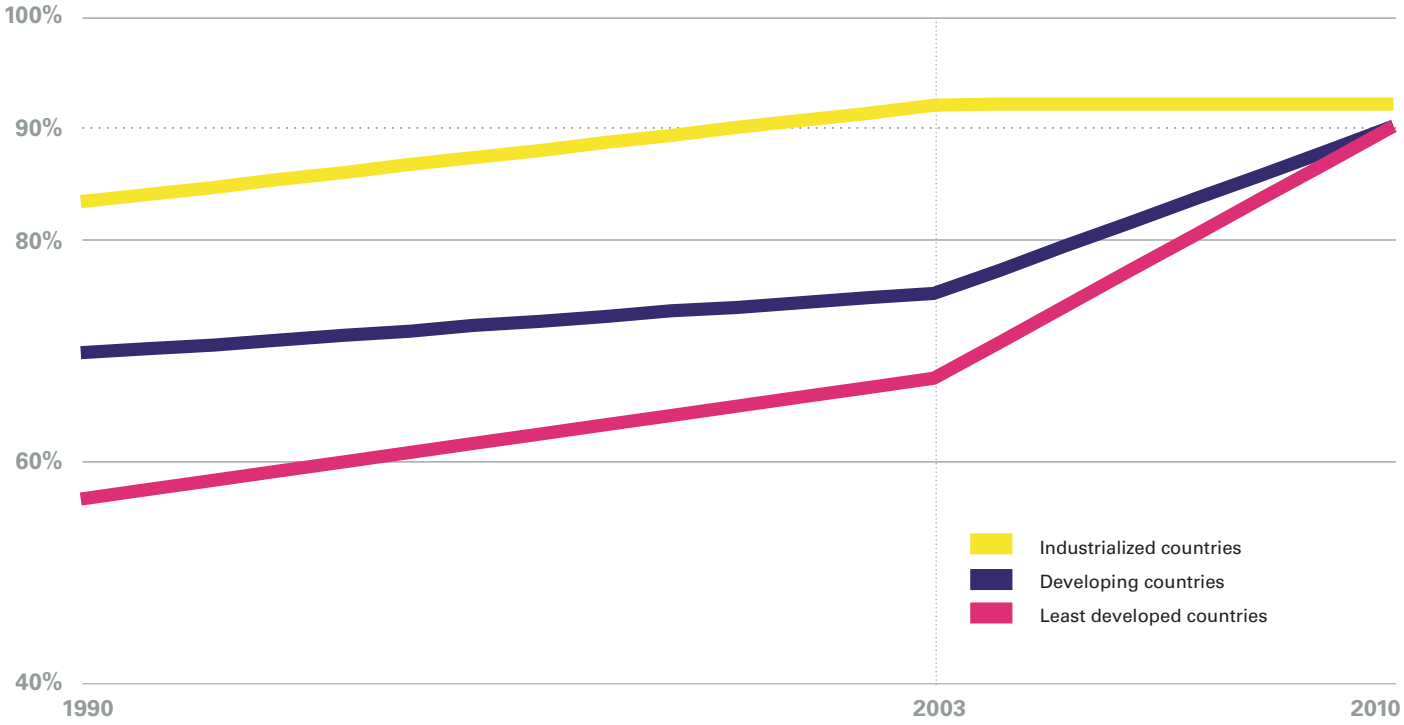
the major vaccines since 1997, with measles at 79 per cent. In Belgium and the United Kingdom, protection against measles has fallen. Belgium reached 90 per cent coverage for measles in 1986 but has not done so since, with erratic performance and no clear sign of progress.

The United Kingdom was consistently immunizing against measles with coverage over 90 per cent in the mid-1990s, but since 1997 has seen a decline in coverage that by 2003 had still not been reversed. Ireland, in contrast, has never yet managed to achieve coverage of 90 per cent of any of the basic vaccines, except BCG, with measles standing lowest (in 2003), at 78 per cent.

Trends in routine MCV coverage, 1990—2010

Industrialized countries as a region have already reached 90 per cent coverage of measles-containing vaccine, but developing-country and least-developed-country regions will require improvement. The trend lines for 1990–2003 show observed coverage levels. The trend lines for 2004–2010 show the average annual rate of increase required to meet the goal in 2010.

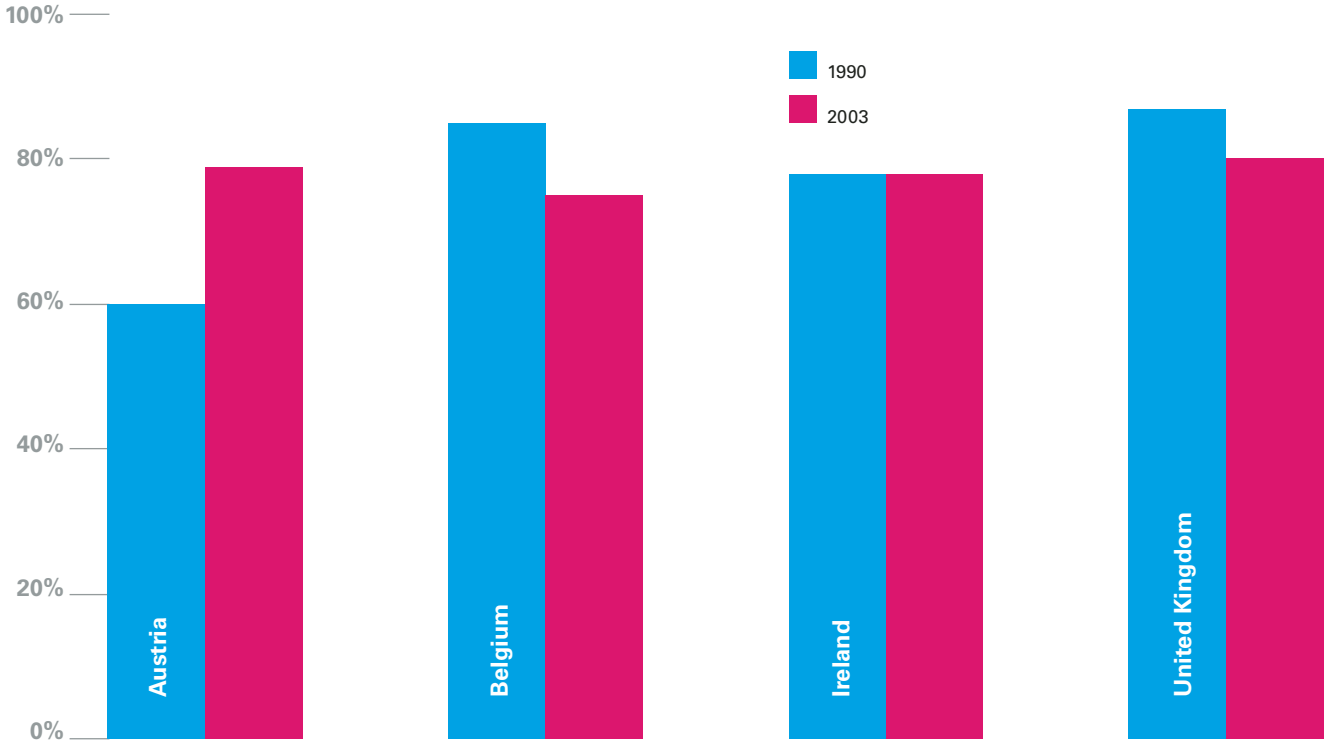
Source: *The State of the World's Children 2005*, with additional calculations by UNICEF.



Routine immunization coverage (MCV) in selected countries, 1990 and 2003

Four industrialized countries – Austria, Belgium, Ireland and the United Kingdom – have not yet reached 90 per cent coverage against measles. In Belgium and the United Kingdom, coverage was lower in 2003 than it had been in 1990.

Source: *The State of the World's Children 2005.*



Progress is being made, but an enormous amount of work remains to be done.

Immunization against major diseases is a means to ensure child survival, a human right. Children should have equal access to the protection immunization provides against death and disability, wherever they live and whatever their social or economic circumstances. The provision of vaccines should be a given, sustainable through times of crisis and subsidized by the richer members of the global community so that all vaccines, both established and new, are available to all.

As this report card makes plain, substantial progress is being made in many countries towards the goal of 90 per cent coverage against measles, the primary immunization-related indicator in MDG 4. But there is an enormous amount of work still to be done.

Since 2000, many new immunization initiatives have been launched. The Global Alliance for Vaccines and Immunization, for example, has succeeded in both mobilizing new funds and extending the reach of new vaccines. These initiatives have helped restore lost momentum and provide hope that international goals for immunization can be met.

Meeting MDG 4 will require reaching children with a package of essential child health interventions – a multipronged approach that addresses the illnesses that are taking children's lives, such as diarrhoea, pneumonia, neonatal tetanus, malaria, measles and HIV/AIDS. Of all the immediate interventions, immunization would arguably be the easiest to roll out universally, thanks to the massive amount of evidence and experience that has been gained over the last three decades.

Immunization is vital not just in itself, however, but as an entry point for other health interventions. Once seen as a 'vertical' intervention unconnected with and sometimes even fragmenting other health services, immunization is now increasingly being linked to other specific health interventions – for example, distributing vitamin A as part of polio or measles immunization campaigns, or distributing long-lasting insecticide-treated bednets during supplementary immunization activities. Part of the new WHO/UNICEF Global Immunization Vision and Strategy (GIVS) is to align immunization programmes structurally and functionally with other health sector areas in ways that are mutually strengthening.

Building up the infrastructure and capacity of health systems is vital for long-term success. Physical infrastructure is, of course, important, from the clinics and the roads that service them to the basic supplies on which health care depends. It is just as important, however, to invest in high-quality and motivated health workers, not only through proper training and decent pay but also through equipping people to serve their own local communities.

What is more, these systems need to be accessible to every child, which means removing any prohibitive user fees that can otherwise deny the poorest children the basic health care they need.

ENDNOTE: A MULTIPRONGED APPROACH

Immunization provides something of a litmus test of local health systems in the sense that it depends upon their being sufficiently well developed to keep vaccines safe and at the right temperature even in conditions of extreme heat or in locations remote from urban services.

GIVS aims to ensure that every person is given vaccines of assured quality according to established national schedules. Retaining public confidence in the extremely high safety record of vaccines is vital in all countries if the necessary levels of mass immunization are to be sustained.

GIVS also recognizes that reaching all children with immunization depends on whether countries have access to a sustainable supply of vaccines that are affordable and of assured quality. A challenge of vaccine security is to reduce the costs of traditional and new vaccines, and to support countries as they move gradually from external support and co-financing arrangements towards assuming full financial responsibility for their immunization programmes.

Internationally, public confidence in the efficacy of immunization remains high; and with good reason, since it continues to save the lives of millions of children every year. But there are still children it is failing to reach, many of whom will die needlessly in the years ahead if immunization's reach is not extended. The task now is to use all the experience gained – and devote all the resources needed – to ensure that their lives, too, are protected.

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17 Ibid.

18 Campaign coverage levels and estimated numbers of deaths averted were provided by UNICEF Afghanistan in its 'Annual Report 2004'.

19 GAVI-eligible countries in CEE/CIS include Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

20 The Ministry of Health of China says that the data reported to WHO/UNICEF do not reflect actual coverage and has asked for help in identifying alternative methods of determining coverage.

CHILD IMMUNIZATION

Countries and territories	U5MR 2003	National coverage rates (%) 1-year-olds immunized against measles 1990	2003	Average annual rate of increase (%) of coverage against measles Observed 1990-2003	Required 2004-2010	Reported % districts with >90% coverage against measles	National coverage rates (%) 2003 1-year-olds immunized with: DPT3	Polio3	BCG	HepB3	Pregnant women protected against tetanus	% of routine EPI vaccines financed by govt. 2003
EASTERN/SOUTHERN AFRICA												
Somalia	225	30	40	0.8	7.1	1	40	40	65	–	–	0
Ethiopia	169	38	52	1.1	5.4	0	56	57	76	–	24	18
Madagascar	126	47	55	0.6	5.0	47	55	58	72	55	55	12
Angola	260	38	62	1.8	4.0	13	46	45	62	–	72	10
Comoros	73	87	63	-1.8	3.9	12	75	75	75	27	46	0
Lesotho	84	80	70	-0.8	2.9	11	79	78	83	–	–	10
Namibia	65	41	70	2.2	2.9	12	82	82	92	–	85	100
Kenya	123	78	72	-0.5	2.6	13	73	67	87	73	66	36
Burundi	190	74	75	0.1	2.1	29	74	69	84	–	46	6
Malawi	178	81	77	-0.3	1.9	15	84	85	91	84	70	0
Mozambique	158	59	77	1.4	1.9	–	72	70	87	72	57	21
Zimbabwe	126	87	80	-0.5	1.4	6	80	80	92	80	60	0
Uganda	140	52	82	2.3	1.1	23	81	82	96	63	48	7
South Africa	66	79	83	0.3	1.0	19	94	94	97	94	52	100
Zambia	182	90	84	-0.5	0.9	22	80	80	94	–	60	5
Eritrea	85	18 [2]	84	6.0	0.9	–	83	83	91	83	55	0
Mauritius	18	76	94	1.4	sustain	50	92	93	92	92	–	100
Tanzania, United Republic of	165	80	97	1.3	sustain	53	95	97	91	95	83	30
Seychelles	15	86	99	1.0	sustain	100	99	99	99	99	–	100
Swaziland	153	85	94	0.7	sustain	–	95	95	97	95	–	100
Rwanda	203	83	90	0.5	sustain	26	96	96	88	96	76	50
Botswana	112	87	90	0.2	sustain	58	97	97	99	78	–	100
WEST/CENTRAL AFRICA												
Central African Republic	180	83	35	-3.7	7.9	8	40	40	70	–	63	0
Nigeria	198	54	35	-1.5	7.9	–	25	39	48	–	51	100
Congo	108	75	50	-1.9	5.7	10	50	50	60	–	59	0
Equatorial Guinea	146	88	51	-2.8	5.6	6	33	39	73	–	53	0
Guinea	160	35	52	1.3	5.4	21	45	43	78	–	74	20
Liberia	235	–	53	–	5.3	7	38	39	43	–	56	0
Congo, Democratic Republic of the	205	38	54	1.2	5.1	7	49	55	68	–	–	0
Gabon	91	76	55	-1.6	5.0	10	38	31	89	–	54	100
Côte d'Ivoire	192	56	56	0.0	4.9	5	54	54	66	48	80	58
Togo	140	73	58	-1.2	4.6	14	64	63	84	–	47	0
Senegal	137	51	60	0.7	4.3	2	73	73	77	–	75	100
Cameroon	166	56	61	0.4	4.1	4	73	72	82	–	65	100
Guinea-Bissau	204	53	61	0.6	4.1	27	77	75	84	–	66	0
Chad	200	32	61	2.2	4.1	11	47	48	72	–	43	75
Niger	262	25	64	3.0	3.7	12	52	51	64	–	36	100
Cape Verde	35	79	68	-0.8	3.1	18	78	79	78	54	–	80
Mali	220	43	68	1.9	3.1	21	69	65	63	79	32	100
Mauritania	183	38	71	2.5	2.7	11	76	75	84	–	41	100
Sierra Leone	284	–	73	–	2.4	23	70	60	87	–	62	20
Burkina Faso	207	79	76	-0.2	2.0	8	84	83	83	–	50	100
Ghana	95	61	80	1.5	1.4	52	80	80	92	80	70	28
Benin	154	79	83	0.3	1.0	36	88	88	99	81	56	0
Sao Tome and Principe	118	71	87	1.2	0.4	61	94	94	99	43	–	–
Gambia	123	86	90	0.3	sustain	67	90	90	99	90	–	63
MIDDLE EAST/NORTH AFRICA												
Sudan	93	57	57	0.0	4.7	16	50	50	53	–	35	0
Djibouti	138	85	66	-1.5	3.4	–	68	68	63	–	–	85
Yemen	113	69	66	-0.2	3.4	18	66	66	67	42	31	100
Algeria	41	83	84	0.1	0.9	–	87	87	98	–	–	100
Lebanon	31	61	96	2.7	sustain	100	92	92	–	88	–	100
Kuwait	9	66	97	2.4	sustain	–	99	99	–	99	–	100
Qatar	15	79	93	1.1	sustain	100	92	93	99	98	–	100
United Arab Emirates	8	80	94	1.1	sustain	100	94	94	98	92	–	100
Iran, Islamic Republic of	39	85	99	1.1	sustain	100	99	99	99	98	–	100
Egypt	39	86	98	0.9	sustain	–	98	98	98	98	71	100
Bahrain	15	87	99	0.9	sustain	–	97	97	–	98	–	100
Syrian Arab Republic	18	87	98	0.8	sustain	100	99	99	99	98	–	100
Iraq	125	80	90	0.8	sustain	–	81	84	93	70	70	100
Morocco	39	80	90	0.8	sustain	54	91	91	92	90	–	100
Jordan	28	87	96	0.7	sustain	75	97	97	67	97	–	100
Saudi Arabia	26	88	96	0.6	sustain	100	95	95	94	95	–	100
Libyan Arab Jamahiriya	16	89	91	0.1	sustain	–	93	93	99	91	–	–
Oman	12	98	98	0.0	sustain	100	99	99	98	99		100
Tunisia	24	93	90	-0.2	sustain	72	95	95	93	92	–	100
Occupied Palestinian Territory	24	–	99	–	sustain	–	98	98	99	98	–	–

Countries and territories	U5MR 2003	National coverage rates (%) 1-year-olds immunized against measles 1990	2003	Average annual rate of increase (%) of coverage against measles Observed 1990-2003	Required 2004-2010	Reported % districts with >90% coverage against measles	National coverage rates (%) 2003 1-year-olds immunized with: DPT3	Polio3	BCG	HepB3	Pregnant women protected against tetanus	% of routine EPI vaccines financed by govt. 2003
SOUTH ASIA												
Afghanistan	257	20	50	2.3	5.7	12	54	54	56	–	40	0
Pakistan	103	50	61	0.8	4.1	5	67	69	82	63	57	100
India	87	56	67	0.8	3.3	–	70	70	81	–	78	100
Nepal	82	57	75	1.4	2.1	13	78	76	91	15	69	65
Bangladesh	69	65	77	0.9	1.9	80	85	85	95	–	89	100
Bhutan	85	93	88	-0.4	0.3	–	95	96	93	95	–	0
Sri Lanka	15	80	99	1.5	sustain	100	99	98	99	–	–	100
Maldives	72	96	96	0.0	sustain	100	98	98	98	98	–	98
CEE/CIS												
Georgia	45	61 [3]	73	1.2	2.4	29	76	75	87	49	–	19
Turkey	39	78	75	-0.2	2.1	0	68	69	89	68	37	100
Bosnia and Herzegovina	17	52 [2]	84	2.9	0.9	72	87	86	94	–	–	70
Serbia and Montenegro	14	82 [2]	87	0.5	0.4	93	89	89	94	–	–	–
Tajikistan	118	84 [2]	89	0.5	0.1	95	82	84	99	57	–	0
Azerbaijan	91	66 [2]	98	2.9	sustain	91	97	98	99	98	–	51
Turkmenistan	102	76 [2]	97	1.9	sustain	92	98	99	99	97	–	82
Uzbekistan	69	84 [2]	99	1.4	sustain	100	98	99	98	99	–	77
Russian Federation	21	83 [2]	96	1.2	sustain	–	98	97	97	94	–	100
Kazakhstan	73	89 [2]	99	0.9	sustain	100	99	99	99	99	–	100
Ukraine	20	90 [2]	99	0.8	sustain	100	97	99	98	77	–	96
Croatia	7	90 [2]	95	0.5	sustain	99	94	95	98	–	–	100
Belarus	17	94 [2]	99	0.5	sustain	100	86	99	99	99	–	100
Kyrgyzstan	68	94 [2]	99	0.5	sustain	100	98	98	99	99	–	40
Albania	21	88	93	0.4	sustain	92	97	97	95	97	–	40
Romania	20	92	97	0.4	sustain	98	97	97	99	98	–	100
Moldova, Republic of	32	92 [2]	96	0.4	sustain	95	98	98	98	99	–	49
Armenia	33	93 [2]	94	0.1	sustain	94	94	96	92	93	–	65
The former Yugoslav Republic of Macedonia	11	98 [3]	96	-0.2	sustain	97	96	96	95	–	–	90
Bulgaria	15	99	96	-0.2	sustain	100	96	96	98	96	–	–
LATIN AMERICA/CARIBBEAN												
Haiti	118	31	53	1.7	5.3	19	43	43	71	–	52	30
Bolivia	66	53	64	0.8	3.7	–	81	79	94	81	–	40
Suriname	39	65	71	0.5	2.7	–	74	74	–	–	–	100
Guatemala	47	68	75	0.5	2.1	71	83	83	97	–	–	0
Jamaica	20	74	78	0.3	1.7	8	81	80	88	19	–	100
Dominican Republic	35	96	79	-1.3	1.6	–	65	60	90	81	–	65
Venezuela	21	61	82	1.6	1.1	–	68	86	91	75	–	100
Panama	24	73	83	0.8	1.0	–	86	83	87	86	–	100
Trinidad and Tobago	20	70	88	1.4	0.3	22	91	91	–	76	–	100
Costa Rica	10	90	89	-0.1	0.1	–	88	88	87	86	–	0
Guyana	69	73	89	1.2	0.1	–	90	91	95	90	–	90
Ecuador	27	60	99	3.0	sustain	–	89	99	99	58	–	100
Peru	34	64	95	2.4	sustain	–	89	89	94	60	–	100
Paraguay	29	69	91	1.7	sustain	–	77	77	70	77	–	100
Mexico	28	75	96	1.6	sustain	96	91	92	99	91	–	100
Brazil	35	78	99	1.6	sustain	79	96	99	99	91	–	100
Chile	9	82	99	1.3	sustain	50	99	99	94	–	–	100
Grenada	23	85	99	1.1	sustain	71	97	98	–	97	–	100
Nicaragua	38	82	93	0.8	sustain	44	86	86	94	86	–	74
Dominica	14	88	99	0.8	sustain	–	99	99	99	–	–	70
Colombia	21	82	92	0.8	sustain	–	91	91	96	93	–	100
Belize	39	86	96	0.8	sustain	83	96	95	99	96	–	100
Antigua and Barbuda	12	89	99	0.8	sustain	–	99	99	–	99	–	100
Saint Lucia	18	82	90	0.6	sustain	63	90	91	95	14	–	100
Honduras	41	90	95	0.4	sustain	–	92	92	91	92	–	100
Cuba	8	94	99	0.4	sustain	–	71	98	99	99	–	99
Bahamas	14	86	90	0.3	sustain	–	92	93	–	88	–	–
Argentina	20	93	97	0.3	sustain	–	88	91	99	–	–	100
Barbados	13	87	90	0.2	sustain	–	86	90	–	91	–	94
El Salvador	36	98	99	0.1	sustain	–	88	87	90	75	–	100
Saint Kitts and Nevis	22	99	98	-0.1	sustain	–	99	99	99	99	–	97
Saint Vincent and the Grenadines	27	96	94	-0.2	sustain	–	99	99	87	31	–	100
Uruguay	14	97	95	-0.2	sustain	–	91	91	99	91	–	100
EAST ASIA/PACIFIC												
Nauru	30	–	40	–	7.1	–	80	59	95	75	–	100
Lao People's Democratic Republic	91	32	42	0.8	6.9	4	50	52	65	50	36	0
Vanuatu	38	66	48	-1.4	6.0	0	49	53	63	56	–	100
Papua New Guinea	93	67	49	-1.4	5.9	4	54	41	60	53	34	80
Timor-Leste	124	–	60	–	4.3	15	70	70	80	–	–	0
Cambodia	140	34	65	2.4	3.6	4	69	69	76	–	43	7
Indonesia	41	58	72	1.1	2.6	43	70	70	82	75	51	90
Myanmar	107	90	75	-1.2	2.1	21	77	76	79	–	77	0
Solomon Islands	22	70	78	0.6	1.7	0	71	68	76	78	–	–

(continued on next page)

- Data not available. [1] Data relate to 1991. [2] Data relate to 1992. [3] Data relate to 1993. [4] Data relate to 1994.
[5] Data used for China relate to 1993, the earliest year for which sufficiently reliable coverage estimates are available.

Countries and territories	U5MR 2003	National coverage rates (%) 1-year-olds immunized against measles 1990	2003	Average annual rate of increase (%) of coverage against measles Observed 1990-2003	Required 2004-2010	Reported % districts with >90% coverage against measles	National coverage rates (%) 2003 1-year-olds immunized with: DPT3	Polio3	BCG	HepB3	Pregnant women protected against tetanus	% of routine EPI vaccines financed by govt. 2003
EAST ASIA/PACIFIC (continued from previous page)												
Philippines	36	85	80	-0.4	1.4	13	79	80	91	40	70	3
China	37	81 [5]	84	0.3	0.9	95	90	91	93	70	–	100
Niue	–	99	86	-1.0	0.6	–	95	95	99	95	–	100
Singapore	3	84	88	0.3	0.3	–	92	92	97	92	–	100
Kiribati	66	75	88	1.0	0.3	–	99	96	99	99	–	–
Marshall Islands	61	52	90	2.9	sustain	–	68	80	93	74	–	–
Cook Islands	21	67	99	2.5	sustain	100	96	95	99	93	–	100
Malaysia	7	70	92	1.7	sustain	97	96	97	99	95	–	100
Thailand	26	80	94	1.1	sustain	–	96	97	99	95	–	100
Tonga	19	86	99	1.0	sustain	100	98	98	99	93	–	100
Micronesia (Federated States of)	23	81	91	0.8	sustain	100	92	88	64	89	–	6
Samoa	24	89	99	0.8	sustain	–	94	95	73	97	–	100
Viet Nam	23	85	93	0.6	sustain	84	99	96	98	78	79	55
Fiji	20	84	91	0.5	sustain	–	94	99	99	92	–	100
Mongolia	68	92	98	0.5	sustain	100	98	98	98	98	–	22
Korea, Republic of	5	93	96	0.2	sustain	100	97	94	87	91	–	100
Palau	28	98	99	0.1	sustain	–	99	99	–	99	–	5
Tuvalu	51	95	95	0.0	sustain	–	93	93	99	95	–	100
Brunei Darussalam	6	99	99	0.0	sustain	100	99	99	99	99	–	100
Korea, Democratic People's Rep.	55	98	95	-0.2	sustain	100	68	99	88	–	48	80
INDUSTRIALIZED COUNTRIES												
Belgium	5	85	75	-0.8	2.1	–	90	95	–	50	–	–
Ireland	6	78	78	0.0	1.7	–	85	86	90	–	–	–
Austria	5	60	79	1.5	1.6	–	84	84	–	83	–	–
United Kingdom	6	87	80	-0.5	1.4	4	91	91	–	–	–	–
Switzerland	5	90	82	-0.6	1.1	–	95	95	–	–	–	–
Italy	4	43	83	3.1	1.0	–	96	97	–	97	–	–
Norway	4	87	84	-0.2	0.9	11	90	90	–	–	–	–
New Zealand	6	90	85	-0.4	0.7	–	90	82	–	90	–	100
Cyprus	5	77	86	0.7	0.6	–	98	98	–	88	–	25
France	5	71	86	1.2	0.6	–	97	97	85	29	–	–
Greece	5	76	88	0.9	0.3	–	88	87	88	88	–	–
Estonia	9	74 [3]	95	2.1	sustain	94	94	95	99	–	–	–
Japan	4	73	99	2.0	sustain	–	97	97	–	–	–	100
Germany	5	75	92	1.3	sustain	69	89	94	–	81	–	–
Denmark	4	84	96	0.9	sustain	94	96	96	–	–	–	–
Luxembourg	5	80	91	0.8	sustain	–	98	98	–	49	–	–
Portugal	5	85	96	0.8	sustain	100	99	96	81	94	–	–
Lithuania	11	89 [2]	98	0.8	sustain	98	94	91	99	95	–	100
Malta	6	80	90	0.8	sustain	–	94	94	–	70	–	–
Slovakia	8	94 [4]	99	0.6	sustain	100	99	98	98	99	–	100
Australia	6	86	93	0.5	sustain	–	92	92	–	95	–	100
Canada	6	89	95	0.5	sustain	–	91	88	–	–	–	–
Slovenia	4	90 [2]	94	0.4	sustain	–	92	93	98	–	–	100
Latvia	12	95 [2]	99	0.4	sustain	100	98	98	99	98	–	100
Israel	6	91	95	0.3	sustain	76	97	93	–	98	–	100
United States	8	90	93	0.2	sustain	–	96	91	–	92	–	56
Netherlands	5	94	96	0.2	sustain	–	98	98	–	–	–	–
Poland	7	95	97	0.2	sustain	–	99	98	94	97	–	–
Czech Republic	4	98 [3]	99	0.1	sustain	100	97	97	98	86	–	–
Finland	5	97	97	0.0	sustain	–	98	96	98	–	–	–
Spain	4	97	97	0.0	sustain	89	98	98	–	83	–	–
Hungary	8	99	99	0.0	sustain	100	99	99	99	–	–	–
Monaco	4	99	99	0.0	sustain	–	99	99	90	99	–	–
Sweden	3	96	94	-0.2	sustain	–	98	99	16	–	–	–
Iceland	4	99	93	-0.5	sustain	–	97	97	–	–	–	–
San Marino	5	99 [1]	91	-0.7	sustain	100	96	96	–	96	–	–
Andorra	7	–	96	–	sustain	–	99	99	–	84	–	–
REGIONAL SUMMARIES												
Sub-Saharan Africa:	175	57	62	0.3	4.1	–	60	63	74	30	53	45
Eastern/Southern Africa	156	62	71	0.7	2.6	–	72	72	84	49	53	25
West/Central Africa	193	52	52	0.0	5.4	–	48	54	65	12	53	64
South Asia	92	56	67	0.9	3.2	–	71	72	82	10	75	96
Middle East/North Africa	56	81	88	0.5	0.3	–	87	87	89	71	55	89
CEE/CIS	41	82 [2]	90	0.8	sustain	–	88	89	95	81	37	89
Latin America/Caribbean	32	76	93	1.3	sustain	–	89	91	96	73	52	92
East Asia/Pacific	40	84 [5]	82	-0.2	1.1	–	86	87	91	66	61	84
Industrialized countries	6	83	92	0.7	sustain	–	95	93	90	62	–	69
Developing countries	87	70	75	0.4	2.2	–	76	77	85	43	64	80
Least developed countries	155	56	67	0.8	3.2	–	68	68	79	20	56	37
World	80	69	77	0.6	1.9	–	78	79	85	45	64	80

For more information contact
UNICEF Strategic Information Section,
Division of Policy and Planning

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Email: pubdoc@unicef.org

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