Introduction

Children embody our dreams and our hopes for the future. They also inherit our legacies, including the consequences of how we treat the natural environment. At the dawn of the 21st century, nearly 11 million children still die every year of readily preventable causes\(^1\), the equivalent of some 29,000 children dying every single day. Environmental quality is one of the key factors in determining whether a child survives the first years of life, and strongly influences the child’s subsequent physical and mental development\(^2\).

Excessive and wasteful consumption, social inequities and inefficient resource use perpetuate a vicious cycle of pollution and resource degradation that contribute to poverty and the erosion of livelihoods. These conditions severely harm adults and children, particularly those living in ecologically vulnerable areas.

Children are at greater risk from environmental hazards because of their physical size, immature organs, metabolic rate, behaviour, natural curiosity and lack of knowledge. With the current trend of environmental degradation, children have fewer and

\(^1\) All endnotes are at the back of the book, beginning on page 119.
fewer places to hide. They can even be exposed to harmful environmental hazards before birth.

On the other hand, children are also dynamic and powerful forces for environmental protection. They show a natural interest in nature and are often passionate about the preservation of their planet. With proper support, children can acquire useful knowledge from participating in environmental activities and can contribute in a unique manner, with energy and vision, to finding solutions.

The link between children and the environment has been recognized in numerous international declarations and agreements over the past decade (see box 1). This booklet offers a succinct overview of environmental issues affecting the health, development and well-being of children and presents the state of knowledge in this field, conceding that significant gaps exist in the information and data available. For people working at the international, national, local and household levels with children, health and/or environmental issues, this document encourages inter-disciplinary thinking and suggests concrete recommendations for action.

Progress Made Since the World Summit for Children and the United Nations Conference on Environment and Development

Outcomes from two global conferences have explicitly established the linkages between children and the environment. At the 1990 World Summit for Children, leaders adopted a World Declaration and Plan of Action, recognising that “children have the greatest stake in the preservation of the environment and its judicious management for sustainable development as their survival and development depends on it.” Subsequently, the 1992 United Nations Conference on Environment and Development (UNCED, also known as “The Earth Summit”) adopted the Rio Declaration and Agenda 21, a world action plan for sustainable development, which includes a chapter on children and youth.
Governments made a series of commitments at UNCED, which encompass the goals of the World Summit for Children.

It is useful to provide an overview of where we stand a decade later with respect to the commitments made at these two international conferences in terms of protecting our children and safeguarding the environment.

Since the World Summit for Children

A series of goals were adopted at the World Summit for Children, which, if achieved, would fulfil the rights enshrined in the Convention on the Rights of the Child. During the 1990s, progress was made towards fulfilling these goals. Millions of young lives have been saved as a result of increased immunization coverage and expanded basic social services, including primary health care, children’s and women’s nutrition programmes and clean water supply and adequate sanitation. At the global level, the international community has adopted numerous critically important treaties and policies to protect children from exploitation.

Over 60 countries have achieved the Summit goal of a one third reduction in mortality among children under the age of five; in over 100 countries, under-five deaths were cut by one fifth during the decade^4 (see figure 1). Most notably, the deaths of young children from diarrhoeal diseases - one of the leading causes of the under-five mortality rate - were reduced by 50 per cent, saving more than a million lives every year^5.

Yet in spite of these advances, many of the promises for children made at the World Summit and subsequent international conferences of the past decade remain unfulfilled and the lives of countless children and their families continue to be blighted. In addition to the nearly 11 million children dying from readily preventable causes each year, an estimated 150 million children in the developing world are malnourished^6. Over 120 million are still out of school, 53 per cent of them girls^7. Unprecedented incidences of civil wars and ethnic conflicts marked the last decade, with perhaps more children losing their lives than ever before.
Box 1: Links Between Children and the Environment in Selected International Agreements

**Convention on the Rights of the Child (1989):** “To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution” and “States Parties agree that the education of the child shall be directed to: ... the development of respect for the natural environment.”

**Plan of Action for Implementing the World Declaration on the Survival, Protection and Development of Children in the 1990s:** “… to improve the environment by combating disease and malnutrition and promoting education. These contribute to lowering death rates as well as birth rates, improved social services, better use of natural resources and, ultimately, to the breaking of the vicious cycle of poverty and environmental degradation.”

**Agenda 21 (1992):** “The health of children is affected more severely than other population groups by malnutrition and adverse environmental factors.” and, “Children not only will inherit the responsibility of looking after the Earth, but in many developing countries they comprise nearly half the population…. Children in both developing and industrialized countries are highly vulnerable to the effects of environmental degradation... The specific interests of children need to be taken fully into account in the participatory process on environment and development.”

**The Habitat Agenda (1996):** “The needs of children and youth, particularly with regard to their living environment, have to be taken fully into account.”
Declaration of the Environment Leaders of the Eight on Children’s Environmental Health (1997): “We acknowledge that, throughout the world, children face significant threats to health from an array of environmental hazards. The protection of human health remains a fundamental objective of environmental policies to achieve sustainable development. We increasingly understand that the health and well-being of our families depend upon a clean and healthy environment. Nowhere is this more true than in the case of children, who are particularly vulnerable to pollution... We affirm that prevention of exposure is the single most effective means of protecting children against environmental threats.”

G8 Environment Ministers Communiqué (2001): “We are determined to develop policies and implement actions to provide children with a safe environment, including during prenatal and postnatal development, towards the highest attainable level of health.” and “We recognize that poverty and insufficient protection from environmental threats are often found in tandem. We will work together to address the most serious environmental health threats, including microbiological and chemical contaminants in drinking water, air pollution that exacerbates illness and death from asthma and other respiratory problems, polluted water, toxic substances and pesticides.”

The Berlin Commitment for Children of Europe and Central Asia (2001): “Protect all children, irrespective of the social and economic conditions they live in from environmental threats; create child-respecting urban and rural environments which enable all children to have access to a range of play and informal learning opportunities both at home and within their local communities.”
HIV/AIDS is reaching catastrophic levels, particularly in sub-Saharan Africa, robbing millions of children of their parents, schoolteachers and village nurses. In addition, far too many children continue to live without clean drinking water and adequate sanitation.

During the 1990s, the global community recognized children's right to a clean, healthy environment. At the 1992 United Nations Conference on Environment and Development, UNICEF proclaimed “we must preserve our planet in order to nurture our children; equally, we must nurture our children if we are to preserve our planet.” At the 2000 United Nations Millennium Summit, the international community reinforced this commitment with its adoption of the Millennium Declaration. Among the resolutions was the goal to halve the proportion of people living in poverty and those suffering from hunger and lack of safe drinking water by 2015.

The Millennium Declaration’s principle is also echoed in the Say Yes Campaign of the Global Movement for Children (see box...
Among the goals of Millennium Declaration was to halve the proportion of people living in poverty and those suffering from hunger and lack of safe drinking water by 2015.
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2), championed by Nelson Mandela and Graça Machel, which calls for people throughout the world to take action and protect the rights of children, including protecting the earth for children. The Special Session on Children of the United Nations General Assembly in May 2002 will serve to review the progress achieved in the last decade. It will also provide an opportunity for world leaders to reaffirm their obligation to safeguard the rights of all children through enhanced national action and international cooperation to make the world fit for children.

**Box 2: Say Yes for Children**

As this book goes to press, over 44 million women, men and children have pledged to “Say Yes for Children” in a worldwide campaign and have rallied behind ten overarching principles that seek to improve and protect the lives of children. One of these principles relates to environmental protection and has received wide support from the people who made their pledges. The world leaders attending the Special Session on Children will formally adopt these principles together with a series of supporting actions to make a world safe for children. The ten principles are:

- Leave no child out
- Put children first
- Care for every child
- Fight HIV/AIDS
- Stop harming and exploiting children
- Listen to children
- Educate every child
- Protect children from war
- Protect the earth for children
- Fight poverty: invest in children

Source: Global Movement for Children (http://www.gmfc.org/en)
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Since UNCED

The concept of sustainable development adopted at UNCED provides an over-arching policy framework within which the international community addresses the environmental, social and economic dimensions of development. From the environmental dimension, notable progress has been made on several fronts since 1992, from the negotiation and implementation of a remarkable number of multilateral environmental agreements, to the widespread efforts on the local level to implement the recommendations of Agenda 21. Furthermore, the realization that environmental challenges need to be addressed in all their complexity is increasingly entering the mainstream. This is reflected, for example, in the attention accorded environmental issues in national and local political processes; in the vibrancy of the non-governmental sector; in the unprecedented media coverage devoted to environmental degradation and its impacts; and in the innovations and initiatives being undertaken by the private sector in response to changing consumer attitudes.

Nonetheless, in the context of the gravity and urgency of the environmental challenges facing the international community, the relatively gradual improvements achieved since UNCED are widely regarded as insufficient to meet the commitments made at that time.

Global environmental degradation continues at an alarming rate, fuelled by social and economic problems such as pervasive poverty, unsustainable production and consumption patterns, inequity in distribution of wealth, unequal access to resources, uneven impacts of globalization and the debt burden. Numerous studies offer compelling evidence of the immensity of the environmental challenges facing us. For example, it has become increasingly evident that:

- The world water cycle will be unable to cope with demands in the coming decades, and if present trends continue two out of three people will live in water-stressed conditions by 2025\(^9\) (see figure 2);
The unsustainable management of chemicals and hazardous wastes is exacting a heavy toll on human health.
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- With 70 per cent of the world’s drylands degraded, land degradation has negated many advances made by increased agricultural productivity10;
- Air pollution is at a crisis point in many major cities with over one billion urban residents who breathe unhealthy air11;
- Climate change is altering weather patterns and disturbing life-supporting natural systems and processes;
- Forests and marine fisheries have been over-exploited; numerous plant and animal species will be lost forever;
- The unsustainable management of chemicals and hazardous wastes is exacting a heavy toll on human health.

![Figure 2: Projected global water stress, 2025](image)

Water withdrawal as percentage of total available

- More than 40%
- 40% to 20%
- 20% to 10%
- Less than 10%


Note: water stress in the above map is defined as ‘low’ when less than 10 per cent of total available is withdrawn; ‘moderate’ when 10 to 20 per cent of total available is withdrawn; ‘medium-high’ when 20 to 40 per cent of total available is withdrawn; and ‘high’ when more than 40 per cent of total available is withdrawn.
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Such environmental degradation continues to be a powerful contributor to many current pressing global health threats. Tragically, it is often children who succumb to environmental health threats. For example, acute respiratory infections (ARI), often caused by bacteria that thrive in unclean environments, are the biggest cause of childhood mortality. The highest incidence of ARI is in developing countries. Furthermore, diarrhoeal diseases claim nearly two million children under five every year and malaria continues to debilitate and kill in many countries.

The linkages between environmental degradation and health will be one of the issues discussed at the World Summit on Sustainable Development, to be held in Johannesburg, South Africa in August 2002. The Summit will review how the commitments made at UNCED have been implemented. It will also provide an important opportunity for the international community to inject a new spirit of cooperation and urgency based on agreed actions in the common quest for sustainable development.

Environmental Risks to Children's Health

Environmental conditions that are harmful to human health are termed “environmental threats” or “environmental risks” and include such factors as air quality, water quality and specific pollutants. Health threats due to behavioural and lifestyle patterns, such as smoking, unbalanced diets, lack of exercise and drug use could also be considered as “environmentally” related, but fall beyond the scope of this book.

Environmental threats to human health can broadly be divided into “traditional” hazards, stemming largely from a lack of development, and “modern” hazards, arising essentially from unsustainable patterns of development.

Traditional environmental health hazards remain the primary source of ill-health today for the majority of world population: biologically contaminated water, poor sanitation, indoor smoke,
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rampant disease vectors such as mosquitoes, deficient food hygiene and unsafe waste disposal are usually associated with poverty and social exclusion.

Modern environmental health hazards are closely associated with unsustainable patterns of production and consumption. Typical “modern” environmental problems include, air, water and soil pollution, unsafe use of chemicals, inadequate solid and hazardous waste management, climate change, ozone layer depletion and acid rain due to the use of fossil fuels. In rapidly industrializing countries, modern hazards often compound the traditional health threats.

The quality of the environment and the care a child receives from parents and family members exerts a powerful influence on whether a child survives his or her first years and subsequently influences his or her physical and mental development processes. Figure 3 shows the top killers of children, with acute respiratory infections, diarrhoeal diseases and malaria accounting for approximately 40 per cent of under-five child death. These three categories of disease are closely related to environmental factors, as shown in the first data column in table 1. Overall, environmental conditions are responsible for 33 per cent of the global burden of disease. As illustrated in table 1, 15.4 per cent of the global burden of disease associated with environmental factors is borne by children under the age of 15. This child component of environmental global burden of disease, measured by the loss of disability-adjusted life years (DALYs), represents about two-thirds of the total environment-related DALYs. Taking action to reduce environmental threats could make a major contribution to child health.
Poverty remains a primary root cause

Poverty, widespread in the developing world, is an underlying cause of both the ill-health and under-nourishment of children. It also contributes to the deterioration of natural resources and the environment. In industrialized countries, poverty is found in pockets, typically in urban centres, with similar consequences as in developing countries. Today, with a $30 trillion global economy, 1.2 billion people still struggle to survive on less than $1 a day, at least half of them children\textsuperscript{14}. Even in the world’s richest countries, one in every six children lives below the national poverty line\textsuperscript{15}. 


Note: Although the total of under-five deaths is relatively well known, the proportion related to each cause is much more uncertain and hence no numbers are used on the chart. Malnutrition is associated with half of all deaths.
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In ecologically fragile areas, for instance in arid or near-desert areas, or in flood-prone places, low-lying regions, remote mountainous terrain, overcrowded urban slums, or refugee camps, natural resources are scarce and environmental conditions arduous. In these places--mostly inhabited by poor people--the toll of environment-related diseases is highest.

Poverty robs children of the right to grow to their full potential. Childhood is a time of rapid growth and development, when great leaps are made physically, intellectually and emotionally. It is also a time of great vulnerability to environmental risks that can lead to illness, permanent physical and mental problems or death. Poverty exposes children to terrible risks to their health and development.

The gap between the richest and the poorest of the world has continued to widen and inequality across nations has steadily increased since 1980. Serious disparities also exist within countries. Both globally and within most countries, a small proportion of the population consumes a much larger share of natural resources than their poor counterparts. Over-consumption, both in terms of the level and pattern, intensifies poverty and aggravates environmental pollution. To reduce poverty requires not only economic growth, according to research, but also disparity reduction measures, such as explicit policy and strong leadership on children’s issues, good governance, proper economic incentives, sufficient investment in basic social services and sound environmental management. Developing countries around the world face the challenge of speeding economic growth while slowing environmental degradation. They, therefore, need help in coordinating and integrating economic and environmental policies to achieve sustainable development.
Table 1. Global Burden of Diseases (DALYs)\textsuperscript{a} Associated with Environmental Exposures in Children Under Age 15 – 1990

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Environmental fraction of global burden of disease (%)\textsuperscript{b}</th>
<th>Child portion (C) and total (T) environmental DALYs (1,000 years)\textsuperscript{c}</th>
<th>% of all DALYs\textsuperscript{d}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>All age groups</td>
<td>Age 0–14 years</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>90</td>
<td>84,100 (C) 89,670 (T)</td>
<td>6.5</td>
</tr>
<tr>
<td>Malaria</td>
<td>90</td>
<td>24,400 (C) 28,535 (T)</td>
<td>2.1</td>
</tr>
<tr>
<td>Acute respiratory infections</td>
<td>60</td>
<td>63,000 (C) 70,017 (T)</td>
<td>5</td>
</tr>
<tr>
<td>Chronic respiratory diseases</td>
<td>50</td>
<td>7,700 (C) 30,185 (T)</td>
<td>2.2</td>
</tr>
<tr>
<td>Unintentional injuries</td>
<td>30</td>
<td>22,400 (C) 45,656 (T)</td>
<td>3.3</td>
</tr>
<tr>
<td>Cancer</td>
<td>25</td>
<td>1,500 (C) 17,628 (T)</td>
<td>1.3</td>
</tr>
<tr>
<td>Vaccine-preventable infections</td>
<td>10</td>
<td>6,900 (C) 7,117 (T)</td>
<td>0.5</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>10</td>
<td>530 (C) 3,843 (T)</td>
<td>0.3</td>
</tr>
<tr>
<td>Mental health</td>
<td>10</td>
<td>1,100 (C) 14,495 (T)</td>
<td>1.1</td>
</tr>
<tr>
<td>Cardiovascular diseases</td>
<td>10</td>
<td>1,600 (C) 13,324 (T)</td>
<td>1</td>
</tr>
<tr>
<td>Overall \textsuperscript{e}</td>
<td>33</td>
<td>213,230 (C) 320,470 (T)</td>
<td>23</td>
</tr>
</tbody>
</table>

Sources: World Health Organization (WHO), Health and Environment in Sustainable Development: Five Years after the Earth Summit, tables 5.3 and 5.14, WHO, Geneva, 1997. (Figures currently under revision)
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a. Global burden of disease is measured by DALYs, disability-adjusted life years. Each DALY indicates the loss of a year of healthy life—that is, time lived with a disability or time lost through premature death.
b. The percentages reflect how important environmental factors are in causing the burden of a disease and indicate how much their control would contribute to its reduction.
c. Global burden of disease in children associated with environmental exposures in this disease category, measured by DALY.
d. The burden of each disease associated with environmental exposures, as a percentage of the global burden of all diseases.
e. Percentage numbers in this row are not the sum of respective columns.

The influence of global trends

Among the trends influencing the phenomenon of poverty in today’s world, globalization and urbanization are perhaps the most significant ones, with the latter having a particularly direct impact on children.

In spite of the many new opportunities globalization brings, it has tended to deepen economic disparity within and between nations. As the Secretary-General of the United Nations Kofi Annan has pointed out, “Millions are experiencing globalization not as an opportunity, but as a force of disruption or destruction: as an assault on their material standards of living, or on their traditional way of life.”

The scale of the impact that globalization will create on the world’s environment and children’s well-being, and the exact forms such impact will take, are yet to be seen and further evaluated.

In the course of the last century, urbanization has led to the concentration of half of humanity in cities around the world. In most developing countries, this means the populations of their main cities far outstrip the capacities of urban infrastructures and basic services (see box 3). One quarter to one third of all urban households in the world live in absolute poverty, according to...
Degraded environmental conditions and other physical hazards are common and inescapable for the poor in densely populated cities, where infectious disease can spread rapidly. It is estimated that at least 220 million people in the cities of the developing world lack access to clean drinking water, 420 million have no access to even simple latrines, and over a billion urban residents are exposed to health-threatening levels of pollution. Additionally, pollution from traffic and industries is prevalent to urban settings. Large numbers of adolescents face particular threats with little or no support (see figure 4).
Figure 4: Moving to the cities

Adolescent populations in developing countries by urban and rural areas, 1990-2025
[population aged 10 to 19, in millions]

The largest generation in history will soon be the most urbanized. Moving to the city may mean:

- Growing exposure to risks, such as alcohol and drugs, violence and HIV/AIDS
- Loss of culture and isolation from extended family
- Improved access to better schools
- More employment opportunities
- Falling birth rates (over time)

Box 3: Life in the Slums

The lack of affordable housing for low-income urban households in developing countries has resulted in a proliferation of slums and squatter settlements. There are many characteristics common to life in urban poverty: an appalling reality for one-fourth to one-third of all urban households in the world.

Roots: Most urban slum and shantytown dwellers were originally from rural areas and were driven to towns and cities by the poverty of the countryside.

Youth: Because rural migrants to cities and towns continue to have the large families common in the countryside, the average age of slum inhabitants is very low.

Overcrowding and Squalor: Population density in slums is the highest in the world. Overcrowding, lack of safe water, and inadequate waste disposal, drainage and sanitary systems create conditions hazardous to health.

Women householders: Women-headed households are among the poorest and typically represent a high proportion of those in informal settlements worldwide.

No services: Most slum households must fetch their water from a standpipe and deposit their waste in open drains.

Malnutrition and disease: Slum dwellers are dependent on cash to secure food. Because incomes are very low, children are malnourished.

Premature adulthood: Children are often pulled out of school to earn extra income. Many are abandoned or leave home.

Polluted environment: Poor cities have some of the worst levels of air pollution in the world.

Sources: Compilation based on material from the UN Centre for Human Settlements (Habitat).
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In the course of the last century, urbanization has led to the concentration of half of humanity in cities around the world.
The environment influences children at all stages of their lives, before birth and in their homes, schools and communities.