



**HEALTHY ENVIRONMENTS
FOR HEALTHY CHILDREN**
Global Programme Framework





Healthy Environments for Healthy Children

Global Programme Framework

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Foreword



When the global community rallied around the Sustainable Development Goals in 2015, we made an important promise to children everywhere. Our promise was to safeguard the incredible gains that have been made on child survival over the past 15 years, and to ensure that every child has the chance to thrive – reaching their full potential no matter their gender, ethnicity or financial means. Our changing climate and degrading environment are jeopardizing the fulfilment of our promise.

The very economic system that has helped to deliver many gains for children over the past decades, is now threatening their survival, health and well-being as it drives climate change and releases pollution that is poisoning the places where children live, play and go to school. The toxic air 1.8 billion children under the age of 15 years breathe is putting their health and development at serious risk. Meanwhile, one in three children have unacceptably high levels of lead in their blood, potentially lowering their IQ, causing attention deficits, poor academic performance and is linked to violent behaviour later in life.

Children who live in the poorest communities and those affected by conflict are the most vulnerable to the impacts of climate change and our degrading environment. They are the ones who are most exposed when climate-driven disasters strike, or because they live near industrial areas, or are working in toxic dumpsites and hazardous processing facilities.

Addressing the challenge of environmental sustainability is imperative not only to keeping our Global Goals promise, but also to realizing the right to health and well-being of every child. At UNICEF, we recognize that fulfilling our mandate and protecting the most vulnerable children requires action on climate change and environmental degradation to be integrated across our global health programme. This Strategic Framework aims to support programme teams to do just that.

The Framework sets out the challenge, why we need to act urgently and offers practical ways in which UNICEF staff around the world can support governments at all levels, communities, civil society and children themselves to make positive change. We are not beginning from scratch. Already UNICEF is working with governments and communities in many places on tackling these immense challenges. The Framework highlights some inspiring examples of success.

Despite the incredible challenges that climate change and our degrading environment pose, there are many reasons to be hopeful. Global momentum to build environmental sustainability is growing, while children themselves are demonstrating their strength as agents of change. It's time for us to redouble our efforts to help create a world where every child survives and thrives.

Dr. Aboubacar Kampo
Director of Health



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Acknowledgements

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Acronyms

CCA	Common Country Assessment
CEHU	Children Environmental Health/Unit
COP	Conference of the Parties
CRC	Convention on the Rights of the Child
DDT	Dichlorodiphenyltrichloroethane
ESD	Education for Sustainable Development
GIS	Geographic Information System
HCF	Health care facility
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
IMO	International Maritime Organization
IRENA	International Renewable Energy Agency
ITU	International Telecommunication Union
LMICs	Low- and middle-income countries
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
PBDE	Polybrominated diphenyl ether
PBTs	Persistent, bioaccumulative and toxic substances
PCB	Polychlorinated biphenyls
PFAS	Per- and polyfluoroalkyl substances
SAICM	Strategic Approach to International Chemicals Management
SDG	Sustainable Development Goal
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNEA	United Nations Environment Assembly
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNITAR	United Nations Institute for Training and Research
UNSDCF	United Nations Sustainable Development Cooperation Framework
UNSG	United Nations Secretary-General
UNU-WIDER	United Nations University World Institute for Development Economics Research
WASH	Water, sanitation and hygiene
WHO	World Health Organization

A note on terminology:

Throughout this document, the term ‘environment’ includes climate unless this is explicitly addressed separately. Similarly, the term ‘children’ includes adolescents unless this is explicitly addressed separately.

Executive summary

The United Nations Secretary-General's 2020 report (A/75/307) on the Status of the Convention on the Rights of the Child (CRC) highlights climate change and environmental degradation as a significant challenge in implementing the CRC. Climate change threatens children's lives, destroys critical infrastructure, affects their chances of survival and is an obstacle to the enjoyment and realization of their rights. Moreover, the increasing incidences of cancer, diabetes, neurodevelopmental disorders and asthma globally have accompanied the rapid rise in air pollution, e-waste and harmful chemicals in everyday products, among other hazards.

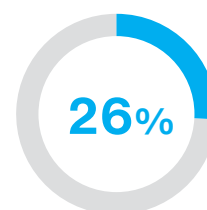
The right to a healthy environment underpins the rights of all children not only to survive but to thrive and live in dignity.

UN High Commissioner for Human Rights⁴⁹

The World Health Organization (WHO) estimates that 26 per cent of deaths in children under 5 years of age can be prevented by addressing environmental risks.¹ Globally, the increasing incidence of cancer, diabetes, neurodevelopmental disorders and asthma have accompanied the rapid rise in air pollution, e-waste and other harmful chemicals in food, water and everyday products. Disturbingly, 1.8 billion children under the age of 15 years breathe toxic air that puts their health and development at serious risk.² Around one in three children – up to 800 million globally – have blood lead levels at or above 5 micrograms per decilitre blood ($\mu\text{g}/\text{dL}$). Childhood lead poisoning can lead to lower IQ, attention deficits, poor academic performance and is linked to violent behaviour later in life.³

The midterm review of the UNICEF 2018-21 Strategic Plan has elevated action on climate change and environmental degradation as an organizational priority, to be integrated throughout UNICEF programmes. Additionally, UNICEF has established environmental degradation and climate change as a global priority, and advocates for a safe and sustainable environment for all children. The 'Healthy Environments for Healthy Children: Global Programme Framework' aims to integrate this organizational priority across UNICEF's health programme.

93% of the world's children under the age of 15 years (1.8 billion children) breathe air that is so polluted it puts their health and development at serious risk.²



of deaths among children under 5 years can be prevented by addressing environmental risks.¹

UNICEF's vision as stated in the global [Health Strategy](#) is “a world where no child dies from a preventable cause and all children reach their full potential in health and well-being”. The state of the environment profoundly shapes the health and well-being of children. For this reason, UNICEF's health programmes are incomplete without addressing the environmental determinants of child health.

Therefore, UNICEF is now elevating action on climate change and environmental degradation for, and with, young people in its programmes to strengthen primary health care, with a focus on prevention.

The purpose of this Global Programme Framework is to support country offices as they address environmental pollution and climate change through UNICEF's health programmes, complementary to the organization's WASH strategy, food system approach, and the organization's overall policy on climate change and the environment. It demonstrates the case for action, offers guidance on concrete steps that can be taken with UN agencies and other partners, and provides a broad framework of interventions.

Chapter 1 provides an overview of how the environment influences child survival, health and well-being. It describes how economic development has produced mixed outcomes for child health and well-being and the 'cocktail' of risks that children face. Finally, it outlines the purpose of this framework.

Chapter 2 describes the types of environmental hazards that most affect children. These are grouped into five categories: toxic metals, toxic chemicals, hazardous waste, environmental risks, and climate change. Each of these affect children in different ways during all phases of their development and into adulthood. This chapter also looks at the settings where children are exposed and the health effects linked to early exposure.

Chapter 3 outlines children's right to a healthy environment. Links to the Convention on the Rights of the Child and recent resolutions as well as reports are highlighted. The chapter also outlines States' duty to protect children, their collective responsibilities and the concrete actions needed to ensure the full realization of child rights.

Chapter 4 introduces the various multilateral environmental agreements and the national mechanisms that can support countries as they respond and adapt to climate change. This chapter also introduces a range of tools that stakeholders can use to understand the complexity of environmental risks to children's health and to translate evidence into action.

Chapter 5 provides the framework to address the growing threats to children's health from environmental pollution and climate change in UNICEF's health programmes through the following five major actions:

1. **Strengthen climate-resilience and environmental sustainability in health care facilities** (HCFs). UNICEF offices can undertake key interventions from helping to solarize health facilities to increasing their resilience, while supporting the safe disposal of unusable equipment and measures for sustainable procurement.

Children bear a disproportionate share of the burden and are subject to immediate and long-term impacts of the effects of climate change and toxic and pollutant exposure, resulting in disease, impairments and mortality.

UN High Commissioner for Human Rights⁴⁹

Our COVID-19 responses must be internationally coordinated, cooperative, evidence-based, child-centred – and they must integrate strong action to prevent biodiversity loss, childhood exposure to pollution and toxic wastes, and environmental harm.

UN High Commissioner for Human Rights⁴⁹

2. **Develop responsive primary health care.** UNICEF offices can help incorporate children's environmental health into primary health care and essential public health functions; engage with community health workers and networks on key issues; and promote multisectoral action with local governments.
3. **Embed environmental health in school health programmes.** UNICEF can ensure critical issues related to environmental health are integrated at the national, provincial/local and school levels.
4. **Promote climate and environmental action with children, adolescents and young people.** UNICEF offices can support children and adolescents to participate meaningfully in climate and environmental action at all levels.
5. **Mobilize collective action.** Finally, UNICEF offices can accelerate progress through policy, programme and partnership development to ensure the necessary institutional capacity and disaggregated data that are needed to support children's environmental health.

States have an obligation and businesses a responsibility to identify, prevent and mitigate children's exposure to environmental health risks.

UN High Commissioner for Human Rights⁴⁹

Each of these actions detail ways to protect against the various environmental threats described, increasing the chances that all children have to survive and thrive and equipping them with the tools they need to be agents of change. Examples of existing country interventions to promote children's environmental health are described in **Chapter 6**.

It is our hope that this Global Programme Framework provides helpful and relevant information, and creates a starting point for deeper engagement by UNICEF offices in addressing the environmental factors that negatively influence child survival, health and well-being.



An overview of environmental risks to child health

Chapter overview

- Despite important progress on child health, the complex and evolving environment that they live in today accounts for a quarter of their disease burden.

- Economic development, while contributing to some child health gains, has created new threats from environmental degradation and climate change.

- While environment-attributable child mortality in the communicable and neonatal categories has decreased, high rates of non-communicable diseases related to environmental factors are found worldwide.

- Children face a ‘cocktail’ of risks from air pollution, lack of access to safe water, sanitation, vector-borne diseases, toxic products and waste, climate change impacts, and risks related to the built environment where they live.

- This Framework aims to develop a ‘healthy environments’ pillar in UNICEF’s health programme. The pillar will address the risks children face from environmental factors emerging from climate change and environmental degradation by clearly outlining UNICEF’s value-addition in support of national, local and community-based programmes.

1.1 The environment plays an important role in child survival, health and well-being

Tremendous progress in child survival has been made over the past three decades. On average, 14,000 children under 5 years of age died every day in 2019 compared to 27,000 in 2000 and 34,000 in 1990.⁴ Even though the current disruptions to essential health services caused by COVID-19 threatens to reverse recent progress made in child survival, UNICEF is committed to reimagining a better world for children during and after the pandemic.

Despite these gains, today's children live in a complex and fast changing environment that is profoundly influencing their growth and development. The planet is warming. Altered and more extreme weather is increasingly impacting every aspect of their lives. The world is seeing biodiversity loss at unprecedented rates.⁵ The unplanned growth of urban areas, industrialization, and unsustainable consumption patterns are all making irreversible changes to the natural world. In this rapidly changing environment, children's exposure to risks and pollution do not work in isolation. They interact with social and nutritional factors that influence their health and well-being for the rest of their lives.

For all countries and communities, children represent the future – to be nurtured and protected. As governments address sustainability in the face of growing populations requiring food, water, housing and other basic needs, investing in the health of children by reducing their exposure to environmental risks must be an overriding priority. Only in healthy environments do children have the potential to become healthy adults, capable of meeting the challenges of the future.

Twenty-six per cent of under-five deaths can be prevented by addressing environmental risks – a shocking missed opportunity described by the World Health Organizations (WHO) report *Inheriting a sustainable world: Atlas on children's health and the environment*. A large proportion of death and disease in children under 5 is still connected to living in households without access to basic services such as safe water and sanitation, and households that have high air pollution from the use of solid fuel for cooking and heating with insufficient ventilation. Environmental hazards have been linked to a range of significant health risks, including premature birth, stillbirth, increased lifelong risk for brain and behaviour problems, respiratory disorders, cardiovascular disease and cancers, as well as dysfunction of hormone and reproductive systems and others.

The risk of developing disease is often the result of combined exposures. For example, the combination of ambient air pollution and second-hand smoke prenatally and in the first years of life can adversely affect systems and organs as they develop. The consequences of these exposures may only be apparent later in life. Exposure to worse pollution often occurs together with poverty, social stressors, and inadequate health care. Meanwhile, although climate change and air pollution may seem like two distinct issues, they are closely interlinked. By reducing air pollution, we also protect the climate. Air pollutants include more than just greenhouse gases – principally carbon dioxide but also methane, nitrous oxide and others – but there is a big overlap: the two often interact with each other.⁶

A lack of clean air and water, exposure to hazardous chemicals and waste, the effects of climate change and biodiversity loss prevent children from enjoying their rights today and in the future, as their lifelong health outcomes, well-being and development are compromised.

UN High Commissioner for Human Rights⁴⁹

The scope of environmental hazards is global, affecting the developing and developed world alike.¹

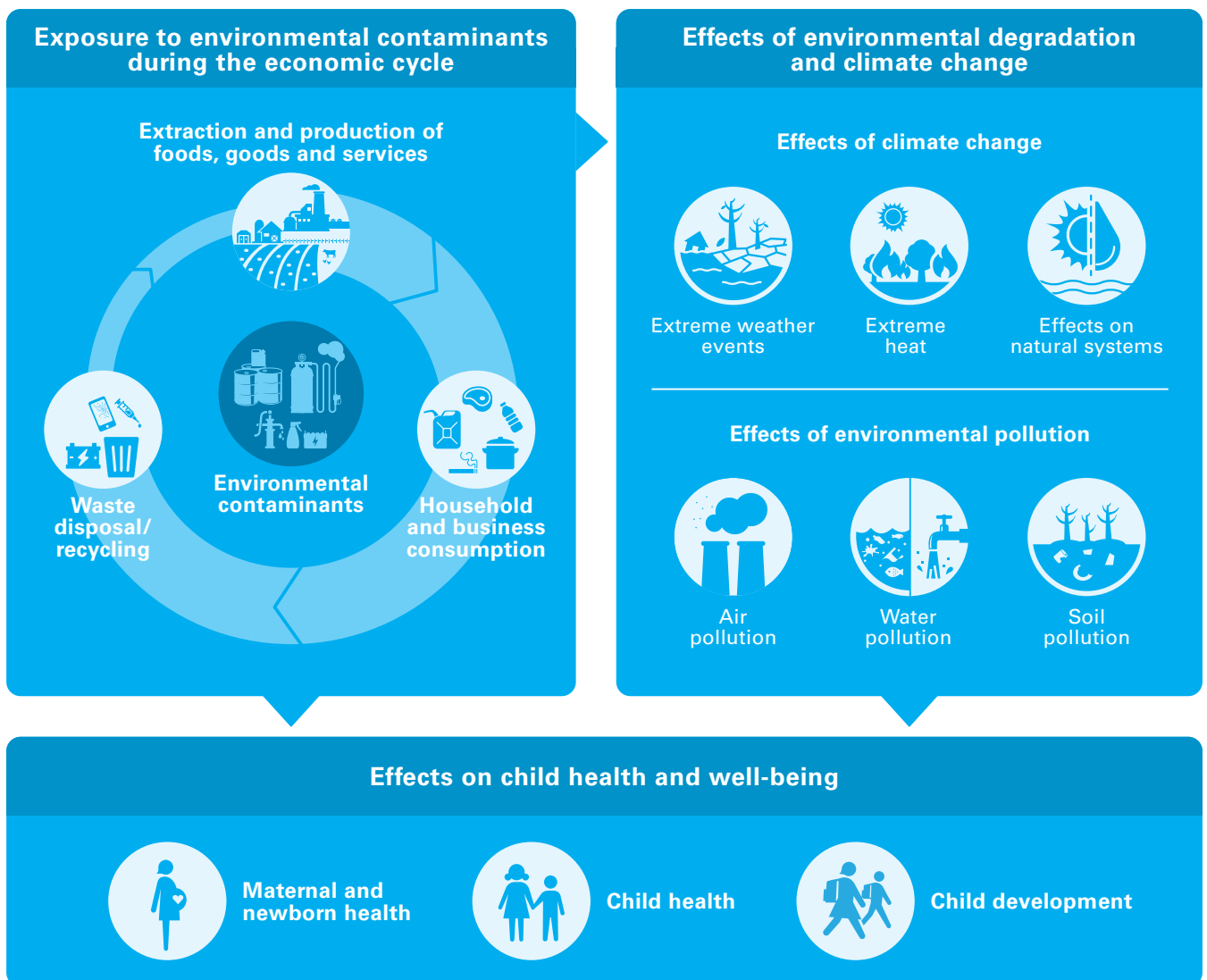
Decisively addressing children’s exposure to environmental hazards has significant potential to prevent communicable and non-communicable diseases. This contributes to improved child survival, health and well-being – creating positive effects that will benefit children throughout their lives.

Interventions that effectively protect children from environmental risks do exist.

1.2 Economic development has produced mixed outcomes for child health and well-being

Over the last 100 years, global economic growth has relied heavily on the use of natural resources. The resulting economic progress has contributed to some gains in child health, including substantial declines in early childhood deaths and a drop in infectious diseases. However, the overall unsustainable exploitation of natural resources has devastated the very systems needed to ensure continued development and to sustain life for future generations. Children bear the least responsibility for this degradation of our planet, yet are most threatened by it, starting even before birth.

Figure 1: The effects of economic development on children’s health





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Unsafe chemicals are growing threats to children’s healthy development – whether they are used in everyday household products, in communities or are contained in the run-off from hazardous waste sites. Children are exposed to environmental contaminants during all phases of the economic cycle: in the extraction and production of foods, goods and services; during household and business consumption of these; and in waste disposal and recycling. The same economic cycle responsible for the release of harmful chemicals also contributes to environmental degradation and climate change by polluting the air, water and soil as well as through emissions, which contribute to global warming. These factors have had an extreme and negative impact on children throughout the world.

Industrialization has contributed to environmental pollution on a global scale. Both large-scale industry and informal sector activities, such as artisanal and small-scale gold mining or the recycling of used lead-acid batteries, have contributed to this. Toxic metals, chemicals and compounds

Air quality continues to deteriorate worldwide while industrialization and urbanization trends continue.

UN High Commissioner for Human Rights⁴⁹

used in unsustainable patterns of production, consumption and waste disposal continue to be released into the environment in areas where children live, play and learn. Unplanned and unmanaged urban growth has further exacerbated the problem.

Despite chemicals being widespread in the environment, knowledge about their toxicity and health effects is limited or not shared. The regulatory requirements for chemicals, where safety testing must be conducted by manufacturers and the results assessed by regulators, covers only a small fraction of these substances, and the capacity varies from country to country. Even banned toxic chemicals have never been fully cleaned up and continue to cycle through air, water, food and other products where they are absorbed by children's growing bodies.

Waste and recycling are critical parts of the economic process. Without strong safeguards in place, waste and improper recycling are a major sources of environmental pollution and climate-changing chemicals. Household waste, larger waste/recycling sites and contaminated waste in conflict settings can expose children to a wide range of toxic chemicals and metals.

Discarded electronics and electrical devices, such as computers, phones and lamps (known as e-waste), can contain a number of valuable components like gold and copper. These used items are often exported by high-income countries to low- and middle-income countries (LMICs) for recycling. But, when unsafely processed or burned, e-waste exposes children who live near waste sites to a cocktail of toxicants, especially heavy metals like mercury, lead and cadmium. Many of these are associated with premature births, stillbirth, reduced intelligence, attention deficits, lung damage and cancer.⁷ Inappropriate recycling of e-waste may contribute to global warming through the burning or mishandling of temperature exchange equipment, releasing ozone-depleting chlorofluorocarbons or hydrochlorofluorocarbons.

Climate change is a direct threat to a child's ability to survive, grow and thrive. As extreme weather events, such as cyclones and heatwaves, increase in frequency and intensity, they threaten children's lives and destroy infrastructure critical to their well-being. Children are the most vulnerable to diseases, such as malaria and dengue fever, which will become more widespread as a result of climate change. Children under 5 years of age bear close to 90 per cent of the disease burden attributable to climate change.⁸ The adverse impact of extreme climate events on health infrastructure, which compromises health services for children, can hardly be overstated.

By inadequately addressing climate change and environmental degradation, world leaders are failing on an unprecedented scale in their duty to protect children's rights. Climate change impacts are already happening and are projected to increase in the near and medium terms even under the most optimistic forecasts. To protect children's health and well-being, States must adopt urgent measures to mitigate current impacts, as well as act now to reduce the impacts that will affect the future. The short-term solutions lie in resilient development that provides children and families with the resources they need to better prepare for and manage crises and to recover faster when they do happen.

We are yet to fully understand how toxic many commonly used chemicals are.

Climate change is the most significant intergenerational injustice of our time.

UN High Commissioner for Human Rights⁴⁹

The solution lies in instituting a model where economic development and environmental sustainability can go hand-in-hand. This would involve finding ways to sustain economic growth without further degrading the environment by implementing a redesign-reduce-reuse-recycle approach. Also, critical will be using new and innovative methods for production and reuse; cleaning up existing sources of pollution; and engaging communities, including children, in the process. Worldwide, the ‘circular economy’ is growing in popularity as a way to reduce waste and pollution, while also protecting peoples’ health and supporting the next generation to survive and thrive. The circular economy has the potential to improve productivity and lower health expenditure at the household and government levels. This could amount to billions of dollars in savings at the national level.

1.3 Children face a ‘cocktail’ of risks in the environment

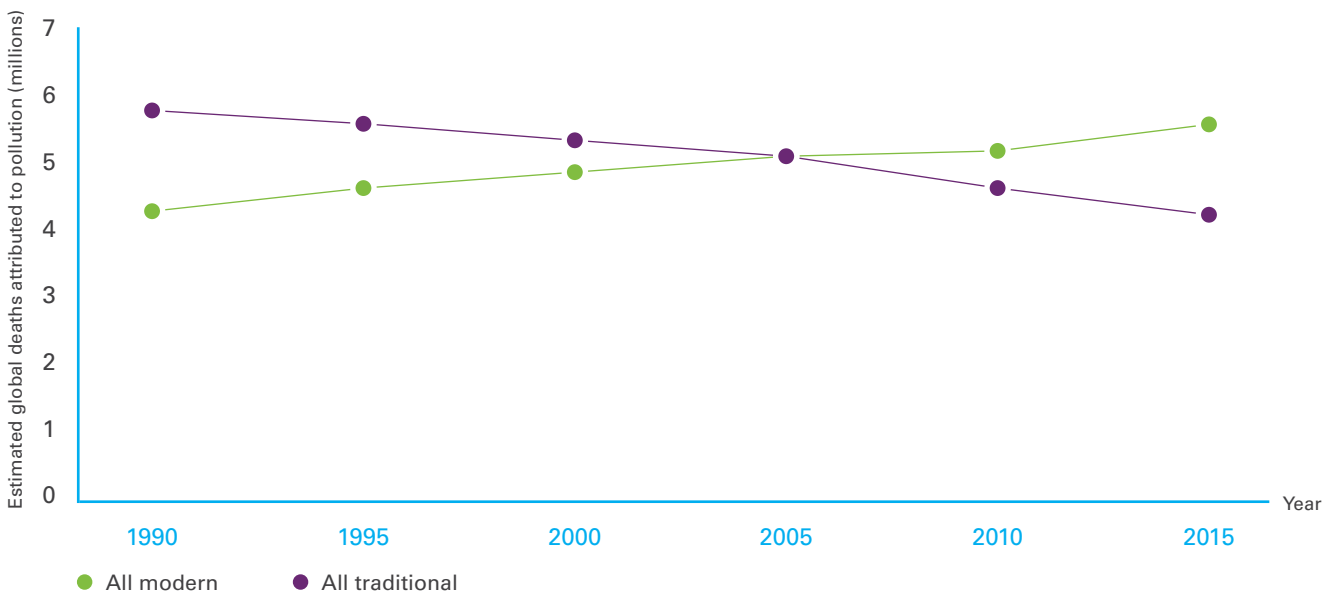
While environment-attributable child mortality in the communicable and neonatal categories has decreased, high rates of non-communicable diseases related to environmental factors are found worldwide.

Addressing environmental risks requires looking at both traditional issues linked to poverty and those that have emerged largely because of industrialization. Some of these risks are immediate, while others may take years to show the extent of their impacts on health and development.

Children are uniquely susceptible to health-related harm from an unhealthy environment due to the physical and mental developmental differences from adults.

UN High Commissioner for Human Rights⁴⁹

Figure 2: Estimated global deaths attributed to pollution



Source: The Lancet Commission on pollution and health, 2018

All modern = modern forms of pollution, comprising ambient air, chemical, occupational, and soil pollution. All traditional = traditional forms of pollution, comprising household air and water pollution.

Traditional hazards include household air pollution, lack of access to safe water and sanitation as well as vector-borne diseases. Each year, household air pollution causes 543,000 deaths of children under 5 years of age.⁹ It also causes serious illnesses such as chronic respiratory infections, lung disease, cancer, cognitive problems and other negative health effects. Improved access to safe water, sanitation and hygiene could prevent more than 400,000 child deaths annually.¹⁰ In 2017, 71 per cent of the global population used safely managed drinking water services and 45 per cent used safely managed sanitation services.¹¹ Children who spend much of their time living and playing around unsafe water are at high risk of recurring intestinal diseases, which hinder growth and development. Vector-borne diseases constitute another major cause of death for children under-five. In 2018, 272,000 children under-5 died from malaria, amounting to 67 per cent of all malaria deaths that year.¹² Sustained and coordinated action can tackle these preventable causes of death and disease.

While there has been significant progress in reducing poverty-related environmental risks in recent decades, **industrialization-related pollution** has steadily increased. Environmental pollution and climate change, as well as hazards in the built environment, are major threats to children's health and development.

Tens of thousands of chemicals – including three thousand produced in high volumes – now circulate through our water, air, soil, food and other products. The potential health effects of the vast majority of these chemicals on children have never been tested. The WHO has identified **10 chemicals (or groups of chemicals)** that are of major public health concern: air pollution, arsenic, asbestos, benzene, cadmium, dioxin and dioxin-like substances, excess fluoride, lead, mercury and highly hazardous pesticides. Some environmental hazards can also arise naturally, as with arsenic in drinking water. Scientists and regulators are working to understand the spread of chemicals that are 'persistent' (remain in the environment for a long time), or 'bioaccumulative' (build-up in body tissue), and toxic (PBTs), including a number of those chemicals listed in the tables in section 2.5.

Breathing clean air at home is essential for children's healthy development.

Children's exposure levels to toxicants and pollutants are much higher than adults as they have faster metabolic rates, proportionally consume more water and food and breathe more air.

UN High Commissioner for Human Rights⁴⁹

Communities facing conflict

Communities experiencing the chaos of conflict are an extreme example of environmental threats to children. In 2018, more than one in five babies globally spent their earliest moments in conflict settings in Afghanistan, Somalia, South Sudan, Syria, Yemen and elsewhere. The trauma and instability of conflict, combined with chemical exposures from contaminated rubble and other pollution sources, are major risks for children's lifelong health and well-being.

From asbestos to cigarette smoke and diesel exhaust, each decade brings new revelations about the damaging health effects of toxic substances. Lead, for example, is a massively widespread and largely unrecognized threat and a potent neurotoxin. Lead is particularly destructive when exposure occurs early, as lead can cause lifelong neurological, cognitive and physical impairment.¹³ Great progress has been made to reduce lead exposure by banning leaded gasoline around the world, yet approximately one in three children – up to 800 million globally – are poisoned by lead. Many of the irreversible impacts of lead on behaviour and thinking may not be visible until years after exposure. Food can also contain a wide range of contaminants ranging from natural moulds and mycotoxins to chemicals like methylmercury, pesticides, persistent organic pollutants and other contaminants that have never even been studied for their potential toxicity. Contamination can arise from chemicals in soil or livestock feed. It can also happen when chemicals are ingested by fish or animals that humans then eat. Or, chemicals can be introduced through processing and packaging, by using pesticides and fertilizers, or through adulteration of food or spices to add colour or weight.

Climate change is one of the greatest environmental threats to children's health and has the potential to undermine many of the gains made in child survival and development. Children are the least responsible for climate change, yet they bear the greatest burden of its impact. The accumulation of greenhouse gases in the atmosphere is destabilizing the global climate system and putting children's health at risk. Children face both the impacts of sudden extreme weather events such as flooding, heatwaves and wildfires, which are increasing in frequency and severity as a result of climate change; as well as slower-onset impacts such as drought and increasing disease-vector ranges. In addition to death, disease, injury, destruction, and displacement in communities, extreme weather events destroy health, schools, water and sanitation infrastructure; contaminate water supplies; and pollute the air.

According to the Intergovernmental Panel on Climate Change (IPCC), less than 10 years are left to make the transformation necessary to avoid the worst impacts of climate change. The level of carbon dioxide in the atmosphere would have to be cut by 45 per cent by 2030 to prevent global warming above 1.5°C – the threshold for avoiding the worst impacts of climate change.

The **built environment** refers to human-made surroundings ranging in scale from buildings and parks to neighbourhoods and cities, often including their supporting infrastructure. The built environment can create risks for children's health as well as offer opportunities for health promotion. Injury and violence are among the leading causes of death for children, adolescents and youth aged 5-24.¹⁴ Injuries include road traffic injuries, drowning, burns and falls – resulting from unsafe infrastructure and physical space. Additionally, only around one-third of the people in Africa and Asia who live in urban areas have access to public spaces within 400 metres walking distance along a street network. Investment in 'green' spaces (e.g., public parks, playgrounds, community gardens) and 'blue' spaces (e.g., ponds, lakes or streams) – especially in urban areas – promotes active lifestyles and health.

Children around the world are being poisoned by lead on a massive and previously unrecognized scale.³

While limiting warming to below 1.5°C is financially and technically possible, it would require unprecedented transitions in all aspects of society.

An Environment Fit for Children: UNICEF's Approach to Climate Change

1.4 The role of the Global Programme Framework

This Global Programme Framework demonstrates a resolve to integrate actions on environmental degradation and climate change throughout UNICEF programmes as part of the Strategic Plan's midterm review (MTR) process and the long-term global advocacy priorities. It establishes a 'healthy environments' pillar in UNICEF's health programme that addresses children's environmental risks emerging from climate change and environmental degradation. It aims to do this by clearly outlining UNICEF's value-addition in support of national, local and community-based health programmes.

The Framework introduces the available evidence about diverse environmental hazards, identifies the primary duty-bearers, and explains how advocacy and action can deliver results for child health, well-being and Sustainable Development Goal (SDG) 3, in concert with national partners and the UN system. This Framework will be the basis for future technical notes on specific issues and pollutants. It will be updated based on emerging research.

Contributing to SDG 6, UNICEF's Strategy for Water, Sanitation and Hygiene (WASH) 2016–2030 captures the organization's programme focusing on safe and affordable drinking water, sanitation and hygiene for all and ending open defecation. It also plays a strong role in reducing environmental risks for children.

This version of the Framework does not cover UNICEF's emerging programme on injury prevention, which addresses the built environment. This area will be included in 2021. The Framework also does not address the food environment, which is part of the [food system approach](#) to address poor diets in children and adolescents.





Chapter overview

- This chapter introduces five categories of major environmental hazards: environmental risks, toxic metals, hazardous waste, toxic chemicals and climate change.

- Children are not little adults. They are extremely sensitive to the environment during ‘windows of vulnerability’ in the course of pregnancy, infancy and childhood.

- Low levels of environmental pollution that could be tolerable for adults can have life-long toxic effects on children.

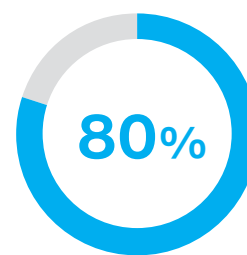
- Children are faced with environmental risks in places where they live, learn and play. Toxic chemicals and climate change create health hazards for children in both urban and rural areas, at school and home, in conflict settings, and around waste and recycling sites.

- Children have contributed least to climate change yet bear the greatest burden of its impact resulting from extreme weather events and longer-term effects on natural systems. Many children experience the double threat of toxic environments and climate change.

- Environmental risks are concentrated in lower- and middle-income countries (LMICs) – where 92 per cent of pollution-related deaths occur – and in poorer, marginalized communities in all countries. Children in these communities bear the greatest burden of environmental injustice.

Over the past 50 years, children’s environments and patterns of disease have changed profoundly. The prevalence of autism spectrum disorders, asthma, attention deficit hyperactivity disorder, obesity, childhood cancers and birth defects have increased substantially. Evidence is growing that these are linked to environmental hazard exposure.¹⁵ Toxic exposures in pregnancy and early life have been linked to disease, disability and death.¹⁶ The WHO has declared that environmental risk factors play a role in more than 80 per cent of the diseases regularly reported by the organization. Globally, nearly one quarter of all deaths, and of the total disease burden, can be attributed to the environment.¹⁷

At the same time, climate change is an existential crisis for the global community. As the climate changes, natural disasters, rising temperatures and changes in rainfall patterns, among other phenomena, are already making life challenging and more dangerous for millions of people. Climate change challenges food security and access to clean drinking water. The increases in vector-borne diseases and heat stress threaten children, whose bodies are least equipped to protect themselves. Indeed, children are among the most vulnerable to climate change.



of diseases are influenced by environmental factors.

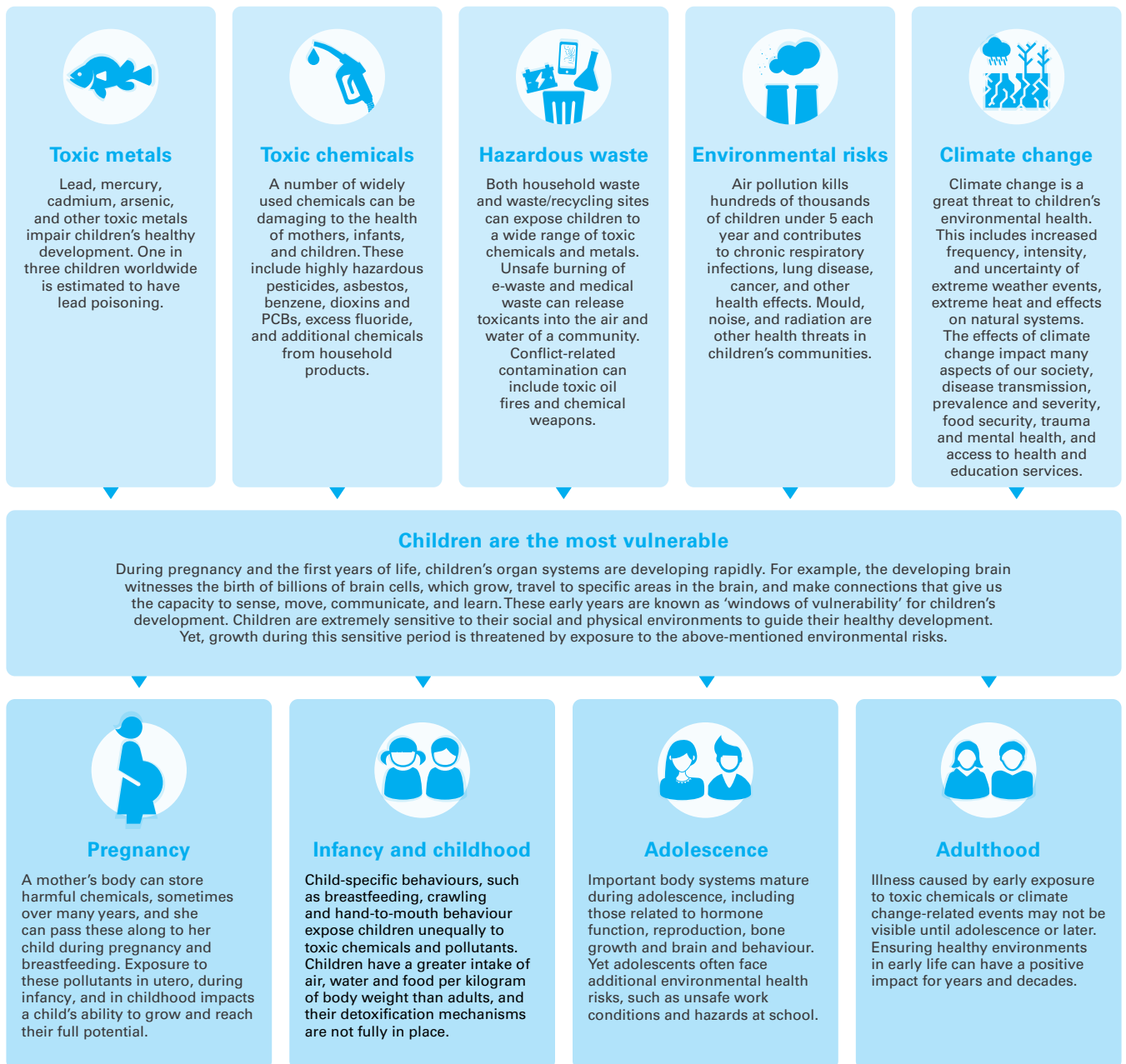


2.1 Children are at risk across all stages of their development

The major environmental hazards can be grouped into five categories: environmental risks, toxic metals, hazardous waste, toxic chemicals and climate change. These affect children in different ways during all phases of their development and into adulthood. But for all environmental risks, early ‘windows of vulnerability’ in children’s lives are the most sensitive.

‘Windows of vulnerability’ in early life mean children are particularly sensitive to environmental risks.

Figure 3: ‘Windows of vulnerability’ during the life course



Pregnancy. A mother’s body can store harmful chemicals, sometimes over many years, and she can pass these along to her child during pregnancy and breastfeeding. Over 200 hazardous substances have been detected in umbilical cords and placentas including metals, toxic chemicals in consumer products or food packaging, and air pollutants.¹⁸ Exposure to these pollutants in utero, during infancy and in childhood impacts a child’s ability to grow and reach their full potential.



Children are born “pre-polluted” with numerous contaminants.¹⁹

Infancy and childhood. After birth, children’s exposure to toxic chemicals and pollutants continues through their daily activities. Low levels of environmental pollution that may be tolerable for adults can have toxic effects on children. Children are not little adults. Their bodies are still growing. Children also exhibit child-specific behaviours such as breastfeeding, crawling and hand-to-mouth activities. Infants often spend time near their caregivers while they cook without adequate ventilation. Moreover, children can be exposed to chemicals that their caregivers bring home from their workplace such as pesticides, mercury and lead. Children breathe, eat and drink more than adults. Meanwhile, children’s detoxification mechanisms in their lungs and immune systems are not fully developed. This means that toxic chemicals in their environments will affect children disproportionately compared to adults; and children will bear the potential health consequences for more years.



The risks children and newborns face from the environment are compounded by climate change and increased pollution, most of all in the developing world²⁰

Children are dependent on others, susceptible to infectious diseases and are more likely to fall ill or die from diarrhoeal diseases, floods and natural disasters.²¹ Climate change is also expected to impact the availability of food and water supplies that children depend on for healthy development. If left unaddressed, these climate change trends are expected to lead to higher rates of childhood undernutrition, diarrhoeal diseases with dehydration and childhood mortality.²²





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Adolescence. Important body systems mature during adolescence, including those related to hormone function, reproduction, bone and brain growth as well as behaviour.²³ Yet adolescents often face additional environmental health risks as they explore the world more than young children, including in workplaces. Recent research has also pointed to the link between air pollution and adolescent mental health and well-being. When it comes to climate change, a recent review of reports from the UN Committee on the Rights of the Child (*see page 42*) showed that numerous countries can and should incorporate climate change into the school curriculum and teachers’ training programmes. Doing so would help improve children and adolescents’ preparedness for climate change and natural disasters.



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Adulthood. Illness caused by early exposure to toxic chemicals or climate change-related events may not be visible until adolescence or later. Some children may be born too soon, too small or die prematurely, while others may experience disease and disability years later.²⁴ These slower impacts are why toxic exposures during pregnancy and early childhood have been called a ‘silent pandemic’.²⁵ Toxic chemicals that interfere with the normal expression of genes, brain and other organ development, as well as the function of hormones and other processes necessary for children to grow into healthy adults, persist in our environment.²⁶ Climate-related impacts on children during early life, such as malnutrition, disease and trauma, can have consequences throughout adult life.

2.2 Children most at risk are those who are most deprived

Children live in diverse environments across the planet. But environmental threats are not distributed evenly. These risks are concentrated in LMICs and in poorer, marginalized communities in all countries, and specifically among children. For example, an estimated 350 million children live in slums and informal settlements, mostly in Asia and Africa.²⁷

The livelihoods of millions of families are disrupted by natural disasters, changing rainfall patterns and food insecurity due to climate change. Over time, dwindling water supplies and resource scarcity can increase the migratory pressures on vulnerable families, disrupting livelihoods and increasing the risk of family displacement. This disruption hits those families who are already experiencing social and economic hardship the hardest.

Nearly 92 per cent of pollution-related deaths occur in LMICs.²⁸ Children face the highest risks because small exposures to chemicals in utero and in early childhood can result in lifelong disease, disability, premature death, as well as reduced learning and earning potential.

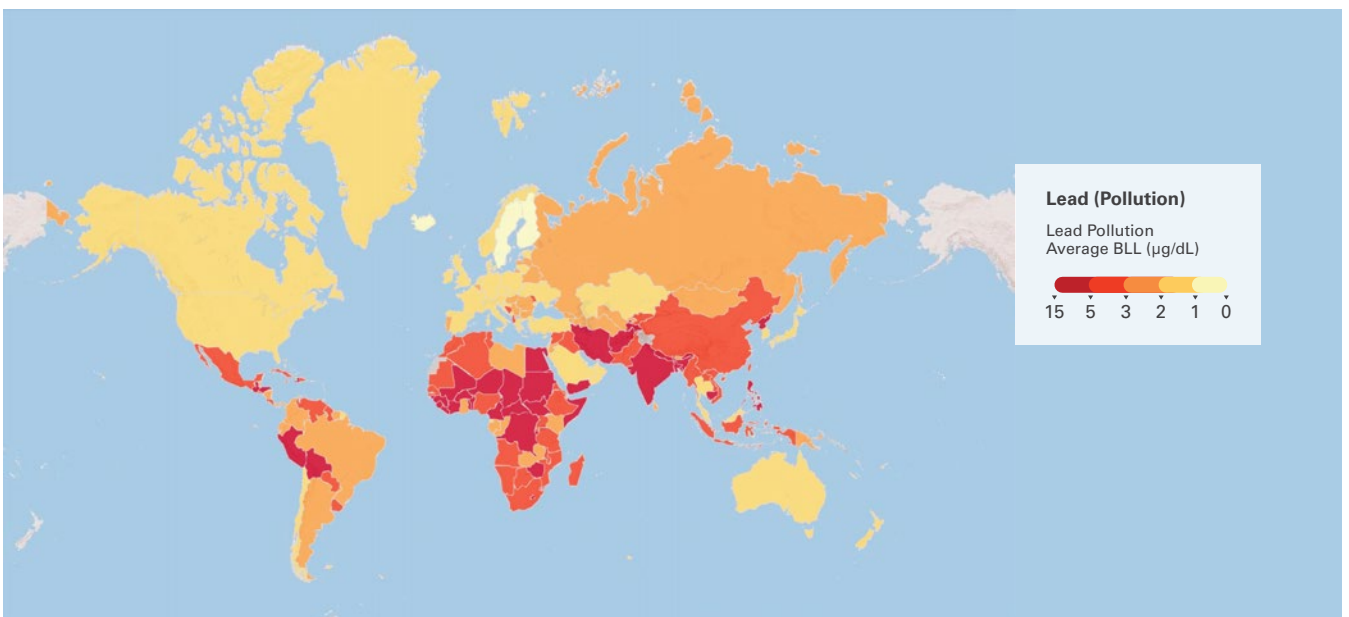
Some countries and regions have addressed environmental pollution by limiting the use of toxic chemicals proved to be harmful, and by imposing stricter industrial regulations. However, such protective and proactive policies have not been implemented everywhere or for enough sources of pollution and emissions. This leaves children exposed to toxic metals and chemicals. Children who live near hazards, such as unsafe industrial, waste or recycling sites, in slums or informal settlements or in conflict zones, shoulder an unequal share of the global burden.

Children disproportionately affected include those from indigenous, low-income, rural and marginalized communities, children from developing countries, girls, and children on the move, separated from their families and with disabilities. Children in geographically vulnerable areas, such as riparian and low-lying coastal areas, arid regions, high mountain regions, polar zones and other delicate ecosystems will also be disproportionately affected.

UN High Commissioner for Human Rights⁴⁹

800 million children globally – mainly in LMICs – have blood lead levels at or above 5 micrograms per deciliter (µg/dL).

Figure 4: Number of children (0-19) with blood lead levels by country (µg/dL)



Source: The Toxic Truth: Children’s Exposure to Lead Pollution Undermines a Generation of Future Potential, 2020

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations or UNICEF.



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Additionally, tens of millions of children and young people are employed around the world and are frequently exposed to hazardous working conditions.²⁹ Child labour is most prevalent in the agricultural sector (employing around 108 million children, the majority of all child labour) as well as artisanal and small-scale mining, hazardous waste and recycling, production of lead-glazed ceramics and others.³⁰ Children living on the street and working as rag pickers are particularly exposed to hazardous waste. Children and pregnant women are also frequently employed in the garment and footwear industry, which contributes to toxic workplace exposure and environmental risks.³¹ These employment activities expose children, who are typically living in poorer and disadvantaged communities, to a range of toxicants that can worsen their health and limit their healthy development.

The toxicity of many chemicals and products is not well understood or communicated to the public. This makes it extremely difficult for families and communities to make informed decisions about the environment their children grow up in. Children themselves are rarely empowered with information or the opportunity to participate in decision-making. The same is true of actions to address climate change.

152 million children are still engaged in child labour. 73 million children are in hazardous work that directly endangers their health, safety and moral development.²⁹

2.3 Children are at risk in all settings

Children can be exposed to dangerous environmental risks in many settings. In addition to exposure from a range of toxicants in air, food and water, this section provides an overview of exposures in urban, rural, school and home settings, and for children living near hazardous waste sites and in conflict settings.

Air pollution. One of the largest environmental risks is air pollution. Approximately 93 per cent of children under 15 – a total of 1.8 billion young people – breathe air that is so polluted it risks their health and development.³² Air pollution, both household and ambient (including particulate matter, SO₂, NO_x, O₃ and CO) is a major cause of death and disease. Air pollution has a number of adverse effects on children's health, including birth outcomes, infant mortality, neurodevelopment, lung function, pneumonia, asthma, otitis media, childhood cancers and childhood obesity.³³ Some of the chemicals and particles in air pollution cause climate change.

Poverty is strongly linked to air pollution exposure. Poverty also limits parents' ability to improve the environment in which their families live. Solid fuels used both for household cooking and heating create toxic smoke in the home. Pregnant women exposed to smoke from solid fuels are more likely to have a stillbirth or a newborn with low birth weight.³⁴ This type of exposure is particularly high among women and young children, who spend the most time near the domestic hearth.³⁵

Much of the environmental burden of disease on children is completely preventable through decisive and urgent climate action, pollution mitigation, safe disposal of toxic substances and chemical waste, disclosure of information and improved water, sanitation and hygiene.

UN High Commissioner for Human Rights⁴⁹

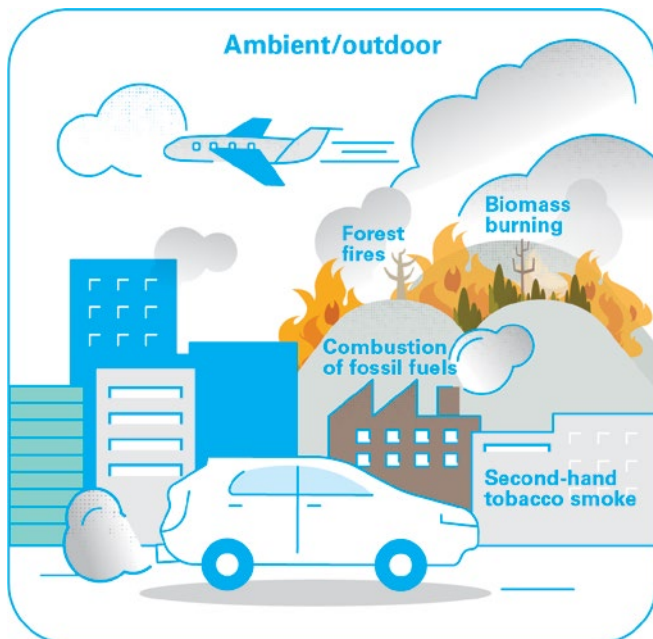
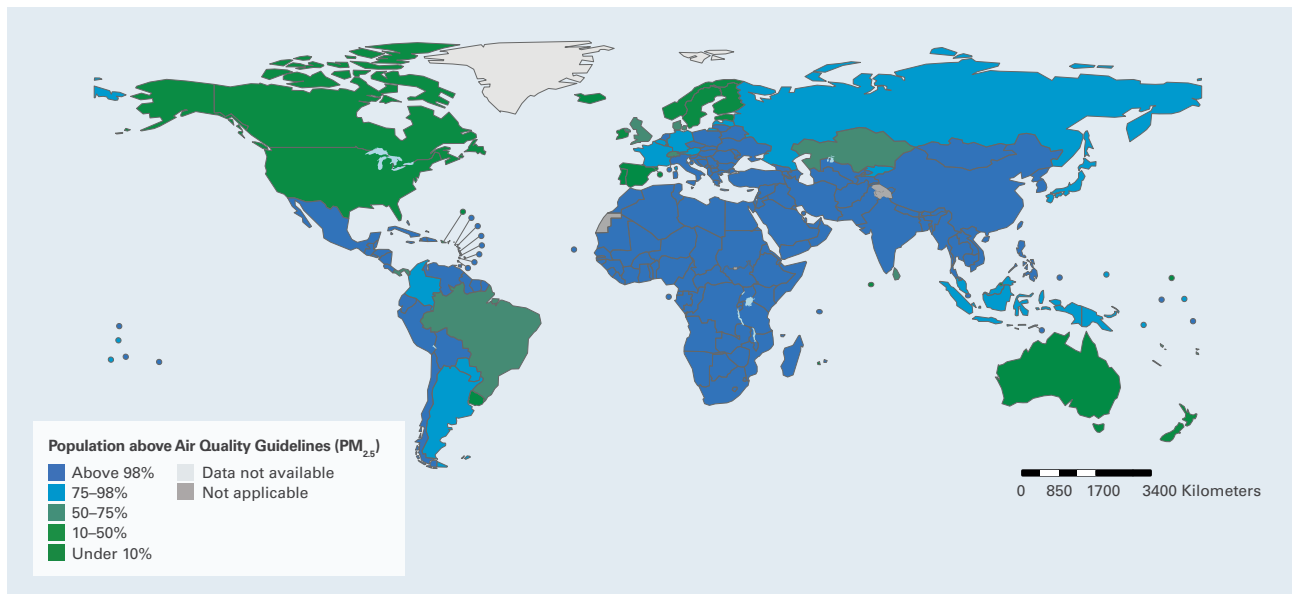


Figure 5: Exposure to ambient air pollution, proportions of children under 5 years

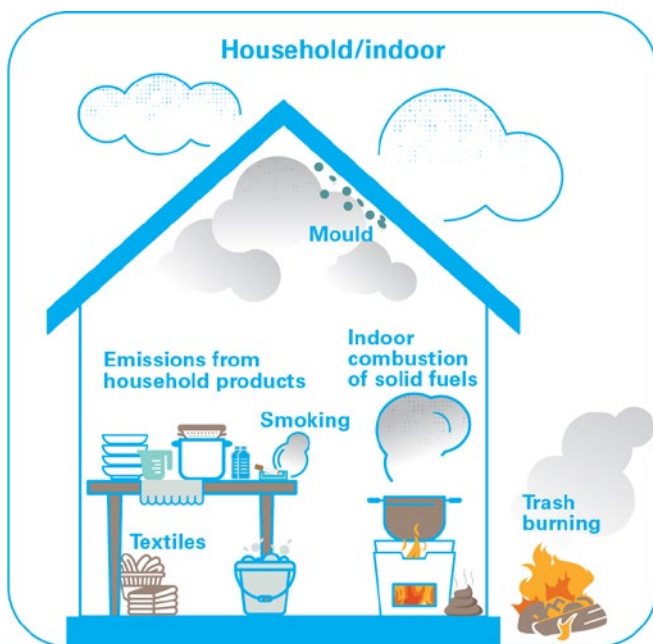


Source: Air pollution and child health, World Health Organization, 2018

Household air can be much more polluted than outdoor air. This is due to the release of chemicals from household products and high concentrations of smoke and second-hand tobacco smoke. Close to half of deaths due to pneumonia among children under 5 years of age are caused by particulate matter (soot) inhaled from household air pollution.³⁶ Outdoor/ambient air pollution comes from fine particulate matter and exhaust emissions from the combustion of fossil fuels in industries, energy production and transport. Automobile exhaust also exposes children to benzene, which is a known cancer-causing chemical (carcinogen). Coal combustion and fumes from industries including, the cement, chlor-alkali, and non-ferrous metals mining, expose children to mercury and other toxicants.

As many of the same pollutants that threaten health, such as black carbon and ozone (O₃), are also important agents of atmospheric warming, interventions that reduce their emissions are likely to result in benefits for both children’s health and the climate.

Air pollution and child health: Prescribing clean air, WHO⁹





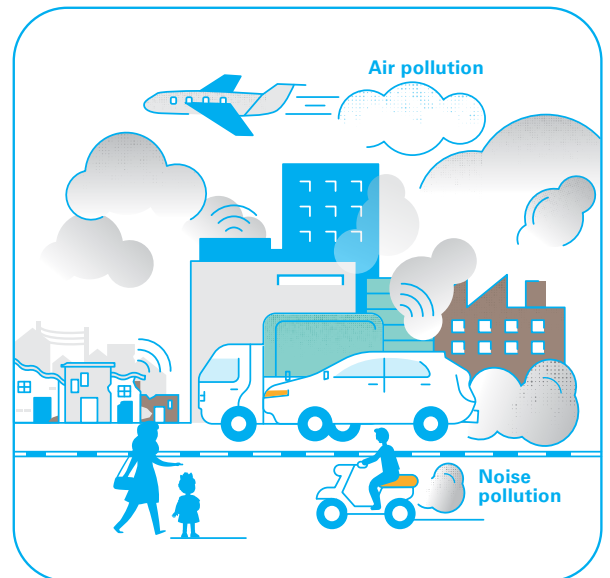
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Contaminated foods and drinking water. Many food chains have been contaminated by various toxic chemicals. Animal meats and dairy products represent the highest source of dioxins to children. A widespread source of exposure to mercury and polychlorinated biphenyls (PCBs) for children, including in utero, is seafood, especially large marine fish and sea mammals. Some types of seafood are contaminated with methylmercury and dioxins, even if they are far from the sites that generate it. Soil near industrial factories may be contaminated by cadmium, which can pass into the food that grows in the soil. Drinking water sources can be contaminated by dioxins, toxic run-off from industry, and waste chemicals from everyday products, such as per- and polyfluoroalkyl substances (PFAS). Children are regularly exposed to lead by eating food and spices contaminated with it (for example, the substance is added intentionally to increase the weight or to add colour to spices). Children are also exposed to lead from artisanal ceramics glazed with the substance and fired at temperatures that are too low. Storing water in fuel barrels, jerrycans or pesticide containers that have previously held hazardous chemicals can expose children to benzene or pesticides such as organochlorines and organophosphate.

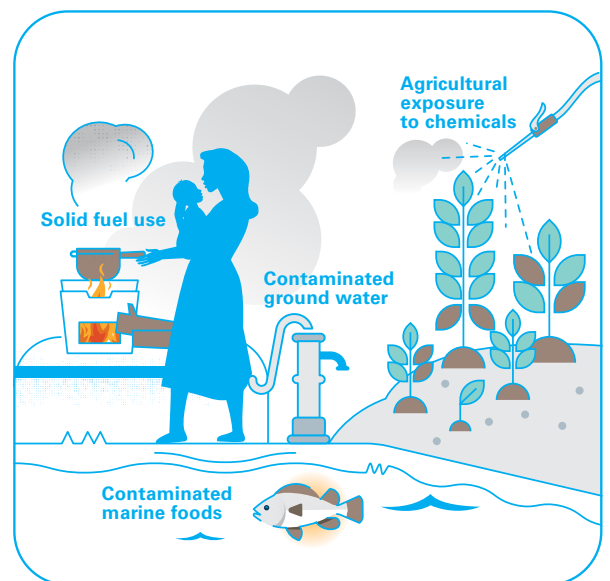
Beyond the risks associated with contaminated air, water and food, children are at risk in a range of common settings where they live, learn and play, several of which are illustrated below.

Children in **urban and peri-urban settings**, including informal settlements and slums, risk exposure to a broad range of metals and chemicals due to improper waste, e-waste and hospital waste incineration or recycling (See Table 3 for waste).

Excessive noise is often an underestimated threat to children’s health. Children are exposed to noise through activities in dense urban areas, industrial activities, and automotive, rail and aviation-related transportation. Flooding of poorly constructed sanitation and solid waste facilities is another health hazard near children’s homes.



In **rural areas** children are exposed to a range of environmental risks, including many of the same ones described in urban settings. Climate change has distinct effects on rural and agricultural communities. Shifting agro-ecological zones and rainfall patterns can exacerbate rural poverty and food insecurity, including for indigenous groups. Rural populations and pastoralist communities experience climate-related stressors on top of food and water insecurity, conflict over resources and additional social pressures. Climate change affects access to food and resources as well as markets and jobs in rural areas. In 2016, the agricultural sector accounted for 71 per cent of all child labour, exposing 108 million girls and boys to frequently hazardous working conditions, including direct contact with pesticides. Children may be employed or accompany caregivers engaged in agriculture or floriculture³⁷ that uses highly hazardous pesticides.³⁸



About three billion people worldwide still depend on polluting fuels and devices for cooking and heating.

Developing countries experience 99 per cent of the deaths linked to pesticides, although they use only 25 per cent of the world's pesticides.

Children may live, play or even be employed as informal labour in gold or other metal mining sites. They, or their parents, may also be employed in sweatshops, producing glazed ceramics or leather. These activities expose them to toxic metals like lead and mercury.

Food may be contaminated in subsistence agriculture and fishing. Children can also be exposed to arsenic and excess fluoride when drinking groundwater in geographical areas where these elements are naturally abundant (e.g., rift valleys). Groundwater can be contaminated by pesticides and fertilizers. In addition, exposure to naturally produced toxins from mould and mycotoxins can be poisonous to children – for example, from eating mouldy apples, corn, groundnuts, and certain other mouldy foods that can contain natural toxins.

Agriculture is the main entry point into child labour for the youngest group of children, those aged 5–11 years. Of all child labourers in this age range, 83 per cent work in agriculture.²⁹



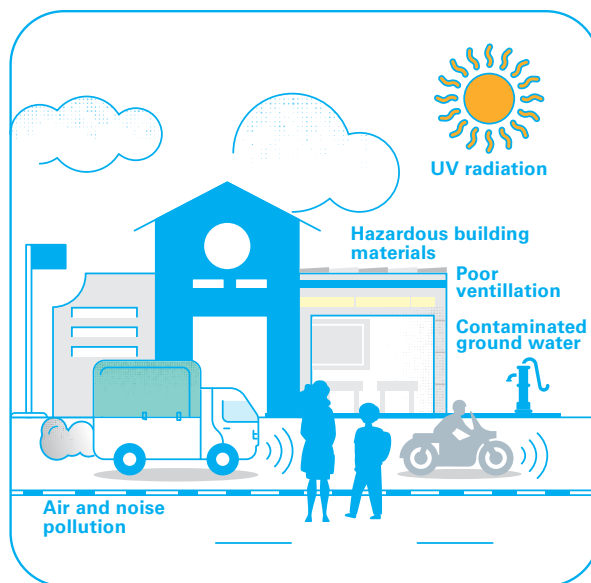
Children can be exposed to environmental hazards **while at school and home**. While playing outside at schools close to congested roads, children are breathing fine particles and vehicle exhaust gases. In busy urban areas or near airports, children may also be exposed to excessive noise pollution.

Lead is also a major issue. Lead can be ingested from playgrounds near congested roads, informal waste sites and mining sites. In many countries lead is still used as an additive to food, cosmetics and paint. This includes paint used in toys, furniture and ceramics. It also remains in the soil from the era of leaded gasoline. When lead-containing paints peel, children can be exposed by inhaling or ingesting dust or flakes from it. Children exposed to lead in water from old pipes and fixtures.

Indoors, children can be exposed to asbestos and mould in out-dated schools and dwellings with poor ventilation. Inside schools and classrooms, children can be exposed to many hazardous substances. In the 1970s, asbestos was commonly used in building materials (wallboards, ceiling tiles, cement sheets, texture paint, vinyl flooring) and the deterioration of those materials can expose children through inhalation. There is still no global ban on asbestos. Mercury is found in certain preservatives used in paints and flooring, while other plastic chemicals such as phthalates are found in PVC flooring. Mould growth can be an issue in schools and homes with high humidity, poor ventilation and water leakages.

Children can be exposed to arsenic, excess fluoride, benzene, lead and other chemicals if a school's or community's source of drinking water is contaminated. Consumer products, including electronics, plastics, furniture upholstery and textiles, may contain flame retardant chemicals, such as polybrominated diphenyl ethers (PBDEs) that may be released into the environment and bind to dust particles that children unintentionally ingest. Household consumer products such as non-stick cookware, water repellent clothing, stain resistant fabrics and carpets, some cosmetics, some firefighting foams and plastic products that resist grease, water and oil may contain synthetic PFAS. When products containing PFAS wear out, small particles can be ingested or inhaled by children or end up washed into the drinking water supply.

In some countries, especially in rural and peri-urban settings, schools heat and cook by burning solid fuel indoors. Schools and homes may use diesel fuel for power generation. This not only releases noxious fumes into the nearby air, but also releases chemicals that accelerate climate change. Children are also extremely sensitive to second-hand smoke from tobacco.

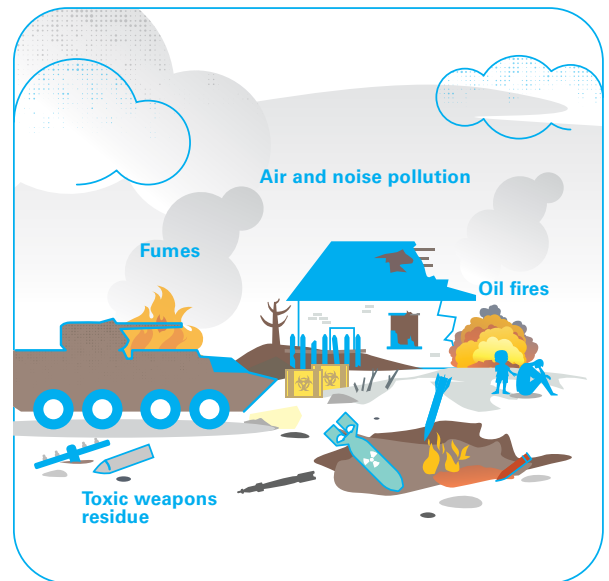


This assault on children's rights is largely invisible. Toxics contaminate air, water, food, playgrounds, houses, schools and other sources of exposure, contrary to the child's right to adequate housing and safe food, water and play, producing deadly or lifelong impacts on mental and physical health. Missing information about who manufactures, sells, uses, trades in, releases or disposes of hazardous substances is compounded by information deficits on the health risks and impacts of exposure, enabling perpetrators to evade accountability.¹⁹



Children can also be exposed to toxic chemicals and pesticides in their households, schools and other buildings. They can be exposed to pesticide residues on food, unintentional ingestion, direct contact with pesticide containers, and indoor/residual pesticide spraying. Farmworkers can also bring pesticides into the house via their clothing and thereby expose children to pesticides.³⁹

More than 29 million babies were born into conflict-affected areas in 2018.⁴⁰ **Conflict and post-conflict areas** can be contaminated with a diverse and dangerous cocktail of contaminants. Chemical weapons, rocket fuel exhaust, oil fires, contaminated rubble, munitions disposal, depleted uranium and other toxicants can be found in conflict zones. In the last few decades, extensive pollution has been caused during times of conflict from the bombing of industrial sites, causing toxic chemical contamination of land and water sources; or from oil wells being set on fire, leading to the release of toxic chemicals, particulate matter and metals. These expose children to toxic metals, toxic chemicals, noise pollution, and sometimes radiation.



“My son, five-year-old, Heraab, finds himself in a community where he is constantly exposed to the sounds of explosions, smell of smoke, accompanied by the regular shrieking of sirens, be it police or ambulance, or the persistent honking of cars and motorbikes rushing the injured to hospital. He shudders and wakes up at night if a truck passes by with speed, sometimes shaking the windows of our house, thinking it must be another attack.”

UNICEF worker in Afghanistan

Toxic remnants of war inflict pain and suffering on communities long after the conflicts have concluded. In Iraq, independent studies suggest that birth defects have increased dramatically among children in conflict areas, who in many cases do not have access to medical care and treatment. Unexploded munitions, landmines, chemical weapons, pesticides, and other hazardous remnants of war and conflict persist worldwide.¹⁹

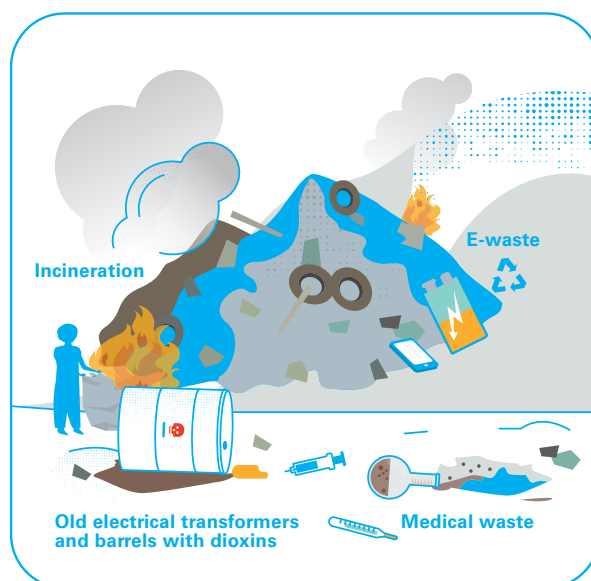


Waste and informal recycling sites are major sources for toxic environmental exposures. Unsafe work environments can also be a source of exposure to toxic chemicals. The global scale of urbanization and economic growth are creating a potential ‘time-bomb’ regarding the waste we generate globally. If not addressed now, the significant negative impact on human health and the environment will be felt by nations at all levels of development. Hazardous waste includes e-waste, used lead acid batteries and contaminants from mining. Such waste poses risks to the communities around the often-informal dump and recycling sites. These sites can expose children to heavy metals (such as lead and cadmium), persistent organic pollutants, polyvinyl chloride, dioxins, furans, brominated flame retardants, and polycyclic aromatic hydrocarbons, as well as other toxic chemicals. Children who work at waste and recycling sites or live nearby are much more sensitive to the toxicants than adults.

Children can be exposed to dioxins and toxic metal fumes and dusts from accumulated household garbage that is inadequately collected or treated. Meanwhile, informal dumps (open waste disposal), landfills and incinerators, are often located near informal dwellings.

In peri-urban and rural areas, children can accidentally encounter informal or poorly managed medical waste. This exposes them to chemical waste, sharps (e.g., syringes, needles) and waste that is infectious, pathological, cytotoxic or radioactive. They can also be exposed to toxic fumes and dust caused by low-temperature incineration.

Additionally, unsafe garbage treatment can contaminate groundwater. Soils, groundwater, rivers and effluents can remain contaminated with toxic metals and chemicals for years after activities have stopped. Children are exposed when they play at or near those sites, breathing polluted air, drinking contaminated water and eating contaminated food. Rats, mosquitos, cockroaches, birds, and other pests that breed in dump sites or discarded tires filled with rainwater can be a source of vector-borne diseases.



Electrical and electronic waste, or ‘e-waste’, results from the rapid increase in consumer electronics and their end-of-life disposal. Electronic components contain toxicants, including those associated with mental and developmental disorders, lung damage and cancer, at all phases: extraction, production of components and processing of e-waste. Children can be exposed in their homes and communities, while working in the processing and recycling of e-waste or while accompanying their parents to recycling places. The majority of e-waste is recycled in the unregulated informal sector and in poorer countries and results in significant risk of toxic exposure for recyclers.

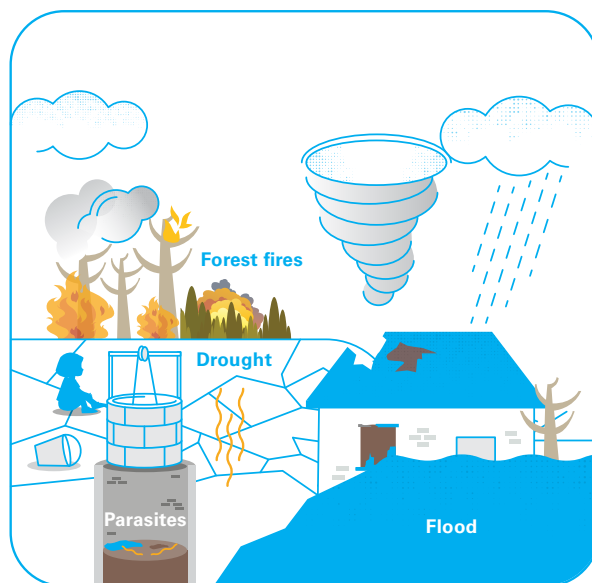
UN High Commissioner for Human Rights⁴⁹

Climate change is already affecting the lives of children around the world. Climate change has led to the contamination of groundwater and destruction of schools, healthcare facilities and WASH facilities. Some climate change impacts have a sudden onset, such as forest fires, droughts and floods. Other slower impacts such as water scarcity, shifting agricultural zones and rising sea levels will hit some communities early and other communities later.

Over half a billion children live in extremely high flood-risk areas; and nearly 160 million live in high or extremely high drought-risk areas. By 2040, it is estimated that 600 million children will live in areas of extremely high water stress. While climate change will ultimately impact every child, these children are already in harm's way and face some of the most immediate risks. The [2019 Lancet Countdown on Health and Climate Change](#) underscored how drastically climate change affects children's health today and will affect children's health in the future. In 2020, the [WHO–UNICEF–Lancet Commission](#) provided urgent and actionable agendas for our children's future.⁴¹

A child born today will face an increased risk from severe floods, prolonged droughts and wildfires on a planet that will be, on average, over 4°C warmer by their 71st birthday. As temperatures go up, harvests will shrink, leading to food insecurity and higher food prices. Children will suffer the most through associated health problems such as malnutrition, stunted growth, weak immune systems and long-term developmental problems.⁴² Children are particularly susceptible to infectious and vector-borne diseases, such as malaria and dengue, which rising temperatures and changing rainfall patterns will leave in their wake. Regular bouts of diarrhoea and infections take a toll on children's long-term physical and mental development.

Water scarcity related to climate change can also reduce the volume of water available (also increasing the cost of water, while reducing its quality) and cause children to spend more time collecting it. This will also reduce household income and cause migration to urban areas, adding additional burdens. And, during adolescence and into adulthood, more fossil fuel combustion and rising temperatures mean a child born today will breathe more toxic air. As their lungs are still developing, they will disproportionately experience reduced lung function and worsening asthma, increasing the risk of heart attacks and strokes. Children's mental health is also sensitive to the shocks and stresses that climate change brings. Children can experience anxiety, fear of an uncertain future and depression.⁴³ Following disasters, such as a hurricane, children can also have trauma-related responses.⁴⁴



By the time these repercussions are felt, damage to children's environmental health will already be widespread.¹

The Committee on the Rights of the Child has identified climate change as one of the biggest threats to children's health and is urging States to place it at the centre of climate change adaptation and mitigation strategies. The increasing global incidence of climate change threatens children's lives, destroys critical infrastructure and affects children's cultural survival.

UN High Commissioner for Human Rights⁴⁹



A changing climate also alters the frequency, intensity, spatial extent, duration, and timing of extreme weather and climate events, and can result in unprecedented extreme weather and climate events.⁴⁵ These threats pose grave risks to children over the coming decades. Severe weather events can destroy or disrupt infrastructure critical to children’s well-being, including schools, health facilities and transport. Droughts and flooding can destroy crops, disrupt water systems and contaminate water reserves. Climate change and water scarcity can cause people to dig deeper in search of water where it can have higher proportions of harmful components, such as arsenic and salts. Slow-onset climate change impacts can also undermine development gains and livelihood options.

The dangers of climate change are more pronounced for children than for adults. Children are more vulnerable to undernutrition, vector-borne and diarrhoeal diseases. The physical dangers of extreme weather events – flooding, mould growth in homes and schools, building collapse, and more – pose unique threats to young bodies and minds. As climate change exacerbates each of these risks, it is children who will suffer the most and for the longest – making them vital participants in today’s decisions about climate change responses.





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2.4 Overview of environmental contaminants, sources and health effects

The Tables in this section provide an introduction to the types and sources of toxic exposures that carry significant risks for children’s survival, health and well-being. They are based on the [WHO's list of 10 chemicals of major public health concern](#), and also include additional major environmental health and climate change risks. Additional risks are present in many environments, such as other toxic metals and emerging contaminants, which may not be reflected in the Tables presented here.

Each contaminant is listed along with common sources and the documented health effects on children, following exposure in early life. Health effects are organized by maternal and newborn health, child health and child development as relevant. The Tables are intended to provide an easy-to-use overview and are not intended to be exhaustive or address all types of toxic exposures, which are constantly evolving. Moreover, children are exposed to a mix of toxicants, which can have additional effects beyond those described for each individual contaminant. Some contaminants and their sources overlap, such as e-waste and toxic metals. Many health effects following early life exposure to these hazards have a long latency period, meaning they do not emerge until years or decades later, such as slow-growing cancers.

Table 1: Toxic metals

Environmental contaminant	Sources (selected)	Health effects (selected)
<p>Lead</p>	<p>Production: Mining, smelting and refining; use of leaded petrol (gasoline), for example for aviation; production of lead-acid batteries and paints; jewelry making, soldering, ceramics and leaded glass manufacture in informal and cottage (home-based) industries.</p> <p>Consumption: Lead-glazed ceramics used for serving food, contaminated spices, water pipes and solder, some traditional medicines and makeup (such as kohl), contaminated dust.</p> <p>Waste: Lead-acid battery recycling; e-waste/informal recycling of lead electronic waste; old industrial hotspots that have not been cleaned up.</p>	<p>Maternal and newborn health: Exposure of pregnant women to high levels of lead can cause miscarriage, stillbirth, premature birth and low birth weight, as well as minor malformations.</p> <p>Child health: Chronic lead exposure commonly causes hematological effects, such as anemia, or neurological disturbances, including headache, irritability, lethargy, convulsions, muscle weakness, ataxia, tremors and paralysis. Lead exposure is linked to high blood pressure and cardiovascular disease in later years.</p> <p>Child development: Toxic to the developing brain and nervous system. Subtle effects on IQ are expected from blood lead levels at 5 µg/dl, with effects gradually increasing with increasing levels of lead in blood. Linked to behavioral problems including attention deficit hyperactivity disorder and aggression.</p>
<p>Mercury</p>	<p>Production: Artisanal and small-scale gold mining (mercury vapors), coal combustion, cement industry.</p> <p>Consumption: Marine foods (fish, shellfish, marine mammals), certain paints, cosmetics, laboratory chemicals and pharmaceuticals.</p> <p>Waste: Recycling of fluorescent light bulbs, e-waste, batteries containing mercury, dental amalgam, medical and scientific equipment (such as mercury thermometers).</p>	<p>Child health: Impact on digestive and immune systems, and on lungs, kidneys, skin and eyes, paralysis, incoherent speech and delirium.</p> <p>Child development: Neurological development, cognitive impairment.</p>
<p>Cadmium</p>	<p>Production: Mining, smelting and refining of nonferrous metals, manufacture of phosphate fertilizers.</p> <p>Consumption: Tobacco smoking, fossil fuel combustion.</p> <p>Waste: Incineration of municipal waste (especially cadmium-containing batteries and plastics), and recycling of cadmium-plated steel scrap, and electric and electronic waste.</p>	<p>Kidney dysfunction, disturbances in calcium metabolism, kidney stones, softening of the bones and osteoporosis, lung cancer.</p>
<p>Arsenic</p>	<p>Consumption: Drinking and using water, from naturally contaminated underground sources; eating crops, especially rice, that is irrigated with arsenic containing water; smoking tobacco.</p>	<p>Skin lesions, arsenicosis, peripheral neuropathy, diabetes, cardiovascular diseases, and cancer.</p>

Note: This list is not exhaustive. Additional metals, which are not discussed in detail here, such as excess manganese, are also risks to children's health. 'Child health' above includes lifelong health effects.

Table 2: Toxic chemicals

Environmental contaminant	Sources (selected)	Health effects (selected)
<p>Highly hazardous pesticides</p>	<p>Production: Use of highly hazardous agricultural pesticides on crops, which can be inhaled or transferred onto hands or clothing.</p> <p>Consumption: Pesticide residues in food and sometimes soil and drinking water, inappropriate use of pesticide containers, unintentional ingestion, spraying with residual insecticide in the home for pest control.</p>	<p>Maternal and newborn health: foetal death and birth defects.</p> <p>Child health: Effects on skin, eyes, nervous system, cardiovascular system, gastrointestinal tract, liver, kidneys, reproductive system, endocrine system, blood, immune system, and cancer including childhood leukemia; potential for acute poisoning.</p> <p>Child development: Developmental delays, impacts on brain and behavior development.</p>
<p>Benzene</p>	<p>Production: Processing of petroleum products, coal, and production of certain industrial and consumer products and oils.</p> <p>Consumption: Automobile exhaust, petroleum products such as solvents, tobacco smoke, building materials (paints, adhesives, etc.).</p> <p>Waste: Industrial effluents and disposal of benzene-containing waste.</p>	<p>Range of acute and long-term adverse health effects and diseases, including cancer and aplastic anaemia.</p>
<p>Dioxins and dioxin-like substances (incl. PCBs)</p>	<p>Consumption: Most exposure is through food consumption, in particular meat, dairy, fish and shellfish.</p> <p>Waste: Improper disposal of stored PCB-based industrial oils, such as older electrical equipment; incomplete burning of hospital waste.</p>	<p>Maternal and newborn health: Impairment of reproductive functions.</p> <p>Child health: Skin lesions and effects on the liver (short-term high-level exposure); toxicity to the immune system and changes in thyroid and steroid hormones.</p> <p>Child development: Developmental and neurodevelopmental effects.</p>
<p>Additional chemicals from consumer products</p>	<p>Consumption: Household products can contain toxic and potentially hazardous chemicals that pregnant women and children can be exposed to directly or indirectly if these chemicals contaminate the air, food, or water. These include chemicals like per- and polyfluoroalkyl substances (PFAS) which are used in non-stick products, some cosmetics, firefighting foams, and many other uses; flame retardants like PBDEs used in electronics, plastics, upholstery, and textiles; plastic chemicals like phthalates, PVC, and bisphenols; and other chemicals, including those where safety has not yet been established.</p>	<p>Maternal and newborn health: Effects on birth weight.</p> <p>Child health: Cancer, puberty onset, and reproductive, immune systems and the endocrine system (thyroid).</p> <p>Child development: Neurodevelopmental and behavioral effects.</p>
<p>Excess fluoride</p>	<p>Consumption: Fluoridation of water, salt, or milk; tea leaves (brick tea) and consumption of pumped underground water in areas that are naturally rich in fluoride (e.g., rift valleys).</p>	<p>Child health: Fluoride intake has both beneficial effects – in reducing the incidence of dental caries – and negative effects – in causing enamel and skeletal fluorosis following prolonged high exposure. The ranges of intakes producing these opposing effects are not far apart.</p> <p>Child development: Some evidence that fluoride exposure during pregnancy negatively affects neurodevelopment.</p>

Note: This list is not exhaustive. Contaminants in addition to those listed above, such as polycyclic aromatic hydrocarbons and chemicals with unknown toxicity, pose risks to children's health. 'Child health' above includes lifelong health effects.

Table 3: Hazardous waste

Environmental contaminant	Sources (selected)	Health effects (selected)
Landfills and household waste	Waste: Accumulated household garbage that is not adequately collected or treated; informal dumps (open waste disposal), landfills, and incinerators, often located near informal dwellings.	Injury, respiratory problems, vector-borne diseases related to rats, mosquitos, cockroaches, birds, and other pests at garbage sites, as well as health effects described in the other waste categories.
E-waste	Waste: Unsafe processing and disposal of electronic waste, which includes household appliances, telecommunications equipment, lighting, electrical and electronic items, batteries, circuit boards, plastic casings, cathode-ray tubes, activated glass, and lead capacitors.	Unsafe processing of e-waste can lead to exposure to heavy metals, persistent organic pollutants, polyvinyl chloride, dioxins, furans, brominated flame retardants, and polycyclic aromatic hydrocarbons, other toxic chemicals; which are linked to negative effects on reproductive, respiratory, neurodevelopmental, genomic, and hormonal systems. Research is ongoing due to the under-studied and heterogeneous nature of e-waste.
Medical waste	Waste: Chemical waste, sharps (e.g., syringes, needles), and waste that is infectious, pathological, cytotoxic, or radioactive.	Exposure to toxic substances (such as mercury or dioxins, during the handling or incineration of health care wastes), air pollution as a result of incineration, burns and injuries, and potential spread of harmful microorganisms.
Conflict-related contamination	Waste: Contamination from depleted uranium, chemical weapons, rocket fuel exhaust, oil fires, contaminated rubble, munitions disposal, and others; which can result in heavy metal and toxic chemical pollution.	<p>Maternal and newborn health: Infant death, birth defects.</p> <p>Child health: Health effects can vary due to the heterogenous nature of these exposures and can include cancer.</p> <p>Child development: Negative effects on child development, together with psychosocial stressors of conflict.</p>

Note: 'Child health' above includes lifelong health effects.

Table 4: Environmental risks

Environmental contaminant	Sources (selected)	Health effects (selected)
Air pollution	<p>Ambient/outdoor: Vehicle exhaust, combustion of fossil fuels in power plants and industry, forest fires and biomass burning; second-hand tobacco smoke; brick, cement, and other industry.</p> <p>Household/indoor: Indoor combustion of solid fuels such as wood, crop wastes, household waste burning, charcoal, coal and dung; second-hand tobacco smoke; outdoor air pollutants; emissions from construction materials, furnishings, and household products, along with inadequate ventilation.</p>	<p>Maternal and newborn health: Low birth weight, preterm birth, stillbirth.</p> <p>Child health: Pneumonia, cardiovascular disease (including ischaemic heart disease and stroke), high blood pressure, COPD, impaired lung growth, lung cancer, acute respiratory infections, asthma, bronchitis, airways inflammation, coughing, wheezing, nose and throat irritation, impaired immune response.</p> <p>Child development: Impaired cognitive development.</p>
Mould and mycotoxins	<p>Consumption: Exposure to naturally-produced poisonous fungi in contaminated foods (such as maize, groundnuts, tree nuts, and cereals), breathing mouldy air in damp indoor areas, and through skin absorption.</p>	<p>Effects depend on type of toxin and route of exposure: vomiting, hemorrhage, cancer, toxicity to blood, liver, nervous system, respiratory system.</p>
Noise	<p>Production: Industry.</p> <p>Consumption: Automotive, rail, aviation transportation; activity in dense urban areas.</p> <p>Waste: Processing of waste and recycling.</p>	<p>Cognitive impairment, sleep disturbance, hearing impairment and tinnitus.</p>
Radiation	<p>Non-ionizing radiation including ultraviolet light that comes from the sun.</p> <p>Exposure to ionizing radiation arises from naturally occurring sources (such as from radon gas), and from man-made sources (such as irradiation for medical reasons); radioactive material resulting from nuclear weapons testing; nuclear power; and unplanned events such as nuclear power plant accidents.</p>	<p>Child health: Ionizing radiation is a known carcinogen to which children are particularly vulnerable. Non-ionizing radiation such as increased UV exposure can cause skin cancers, cataracts and immune system damage.</p> <p>Child development: Following high levels of exposure to ionizing radiation during pregnancy, severe mental retardation has been reported.</p>

Note: This list is not exhaustive. Other environmental hazards in addition to those listed above may pose risks to children's health. 'Child health' above includes lifelong health effects.

2.5 Overview of climate change effects and impact on children's environment and health

Climate change is a direct threat to child survival, health and well-being. Extreme weather events and their increase in frequency, intensity and uncertainty, threaten children's lives and destroy infrastructure critical to their well-being. In addition to extreme heat, climate change threatens natural systems resulting in a range of environmental impacts, such as disease vectors.

Table 5: Overview of climate change effects and impact on children’s environment and health

Climate change effects	Impact on children’s environment (selected)	Impact on children’s health (selected)
<p>Extreme weather events Increased, frequency, intensity and uncertainty of extreme weather events</p>	<ul style="list-style-type: none"> ▶ Floods and storms can impact sanitation and sewer systems, resulting in water-borne, food-borne and vector-borne diseases. ▶ Droughts lead to crop failures and rising food prices, which may lead to food insecurity and nutritional deprivations. ▶ Extreme weather events may result in displacement and migration causing increased vulnerability, including separation from family members, and violence, exploitation and abuse. ▶ Destruction of infrastructure, including homes, schools, WASH and health facilities. ▶ Psychological trauma. 	<ul style="list-style-type: none"> ▶ Injury, death and disability. ▶ Increased incidence of malaria, dengue, cholera and other water, food and vector-borne diseases. ▶ Malnutrition, including resulting in developmental delays and adverse health outcomes for infants and children; water scarcity. ▶ Post-traumatic stress leading to adverse health outcomes including earlier death, higher rates of cancer, and engaging in more risk-taking behaviour. ▶ Loss of caregiver, school absenteeism, family livelihood, displacement/migration, violence, sexual and physical abuse, trafficking during and after extreme weather events. ▶ Disruption in access to health, WASH and education services.
<p>Extreme heat Increased numbers of warm days and nights; Increase in frequency and intensity of heatwaves; Increased fire risk in low rainfall conditions</p>	<ul style="list-style-type: none"> ▶ Excess heat related mortality and incidence of heat exhaustion and heat stroke. ▶ Exacerbated circulatory, cardiovascular, respiratory, and kidney diseases. ▶ Increased premature mortality related to ozone, and air pollution produced by fires, particularly during heat waves. 	<ul style="list-style-type: none"> ▶ Children are less able than adults to regulate their body temperature. Thus, they are more vulnerable to changes in temperature. Compared to adults, extreme temperatures have led to more heat-related illnesses and deaths among children, especially infants. ▶ Smoke exposure increases acute (or sudden onset) respiratory illness, respiratory and cardiovascular hospitalizations, and medical visits for lung illnesses.
<p>Effects on natural systems Higher temperatures and humidity, changing and increasingly variable precipitation, higher sea surface and freshwater temperatures, sea-level rise, salinization, and coral bleaching</p>	<ul style="list-style-type: none"> ▶ Accelerated microbial growth, survival, persistence, transmission, virulence of pathogens; shifting geographic and seasonal distributions of e.g. cholera, schistosomiasis, and harmful algal blooms. ▶ Accelerated parasite replication (insects and rodents) and increased biting rates; prolonged transmission seasons; re-emergence of formerly prevalent diseases; changing distribution and abundance of disease vectors; reduced effectiveness of vector control interventions. ▶ Decreased natural coastal protection/ barriers to storm surges and higher damage and losses in coastal areas. ▶ Reduced fish stocks and livelihoods/ nutrition. ▶ Effect on food security: food availability, food accessibility, food utilization and food system stability. ▶ Water scarcity. 	<ul style="list-style-type: none"> ▶ Ground-level ozone (a key component of smog) is associated with many health problems, including diminished lung function, increased hospital admissions and emergency department visits for asthma, and increases in premature deaths. ▶ Children with existing pollen allergies may have increased risk for acute respiratory effects. ▶ Malaria, Dengue and Zika are among the climate-related vector-borne diseases that pose a heavy health burden on children. They are also susceptible due to their developing immune systems. Lyme disease, hantavirus, dengue fever and Zika virus are among the climate-related vector-borne diseases that pose a heavy health burden on children. ▶ Reduced resilience/higher exposure to disasters. ▶ Loss of family livelihood and/or source of direct nutrition. ▶ Displacement/migration from one unsafe environment to another, such as moving after a cyclone from one storm-prone area to another even more disaster-prone area. Desertification, deforestation and exploitation of land and ecosystems leads to migration that expands the exploitation of land and resources into additional areas, which can negatively influence the microclimate and ecological balance.

See endnotes ⁴⁶

2.6 The vital roles of research and the ‘precautionary principle’ in supporting action to protect children

Research on environmental risks and climate change is constantly generating new insights about children’s special vulnerability to environmental factors. Such research can help to identify and support the most vulnerable.

Research, including implementation research, is needed to assess how effectively different interventions are in preventing or reducing exposures, protecting children’s health and eliminating health inequalities. This is particularly needed in low-capacity settings where environmental hazards co-exist with factors such as poor nutrition, social inequalities and limited access to water, sanitation and hygiene.

Researchers in the field are continuously adapting their questions to the changing environment. Environmental threats are evolving as the climate changes and new chemicals are brought to the market every year. New and old hazards can also mix, creating ‘cocktail effects’ from exposure to multiple contaminants simultaneously. Some banned chemicals such as PCBs, PBDEs and Dichlorodiphenyltrichloroethane (DDT) are considered persistent, bioaccumulative and toxic (PBTs). In other words, these chemicals biodegrade very slowly and remain widespread in the environment, so children are still exposed decades after their health-damaging effects were identified. Given this complex and changing landscape, policy decisions should uphold the ‘precautionary principle’, which the WHO, among other public health agencies, has promoted to address uncertain risks. This approach can shift how science informs policy – moving from a strategy of ‘reaction’ to a strategy of ‘precaution’.⁴⁷ While large bodies of data are yet to be gathered on the potential health effects of every single chemical, there is sufficient evidence to implement more protective policies to reduce pollution sources and implement chemical management programmes. There is an urgent need for States to prioritize the environment and human health and to reduce potential hazards, even while proof of harm is still being gathered.^{48,49}

Despite tests being available to identify chemicals that may affect the health of children, tens of thousands of industrial chemicals have not been tested for such impacts. Furthermore, regulators assess the likelihood of harm from toxics on the basis of the exposure of an average adult to a single substance, not on the basis of real-life conditions, as children are exposed to multiple substances (that may result in combination effects) during sensitive periods of childhood development.¹⁹

Despite increasing knowledge of the health and development risks of climate change, environmental degradation and exposure to toxins and pollution, children continue not to be protected through effective laws, policies and actions.

UN High Commissioner for Human Rights⁴⁹





States have a duty to act

Chapter overview

- Children's right to a healthy environment is implicit and explicit in the Convention on the Rights of the Child (CRC).

- Limited progress has been made despite the elaboration of many environmental, health and human rights resolutions and agreements.

- Climate pledges over the last three decades have been inadequate to stop excessive carbon emissions leading to rising temperatures, rising sea levels and weather-related disasters.

- States have the primary duty to protect everyone from exposure to pollution and other hazardous substances. States have a duty to design, implement and enforce public health, environmental, climate and labour laws to protect children from toxic chemicals and pollution.

- Information that promotes the physical and mental health of a child is critically important. States are required to monitor environmental health and evaluate interventions in partnership with research, academic and civil society institutions, based on disaggregated data. Meanwhile, all information on hazards caused by pollutants should be accessible to children.

The CRC is one of the few human rights instruments that explicitly requires States to protect the environment.⁵⁰ There are two articles which specifically mention the environment, namely:

- **Article 24 (2)** on the right of the child to the enjoyment of the highest attainable standard of health provides that: “States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures: [...] to combat disease and malnutrition [...] taking into consideration the dangers and risks of environmental pollution”
- **Article 29 (1)** on the aims of education provides that: “States Parties agree that the education of the child shall be directed to: [...] the development of respect for the natural environment”

These articles provide important leverage to clarify States’ obligations and to place the Committee in a strategic position to hold States to account.⁵¹ Other provisions of the CRC that implicitly relate to environmental protection include:

- The general principles of the rights to life, survival and development (Art.6),
- Non-discrimination (Art.2),
- The right to be heard (Art.12) and,
- The best interests of the child (Art.2) as well as,
- The rights to rest, leisure, play, recreational activities, cultural life and the arts (Art.31),
- Freedom from exploitation (Art.32),
- Protection from all forms of violence and physical and mental integrity (Art. 19),
- An adequate standard of living (Art. 37), food, water and sanitation, housing (Art. 24 and 27), education (Art. 28)
- An identity (Art.8), freedom of expression and information (Arts. 13 and 17) and effective remedies and reparation.

A healthy environment could even be considered a *sine qua non* precondition for the effective implementation of the Convention as a whole.⁵² Environmental concerns were further raised in relation to the rights of specific groups of children, including children with disabilities (Art. 23) and indigenous children (Art.30).

States have a duty to apply these environmental rights to children in their country. Furthermore, the Convention also places obligations on countries to take action on upholding children’s rights internationally, with clear implications for transboundary environmental harm (Arts. 4 and 24 (4)).

States must protect children against environmental harm that interferes with the enjoyment of their rights. Children’s specific vulnerability and social status within society imposes a heightened duty on governments and policy-makers to make sustained efforts to effectively protect children from such harm, strengthen their capacities, take their views and competences into account and provide access to effective and timely remedies.

The Committee on the Rights of the Child has the opportunity to shed light on violations of children’s environmental rights, which far too often remain invisible.⁵³ In a review of CRC committee reports from 2014 to 2019, 38 reports were identified that specifically mentioned environmental pollution or climate change. Of these, several recurring environmental health threats were identified, including:

Every child has the right to the enjoyment of the highest attainable standard of physical and mental health, which includes States taking measures to combat and prevent disease and its impact on health and ensuring access to health-care services, and inter alia preventing and reducing exposure to harmful substances or environmental conditions that directly or indirectly affect their health.

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)



Climate change (22 reports)

In particular, the CRC reports referenced Sustainable Development Goal targets 13.b and 13.5 to ensure (a) that the special vulnerabilities, needs and views of children are taken into account in developing policies and programmes addressing the issues of climate change and disaster risk management; (b) collection of disaggregated data identifying risks faced by children to a variety of disasters in order to develop response strategies; and (c) an increase in children's awareness and preparedness for climate change and natural disasters by incorporating relevant subjects into school curriculums and teacher training programmes.



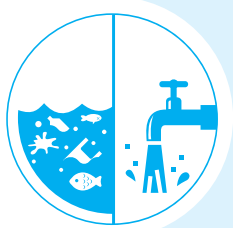
Hazardous waste and industry (22 reports)

With emphasis on establishing and implementing regulations to ensure that the business sector (such as oil, gas, mining, fishing, agriculture, construction and tourism) complies with international and national human rights, labour, environmental and other standards, particularly with regard to children's rights, and undertakes due diligence. In the case of unlawful waste disposal or other activities, that investigations are undertaken, appropriate sanctions are applied, and remedies provided for any violations found.



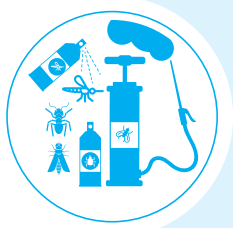
Air pollution (14 reports)

In several reports, the CRC urged State parties to (a) scale up and expedite the implementation of plans to reduce air pollution, especially near schools and residential areas; (b) carry out an assessment of the impact of air pollution from coal-fired power plants on children's health and on the climate as a basis for designing a well-resourced strategy to remedy the situation; (c) strictly regulate maximum air pollutant emissions, including those produced by private businesses; and (d) strengthen support for clean cooking technologies.



Drinking water (11 reports)

The CRC indicated a number of outstanding pollution and WASH-related issues across several regions, as well as the disproportionate impact experienced by specific social groups, such as indigenous children.



Pesticides (3 reports)

The Committee urged State parties to (a) significantly reduce the use of highly hazardous pesticides and especially crop dusting/aerial pesticide spraying; (b) establish an effective monitoring system, conduct an assessment of children's exposure to hazardous pesticides; (c) ensure access to health care and services for children affected by chemical pesticides; and (d) develop awareness-raising campaigns to prevent pregnancy and childhood exposures to such substances.



The recent report of the United Nations High Commissioner for Human Rights on [Realizing the rights of the child through a healthy environment \(A/HRC/43/30\)](#), recommends the Committee on the Rights of the Child provide further normative and practical guidance on children's rights and the environment, including a new general comment.

Global response. Environmental pollution and climate change have complex causes and require comprehensive responses. Both require urgent, large-scale action at the highest levels of international collaboration. Numerous multilateral and regional frameworks, environmental agreements, health and human rights resolutions have been developed and agreed upon to reduce environmental and climatic hazards to children. Yet, progress has been limited. Likewise, climate pledges over the last three decades have been inadequate to stop rising temperatures, rising sea levels and discriminating impacts of weather-related disasters from damaging children's futures. Both the 2015 Paris Agreement and the IPCC have called on governments to restrict warming to below 1.5°C, which will require substantial changes to global economic, political and social systems.

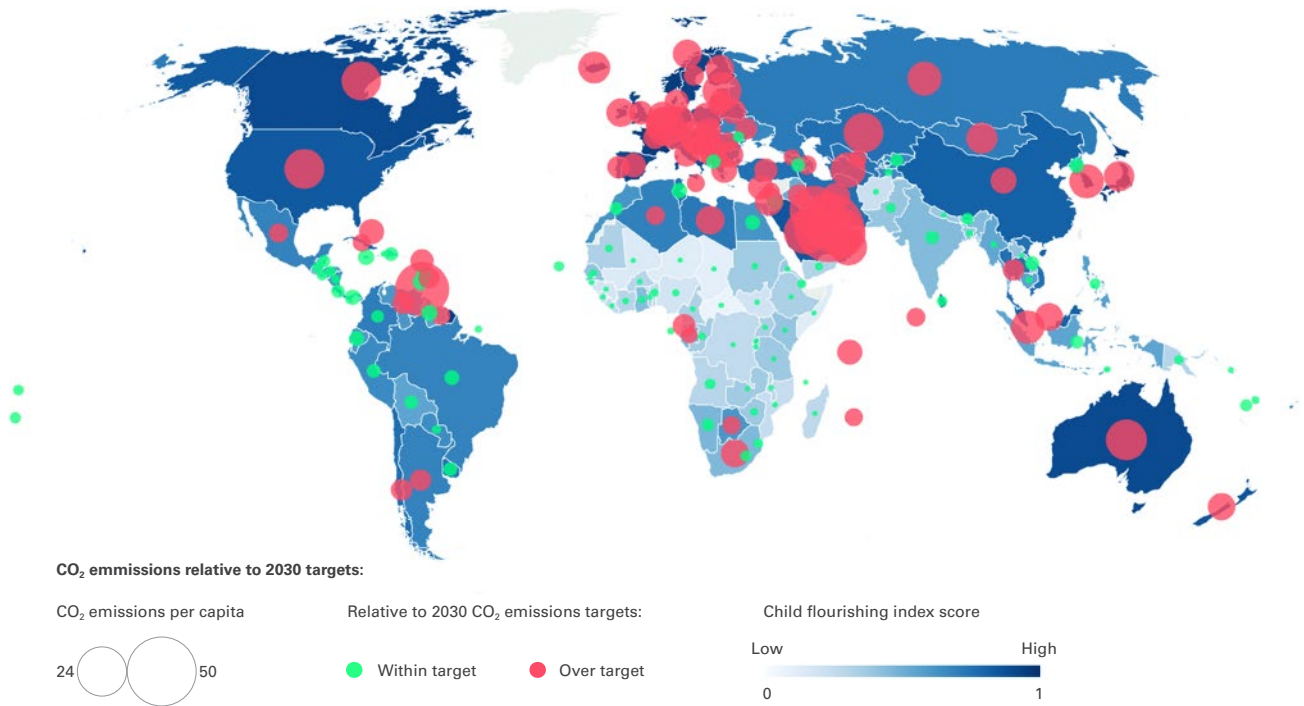
Carbon emissions at the cost of children's healthy futures.

A recent WHO–UNICEF–Lancet Commission ranks countries and territories on sustainable levels of carbon emissions relative to 2030 targets as a measure of a country's threat to future children, compared with the 'child flourishing' index. The child flourishing index measures combine 'survive' and 'thrive' metrics, such as health, nutrition and education. Countries with higher scores (darker shades of blue in Figure 6) offer children the best start in life. But child flourishing measures alone tell an incomplete story. This figure compares the emissions of each country to their flourishing score. In general, the poorest countries need to do more to support their children's ability to live healthy lives, but wealthier countries threaten the future of all children through excessive carbon emissions.

Under the human rights framework, States have clear human rights obligations to prevent the adverse impacts of environmental degradation on the effective enjoyment of all human rights, including children's rights.

UN High Commissioner for Human Rights⁴⁹

Figure 6: Carbon emissions and child health



Source: A future for the world’s children? A WHO-UNICEF-Lancet Commission, 2020

The absence of ‘meaningful progress’ at the global level to protect children and families means that premature death, disease and disability associated with environmental pollution and climate change continue to fall hardest on children and the unborn, who represent the future of our societies.

According to the UN Special Rapporteur on Toxics

“States – not businesses – have the primary duty to protect the people and peoples within their territory or jurisdiction from exposure to pollution and other hazardous substances. The only way to effectively protect against exposure is to prevent exposure. However, most States are not only failing to prevent exposure, they are also failing to acknowledge and understand the catastrophic impacts of their inaction on people both within and outside their jurisdictions. Instead, States are taking regressive steps, going in precisely the wrong direction at a moment when increased, not diminished, ambition is critically needed. ... Individuals and communities are exposed to a multitude of hazardous substances, the potential adverse effects of which remain unassessed, especially with regard to the effects of combined exposure, when the substances are combined with others, and with regard to exposure during critical periods of childhood development. This incessant exposure has left most victims suffering from diseases or disabilities caused by or related to toxic exposure.”⁵⁴

Child labour and environmental degradation. Child labour and environmental degradation are often linked. Tens of millions of children are exposed to toxic chemicals through hazardous child labour. To name a few examples, this includes agricultural work in direct contact with highly hazardous pesticides and other chemicals; artisanal and small-scale gold mining and other commodities; and informal recycling of lead acid batteries. Work that harms a child's health is considered one of the worst forms of child labour by the International Labour Organization (ILO) Worst Forms of Child Labour Convention.⁵⁵ At the same time, States must protect and fulfil the right of parents to safe work. To adequately respond to children's exposure to toxic substances, adequate legislation must be enforced by States to prevent children from handling hazardous substances or working in hazardous conditions.⁵⁶

Taking ... measures to eradicate ... the worst forms of child labour, including hazardous child labour... by eliminating work by children where they are exposed to hazardous substances and wastes, while ensuring that children who have been subjected to such exposure have access to the necessary treatment and compensation ...

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)



States have a duty to develop, implement and enforce public health, environmental, climate and labour laws to protect children's rights from toxic substances and pollution. Multiple sectors should play a role in responding to environmental pollution and climate change in order to protect children's survival, health, well-being and a life with dignity. This includes private sector businesses that have a responsibility to prevent childhood exposure to toxic substances, including extractive industries, energy, chemical manufacturing, construction, food and agriculture, garment and footwear production, household products, cosmetics, furniture, clothing, electronics, jewellery industry, recycling, waste disposal, the automotive sector, their financial and administrative partners, and others. These responsibilities are in line with the Guiding Principles on Business and Human Rights.

Children's access to information. The Convention on the Rights of the Child underlines the need for information to promote the physical and mental health of the child. Access to this information can empower children and families although it does not imply they hold a burden of proof regarding health hazards. To fulfil this right, research, academic and civil society partners should be engaged with State and other entities to monitor environmental health within and between States. Local stakeholders- including children- should be involved in designing and evaluating interventions that could reduce damaging effects on children's health, address inequalities in children's environmental health, and reduce the distance between research, policy and practice in their communities. Any data gathered should be disaggregated to identify sensitive populations (known as environmental justice communities). Research, translation and communication should ensure that evidence of health hazards related to environmental pollution and climate change are freely accessible and presented in a way that is understandable and appropriate to children's age and educational level.⁵⁷

Rights of the child: Realizing the rights of the child through a healthy environment. In October 2020, the UN Human Rights Council adopted a historic resolution (A/HRC/45/L.48/Rev.1). The Council urges States to take effective measures to ensure that all children in vulnerable situations can exercise their rights on an equal basis with other children, and that the effects of environmental harm do not affect them disproportionately. These measures include those listed below.

- Strengthening disaggregated data collection.
- Requiring that childhood exposure monitoring and children's rights impact assessment procedures take into full account the impact of proposed policies, programmes and projects on those in the most vulnerable situations, including their gender dimensions.
- Providing children at particular risk and their parents, or primary caregivers and legal guardians with assistance in accessing effective remedies.

Committing to take precautionary action whenever there are threats of serious or irreversible damage to children from the effects of environmental harm, noting that a lack of full scientific certainty shall not be used as a reason for postponing cost-efficient measures to prevent such threats ...

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)

Preventing environmental harm is the most effective way to fully protect children from its effects.

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)



16

ЛОМБАРД

The essentials for an informed UNICEF engagement

Chapter overview

- Global environmental governance is covered by a number of instruments, including:
 - The UN Framework Convention on Climate Change (1994), the Paris Agreement (2015) and the Kyoto Protocol (1997). These are aimed at stabilizing greenhouse gas emissions to prevent dangerous human interference with the climate system.
 - The United Nations Environment Assembly (UNEA) implementation plan 'Towards a Pollution-free Planet' (2019), which aims to address air, water, land/soil, marine and coastal pollution.
 - The Basel, Rotterdam and Stockholm (BRS) and Minamata Conventions all seek to protect human health and the environment from hazardous chemicals and wastes.
- The 2030 Agenda for Sustainable Development (2015) addresses the challenges of environmental pollution and climate change on human development.
- UNICEF is now elevating action on climate change and environmental degradation as an organizational priority, in such areas as climate-smart WASH, health care and education, and promoting the engagement of young people.
- National Adaptation Plans (NAPs) support countries to identify planning needs to respond and adapt to climate change; while Nationally Determined Contributions (NDCs) predominantly outline climate actions that countries intend to take to reduce national emissions, though some also make reference to adaptation. The health co-benefits of climate policies and action, and negative health impacts of climate are rarely reflected in these, and most NAPs and NDCs do not refer to children.
- Stakeholders use a wide range of tools to understand the complexity of environmental risks to children's health: risk assessment, human biomonitoring, environmental monitoring, source apportionment, epidemiology research, geographic information systems, health impact assessment and risk management.
- Conducting a Children's Climate and Environment Vulnerability Assessment can greatly assist in incorporating children's needs into any adaptation, preparedness or mitigation plan or strategy.

4.1 Global environmental governance

The **United Nations Environment Assembly (UNEA)** is the world's highest-level decision-making body on the environment, with a universal membership of all 193 Member States. It meets biennially in Nairobi, Kenya, to set priorities for global environmental policies and to develop international environmental law. Through its ministerial declaration and resolutions, the Assembly provides leadership, catalyses intergovernmental action on the environment, and contributes to the implementation of the UN 2030 Agenda for Sustainable Development. The UNEA is also the governing body of the UN Environment Programme (UNEP).

The United Nations Framework Convention on Climate Change (UNFCCC) entered into force on 21 March 1994. The Conference of the Parties (COP) is the supreme decision-making body of the Convention. The 197 countries that have ratified the Convention are referred to as 'Parties to the Convention'. The UNFCCC secretariat is the United Nations entity tasked with supporting the global response to the threat of climate change. The Convention is the parent treaty of the 2015 **Paris Agreement** that aims to keep the global average temperature rise this century as close as possible to 1.5 degrees Celsius above pre-industrial levels. The UNFCCC is also the parent treaty of the 1997 **Kyoto Protocol**, the predecessor to the 2015 **Paris Agreement**. The ultimate objective of all three agreements is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a timeframe that allows ecosystems to adapt naturally and enables sustainable development.

In 2019, the UNEA approved an implementation plan '**Towards a Pollution-free Planet**'. This multi-stakeholder plan aims to address air, water, land/soil, marine and coastal pollution as well as the crosscutting issues of chemicals and waste, by developing capacities in the areas listed below:

- knowledge about pollution and its sources, fate, pathways and impact;
- the regulatory, financial and institutional means to implement and enforce;
- infrastructure for managing and preventing pollution;
- awareness of the health impacts of pollution, productivity and the environment, as well as of the production and consumption choices that cause pollution; and
- leadership to direct and act on pollution solutions.

The **Basel, Rotterdam and Stockholm (BRS) Conventions** are multilateral environmental agreements. They share the common objective of protecting human health and the environment from hazardous chemicals and wastes. The Basel Convention was created to protect people and the environment from the negative effects of the inappropriate management (including transboundary movement) of hazardous wastes worldwide. The Rotterdam Convention provides Parties with a first line of defence against hazardous chemicals and pesticides through prior informed consent of chemicals trade. The **Stockholm Convention on Persistent Organic Pollutants** is a global treaty to protect human health and the environment from highly dangerous, long-lasting chemicals by restricting and ultimately eliminating their production, use, trade, release and storage. A 'synergies process' aims to enhance cooperation and coordination among the conventions for

more effective implementation. Meanwhile, the [Minamata Convention on Mercury](#) is a global treaty to protect human health and the environment from the adverse effects of mercury. Finally, the [Strategic Approach to International Chemicals Management \(SAICM\)](#) is a voluntary, multi-stakeholder policy framework to promote chemical safety around the world. The overall objective is to achieve the sound management of chemicals so that they are produced and used in ways that minimize significant adverse impacts on the environment and human health. Annex 2 outlines the list of Environmental Health Conventions and Resolutions, selected, listed by effective dates.

4.2 Environmental health in the global health agenda

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, comprises 17 Sustainable Development Goals (SDGs), and clearly addresses the challenges of environmental pollution and climate change. Annex 1 outlines how environmental pollution and climate change is integrated across the SDGs. The following two targets directly relate to healthy environments in SDG 3: Ensure healthy lives and promote well-being for all at all ages:

- **Target 3.9:** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- **Target 3.d:** Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

Aligned to the SDGs, the Secretary-General’s Global Strategy for Women’s, Children’s and Adolescents’ Health (2016-2030) outlines three overarching objectives: survive, thrive and transform. One of the objectives: “Substantially reduce pollution-related deaths and illnesses” is aligned to the environmental pollution agenda. Strategies for climate change mitigation and adaptation are reflected in this strategy. Members of the H6 (UNAIDS, UNFPA, UNICEF, UN Women, WHO and the World Bank Group) provide technical support to high-burden countries in their efforts to implement this strategy and reach the targets of the health-related SDGs.

What is the H6?

The H6 partnership (formerly H4+) harnesses the collective strengths of the UNFPA, UNICEF, UN Women, WHO, UNAIDS, and the World Bank Group to advance the Every Woman Every Child (EWEC) Global Strategy and to support country leadership and action for women’s, children’s and adolescents’ health.

In 2019, the ‘Global Action Plan for Healthy Lives and Well-being for All’ was launched to strengthen collaboration among multilateral organizations to accelerate country progress on the health-related SDGs. In addition to the H6, this multilateral partnership draws collaboration from Gavi, the Vaccine Alliance, the Global Financing Facility, the Global Fund, Unitaid, and the

World Food Programme. The Action Plan outlines seven accelerators to draw upon the collective expertise of the multilateral organizations in support of national priorities. Accelerator 4 focuses on the determinants of health. This includes environmental determinants, outlining a focus on strengthening economic, social, legal and policy responses to climate change, air, water and chemical pollution and environmental degradation, with the aim of reducing health impacts, while improving health equity at national and subnational levels.

Given the context, the vision of UNICEF's Strategy for Health 2016-2030 "a world where no child dies from a preventable cause and all children reach their full potential in health and well-being" is unattainable without addressing the impact of environmental degradation and climate change. To this end, the midterm review of the 2018-2021 UNICEF Strategic Plan elevated action on climate change and environmental degradation as an organizational priority, to be mainstreamed throughout UNICEF programmes. UNICEF will accelerate efforts to programme at scale in such areas as climate-smart WASH, health care and education, and promoting the engagement of children, adolescents and young people in action on climate and the environment.

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Midterm review of UNICEF Strategic Plan 2018-21

4.3 Children's environmental health needs to be a priority on the national policy agenda

The National Adaptation Plan (NAP) process, established under the UNFCCC agenda, aims to support countries to identify medium- and long-term adaptation planning needs to respond and adapt to climate change. NAPs are continuous, progressive, and iterative processes that follow a country-driven, gender-sensitive, participatory and fully transparent approach.

Nationally Determined Contributions (NDCs) outline the post-2020 climate actions that countries intend to take to reduce national emissions in line with the Paris Agreement's goal of limiting warming to under 2°C. While their focus is on mitigation, Parties are invited to include a more comprehensive view of national climate policies, strategies and action plans, including adaptation and implementation means.

In collaboration with the H6 partners at the country level, it is critical that the health sector is properly represented in the NAP/NDC process. Excluding the health sector in such planning processes can mean that policy-makers overlook critical actions to protect peoples' health. At the same time, policies and programmes in other sectors may inadvertently add to adverse health impacts and undermine efforts to protect the environment. The national health adaptation process should be the health component of the NAP. Furthermore, this health component should include an output that details the health adaptation plan, which is designed to achieve health-related national adaptation goals within a specific time and given available resources.

As countries gear up to submit new or to update their current NDCs, they have the chance to boost their ambition for reducing emissions. They also have the opportunity to strengthen mitigation and adaptation measures (and other elements) to align their NDCs closer to the goals of the Paris Agreement.

... urges States to... ensure that the best interest of the child is a primary consideration in environmental decision-making by adopting a child rights-based approach and by recognizing the critical importance of child rights impact assessments of relevant laws, standards and policies to evaluate their actual impact on the rights of the child ...

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)

A 2019 WHO review of health in NDCs drew the following conclusions:

- The health co-benefits of climate policies are rarely reflected in current NDCs.
- When health co-benefits of climate action are mentioned in NDCs, they are rarely measured.
- The reduction of air pollution and short-lived climate pollutants is underrepresented in NDC mitigation actions.
- The negative health impacts of climate change are recognized by close to half of all NDCs.
- Vector-borne diseases as well as food and nutrition insecurity are the negative health impacts of largest concern in NDCs.
- Current NDCs rarely relate the health impacts of climate change to evidence or national policies.

A 2019 UNICEF assessment concluded that:

- Only 42 per cent of all NDCs contain direct reference to children or youth, while only 20 per cent mention children specifically. Less than 2 per cent mention child rights.
- 11 of 13 NAPs explicitly refer to children or youth, with emphasis as a vulnerable group and as beneficiaries in terms of education and health interventions.

The assessment outlines that child-sensitive climate policies need to be structured around the following principles:

- **Ambitious and urgent:** Ambitious mitigation and adaptation measures that protect the rights and best interests of the child from harm caused by climate change.
- **Rights-based:** Explicit and meaningful references to children and youth, considering them as rights-holders and important stakeholders.
- **Holistic and multisectoral:** Address children's specific risks and vulnerabilities through specific sectorial interventions.
- **Inclusive:** Informed by, and provide for, the systematic consultation and meaningful participation of all children, including of different ages, gender and social backgrounds, at every step of the climate policy-making process and at all levels.



“The 2030 Agenda for Sustainable Development demands a UN development system that is agile, cohesive and responsive to a country’s priorities and people’s needs. It requires rights-based programming that is underpinned by robust national analysis, a renewed push for collective action and partnerships, and a laser-like focus on helping countries achieve the SDGs, leaving no one behind.”

Amina J. Mohammed, United Nations Deputy Secretary-General, Chair of the United Nations Sustainable Development Group.⁵⁸

4.4 UNICEF needs to work with the UN system for maximum impact

Leaving no one behind is the central transformative promise of the 2030 Agenda. The Agenda is a rights-based framework, representing the unequivocal commitment of all United Nations Member States to eradicate poverty in all its forms, end discrimination and exclusion, and reduce inequalities and vulnerabilities, including to the impacts of climate change and environmental degradation.

The United Nations Sustainable Development Cooperation Framework (UNSDCF) – the UN’s new planning document at country level – articulates government expectations of the UN development system. This framework now drives major UN development system contributions at the country level. It represents the UN development system’s offer to support countries to address key SDG priorities and gaps. Partnerships with host governments, civil society, academia, parliaments, the private sector, bilateral actors to leverage strengths and drive transformative change are at the core of the cooperation framework.

The UN Sustainable Development Cooperation Framework provides an opportunity for the United Nations development system to demonstrate the value of climate- and disaster risk-informed development to accelerate SDG progress in the decade of action.

Integrating Disaster Risk Reduction and Climate Change Adaptation in the UN Sustainable Development Cooperation Framework, UNDRR

Agenda 2030 is underpinned by the ‘five Ps’ – people, prosperity, planet, peace and partnerships. By adopting an integrated and multidimensional programming approach (in-line with the ‘five Ps’) it is possible to identify how advancing one SDG can maximize synergies and positive impacts, also managing potential trade-offs. In addition to leaving no one behind, the human rights-based approach addresses development, gender equality and women’s empowerment, resilience, sustainability and accountability. These are the core programming principles of the UNSDCF and are highly relevant to this Global Programme Framework.

Below is a list of United Nations organizations with experience working in the climate/ pollution/ health-related area. While existing initiatives address a number of environment and climate issues, too few incorporate the special vulnerability of children. UNICEF should take advantage of opportunities to elevate the child-rights lens, collaborate and share responsibility and leadership in order to maximize impact.

Table 6: List of United Nations organizations with experience working in the climate/ pollution/ health-related area

Climate/ pollution/ health-related activity	United Nations organizations working in the climate/ pollution/ health-related area
Children’s environmental health	WHO
Upstream health and climate change policy (including NDCs)	WHO, UNEP, UNFCCC
Youth engagement on climate/ environment	UNFPA, World Bank
Environmental pollution	UNEP, WHO, UNIDO
Agriculture, food and nutrition	WFP, FAO, IFAD, WHO
Marine/water resources	IMO, UNEP
Cities/urban development	UN-Habitat, UNEP, WHO
Green skills, climate change education	UNESCO, ILO
Sustainable energy	UNEP, World Bank, IRENA, UNIDO, WHO
Loans, infrastructure, resources	World Bank, IMF, GCF, GEF
Climate/weather data	WMO
Displacement as a result of climate/health disasters	UNHCR, IOM
Training and research on climate change/health	UNITAR, UNWIDER
Climate/health programming	WHO, UNDP
Technology-based activities or programming	ITU

The UN's Common Country Analysis (CCA) identifies the multidimensional risks that could impact the development trajectory of a country and guides the design of the UNSDCF. To do this, the CCA development process draws on existing data, statistics, analyses, reviews, research, capacities and resources. It begins and ends with an analysis of the national development landscape and SDG priorities, including through the lens of the imperative to leave no one behind.

4.5 An overview of approaches and tools for children's environmental health

Understanding the environmental risks to children's health is challenging because our environments are complex and rapidly changing – and it is not always easy to find the exact cause of poor health. Stakeholders have developed a number of approaches and tools to support the study of the environment and children's health, several of these are described below. Some of these scientific approaches have already produced important evidence that can be used to reduce pollution sources, regulate chemicals and implement chemical management programmes. State-led engagement across sectors is needed to accelerate action on the large and growing knowledge base around environmental hazards.



Risk assessment. A human health risk assessment aims to identify the risks associated with exposure to a specific substance, taking into account other variables in the environment. It generally involves five steps: (1) problem formulation; (2) hazard identification; (3) hazard characterization; (4) exposure assessment; and (5) risk characterization.

States have adopted various approaches to regulating chemicals. Many of these approaches do not require pre-market or post-market testing for impacts on human health, or a focus on early life exposures.⁵⁹ UNEP's SAICM policy framework promotes international action on the sound management across the lifecycle of chemicals. SAICM and chemical management programmes at the national and regional levels are vital for regulating new chemicals entering the market, and for minimizing the risks to the youngest and most vulnerable.

The [WHO Human Health Risk Assessment Toolkit](#) is a manual on how to identify and characterize chemical hazards, assess exposures to these chemicals, and determine whether these exposures are dangerous to public health.⁶⁰ This toolkit and other risk assessment resources can be helpful in planning and collaborating on environmental health research and outreach. The [WHO Chemical Risk Assessment Network](#) is a voluntary collaborative initiative. This network's overall goal is to improve chemical risk assessment globally by facilitating sustainable interaction between institutions on chemical risk assessment issues and activities.

Monitoring. Health authorities can assess our exposure to environmental contaminants in two major ways.⁶¹ First, **human biomonitoring** directly measures levels of toxicants (or their related chemicals) in human tissue, such as blood, urine, hair, fingernails, breastmilk and saliva. Comparing the levels of contaminants in a single child to a reference value (or tolerable daily intake) can indicate if the child's level is elevated. Most toxicants are best studied in a particular type of tissue; for example, lead body burden can be better measured in blood than in hair or nails. Human biomonitoring can provide useful information about human exposure to toxicants, time trends and specific at-risk groups. However, levels of a chemical in tissue samples generally represents just a snapshot in time (for example the last several hours or months) and do not always reflect a child's lifetime exposures. Moreover, human biomonitoring usually does not reveal the sources of these chemicals or the routes of exposure. Therefore, the second type of surveillance, **environmental monitoring**, provides complementary information. Environmental monitoring (environmental assessment) provides an indirect measure of human exposure by measuring levels of toxicants (or their related chemicals) in the environment, such as soil, air, water, or foods. Together, these two types of monitoring can support exposure assessment, risk assessment and scenario analysis.

Source apportionment. Identifying the source of pollution can be very challenging. When it comes to air pollution, the amount of data has grown significantly in the last decade. This provides researchers with a useful tool to better understand what upwind sources of pollutants might influence their local community by using mathematical models. These models allow a user to feed air quality data into (often low-cost or free) software and produce a much better understanding of the sources that affect local air quality. In general, the best models use measured data that describes varied chemical and physical composition of pollutants (for example, particle size and count, concentrations of different metals or gases, or black carbon). These can then be attributed to specific sources (apportionment). Researchers can collect a ‘fingerprint’ of local air quality conditions; then apportion which source categories lead to these conditions and how these conditions change over time and space. Source categories can describe complex sources such as traffic emissions, secondary aerosol, or manufacturing/industrial emissions, or can be highly specific, such as brick kilns, diesel combustion, or brake/tyre wear. Broadly, these tools are known as source apportionment models. There are a number of source apportionment tools available for research. The most common tools are Positive Matrix Factorization (PMF), Unmix, Principal Components Analysis (PCA), and Chemical Mass Balance (CMB).^{62,63,64,65} Each method has distinct advantages and disadvantages. Source apportionment can be used in many different contexts, but its most common use is in datasets that have broad chemical speciation data for moderate to long periods of time, often for many months, to capture sufficient variability. It is unlikely to be useful where there are few pollutants measured, or if measurements were collected for a short time period.

Epidemiology research. Long-term follow-up studies of children’s health have generated many important insights about how the environment impacts children’s survival, health and well-being. **Prospective birth cohort studies** – which are studies in which pregnant women are recruited to participate and then researchers follow the development of their child – are used to understand how early life exposure influences later health and



well-being. Such research can be useful to link early experiences and toxic exposures with health outcomes and developmental milestones in later years. In this way, researchers can try to understand how variation in, for example, language skills, attention span, hormone function or other health indicators could potentially be related to differences in environmental exposures. Epidemiology studies typically draw on **exposure science** to develop research questions about how children may be exposed to environmental risks and the potential **dose-response relationships**. Multiple birth cohort studies can be combined and harmonized to study a larger group of children; larger studies can be more sensitive for uncovering subtle links between exposures and health.

Geographic information systems. Using maps and geographic information systems (GIS) can be useful for layering multiple types of data in the environment that are location specific. For example, satellite data on air pollution can be combined with information about where children live, location of waste sites and other environmental hazards, as well as nearby schools. By fusing these different types of data together, it becomes possible to create maps and conduct a spatial analysis about risks to children's health. There are a number of challenges related to GIS analysis, since different types of data cannot always be easily combined, and the resolution of the maps may not be fine enough to deliver useful information.

Health impact assessment. WHO defines a health impact assessment as a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population. Integrating health during planning processes can allow for the early identification of primary prevention opportunities. This can be particularly relevant when planning schools, waste sites, industrial areas or transportation services. This is an important step towards risk management. WHO has a library of resources on health impact assessments and environmental assessments.

Communication. Human biomonitoring and the other approaches discussed here should always be carried out with the engagement of community stakeholders. Stakeholders can include children, families, schools, media and policy makers. A communication plan that supports project transparency and reporting of the findings – including information geared towards children – should be part of the programming from the start. Such a plan should also encourage participation.



4.6 Mainstreaming children’s priorities in national vulnerability and adaptation assessments

Conducting a Children’s Climate and Environment Vulnerability Assessment can greatly assist in incorporating children’s needs into key planning processes. These include, for example, the NAP and Health-NAP (H-NAP) processes or UN/UNICEF common assessments/SITANs or health sector plans. The timing of this Assessment is important if UNICEF seeks to leverage collective efforts for reducing the impact of climate change on children.

The [NAP process technical guidelines](#) outline the following four elements: (a) laying the groundwork and addressing gaps; (b) preparatory elements; (c) implementation strategies; and (d) reporting, monitoring and review. The following guiding steps have been outlined under element (b):

1. analysing current and future climate change scenarios;
2. assessing climate vulnerabilities and identifying adaptation options at various levels (sectoral, subnational, national and other appropriate levels);
3. reviewing and appraising adaptation options;
4. compiling and communicating national adaptation plans; and
5. integrating climate change adaptation into national and subnational development and sectoral planning.

Aligned to UNFCCC, WHO’s [guidance to protect health from climate change through health adaptation planning](#) outlines steps in conducting an assessment that is responsive to the country context and needs. In support of WHO and other health partners at the country level, UNICEF should help frame and scope vulnerability and adaptation assessments. This, in line with WHO’s guidance, includes:

- defining the geographical region and health outcomes of interest;
- identifying the questions to be addressed and steps to be included;
- identifying the policy context for the assessment;
- establishing a project team, management plan and stakeholder process;
- developing a communication plan.



Table 7: Prioritizing the health and well-being of children in the NAP/H-NAP process

NAP technical guidelines	WHO guidance to protect health from climate change through health adaptation planning	Prioritizing the health and well-being of children in the NAP/H-NAP process
<p>1. Analysing current and future climate change scenarios.</p> <ul style="list-style-type: none"> • Which climatic patterns in the country, according to observed data, are most important in terms of adjustment, adaptation or acclimatization of social systems? • What climate change risks does the country face? • What are the major current climate hazards? • What is the estimated range of uncertainty for possible future climate scenarios? • What are appropriate indices of climate trends that could support planning and decision-making? 	<p>1. Vulnerability assessment: Describe the human health risks of current climate variability and recent climate change, and the public health policies and programmes to address the risks. This includes:</p> <ul style="list-style-type: none"> • describing the current risks of climate-sensitive health outcomes, including the most vulnerable populations and regions; • describing the current capacity of health and other sectors to address the risks of climate-sensitive health outcomes. 	<p>1. Utilize and contribute to the NAP/H-NAP vulnerability assessments to assess the risks and hazards that climate change and environmental degradation pose. This includes the identification of current and future climate and environmental risks/hazards, including geographical locations with high propensity for increased floods, droughts, vector-borne diseases, storms, coastal surge, air pollution, among others.</p> <p>2. Assess the existing vulnerability status of children. This includes health outcomes related to extreme weather events, including vector-borne, rodent-borne and zoonotic diseases; water and food-borne diseases; and health outcomes related to air quality and malnutrition.</p>
<p>2. Assessing climate vulnerabilities and identifying adaptation options at sector, subnational, national and other appropriate levels.</p> <ul style="list-style-type: none"> • Which systems, regions, or groups work towards key development goals such as food security, poverty alleviation, economic development, etc? • What are the main climate vulnerabilities of those systems/regions that are key to achieve the main development goals? • What are the expected impacts of climate change? • What are viable cost-effective adaptation options to reduce the impacts of climate change or to use opportunities? 	<p>2. Impact assessment: Project future health risks and impacts under climate change. This entails describing how the risks of climate-sensitive health outcomes may change over coming decades, irrespective of climate change; and estimating the possible additional burden of adverse health outcomes due to climate change.</p> <p>3. Adaptation assessment: Identify and prioritize policies and programmes to address current and projected health risks. This includes:</p> <ul style="list-style-type: none"> • identifying additional public health and health care policies and programmes to prevent likely future health burdens; • prioritizing public health and health care policies and programmes to reduce likely future health burdens; • identifying human and financial resources needed for the implementation and for potential challenges to be addressed; • estimating the costs of action as well as inaction; • identifying possible policies and programmes to reduce the potential health risks of adaptation and greenhouse gas mitigation policies and programmes implemented in other sectors. 	<p>3. Estimate the future burden on children, based on the current burden of disease and the likelihood/severity of impact.</p> <p>4. Prepare communication and advocacy plans to mobilize attention to prioritize child health in the NAP/H-NAP process and estimate the cost of inaction on children.</p> <p>5. Advocate and contribute to the adaptation assessment based on the children's vulnerability assessment: This includes advocating for health policies that will reduce the impact on children; and advocating for the gaps in health systems, including supply chains, human resources and data/digital health in support of resilient primary health care.</p> <p>6. Prioritize strategic contributions in line with UNICEF's comparative advantage</p>
<p>3. Reviewing and appraising adaptation options</p>		
<p>4. Compiling and communicating national adaptation plans</p>		
<p>5. Integrating climate change adaptation into national and subnational development and sectoral planning</p>		



UNICEF response framework

This chapter offers entry points for UNICEF Health programmes to address children’s environmental risks emerging from climate change and environmental degradation. It clearly outlines the added value that UNICEF brings to national, local and community-based health programmes. This Framework provides concrete steps for UNICEF staff and partners to develop health system responsiveness, engage in multisectoral action and design an enabling environment to protect children against environmental threats so that they can survive and thrive.

This Framework was created to be compatible with, and to reinforce, current global strategies and goals. It specifically incorporates UNICEF’s health strategy (HS) to:

1. Advocate for every child's right to health
2. Influence government policy
3. Strengthen service delivery
4. Empower communities

It links to the pillars of UNICEF’s climate and environmental sustainability strategy ‘Environment Fit for Children’ (EFFC), which are to:

- A. Make children a focus of environmental strategies
- B. Empower children as agents of change
- C. Reduce emissions and pollution
- D. Protect children from the impacts of pollution and toxic chemicals

The Global Programme Framework builds on existing strategies and plans by articulating five major actions that UNICEF and its partners can use. These are as follows:

1. Strengthen climate-resilience and environmental sustainability in health care facilities (HS 3; EFFC C, D)
2. Develop responsive primary health care (HS 3, 4; EFFC A, C, D)
3. Embed environmental health into school health programmes (HS 3; EFFC C, D)
4. Promote climate and environmental action with children, adolescents and young people (HS 1, 2; EFFC A, B)
5. Mobilize collective action (HS 1, 2, 4; EFFC A, B)

Precisely because children are most vulnerable and sensitive to environmental influences in their earliest years, action taken during this critical phase can yield immense health benefits.

Air pollution and child health: Prescribing clean air, WHO⁹

Children should be empowered as agents of change and should be a focus of environmental strategies.



5.1 Strengthen climate-resilience and environmental sustainability in health care facilities (HCFs)

Section summary

- Safe environmental conditions, access to sustainable energy and the availability of standard precaution items are essential to prevent and treat infection in HCFs. These are also vital for achieving SDG targets for health as well as for water, sanitation and hygiene, energy and climate.

- The health sector needs to lead by example when it comes to procurement policies and services, waste management and energy-related choices in order to limit any negative impact on health, the environment and climate change.

- UNICEF’s package of support to build climate-resilient and environmentally sustainable HCFs includes:
 - Support to energy efficient and sustainable energy practices, such as energy efficient appliances/equipment, solar for electricity, cold chain, water supply and purification, sustainable energy to meet the heating and cooling needs of healthcare and auxiliary facilities.
 - Support to the scale up of WASH interventions in HCFs through the use of the WASHFIT assessment tool, as well as construction and rehabilitation of WASH facilities in health centres.
 - Support with decommissioning and the environmentally safe disposal of general and medical waste as well as cold chain equipment, solar panels and batteries that have reached their end-of-life.
 - Support to build the resilience of target HCFs so that they can effectively anticipate, prepare for, withstand the stress of, and respond to the public health consequences of disasters.
 - The procedure on sustainable procurement focuses on what officials should consider in order to avoid negative social, economic and environmental impacts.

Safe environmental conditions, access to sustainable energy and the availability of standard precaution items (such as waste management supplies) are essential in preventing and treating infection in HCFs. They are also essential for achieving SDG targets for health as well as for WASH. A 2019 baseline report on WASH in HCFs released by the WHO/ UNICEF Joint Monitoring Programme shows that one in four HCFs lack basic water. Around one in eight has no water service at all, affecting 894 million people; and one in five has no sanitation, meaning that over 1.5 billion people are going to health centres with no toilets. The report also shows that two in five HCFs lack hand hygiene facilities where patients receive care and there is no soap or water at their toilet facilities. Other estimates from low- and middle-income countries indicate that 39 per cent of HCFs lack adequate infectious waste disposal, 73 per cent lack sterilization equipment, and 59 per cent lack reliable energy services.

Climate change heightens social and economic inequalities.

UN High Commissioner for Human Rights⁴⁹



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In 2019, the 72nd World Health Assembly approved a [Global Strategy on Health, Environment and Climate Change](#). This broad Strategy covers all aspects of health and environment with an important emphasis on climate change, as well as responding to health risks and challenges up to 2030. The Strategy recognizes the need for addressing the major deficit in equipping HCFs with safely managed WASH practices, reliable energy supplies, and ensuring their resilience to extreme weather events and other emergency situations in low- and middle-income countries. To limit any negative impact on health, the environment, and climate change, the Strategy also notes that the health sector needs to lead by example when it comes to procurement policies and services, waste management and energy-related choices.

The Strategy outlines 12 goals to sustainably improve people's lives and well-being through healthy environments. It outlines that all HCFs and services are environmentally sustainable by:

- using safely managed water and sanitation services and clean energy;
- sustainably managing their waste and procuring goods in a sustainable manner;
- being resilient to extreme weather events; and
- being capable of protecting the health, safety, and security of the health workforce.

WHO's Guidance for [Climate Resilient and Environmentally Sustainable Health Care Facilities](#) aims to enhance the capacity of HCFs to protect and improve the health of their target communities in an unstable and changing climate. It also aims to empower HCFs to be environmentally sustainable by optimizing the use of resources and minimizing the release of waste into the environment.

The World Bank report on [climate-smart healthcare](#) outlines key elements of low-carbon health care. When applied within a health care framework, several co-benefits can be achieved. These include: improved health through reduced environmental pollution and climate change, as well as more efficient and affordable health systems. The report offers useful tools and approaches that can be applied to many contexts.

UNICEF is committed to strengthening health systems by investing in [primary health care](#). This first action focuses on enhancing the capacity and infrastructure of the first level health facilities – prioritizing essential public health functions and helping to address the environmental determinants of health. Towards building climate-resilient and environmentally sustainable HCFs, UNICEF will support the following interventions:

1. Sustainable energy solutions, water and energy efficiency
2. Water, sanitation and hygiene (WASH) in HCFs
3. Waste management, including decommissioning of equipment
4. Building resilience to address anticipated climate change effects
5. Sustainable procurement

As UNICEF supports the above interventions there will be a focus on integration and compliance with UN/UNICEF Social and Environmental Standards and UNICEF's [Executive Directive on Accessibility](#) in the Organization's programme-related construction activities.

1. Sustainable energy solutions, water and energy efficiency

Access to a reliable electricity supply is crucial in providing effective health care.⁶⁶ Electricity powers vital medical devices including vaccine refrigerators and emergency/surgical, laboratory and diagnostic equipment. Electricity is also important for basic amenities such as lighting, cooling, ventilation and communications. Providing safe and hot water also depends on access to energy. A reliable electricity supply dramatically improves the quality, accessibility and reliability of health services. In the absence of reliable power, many lifesaving interventions cannot be undertaken safely or at all.

Table 8: Key energy-dependent devices/equipment in health care facilities

Purpose/service	Enabling energy service/equipment
General amenities/infrastructure	
Basic amenities and equipment	Lighting—clinical/theatre, ward, offices/administrative
	ICT—mobile phone charger, VHF radio, office appliances (computer, printer, internet router etc.)
	Sterilization equipment (dry heat sterilizer or autoclave)
	Refrigerators, electric fans
	Cooking, water heating, space heating
Potable water, cleaning and sanitation	Water pumping (when gravity-fed water not available), purification
Health care waste management	Waste, autoclave, grinder
Service-specific medical services	
Cold chain	Vaccine refrigerator
Maternity and child health	Suction apparatus, incubator, foetal heart monitor, ultrasound
HIV diagnostic capacity	ELISA test equipment (washer, reader, incubator)
Laboratory and diagnostic equipment	Centrifuge, hematology mixer, microscope, blood storage, blood chemistry analyzer, blood glucose meter, X-ray, ECG, CT scan, peak respiratory flow meter
Surgical equipment	Suction apparatus, anesthesia machine
Outpatient services	Portable X-ray, oxygen concentrator

Source: WHO and the World Bank (2014). Access to Modern Energy Services for Health Facilities in Resource-Constrained Settings, and Practical Action, *Poor people's energy outlook 2013*.

HCFs should be electrified either by extending the grid network or connecting them with decentralized solutions, such as mini-grids or stand-alone/hybrid solar systems with energy storage capacity. To address the huge energy access gap in public institutions, especially in sub-Saharan Africa, private-sector investments are needed to complement those made by the public sector. However, the limited data and market information on a country and sub-country level is a huge challenge when it comes to understanding the access gap. For example, what is the demand for energy based on type and size of HCF? Or, what is the cost of providing electricity? The willingness of users to pay? The most appropriate delivery models (grid extension/mini-grid, standalone solar)? And, what are the best sustainability measures – including long-term operations and maintenance?

A [UN Foundation report](#), in collaboration with Sustainable Energy for All, supports decision makers in the public and private sectors to design sound off-grid electrification projects for rural schools and health centres by helping them evaluate the most effective and appropriate delivery model for their specific country context. The report offers ways to ensure organizational, technical and economic sustainability; as well as insights into emerging models for public, private and philanthropic collaboration. UNICEF continues to advocate that development partners and policy makers support the full solarization of HCFs. *See Table 9 for key activities that UNICEF can undertake in this area.*

2. Water, sanitation and hygiene (WASH) in health care facilities⁶⁷

At the 72nd World Health Assembly in May 2019, health ministers from all 194 WHO Member States approved a [resolution](#) on WASH in HCFs. Since then, 38 countries have reported progress in implementing actions of the resolution aimed at achieving universal WASH access. UNICEF supports this agenda in programme countries by 1) direct support to WASH services in health facilities; 2) advocacy at all levels and 3) building enabling environments. Meanwhile, in collaboration with WHO and partners, UNICEF is also providing technical support to governments so that they can scale up WASH interventions in HCFs using WASHFIT. *See Table 9 for key activities that UNICEF can undertake in this area.*

What is WASHFIT?

WASHFIT is an improvement tool used to collect data and information on the state of WASH services in HCFs. This data is assessed and analysed by health care workers to continually make improvements, until the desired results are achieved.

3. Waste management, including decommissioning of equipment

According to WHO, about 15 per cent of the waste produced through health care activities is hazardous material that may be infectious, pathological, toxic or radioactive.⁶⁸ Every year worldwide an estimated 16 billion injections are administered, but not all the needles and syringes used are properly disposed of afterwards.⁶⁹ Open burning and improper incineration of health care waste can sometimes emit dioxins, furans and particulate matter.

Instituting measures for the safe and environmentally sound management of health care waste can prevent the unintended release of chemical or biological hazards into the environment – including drug-resistant microorganisms. Doing this is crucial in preventing adverse health and environmental impacts and protecting the health of patients, health workers and the general public.

For this reason, WHO has developed a guidance note called the: '[Safe management of wastes from health care activities](#)'. This note addresses aspects such as regulatory frameworks, administrative planning issues, waste minimization, segregation and recycling, handling, collection, storage and transportation, treatment and disposal options, and training. The document is aimed at HCF managers, policy makers, public health professionals, and those involved with waste management.

As part of UNICEF's immunization programme, the organization is supporting countries as they implement the [Appropriate Disposal \(ADIW\) Platform](#). This platform guides health facilities on managing (in a participatory way) the infectious waste created through the immunization process. This involves clustering health facilities around selected reference sites that use appropriate treatment and disposal options; while also building accountability at all steps of the processes. The guidance also includes disposal procedures, health and safety considerations, and protocols. A framework is proposed, and toolkits are offered to assist countries to implement their decommissioning plans safely and responsibly.

Finally, UNICEF would also need to be involved to ensure the decommissioning and safe disposal of expired solar panels, used batteries and e-waste associated with health care and WASH facilities. With the increasing use of lead-acid batteries in solar panels, UNICEF advocates for the environmentally sound recycling of used lead-acid batteries, and sound disposal of end-of-life batteries. *See Table 9 for key activities that UNICEF can undertake in this area.*

4. Building resilience to address anticipated climate change effects

The Sendai Framework for Disaster Risk Reduction 2015-30 puts health among the priorities of global policy and action. The Framework demands a stronger role for science and for all stakeholders and groups in disaster risk management – including women, children, persons with disabilities, older persons, indigenous peoples and migrants.

A resilient health system is one that can effectively anticipate, prepare for, withstand the stress of, and respond to the public health consequences of disasters. WHO's [Health Emergency and Disaster Risk Management Framework](#) provides a common language and a comprehensive approach. It can be adapted and applied by all actors in health and other sectors who are working to reduce health risks and the consequences of emergencies and disasters. The Framework emphasizes assessing, communicating and reducing risks across the continuum of prevention, preparedness, readiness, response and recovery, as well as building the resilience of communities, countries and health systems. WHO's [operational framework for building climate resilient health systems](#) outlines 10 components to support national authorities and other stakeholders to be better able to anticipate, prevent, prepare for, and manage climate-related health risks. Additionally, WHO's [Hospital Safety Index](#) is a tool that is used to assess hospitals' safety and vulnerabilities, make recommendations on necessary actions, and promote low-cost/high-impact measures for improving safety and strengthening emergency preparedness. *See Table 9 for key activities that UNICEF can undertake in this area.*

5. Sustainable procurement

Sustainable procurement is an approach that incorporates social, economic and environmental impact considerations into the process of purchasing goods and services. It goes beyond the more familiar 'green' public procurement to ensure that all products and services procured support local economic development, with the least environmental impact and most positive social affect, while also securing the best value for money. *See Table 9 for key activities that UNICEF can undertake in this area.*

Table 9: Section 5.1 – Key activities by area of intervention

Area of intervention	Proposals / examples of activities
1. Sustainable energy solutions, water and energy efficiency	
Energy demand assessments and sustainability assessments	<ul style="list-style-type: none"> • Define and quantify the market for decentralized energy services for HCFs (consider UNICEF products and markets analysis framework – affordability, willingness to pay, availability, product appropriateness, quality, market competition, delivery channels and funding security). • Identify data gaps and assessment of degree of confidence in available energy demand estimates. <p>UNICEF’s programmes on immunization cold chain have ensured that countries have up-to-date cold chain inventories, which include a database of HCFs with reliable electricity. UNICEF has also carried out environmental sustainability management case studies in at least four countries. These provide a situational analysis, identify perceived barriers and define a vision. They also propose appropriate environmental sustainability management activities that have the potential to strengthen health programmes and to garner more resilient and environmentally sustainable results from the use of partner contributions.</p>
Solarization of HCFs	<p>UNICEF has supported the solarization of HCFs in a few countries. For example, UNICEF solarized 61 health facilities in Syria. Assessments were carried out to determine the availability of rooftop space for solar panels and for energy sources as well as load information (both energy source and demand quantification). The size of the photovoltaic array was then chosen based on this information. Solar refrigerators were relocated and replaced with electrical equipment suitable for a HCF powered with solar energy. This process was quite intensive, and lessons learned include defining energy requirements for various health services at the different levels of care.</p>
Solar-powered refrigerators	<p>UNICEF helped deploy more than 40,000 units of cold chain equipment in over 50 countries through the Cold Chain Equipment Optimization Platform, 52 per cent of which were solar-powered refrigerators. This process also helped countries to develop their capacities when the equipment was installed. This experience can also be leveraged as UNICEF expands its work with partners to support the solarization of HCFs.</p>
Solar-powered WASH	<p>UNICEF continues to expand its use of solar technology for water pumping in WASH programmes. The aim is to improve water supply systems so that they are more resilient and sustainable, while also reducing carbon dioxide emissions. In 2019, UNICEF supported the construction of 1,286 solar water systems in 40 countries. Just over half of these systems supply communities, 187 serve HCFs, and 163 supply schools. The remaining 263 systems are multi-use, designed to serve institutions and communities. Solar-powered pumps are also increasingly being used in humanitarian response programmes and in recovery efforts. UNICEF has launched an online solar course implemented in cooperation with Water Mission and Cap-Net.⁷⁰</p>

Area of intervention	Proposals / examples of activities
2. Water, sanitation and hygiene (WASH) in HCFs	
Direct support to WASH services in HCFs	<p>In 2019, UNICEF continued the construction and rehabilitation of WASH facilities in HCFs, with 3,341 centres reached with basic WASH services in 52 countries. Facilities were constructed in all UNICEF regions, with the highest number (40 per cent) in the West and Central Africa region. The vast majority of centres reached were in rural areas (81 per cent).</p>
Scaling up WASHFIT and supporting enabling environments	<p>To date, over 40 countries worldwide are implementing WASHFIT. The tool is now being reviewed to include climate resilience and other cross-cutting issues.</p> <p>UNICEF provides technical support for universal WASH access in HCFs. Such assistance contributed to the development and ministerial endorsement of a new national WASH policy for HCFs in Bangladesh, complete with a scaled-up programming model and a costed implementation plan. In several countries in the West and Central Africa region, including Burkina Faso, the Democratic Republic of the Congo, Mali and Sierra Leone, new national standards were finalized. In Mozambique, the State of Palestine, Ukraine and Zambia, new technical working groups and standards development processes were launched. Meanwhile, renewed focus on the issue in China led to the National Health Office formally extending the countrywide ‘toilet revolution’ to HCFs by launching a special operation to clean health networks’ toilets nationwide.</p>
3. Waste management, including decommissioning of equipment	
Decommissioning and safe disposal of cold chain equipment	<ul style="list-style-type: none"> • Raising the level of awareness and contributing to capacity-building on issues associated with the decommissioning and disposal of cold chain equipment by providing an overview of decommissioning, disposal challenges, as well as background information on safe and proper practices. • Sharing key resources related to decommissioning and safe disposal, including references and tools on policy and regulatory requirements, technical practices, and financial surety mechanisms designed to guarantee the implementation of decommissioning and disposal obligations. • Disseminating a generic cold chain equipment decommissioning and safe disposal guideline and process roadmap. • Promoting a proactive approach of ‘thinking with the end in mind’ that may be of interest to government authorities seeking to strengthen cold chain equipment decommissioning and disposal strategies, as well as to relevant manufacturers.

4. Building resilience to address anticipated climate change effects

- Based on a risk assessment of the specific HCF and its context, factor specifications for the placement and construction of energy, WASH services, equipment, waste management and infrastructure provisions to minimize environmental impact.
- Contribute to making HCFs climate-resilient through a mix of design, location and technology choices (for example, locating HCFs and services away from hazard-prone areas) in line with the UNICEF Social and Environmental Sustainability Standards and Procedures. Also, making existing health services flexible, resilient and adaptable to local risks.
- Develop the ability of health workers to respond, including through training and development of local-level contingency plans for the deployment of appropriate health personnel in case of acute shocks, and for data collection and reporting to support preparedness and response.
- Proactively adapt service locations (for example, maternity wards and newborn intensive care units) based on risk assessments and facility infrastructure.
- Engage communities, including through civil society, local groups and governments, to identify risks, prevent exposure to hazards, and take action to save lives in extreme weather events based on community-level preparedness.
- Adopt digital health technologies that support risk communication, community engagement, telemedicine, health worker guidance, and rapid data collection after an extreme weather event.
- Reduce heat exposure and promote adaptive measures by mapping high-risk areas to increase outreach and prevention activities, such as access to cooling spaces and drinking water on extreme heat days.
- Engage local governments in surveillance and multisectoral risk management approaches to health risks related to disasters, water, waste, food and environmental pollution (for example, food safety, diarrhoeal disease control, integrated vector management, joined-up risk communication).
- Embrace redundancy in the supply-chain system by developing alternative private-sector supply chains operating as a complement to central medical stores run by the public sector and with appropriate regulation to enable continuity of health services.
- Develop UNICEF health preparedness and response plans, including the pre-positioning of supplies, emergency communications, training of staff and identification of surge capacity; and build linkages with existing early warning systems.

5. Sustainable procurement

Sustainable procurement involves the following aspects.

- Generating long-term efficiency and savings.
- Using local resources more efficiently and effectively, including local production.
- Reducing the harmful impact of pollution and waste.
- Reducing hazardous substances and their impact on human health and the environment.
- Signalling to the market the need for sustainable products.
- Nurturing and helping product and service innovation.

UNICEF's existing guiding principles and policies governing the Organization's procurement reflect many aspects considered under these pillars. UNICEF already has several pertinent examples that have achieved concrete and tangible results (see: *UNICEF implements Sustainable Procurement, 2018*).



5.2 Develop responsive primary health care

Section summary

- Primary care is often the first contact that people have with health services. For this reason, it is vital to prioritize these essential public health functions as the core of integrated services, empowered people and communities, as well as multisectoral policy and action. This is why the 2018 Declaration on Primary Health Care is committed to addressing the environmental determinants of health and it commits to enhancing the capacity and infrastructure for primary care.
-
- UNICEF can support the development of primary health care that is responsive to children's environmental health in the following ways:
 - By incorporating children's environmental health into primary care and essential public health functions through developing capacity, provision of essential supplies, integrating tracking through paediatric environmental history, and by supporting environmental health surveillance and monitoring.
 - By engaging community health workers and networks to help build awareness on children's environmental health, local environmental assessments; and through their participation in community-led pollution and emission reduction measures; also in emergency preparedness and resilience building initiatives.
 - By working with local governments to integrate multisectoral action on environmental hazards and emergency preparedness in local planning and implementation.
-

In Astana, Kazakhstan, in October 2018, the Global Conference on Primary Health Care endorsed a new declaration emphasizing the critical role of primary health care around the world. The declaration aims to refocus efforts on primary health care to ensure that everyone everywhere is able to enjoy the highest possible standard of health. The declaration is committed to addressing the environmental determinants of health and commits to enhance capacity and infrastructure for primary care.

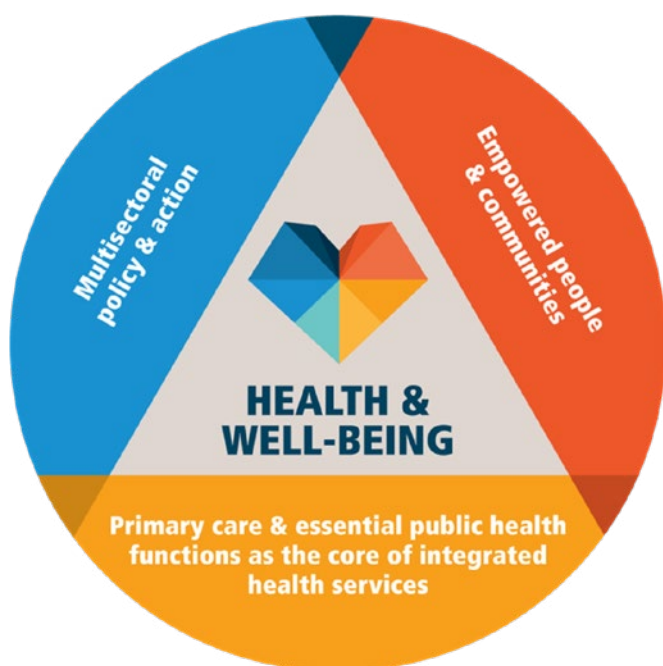
Primary care is often the first contact that people have with health services. For this reason, it is vital to prioritize these essential public health functions as the core of integrated services, empowered people and communities, as well as multisectoral policy and action.



Towards developing primary health care that is more responsive to children’s environmental health priorities at the local level, UNICEF can provide support in the following areas:

1. Incorporating children's environmental health in primary care and essential public health functions.
2. Promoting community action on children’s environmental health.
3. Engaging with local governments to promote multisectoral action.

Figure 7: Promoting child health and well-being in primary care



Source: A vision for Primary Health Care in the 21st century

1. Incorporating children's environmental health in primary care and essential public health functions

Paediatric health providers often lack sufficient knowledge and experience of environmental health risks, while health providers for adults may not be sufficiently knowledgeable about children, who are not simply little adults.⁷¹ The lack of awareness about this difference among health professionals makes the adequate management of environment-related children's health problems challenging.

It is critical to address the ability of health care providers to recognize and assess diseases linked to (or triggered by) environmental factors. Integrating children's environmental health in pre-service and in-service training can have a number of positive effects. Such training can increase health professionals' understanding of how environmental factors impact on children's health. It can improve the quality of diagnosis and management of environment-related health and developmental effects. And, such training can develop the ability of health workers to discuss environmental risks with pregnant women, caregivers, and communities. WHO has developed a [Training Package](#) on children's environmental health for health care providers, which can be a useful starting point of reference. Working in collaboration with local government, the early recognition of environmental exposure patterns in communities can trigger a broader local-level response to stem the sources of exposure and prevent more children from being affected. Additionally, essential supplies to ensure diagnostics, care and treatment should be guaranteed at the primary health care level.

WHO recommends tracking a [paediatric environmental history](#), thereby allowing health care providers to incorporate into clinical records a description of environmental conditions, behaviours, and risk factors relevant to a child's health. For example, this may include characteristics of the home/school/playground; potential exposure to pesticides or other toxic chemicals; or proximity to waste sites, polluting industries, or traffic. Eliciting these together with other information improves the capacity to identify, assess, and follow up potentially exposed children at risk and to respond with effective measures. It builds the evidence base required for effective interventions and facilitates research. Overall, paediatric health history provides an opportunity for closer interaction among health professionals, parents and the community.

Support environmental health surveillance and monitoring

Environmental hazards such as air pollution, extreme weather, or chemical exposures can affect children in several ways, contributing to chronic diseases (e.g., asthma) or to acute illnesses (e.g., heat exhaustion). In some cases, linkages are better established. For example, elevated blood lead levels can cause developmental disabilities, or acute poisoning by organophosphorus pesticides, with a characteristic 'syndrome': miosis, sweating, headache, bradycardia, and/or convulsions.

Health care providers can play a key role in identifying patterns of environmental exposure in a community by asking questions: What are the main toxic exposures in children? What are the main causes of acute poisonings? Are there any cases of chronic exposure to environmental pollutants? Is there a high incidence and prevalence of diseases that may be linked to chemicals in the environment?

States should ... ensure the availability, quality, accessibility and acceptability of health information and goods, and of health-care services...

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)

The intrusion of toxic substances into children's bodies cannot be reversed, so prevention must be the primary approach.

UN High Commissioner for Human Rights⁴⁹

Section 4.5: 'An overview of approaches and tools for children's environmental health' introduces the concept of human biomonitoring to directly measure levels of toxicants; and environmental monitoring, which is an indirect measure of human exposure by measuring levels of toxicants in the environment.

The clinical diagnosis of lead poisoning can be difficult when there is no clear history of exposure, because poisoned children can be asymptomatic, and because signs and symptoms, when they are present, are relatively non-specific. As an example of human biomonitoring, laboratory investigations provide a reliable way to diagnose lead-exposed children and, therefore, play an essential role in the identification and management of lead poisoning and in the assessment of occupational and environmental lead exposure. WHO has published a [brief guide to analytical methods for measuring lead in blood](#). This useful guide outlines the well-established analytical methods, including point-of-care technologies, for measuring lead in blood. It also briefly describes some of the characteristics of each method, including their advantages and disadvantages.

States should ... strengthen monitoring of the impacts of environmental harm and exposure to toxics and pollution on children, conduct impact assessments, collect disaggregated data, particularly concerning children most at risk, and establish monitoring and investigative mechanisms.

UN High Commissioner for Human Rights⁴⁹

Chemical exposures can be assessed using specialized studies in countries where this option is available through expert public/private laboratories or poisons centres. Laboratory studies are important in the area of paediatric toxicology. These are used to confirm exposure (detecting levels in biological fluids); also to determine the magnitude and severity of exposure; assess and measure effects (e.g., levels of anaemia, or cholinesterase inhibition); also to monitor the efficacy of treatment; and follow up on the clinical evolution.

A poisons centre is a specialized unit that advises on, and assists with, the prevention, diagnosis, and management of poisoning. WHO has developed [guidance and training materials on poisons centres](#) and their operation. WHO also periodically organizes training workshops.

HCFs and staff can play a key role in environmental monitoring. For example, HCFs can support the monitoring and dissemination of air quality data and key messages about how to minimize exposure to air pollution. The use of air quality monitors in HCFs, together with the training of health care workers on how to interpret the data collected and to disseminate key messages, can raise awareness among communities on risks related to air pollution. This will empower individuals to take action to reduce emissions and exposure. Other environmental monitoring actions include water quality testing, monitoring of animal and insect vectors and more.

WHO recommends countries establish a [Children's Environmental Health Unit \(CEHU\)](#) (also known as a PEHSU- paediatric environmental health specialty unit). These units are tasked with advancing the ongoing training of health care providers, and supporting awareness and education on protecting children from environmental threats. These units are also responsible for managing the cases of children with known or suspected exposure to environmental stressors; as well as the diagnosis, management and treatment of children with illnesses that are derived from environmental stressors. *See Table 10 for key activities that UNICEF can undertake in this area.*

2. Promote community action on children's environmental health

Community health workers and networks can play an important role in addressing local risk factors by building awareness on children's environmental health and in localizing the issues. Depending on the level of institutionalization in the country, the role of community health workers may be expanded to address priority issues concerning children's environmental health. Examples of activities could include: preventing asthma in children by protecting them from air pollution in urban slums; lead/chemical poisoning of children in the vicinity of toxic sites; and community preparedness in flood-prone areas. In addition, digital community engagement and community networks, such as local faith-based organizations, youth groups, civil society and the private sector, can all play important roles in improving awareness depending on the context. *See Table 10 for key activities that UNICEF can undertake in this area.*

Increasing public awareness to promote community engagement and child creativity and knowledge, and strengthening cooperation, joint efforts and knowledge exchange to engage all stakeholders and to create partnerships to respond collectively to environmental challenges ...

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)

3. Engage with local governments to promote multisectoral action

Decisions made by local governments frequently determine the well-being of children and adolescents. Globally, this role of local government is increasingly recognized, including in humanitarian contexts. UNICEF has extensive experience in promoting multisectoral action with local governments and other local stakeholders in a wide range of development, fragile and humanitarian settings.

UNICEF has developed [guidance](#) for achieving multisectoral results through working with local governments. It provides a strategic approach to UNICEF's work with local governments in rural and urban settings together with, or in support of, local sectoral actors. The guidance outlines four interlinked actions, forming the basis for country-level local programming and advocacy, in close collaboration with other development partners. *See Table 10 for key activities that UNICEF can undertake in this area.*



Table 10: Section 5.2 – Key activities by area of intervention

Area of intervention	Proposals / examples of activities
1. Incorporating children's environmental health in primary care and essential public health functions	
Improving health care provider capacity	<ul style="list-style-type: none"> • In-service or pre-service training of health care providers to improve the quality of diagnosis and management of environment-related health and developmental effects. • Integrate children's environmental health in reproductive, maternal, newborn, child and adolescent health and nutrition services, including the institutionalization of paediatric environmental health tracking.
Strengthening environmental health surveillance and monitoring	<ul style="list-style-type: none"> • Develop laboratory / poison centre capacity in the health system to detect the level of exposure and monitor the efficacy of treatment. • Develop referral pathways to support case management. • Provision of supplies for diagnostics, care and treatment.
Institutionalization of children's environmental health	<ul style="list-style-type: none"> • Support the institutionalization of children's environmental health in the ministry of health through a dedicated unit or focal points. • Promote awareness and education across management levels of the health workforce to support HCF level action. • Establish measures to enable coordinated action between ministries of health and environment, and other ministries, departments and agencies as relevant.
2. Promote community action on children's environmental health	
Promote community awareness	<ul style="list-style-type: none"> • Improve understanding about the special vulnerability of children to environmental hazards/ toxic environments and climate change. • Improve the understanding of the environmental hazards at home, at school and where children play in communities. • Promote practical preventive actions that communities, caregivers and children can take.
Support to basic environmental assessments	<ul style="list-style-type: none"> • Home assessments to identify potential environmental hazards to child health (for example, exposure to hazardous chemicals in toys, household air pollution, asthma/allergy triggered by mould/dust/mites/second-hand tobacco smoke). • Surveillance of potential environmental threats in communities (for example, proximity to lead recycling sites, industrial polluters, waste dumpsites, presence of discarded tyres as breeding grounds for mosquitos and other disease-carrying pests, etc.). • Improving community or local facility links to support that prevents and promotes child health and well-being.
Support to community-led pollution and emission reduction measures; as well as in emergency preparedness and resilience building initiatives	<ul style="list-style-type: none"> • Adoption of new technologies, such as clean cook stoves and solar energy. • Local government or community-led preparedness initiatives for extreme weather events and extreme heat. • Local government or community-led initiatives to address hazardous waste and other environmental hazards (such as vector control).

Area of intervention	Proposals / examples of activities
<h3>3. Engage with local governments to promote multisectoral action</h3>	
<p>Support local governments and other stakeholders to generate and analyse geographically disaggregated data and evidence</p>	<ul style="list-style-type: none"> • Support the dissemination of community-level data on children’s environmental health, including air pollution levels, recent cases of chemical poisoning, water and vector-borne diseases, and other environmental risks, together with known or suspected sources and routes of exposure. • Support mapping of 1) toxic hotspots, 2) wastes sites, 3) known air/water/soil contamination locations, and 4) communities vulnerable to climate change (extreme weather events, prone to vector-borne diseases).
<p>Strengthen local planning and budgeting processes and support resource mobilization</p>	<ul style="list-style-type: none"> • Support the integration of emergency preparedness, disaster risk reduction and adaptation to climate change into local planning and budgeting systems. • Support the integration of interventions that reflect a holistic approach to addressing sources of chemical exposure to children in local government plans (e.g., livelihoods of informal recyclers, labelling of hazardous chemicals, enforcement of national regulations, engaging retailers and pharmacists in educating consumers on appropriate use, adoption of clean cook stoves, proper sale and handling of pesticides, etc.)
<p>Empower communities and provide them with the tools and mechanisms to influence local decision-making and monitor local service provision</p>	<ul style="list-style-type: none"> • Support children and youth to advocate on environmental health issues where local governments present such avenues for participation in decision-making processes.
<p>Support local governments in the implementation, coordination, and oversight of local service delivery arrangements</p>	<ul style="list-style-type: none"> • Advocate for multisectoral action for ‘healthy environments for healthy children’, including for integrated vector management, joined-up risk communication, community-level preparedness, school health programmes, and the implementation as well as oversight of multisectoral actions.





5.3 Embed environmental health in school health programmes

Section summary

- Children spend a substantial amount of time in schools where unsafe environments may expose them to multiple hazards impacting their health and well-being. Attention to a broad range of environmental hazards in addition to disaster risk reduction is critical.

- Schools are ideal platforms for delivering preventative health services, including through life-skills education on environmental health, sustainable production and consumption and climate change that promote healthy behaviours, benefiting children, families, their peers and wider communities.

- UNICEF can help embed environmental health in school programmes on multiple levels:
 - At the **national policy level**, by updating school standards to ensure safe and healthy standards, a curriculum for environmental education, promotion of clear roles and responsibilities alongside measures to improve capacities.
 - At the **provincial and local government level**, by using preventive and promotive health services as a tool to improve linkages between facilities/schools; also to integrate relevant considerations into school supervision functions; and to promote the clear identification of roles, responsibilities and capacities at the local government level.
 - At the **school level**, by training educators to identify children who may be affected by environmental toxins. Also, ensuring school/community dialogue related to environmental hazards; and by instituting school-based measures (e.g., improved infrastructure, bio or environmental monitoring), as well as health promotion activities that focus on relevant issues. Also, by embedding climate change and Education for Sustainable Development into the curriculum.

Worldwide, over 90 per cent of primary school age children and more than 80 per cent of lower secondary school age children are enrolled in school. These children spend a substantial proportion of their time at school. Children can be exposed to multiple environmental hazards at school, including air pollution, mould and damp, toxic building and cleaning materials, contaminated water, and unsafe sanitation. Meanwhile, unshaded playgrounds expose children to ultraviolet radiation and related cancer risks. School-based environmental exposures may negatively affect pupils' well-being, learning and academic performance.

It is vital to protect the health of children while in schools. Schools should be clean, safe and comfortable, and have adequate lighting, indoor air temperature and relative humidity, adequately ventilated classrooms, and functional sanitation facilities that pupils would not hesitate to use. Schools should be free of pollution and toxic chemicals. Such environments not only reduce pupils' exposure to toxic substances and prevent diseases but also promote healthy cognitive development. WHO recognizes that providing equitable environmental conditions in schools for all children, including those living in disadvantaged areas or belonging to vulnerable groups, is especially important for preventing unequal educational outcomes and promoting socio-economic development.

Additionally, WHO and UNESCO highlight that school settings provide an important platform for promoting healthy behaviours; and that promoting healthy behaviours from early childhood through the school setting benefits not only the children themselves but also their families, peers, and wider communities. UNICEF also encourages children to be agents of change. At the same time, schools are strategic platforms for delivering preventive health care services, and these services are considered as an extended arm of primary health care. Schools provide an efficient and effective way to reach large numbers of the population.

In recognition that schools are key settings to promote health globally, in 1995 WHO launched the Global Health School initiative and introduced the concept of Health Promoting Schools (HPS). A HPS is one that constantly strengthens its capacity as a healthy setting for living, learning, and working. To guide the implementation of the initiative and to monitor progress, WHO and UNESCO have been collaborating to develop Global Standards for Health Promoting Schools. WHO has also developed a [handbook on life skills education](#) to reduce the risks factors from non-communicable diseases.

In support of school health programmes at the national level, this Framework proposes to engage in the following two areas:

- Safe and healthy school environment
- Education for sustainable development

Figure 8: Health promoting schools



Source: [Life skills education school handbook](#), WHO

Safe and healthy school environment

The [Comprehensive School Safety Framework](#) provides a detailed approach to reducing risks from all hazards to the education sector by addressing three pillars of school safety: Safe Learning Facilities, School Disaster Management, as well as Risk Reduction and Resilience Education.

Furthermore, a safe and healthy school environment involves addressing additional environmental hazards. WHO, UNICEF and UNESCO jointly contributed to an information series on [the physical school environment](#) to help improve the health of children by reducing their exposure to environmental hazards. The document outlines the provision of safe and sufficient water, sanitation, and shelter from the elements as the basic necessities for a healthy physical learning environment. Equally important is protection from biological, physical, and chemical risks. Infectious diseases carried by water, and physical hazards associated with poor construction and maintenance practices (particularly those in regions exposed to geo-physical and climatic hazard) are examples of risks children and school personnel face at schools throughout the world.

States should promote education on toxic chemicals and pollution in primary schools' curricula.¹⁹

Table 11: The elements of a safe and healthy school environment

Provision of basic necessities	<ul style="list-style-type: none"> • Shelter • Warmth • Water • Food • Light • Ventilation • Sanitary facilities • Emergency medical care
Protection from biological threats	<ul style="list-style-type: none"> • Moulds • Unsafe or insufficient water • Unsafe food • Vector-borne diseases • Venomous animals • Rodents and hazardous insects • Other animal (e.g., dogs)
Protection from physical threats	<ul style="list-style-type: none"> • Traffic and transport • Violence and crime • Injuries • Extreme heat and cold • Radiation
Protection from chemical threats	<ul style="list-style-type: none"> • Air pollution • Water pollution • Pesticides • Hazardous waste • Hazardous materials and finishes • Asbestos, paint • Cleaning agents



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Education for sustainable development

Climate change education is addressed by almost all countries in their United Nations Framework Convention on Climate Change (UNFCCC) country submissions. For those countries that reported a target audience, over half of the references were to formal education settings.⁷²

Schools aiming to promote health should implement a curriculum that addresses sustainable development and proficiency in environmental science. UNESCO has been promoting **Education for Sustainable Development** (ESD) since 1992. ESD is holistic and transformational education approach that addresses learning content and outcomes, pedagogy, and the learning environment. Thus, ESD not only integrates content such as climate change, poverty and sustainable consumption into the curriculum, it also creates interactive, learner-centred teaching and settings. What ESD promotes is a shift from teaching to learning. It advocates for an action-oriented and transformative pedagogy that supports self-directed learning, participation and collaboration, problem orientation, inter- and transdisciplinary learning, and promotes linking formal and informal learning. Only such pedagogical approaches make it possible to develop the key competencies needed for promoting sustainable development.

Provide for environmental education throughout the educational process of pupils ... to strengthen their knowledge and capacity to respond to environmental challenges ...

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UNESCO proposes the following actions to scale up ESD:

1. Integration in policies, strategies, and programmes,
2. Integration in curricula and textbooks,
3. Integration in teacher education,
4. Delivering ESD in the classroom and other learning settings,
5. Assessing learning outcomes and the quality of ESD programmes.

To accelerate progress towards embedding environmental health in school health programmes, UNICEF can engage in a number of ways as outlined below.

Table 12: Section 5.3 – Key activities by area of intervention

Area of intervention	Proposals / examples of activities
At the national policy level	<ul style="list-style-type: none"> • Embedding the safe and healthy school environment agenda into national school standards (for example, child-friendly school standards). • Incorporating ‘safe and healthy school environment’ and ‘education for sustainable development’ in pre-service and in-service teacher-training curriculum. • Promoting inter-ministerial dialogue towards establishing roles and responsibilities and relevant capacities in appropriate ministries, departments and agencies working in the areas of health, education and environment.
At the provincial and local government level	<ul style="list-style-type: none"> • Promoting intersectoral dialogue towards establishing roles, responsibilities and capacities among relevant authorities working in the areas of health, education and environment. • Improving HCF/school linkages through preventive and promotive health services in day schools, residential schools and non-formal settings. • Incorporating environmental health considerations in school inspectorate and health service supervision (for example related to lead paint, asbestos, mould and poor indoor air quality in schools).
At the school level	<ul style="list-style-type: none"> • Improving awareness among educators of patterns of cognitive and behavioural difficulties in pupils resulting from chemical exposures, especially in hot-spot communities. • Embedding environmental health issues in the school/community dialogue (for example, parent-teacher associations), including through engagement of school boards in environmental hazard assessments. • Implementing health promotion activities to prepare and respond to climate change and environmental emergencies (for example, prevention of water-borne and vector-borne diseases during and after extreme weather events, self-care and protection from ultraviolet radiation, air pollution and heat stress). • Human biomonitoring and environmental monitoring (for example, blood lead level testing or air pollution monitoring). • Interventions, including infrastructural, for a safe and healthy school environment; and employing a ‘whole-of-school’ approach to Education for Sustainable Development.



5.4 Promote climate and environmental action with children, adolescents and young people

Section summary

- Children, adolescents and young people are powerful agents of change on climate and environmental issues. Worldwide, they, particularly girls, have become key advocates for climate action and environmental rights and, accordingly, effectively exercising their right to participate.
- Countries must put children, adolescents and young people at the heart of climate and environmental policies and plans; while ensuring that their needs are addressed within the policies, and that their meaningful participation in the process is supported.
- UNICEF can support countries in a number of ways from advocating that young people are at the decision-making table at all levels, to strengthening the platforms and mechanisms for their participation, and empowering them with information, among other actions outlined in this section.

It is essential that countries put children, adolescents and young people at the heart of climate and environmental policies and plans. Their needs must be addressed within policies. And, they must be supported to meaningfully participate in shaping these policies and plans. This includes efforts to ensure that they (and all other relevant stakeholders) are aware of climate change as a rights issue and have the tools to address it.

Going forward, UNICEF will continue to articulate the effects of a changing climate on children, adolescents and young people both globally and nationally. This will involve highlighting their specific vulnerabilities and the importance of climate action to safeguard their rights, while also building support for ambitious and rights-respecting mitigation and adaptation approaches. UNICEF plans to increase its support for young people with opportunities to showcase their climate and environmental actions, participate in decision-making, and call for increased commitment and urgent action from State Parties. Further details on this support are outlined below.

... urges States to create opportunities for children's inclusive and meaningful participation ... in environmental decision-making processes that are likely to affect their development and survival, including by ensuring girls' meaningful participation in such processes on an equal basis with boys ...

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Table 13: Section 5.4 – Key planned activities by area of intervention

Area of intervention	Proposals / examples of activities
<p>Advocate for adolescent girls and boys to be included in global, national and local dialogues on climate and environment policy, prioritization, legislation and social accountability</p>	<p>UNICEF will continue to work to include representatives of children, adolescents and young people, as well as of the social sectors most relevant to them, in climate negotiations. The Organization will provide platforms for these representatives in current climate policies, such as the Nationally Determined Contributions (NDCs). It will facilitate their feedback into the policy revisions in order to press for the reduction of pollution and to push governments and businesses to create more opportunities in the green economy. A prominent channel for this has been an Intergovernmental Declaration on Children, Youth and Climate Action. This declaration is based directly on inputs from young people around the world and it commits signatory governments to accelerating inclusive, child-responsive climate policies. Some examples of what UNICEF has done in this area include: NDC Youth engagement plan; U-report climate chat bot; voices of youth platform; toolkit for young climate activists.</p>
<p>Strengthen platforms and mechanisms such as student councils, youth clubs, local institutions and community-based organizations to engage adolescents meaningfully in national and international negotiations and platforms.</p>	<p>Platforms should be built and strengthened to provide a venue for children, adolescents and young people to learn about climate change, to discuss and form an opinion, and to plan and implement their solutions, campaigns and advocacy. Platforms should strategically reach the most vulnerable wherever they are (online, offline, in school, out of school, etc.); link them to existing child and youth organizations, activities and initiatives (such as The Children’s Environmental Rights Initiative); and provide them with tools on how to advocate.</p>
<p>Promote the engagement (including digitally) of children, adolescents and young people in processes and accountability mechanisms that allow them to express their views, gather inputs and influence decisions or actions on environment and climate change.</p>	<p>UNICEF seeks to elevate the voices of children, adolescents and young people in the national and global climate discourse (such as at the annual COP meetings), encourage their environmental activism, and promote their involvement in activities that combine environmental sustainability and economic development. This involves connecting their efforts to movements and initiatives such as Fridays For Future, Connect 4 Climate, and the International Youth Climate movement. The Organization will also work to facilitate knowledge sharing on climate action among youth groups, highlighting successes and positive examples of legal achievements.</p>
<p>Supporting skills-learning for children, adolescents and young people both in and out of school to build their capacities, confidence and abilities (such as leadership, communication negotiation); to promote their environmentally sustainable lifestyles; and to help them set an example for their communities.</p>	<p>Specific skills are needed to meaningfully influence climate and environmental policies at the local, national and international levels. These include, but are not limited to, understanding the causes and effects of climate change, children’s rights, the NDC and UNFCCC processes, critical thinking, problem solving, teamwork, negotiation, communication, leadership and advocacy. UNICEF has significant experience in using a range of methodologies – including participatory, hands-on and experiential learning – to build the skills necessary to meaningfully engage in NDC processes, to organize campaigns and to conduct effective advocacy.</p> <p>Capacity building should be supported with the materials and information needed to engage in climate action and to participate meaningfully in national and international negotiations and platforms. These include resources such as the World’s Largest Lesson: Climate Education for Everyone and Climate Advocacy Toolkits, in local languages where possible. Young people can also play a key role in addressing climate-related risks by promoting environmentally sustainable lifestyles and setting an example for their communities.</p>

Area of intervention	Proposals / examples of activities
<p>Appoint ‘Youth Climate and Environment Advocates’ in recognition of their unique perspectives and contributions on this agenda. Work with these young people fighting climate change, helping them to inspire other young people to take climate and environment action.</p>	<p>UNICEF encourages the appointment of new Youth Climate and Environment Advocates to provide an opportunity for UNICEF country offices to formally recognize and work with passionate and dedicated children, adolescents and young people fighting climate change and helping them to engage their peers. These Advocates should be from mixed cultural and geographical backgrounds and represent all parts of society in terms of gender, abilities, and strengths – not just privileged groups. (See UNICEF Youth Advocates and Ambassadors Guidelines 2020 for further details.)</p>
<p>Involve Youth Advocates as partners, key influencers and change makers to support the engagement of other young people.</p>	<p>UNICEF Youth Advocates are expected to inspire other youth to take action in making the world a better place and ensuring that the rights of children and adolescents are respected. UNICEF Youth Advocates have an even greater responsibility to be positive role models to their peers, to be experienced in inspiring other young people in positive ways, and to have strong communication skills. Further, there is an expectation that these young people will participate with UNICEF as partners, advocates, key influencers and change makers to develop solutions, engage adolescents in doing so, and provide input and feedback through such processes.</p>
<p>Empower working young people to recognize and reduce their toxic exposures by providing easy-to-understand information about workplace hazards.</p>	<p>Children and adolescents employed for labour in particular should have access to easily understandable information about workplace hazards (such as mercury used in mining, e-waste and recycling hazards, highly hazardous pesticides and air pollution). Information should provide simple low-cost actions to reduce their own exposure (such as hand washing and better ventilation) as tools to empower these individuals.</p>



5.5 Mobilize collective action

Section summary

- Children must be a focus of climate and environmental strategies at all levels. The right of children to enjoy a healthy environment needs to be recognized at the global and national levels.
- UNICEF works with multiple partners to build new alliances or connect with existing ones to advance the global momentum around Healthy Environments for Healthy Children. UNICEF also works with governments and partners to mobilize collective actions in key areas such as awareness and advocacy, policy and legislation, institutional capacity development, as well as monitoring and reporting.
- There are actions across the areas of advocacy, policies, capacity building, partnerships and monitoring that UNICEF offices can undertake.

UNICEF calls for the right of children to enjoy a healthy environment to be recognized at the national and global levels. The Organization is committed to making children a focus of climate and environmental strategies at all levels, prioritizing the most vulnerable, especially those living in communities prone to climate change and environmental pollution. UNICEF will work closely and creatively with governments and partners. It will mobilize collective actions in the key areas of awareness and advocacy, partnerships, policy and legislation, institutional capacity development, as well as monitoring and reporting to support the Healthy Environments for Healthy Children programme.

Advocacy and awareness

Given its mandate, experience and global recognition, UNICEF is in a strong position to speak on behalf of children and to enable them to speak on their own behalf about healthy environments for healthy children, including as Youth Advocates, Young Ambassadors and Child Champions. By looking at it through the lens of a child, UNICEF provides the basis for all partners to come together on the issue. UNICEF offices at all levels need to promote awareness and advocate for a strong policy environment to address the impact of environmental health on children and their future. This can be done in a number of ways as outlined below.

... increasing public awareness to promote community engagement and child creativity and knowledge, and strengthening cooperation, joint efforts and knowledge exchange to engage all stakeholders ... to respond collectively to environmental challenges ...

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Develop and implement national communication strategies to raise awareness and to advocate for collective action at all levels

According to the updated UNICEF Global Communications and Advocacy Strategy 2019–2021, communication and advocacy at UNICEF must be integrated into programmes and the work of UNICEF offices in all functions and at all levels. As a member of the United Nations community, UNICEF should also organize and conduct its communication and advocacy efforts as an integral part of United Nations communication and advocacy efforts at all levels. Meanwhile, both financial and non-financial partnerships are important now more than ever. While partnerships with governments and leaders will remain essential, raising resources for children from the private sector has become increasingly critical.

Within this context, UNICEF offices develop and implement national communication strategies to engage with governments at all levels. This includes partners in all relevant sectors, fellow United Nations agencies, the private sector, children and young people, scientists, and civil society, among others – all geared towards ensuring the Healthy Environments for Healthy Children programme. In this process, UNICEF offices not only communicate to raise awareness but also advocate to drive and power environmental changes for every child – and to deliver on the environmental health priorities of children by collaborating with and mobilizing the strengths and reach of each partner.

Promote awareness among policy makers and business at the national/ subnational level, and advocate for policy changes across sectors

Strong awareness among, and leadership from, decision makers and policy makers is needed to raise the level of ambition and to accelerate the scale up of environmental action. Public advocacy is indispensable for raising awareness of the environmental issues and the risks to children's health linked to exposure. With its strong field presence, UNICEF is uniquely positioned to promote raising awareness among key decision makers of why and how to ensure a healthy environment for children. The organization is also well positioned to advocate for related policy changes across many sectors, including health, environment, development, education, housing, labour, transportation, agriculture and social welfare. For example, UNICEF, in collaboration with partners, can advocate for sustainable energy needs in health facilities, vocational training and **green jobs** – in support of multisectoral transformative approaches with clear asks from each sector.

UNICEF offices work with governments at the national and subnational levels and with partners from various sectors to form and provide evidence-based environmental recommendations to policy makers and decision makers, other stakeholders and all relevant audiences. Thereby, the Organization directly or indirectly influences upstream decisions that help countries to provide and ensure healthy environments for children. To better support these advocacy endeavours, UNICEF offices are encouraged to continuously build, maintain and buttress their key foundational areas of advocacy. This includes their credibility, related resources, capacity to generate and communicate evidence. It also includes processes to take appropriate risks, capacity to work with young people, and to coordinate across offices and leadership levels. And – importantly – it includes maintaining ongoing strong partnerships, particularly within the UN system, which can form a broad base for advocacy (see [UNICEF Advocacy Toolkit](#) for more information).

Policy and legislation

The ability of countries to take action on environmental hazards affecting children depends on having legislation and policy instruments in place, whether regulatory, market or voluntary, as well as on enforcement capacity. UNICEF offices advocate and support countries to formulate or improve their environmental policies, standards, legislation, chemical management programmes, and regulations, and to ensure that they are sensitive to the rights and needs of children.

Support policy development to address the health and well-being effects on children from environmental degradation and climate change

There is a stark absence of children's rights and needs in national climate policies (see a [UNICEF assessment of 160 NDCs and 13 NAPs](#)). UNICEF advocates that child-sensitive climate policies need to incorporate ambitious mitigation and adaptation measures that protect the rights and best interests of the child from harm caused by climate change. Such policies should have explicit and meaningful references to children and youth, regarding them as rights-holders and important stakeholders, and addressing their specific risks and vulnerabilities through multisectoral interventions. They should also ensure the systematic consultation and meaningful participation of all children – despite age, gender and social background – at every step of the climate policy-making process and at all levels.

The Human Rights Council calls upon States to increase cooperation to address the effects of environmental harm on the rights of the child.

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The best interest of the child is a primary consideration in environmental decision-making by adopting a child rights-based approach and by recognizing the critical importance of child rights impact assessments of relevant laws, standards and policies to evaluate their actual impact on the rights of the child.

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Meanwhile, it is necessary to support countries to tailor climate policies and capacity building efforts to concrete issues; and to use pollution disclosure information to support enforcement and monitoring. Moreover, instruments such as government procurement, subsidies, tariff reductions for environmental goods, and market access for environmental services can provide effective incentives for pollution-reducing technologies and actions and innovative solutions to pollution.⁷³ UNICEF will contribute to policy development in collaboration with UNEP and WHO and in line with multilateral environmental agreements.

Support new or improved legislation and regulations to reduce the exposure of children and women of reproductive age to environmental hazards

To help reduce the exposure of children and women of reproductive age to tobacco smoke, lead, pesticides and other environmental hazards, UNICEF collaborates with WHO and UNEP to support the implementation of model legislation or other guidance for developing relevant legislation. The organization also provides technical support for the review, strengthening and development of legislation/regulation to address pollution; and contributes to the pollution reduction agenda through the implementation of multilateral environmental agreements. For example, UNICEF and WHO have created an [arsenic primer](#) to provide practical guidance to staff and national partners to address the challenge of arsenic contamination of drinking water.⁷⁴

Institutional capacity development

UNICEF supports countries to develop and enhance their capacity to respond to children's environmental health challenges by support to the costing and rollout of policies, including the institutionalization of a Children's Environmental Health Unit (CEHU) / focal points in ministries of health and training of frontline service providers and programme managers.

Supporting the institutionalization of a Children's Environmental Health Unit in the Ministry of Health

Although health care providers are well placed to detect, treat and prevent environmentally related diseases and health conditions, many are not equipped with the training needed to address complex environmental health issues. For this reason, special training to effectively protect children from environmental threats is needed. A CEHU (*see section 5.2*) will help address this shortcoming in a number of ways:

- by advancing the ongoing training of health care providers;
- through the ongoing education of the public and other sectors concerned with children's environmental health;
- through the management of children with known or suspected exposure to environmental stressors; and
- the diagnosis, management and treatment of children with illnesses that are derived from environmental stressors.⁷⁵

UNICEF supports countries to establish and institutionalize a CEHU in the Ministry of Health, including the nomination of focal points.

Develop and implement in-service and/or pre-service training for frontline workers, national and subnational programme managers

Those on the front line – the health professionals dealing with child and adolescent health, and national and subnational environmental health programme managers – should be enabled to recognize and assess diseases linked to environmental factors. UNICEF helps countries to train paediatricians, family doctors, nurses, educators, primary and other health care workers on the relationships between children’s health and the environment through the use of harmonized training materials to serve the specific needs of countries and professional groups.

These trainings help increase the trainees’ capacities in a number of ways:

- to understand the influence of environmental factors on children’s health;
- to improve their diagnosis, prevention and management of health and developmental effects;
- to discuss environmental risks with patients, parents, educators and the media;
- to improve their advocacy skills for sensitizing decision makers about high-priority issues for action; and
- to increase their potential for research and planning interventions.



Partnership development

In addition to national and local government, UNICEF works in partnership with WHO, UNEP and other UN agencies to support the Healthy Environments for Healthy Children programme. The Organization builds new or connects with existing global alliances on healthy environments (e.g., Protecting Every Child's Potential, Lead Paint Alliance), and advocates for domestic financing and development assistance. In addition, UNICEF works with civil society organizations to advance the children's environmental health agenda and is supported with academic partnerships.

The role of business is critical to children's right to a healthy environment. This includes preventing children from being exposed to the effects of environmental harm through their activities, and to prevent and mitigate exposure through their business relationships. UNICEF has released a set of tools that provide [practical guidance](#) on how to integrate child rights considerations into broader risk management processes. Finally, shared value partnerships can be integral to delivering lasting solutions for children.

Monitoring

Health authorities can assess the exposure to environmental contaminants in two major ways (*see section 4.5*). Firstly, through human biomonitoring that directly measures levels of toxicants (or their related chemicals) in human tissue, and, secondly, through environmental monitoring that provides an indirect measure of human exposure by measuring levels of toxicants (or their related chemicals) in the environment, such as in soil, air, water, or foods. Together, these types of monitoring can support exposure assessment, risk assessment and scenario analysis. UNICEF supports the inclusion of environmental health-related indicators in national and global data collection (for example, Demographic and Health Surveys and Multiple Indicator Cluster Surveys) both on children's exposures and related health outcomes as well as environmental monitoring.

UNICEF supports vulnerability and pollution assessments to map environmental hazards to child health

Conducting a Children's Climate and Environment Vulnerability Assessment can greatly assist in incorporating children's needs into the NAP process, Health-NAP process, UN/UNICEF common assessments/SITANs or Health Sector Plans. Meanwhile, UNICEF offices can use risk assessment tools such as the [WHO Human Health Risk Assessment Toolkit](#) and the [WHO Chemical Risk Assessment Network](#) to understand how to identify and characterize chemical hazards, assess exposures to these chemicals, and determine whether these exposures are dangerous to child health. Risk assessment resources can also be helpful in planning and collaborating on environmental health research and outreach.

Calls upon all business enterprises to meet their responsibility to respect the rights of the child by undertaking child rights due diligence ... to identify risks and to prevent children from being exposed to the effects of environmental harm through their activities, and to prevent and mitigate exposure through their business relationships.

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Strengthening efforts to monitor childhood exposure by collecting information on the impact of environmental harm on children ... and making such information publicly available and accessible, while ensuring it is available also in age-responsive language and formats ...

Realizing the rights of the child through a healthy environment, UN, 2020 (A/HRC/45/L.48/Rev.1)

Table 14: Section 5.5 – Key activities by area of intervention

Area of intervention	Proposals / examples of activities
Advocacy and awareness	Develop and implement national communication strategies to promote policy changes across sectors by raising awareness among policy makers at the national and subnational levels.
Policies, standards, legislation and regulations	Advocate and support countries to formulate or improve their environmental policies, standards, legislation and regulations, and to ensure that they are sensitive to the rights and needs of children.
Capacity development	Support the institutionalization of Children’s Environmental Health units in national ministries of health in order to advance ongoing training of health providers and key personnel in the public sector, while also developing and implementing in-service and/or pre-service training for frontline service providers and national and subnational programme managers.
Partnerships	Develop partnerships, including with the private sector, to support by providing financing, expertise, research, leveraging and other means.
Monitoring	Support the monitoring of exposure to contaminants and use/inclusion of environmental health-related indicators in national and global data collection, vulnerability and pollution assessments to map hazards, and available risk assessment tools.



Chapter 6

Case studies

Mongolia: Research, advocacy and training to mitigate the impact of air pollution

An alarming number of children in Mongolia have been getting sick and dying due to increased exposure to air pollution in the cold season. In Ulaanbaatar, foetal deaths were reportedly more than three times higher during the winter. Respiratory disease across the country has also more than doubled in the past decade.⁷⁶

In response, UNICEF and the Government teamed up to mobilize national and subnational partnerships to collectively tackle the problem. A number of targeted strategies were employed. One included partnering with local research institutes to generate evidence on the risks of air pollution to children in the country, resulting in a [report on Mongolia's Air Pollution Crisis](#). Another strategy included policy advocacy and public awareness work toward long-term risk elimination, short-term risk mitigation, clean cooking, heating, insulation products and services, and standards and practical recommendations for indoor air quality and personal exposure reduction. UNICEF also promoted community-based integrated management of childhood illnesses, and infant and child feeding education to potentially mitigate air pollution impacts on children's health and provide relevant skills training for health practitioners.

Source: [Mongolia's Air Pollution Crisis](#) (UNICEF, 2018), UNICEF Mongolia



**Develop
responsive
primary health
care**



**Mobilize
collective
action**

Empowering children as the agents of change for healthy environments in China

Shenzhen is a pioneer city for the Child Friendly City Initiative (CFCI), an initiative that guarantees children's rights to essential services and for every child to live in a safe, secure and clean environment. As a megacity with a population over 10 million, Shenzhen has prioritized the protection of environmental quality. To improve the knowledge and capacity of children on environmental protection, six park-based natural education centers have been established in the city. Environmental education was also conducted regularly in the city's schools.

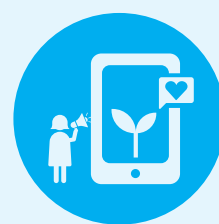
Child participation was identified as a key strategy to improve the environment and integrated into the government's action plan for building a child-friendly city. Children have been engaged in joint needs assessments, plan development, decision making, and evaluation when improving facilities or built environments for children. For example, in 2018, with support from governmental agencies, social organizations and enterprises, Shenzhen launched the Big Dreamer Plan, calling the public's attention to child participation and recognizing the power of children. Facilitated by professionals, 330 children spent three months exploring the city, identifying and analyzing urban problems, and developing solutions to issues related to spatial planning, environmental protection and road safety.

Child participation mechanisms have also been established across the city at various levels. Using these, children can share their opinions on environmental protection issues and raise proposals for improvement. By the end of 2019, Shenzhen had established 119 child councils and conducted over 1,000 council meetings. In many Shenzhen communities, children were engaged in community-level environmental improvement activities.

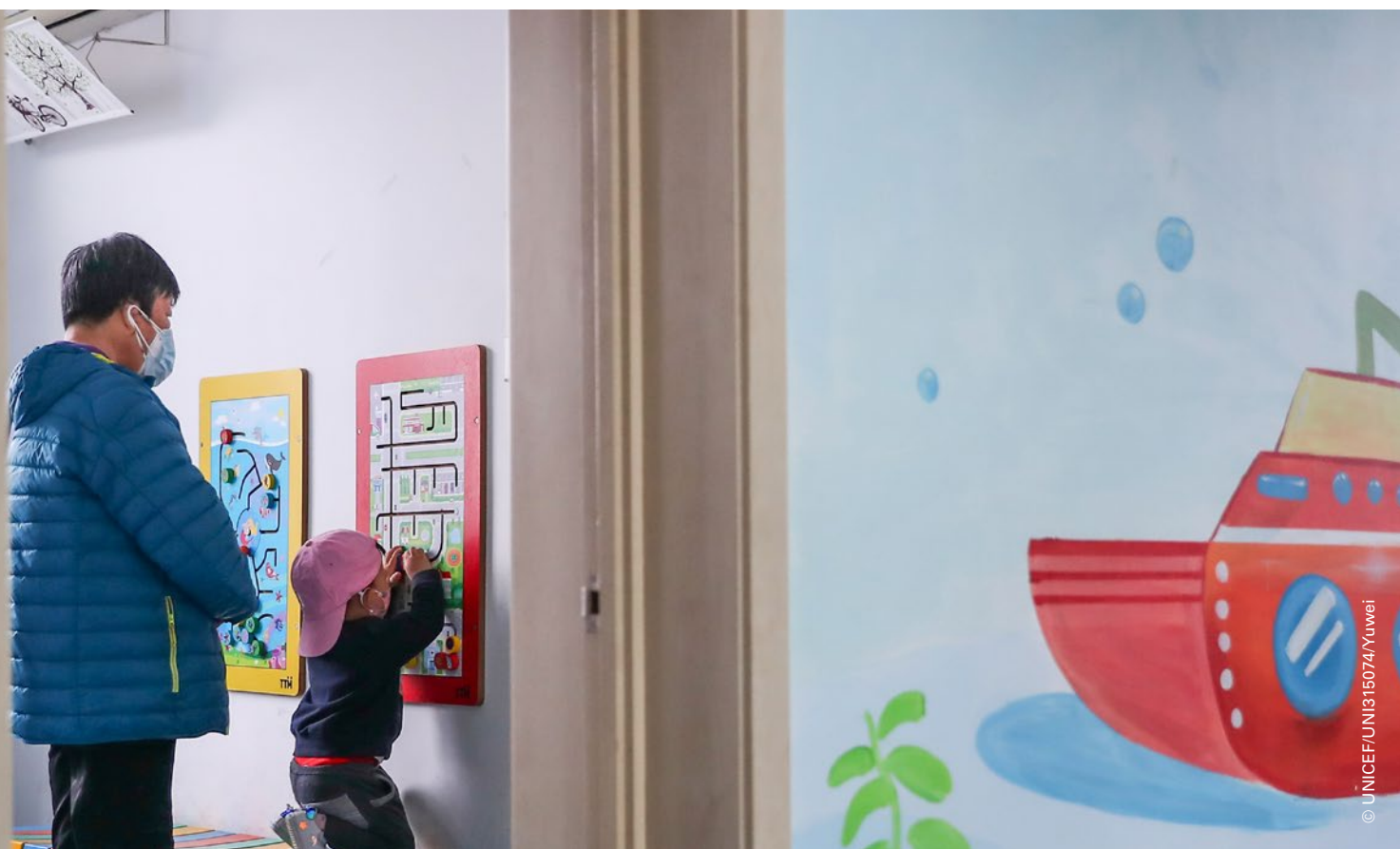
Source: UNICEF China



**Embed
environmental
health in
school health
programmes**



**Promote
climate and
environmental
action with
children,
adolescents and
young people**



Reducing hazardous cooking fuels in Bangladeshi homes

In Bangladesh, air pollution is the second highest contributor to death and disability. Meanwhile, 49,000 children die prematurely every year due to hazardous cooking fuels being used in poorly ventilated spaces. According to the Clean Cooking Alliance, in 2016, over 80 per cent of the population primarily used fuels such as wood, charcoal, coal, and kerosene for cooking.

UNICEF and its partners promote the use of more fuel-efficient cook stoves for the poorest households in Bangladesh. In 2014, through a Carbon Finance project, UNICEF and its partners provided 40,000 low-income families from over 2,000 villages across Bangladesh with more efficient, lower pollution, locally produced cook stoves. This is estimated to have saved 52,290 tonnes in carbon dioxide emissions. The second phase of this effort involved a market-based approach, which focused on awareness raising around the hazardous effects of air pollution, creating demand among communities, updating the national cook stove strategy, and the development of a national action plan. School students (boys and girls) were engaged as change agents in their neighborhoods as part of the effort.

The new, more efficient cook stoves protect the health and lives of children and women, reduce emissions, save money for families that would otherwise have been spent on fuel, and create jobs within the local economy in manufacturing, distribution and installation.

Similar initiatives are underway in 2020 to address the continuing and large-scale issue with a goal of ensuring that all homes have access to improved cook stoves by 2030, as noted in the Bangladesh Country Action Plan.

Source: [UNICEF Bangladesh case study](#)



Addressing the problem of lead in Georgia

In 2018, UNICEF designed and integrated a human biomonitoring module in the Multiple Indicator Cluster Survey, carried out at the household level. The study, based on samples of venous blood collected from children 2-7 years of age across Georgia, found that 41 per cent of children had elevated blood lead levels equal or above 5 micrograms per deciliter of blood ($\mu\text{g}/\text{dl}$). The study also found that 16 per cent had lead levels equal or above $10\mu\text{g}/\text{dl}$.

Responding to this alarming data, the Prime Minister of Georgia created an intergovernmental task force that developed a multi-year intersectoral action plan to reduce lead prevalence and improve environmental health in Georgia. The plan includes applying European Union directives on food, product and construction safety, and improving capacities of environmental health surveillance, market surveillance and inspection authorities.

As of 2020, new regulations on the safety of toys came into force. Additionally, the government unveiled a new programme that provides free lead testing for every child if prescribed by a medical professional. A pilot programme to test pregnant women for lead has also started.

UNICEF is now helping the government to finalize its strategy and action plan on combatting lead exposure, and to create a laboratory capable of testing various chemicals in humans and the environment. UNICEF is also finalizing a comprehensive study on lead exposure sources and pathways. This is based on geospatial mapping as well as analyses of lead isotopes in blood samples. Once the analyses are finalized, environmental screening on lead and other metals will start, using hand-held devices (XRF analyzers), followed by laboratory analyses of food and other specimens using atomic absorption spectrometers.

Source: [UNICEF Georgia](#)



Safer deliveries in Kenya through solar energy

Access to efficient modern energy is critical to maternal and newborn health care services, especially during maternal and childbirth emergencies. Yet, reliable sources of energy are rarely available in the majority of HCFs, including for lighting during delivery or for basic but essential medical equipment such as incubators. A WHO-led review of 11 countries in sub-Saharan Africa found that only 28 per cent of HCFs and 34 per cent of hospitals had reliable access to electricity. In line with the Sustainable Energy for All initiative, High-Impact Opportunity: Energy and Women's Health, UNICEF supported the Ministry of Health in rolling out renewable technologies for energy back-up within high-volume HCFs in counties with a high burden of maternal and newborn deaths. In Homa Bay County, UNICEF helped the Department of Health equip 11 HCFs with solar energy for lighting and essential equipment in the maternity and newborn units. Solar suitcases and photovoltaic solar panels were installed, and HCFs were fitted with energy-saving LED light bulbs.

The benefits of the upgrade were immediate. In one rural dispensary, for example, there had been no source of power so deliveries could only be conducted during daylight. After the installation, 24-hour access to safe delivery was available. The cost to equip the 11 HCFs was approximately US\$ 200,000. Green energy systems require greater capital investment than conventional generators or connection to the local power grid. Innovative financial solutions are needed to overcome the cost barriers of deploying clean, energy-efficient systems in HCFs.

Source: UNICEF Health Annual Results Report 2017



**Strengthen
climate-
resilience and
environmental
sustainability
in health care
facilities**



Ensuring reliable cold chain for vaccines with solar refrigerators in Ethiopia

Despite significant improvements over the past decades, in 2019, only 43 per cent of children between 12-23 months of age received all the basic vaccinations in Ethiopia. There were also great disparities between rural and urban areas in access to vaccination services. One of the strategies to improve access and utilization of immunization services is improving the cold chain system, especially at the health post level. Toward this end, the Ministry of Health invested US\$ 31.4 million in 2018 for 6,000 solar-powered refrigerators for health posts and *woreda* (district) health offices in areas without reliable electricity to store vaccines. UNICEF supported the procurement process. Even at around US\$ 5,234 per unit, these Solar Direct Drive refrigerators were more cost effective and sustainable than refrigerators using gas or kerosene.

Pre-qualified by WHO, the Solar Direct Drive refrigerators aimed to expand immunization coverage in Ethiopia by significantly reducing the time and resources required for vaccine transportation. The refrigerators also ensure the availability and safety of vaccines in remote areas where the country's most vulnerable children live.

The procurement followed a unique bundled procurement services approach, which included warranty, delivery of spare parts and training of supply chain and immunization focal persons both at federal and regional levels. In addition, a project management team led by the Ministry of Health and UNICEF regularly reviewed the progress and efficiency of operations.

Source: [UNICEF Ethiopia press release](#)



**Strengthen
climate-
resilience and
environmental
sustainability
in health care
facilities**



Ensuring stable electricity in primary health centres in India with solar-hybrid photo-voltaic systems

Availability of quality electricity around the clock for health facilities is a minimum requirement to function efficiently. In India this is an important clause under the Indian Public Health Standards Guidelines for Primary Health Centres (PHC). However, the lack of a reliable electricity supply from the grid, especially in rural areas, is a significant constraint to the quality of service delivery in the country's health sector.

In 2008, UNICEF India started supporting the Ministry of Health and Family Welfare in establishing 58 hybrid solar power systems in tribal primary health care centres in the State of Maharashtra. The system was gradually refined and improved and subsequently scaled up, currently reaching 407 health facilities. The solarization uses an indigenous solar hybrid system that is providing energy security to the health facilities and is well aligned with the government's 'Make in India' initiative.

Between 2010 and 2014, visits by outpatients doubled and inpatients increased 10-fold. Over 70 per cent of sampled primary health care centres reported improved health services for their newborn care units and 22 per cent reported improved surgical services. Primary health care centre workers, notably the female staff, were safer, especially at night. The centres now remain fully illuminated even when grid power fails, and they are accessible to local people at all hours. Due to the steady electricity supply, staff morale is up, and they are more confident in handling emergency cases, which might otherwise be referred to the district HCF. At the same time, annual electricity bills dropped by 30 per cent.

Source: [Evaluation of solar hybrid photo voltaic system in primary health centre in Maharashtra](#) (joint report of NCRC, UNIDO and UNICEF, April 2016)



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facilities**



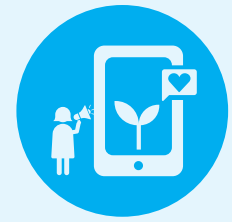
Building climate and environmental action with children and adolescents

Innovative solutions are underway around the world. One of these is the Healthy and Environment-friendly Youth (HEY) Campaign, a youth-led action on climate change and health launched in April 2020. The campaign is Caribbean-initiated with global outreach and seeks to build bridges between youth in the region and worldwide around the shared vision of a generation of young people committed to adopting lifestyles that are both healthy and environmentally friendly.

During the first phase, 18 young people were selected as HEY Ambassadors, all Caribbean-based, from 11 countries, namely: Afghanistan, Aruba, Barbados, Dominica, Dominican Republic, Haiti, Jamaica, India, Nigeria, Uganda and Trinidad and Tobago. Several HEY special envoys also played a key role in the formalization and outcomes of the actions taken throughout the campaign, including Lucy Meyer, Official National Spokesperson of the Special Olympics – UNICEF USA Partnership since 2015. Lucy joined the campaign to prolong her commitment to help children with disabilities around the world, with a focus on sports and disability inclusion. Also, Nurianna Helder, 24 years old, Miss World Aruba 2018, is full-time lecturer at the University of Aruba and Young Leader in Diabetes for the International Diabetes Federation. Since her diabetes diagnosis, she has dedicated herself to motivating and coaching people living with diabetes. She contributed to the HEY campaign to raise awareness about the connections between climate change and non-communicable diseases.

The HEY Campaign has been engaging in multiple activities with many young people and groups to tackle climate change and the impact it is having on people's health. These activities have included:

- Social media outreach
- Video production
 - [We are HEY!](#)
 - [For every child, there is a healthier and safer future](#)
- Youth networking, including a Global Youth Network Summit on Climate Change and Health. The Summit was organized on 10 July 2020 in collaboration with UNICEF and the Children's Environmental Rights Initiative and brought experts from around the world together to discuss and examine the health impacts of climate change.
- Youth Declarations including a [Global Youth Appeal on Climate change and Health](#). This is a Student Declaration on Climate Change and Health, together with the University of the West Indies and St George's University. And, a World Youth Day's joint call for climate action by 56 athletes of all abilities, with Lucy Meyer.



Promote climate and environmental action with children, adolescents and young people

Annex 1: Environmental pollution and climate change are mainstreamed across the Sustainable Development Goals

SDG 1: No poverty

Adapting to and mitigating climate change will protect families' livelihoods. Reducing air pollution can help families become healthier, save on medical expenses and improve productivity.

SDG 2: Zero hunger

Climate change threatens agriculture and food prices, and chemical contaminants can cause crop damage and affect food quality and security.

SDG 3: Good health and well-being

Climate change and environmental pollution contribute to harmful effects on human health. They cause increases in population morbidity and mortality, especially when experienced during pregnancy and early life.

SDG 6: Clean water and sanitation

Clean water is polluted both by traditional and industrialization-related contaminants. Pollutants such as sulphur dioxide (SO₂) and nitrogen oxides (NO_x) from open fires and the combustion of fossil fuels mix with precipitation causing harmful acid rain that can compromise water quality.

SDG 7: Affordable and clean energy

Electricity from renewable energy rather than fossil fuels offers significant public health benefits through a reduction in air pollution.

SDG 8: Sustainable consumption and production

Sustainable economic growth decoupled from environmental degradation (circular economy) is necessary to stop pollution, climate change and sustain the planet for future generations.

SDG 9: Industry, innovation and infrastructure

Power generation, industry and transportation are large contributors to air pollution. A new focus on decreasing energy consumption and on improving sustainable and public transportation could progressively reduce pollution.

SDG 11: Sustainable cities and communities

Urban areas significantly contribute to air pollution. Making cities sustainable could progressively improve the air quality.

SDG 12: Responsible consumption and production

Responsible production and consumption could help to reduce these harmful chemicals.

SDG 13: Climate action

Combustion of fossil fuels plays a key role in the process of climate change, which places food, air and water supplies at risk, and poses a major threat to human health.

SDG 14: Life below water

Climate change damages the oceans' fragile ecosystems, and our oceans transport chemicals around the planet, threatening the health of those who use marine resources for food and jobs.

SDG 15: Life on land

Emissions from combustion of fossil fuels mixed with precipitation cause acid rains that pose a major threat to forests and ecosystems.

SDG 17: Partnerships for the goals

Technology transfer and capacity building are needed to make progress towards these goals.

Annex 2: Children’s environmental health conventions and resolutions, selected, listed by effective dates

1972	Declaration of the United Nations Conference on the Human Environment, Stockholm
1983	International Convention on the Prevention of Pollution from Ships (MARPOL)
1988	Vienna Convention for the Protection of the Ozone Layer
1989	United Nations Convention on the Rights of the Child
1989	Montreal Protocol on Substances that Deplete the Ozone Layer
1990	Declaration on the Survival, Protection and Development of Children (World Summit for Children)
1992	United Nations Conference on Environment and Development, also known as Rio de Janeiro Earth Summit (Agenda 21, Chapter 25)
1992	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
1994	United Nations Framework Convention on Climate Change (UNFCCC)
1997	Declaration of the Environment Leaders of the Eight on Children’s Environmental Health
1999	Declaration of the Third European Ministerial Conference on Environment and Health
2001	UN Millennium Development Goals
2002	United Nations General Assembly Special Session on Children
2002	Bangkok Statement, WHO International Conference on Children's Environmental Health: Hazards and Vulnerability
2002	World Summit on Sustainable Development: Launch of the Healthy Environments for Children Alliance and the Global Initiative of Children’s Environmental Health Indicators
2003	Intergovernmental Forum on Chemical Safety Forum IV Recommendations on Children and Chemicals
2003	Aarhus Protocol on Persistent Organic Pollutants (POPs), United Nations Economic Commission for Europe
2004	Stockholm Convention on Persistent Organic Pollutants
2004	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
2004	Fourth Ministerial Conference on Environment and Health (Europe): Adoption of the Children’s Environment and Health Action Plan for Europe
2005	Kyoto Protocol
2005	International Conference on Children’s Environmental Health: The Buenos Aires Commitment
2006	Strategic Approach to International Chemicals Management (SAICM)

2007	Declaration of the Commemorative High-Level Plenary Meeting Devoted to the Follow-up to the Outcome of the Special Session on Children
2009	G8 Environmental Ministers' Meeting in Syracuse, Italy
2009	Busan Pledge for Action from the Third WHO International Conference on Children's Health and the Environment
2010	Parma Declaration from the Fifth Ministerial Conference on Environment and Health (Europe): Protecting Children's Health in a Changing Environment
2015	UN Sustainable Development Goals
2015	World Health Assembly resolution on the health impact of air pollution
2016	Paris Agreement
2016	Report on impacts of toxics and pollution on children's rights by the U.N. Special Rapporteur
2016	G7 Toyama Environmental Ministers' Meeting, Japan
2017	Minamata Convention on Mercury
2018	First WHO Global Conference on Air Pollution and Health
2019	Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer
2019	United Nations Climate Change Summit
2019	Report on States' duty to prevent exposure (A/74/480) by the U.N. Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes

The above table is updated and adapted from the 'Textbook of Children's Environmental Health', PL Landrigan and RA Etzel (Eds.), 2014, and 'Towards a Pollution-Free Planet Background Report', United Nations Environment Programme, 2017. Refer to these for additional multilateral and regional frameworks, environmental agreements, initiatives and networks.

For reference: At a global level, the UN leads environmental policy in the following environmental bodies:

- High-level Political Forum on Sustainable Development
- Commission on Sustainable Development (CSD)
- Intergovernmental Panel on Climate Change (IPCC)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
- Stockholm Convention on Persistent Organic Pollutants
- Convention on Biological Diversity
- Convention on Wetlands
- Convention on International Trade in Endangered Species of Wild Fauna and Flora
- Convention on the Conservation of Migratory Species of Wild Animals
- Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer
- Minamata Convention on Mercury

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Document Summary	<p>This Global Programme Framework outlines how UNICEF can address the environmental determinants of child health and well-being as part of its programmes for strengthening primary health care with a focus on prevention.</p> <p>Through a set of five major actions responding to climate change and environmental degradation, the guidance integrates a 'healthy environments' pillar in UNICEF's health programme and describes UNICEF's value-addition in support of national, local and community-based health programmes.</p>
Regulatory content the Document Replaces	N/A
Topics Covered	Healthy Environments
Corporate Risk Area	Results-based Management and Reporting
Reference/Links to Enabling Legislation and Background	N/A
Links to Relevant Policy	N/A
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