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for every child

Children's Climate Risk Report 2026

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Cover photo: In March 2025, tropical storm Jude destroyed the secondary school classroom of Christianah, an 11-year-old student in Madagascar. The storm affected more than 26,000 people, displacing nearly half of those impacted. UNICEF collaborated with its partners on disaster preparedness, post-storm response and sustainable recovery.
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Foreword

Zunaira, a young climate activist from Pakistan, gave powerful testimony to world leaders on the impact of climate change on children at the 80th session of the UN General Assembly in 2025:

"Children are living the challenges of climate change right now... And the impacts are not just physical – they are emotional, mental and deeply personal. The 2022 floods in my country did not just wash away houses. They washed away entire communities. They washed away childhoods. Schools collapsed or turned into shelters. Families lost homes, and children lost the spaces where they felt safe. And when the waters receded, what remained was not only destruction, it was trauma. We are not imagining this crisis – we are living it, and it affects us more than adults can imagine."

Zunaira's warning of the dire threat climate change poses to children is demonstrated clearly in this year's *Children's Climate Risk Report* – a report which should serve as a wake-up call to world leaders. It provides further evidence of what we already know: children are at the forefront of the impact of climate change.

Across the globe, millions of children are now facing multiple climate threats without the necessary services to cope. More than 1 billion children are exposed to at least three climate hazards.

They are experiencing extreme heat that causes heatstroke and dehydration. Their homes and schools are being destroyed by storms and floods. Devastating droughts are limiting their access to food and water.

And in many cases, the intensity of these hazards is increasing with each passing year.

We must invest more in adapting essential services to the impact of climate change. But to do so effectively, we need data to understand where the most exposed and vulnerable children live.

This report is an important milestone in our understanding of how climate hazards are affecting children. Through new data from the UNICEF Global Child Hazard Database, we can now see where children are exposed to a variety of hazards within countries at an unprecedented level of detail. Combined with data on existing social service access and capacities, governments can map where children are most at risk to climate shocks and stresses. The data in this report is a key tool for decision makers, helping them plan smarter, act faster and invest more effectively in climate-resilient services for children.

However, as this report demonstrates, some children are significantly more vulnerable than others. This is due to a range of factors, including limited access to essential services, gender inequality, displacement and disability.

The global community is beginning to address these impacts. Through political will, partnerships, and collaborating with young people, the case studies in this report prove that progress is possible. But the scale and ambition of action must be rapidly accelerated to ensure that every child is protected from climate impacts.

A better future, for children and for our planet, is still within reach. We must act now.

Catherine Russell
UNICEF Executive Director

Executive summary

While climate hazards have always occurred naturally, human-induced global warming is already changing much of the world as we know it. According to the Intergovernmental Panel on Climate Change, several climate hazards have increased in frequency and intensity, and often overlap.

New, more granular data in this report reveals the staggering number of children already exposed to climate-related hazards globally. The scale of this exposure underscores the urgency of the crisis. Almost all children are now exposed to at least one of the following climate hazards:

- riverine floods
- coastal floods
- droughts
- tropical storms
- heatwaves
- extreme heat
- fires
- sand and dust storms

The impact on children's physical and mental health and wellbeing and their access to education and protection is huge, yet barely quantified.

Storms and floods displace families and interrupt daily life. Record-smashing heat causes widespread heatstroke and dehydration. Droughts cause food and nutritional insecurity. These climate hazards exacerbate deadly infectious diseases, such as dengue and malaria, and lead to air-polluting wildfires.

Children are disproportionately affected by the consequences of climate hazards, as their developing bodies make it harder for them to cope with the physical and psychological stresses. They also increasingly experience displacement and instability in the wake of climate shocks, further worsening their vulnerabilities.

But while the climate crisis is a global phenomenon, its effects are not felt equally. Children are not a homogeneous group. They are affected in different ways and to varying degrees depending on their age, gender, disability and ethnicity (including Indigenous identity). Some children are far more exposed than others due to limited access to essential social services because of their location or socio-economic status. This leads to overlapping vulnerabilities.

About this report

Without identifying who the most vulnerable children are, where they live, and how they are affected by climate-related impacts, developing practical and effective solutions for adaptation and disaster risk reduction is nearly impossible.

The *Children's Climate Risk Report* provides the most comprehensive picture to date of the threat to children from the climate crisis and its impacts. In an unprecedented level of detail, it shows how children's exposure to multiple, overlapping climate hazards, combined with their inherent physical vulnerabilities and gaps in the social services they rely on, undermines their rights and increases their risk of harm.

Using new UNICEF datasets, this report presents high resolution estimates for a range of climate hazards that affect children. It also considers two hazards that are not primarily driven by Earth's climate but are highly sensitive to and compounded by it – vector-borne diseases (malaria) and air pollution.

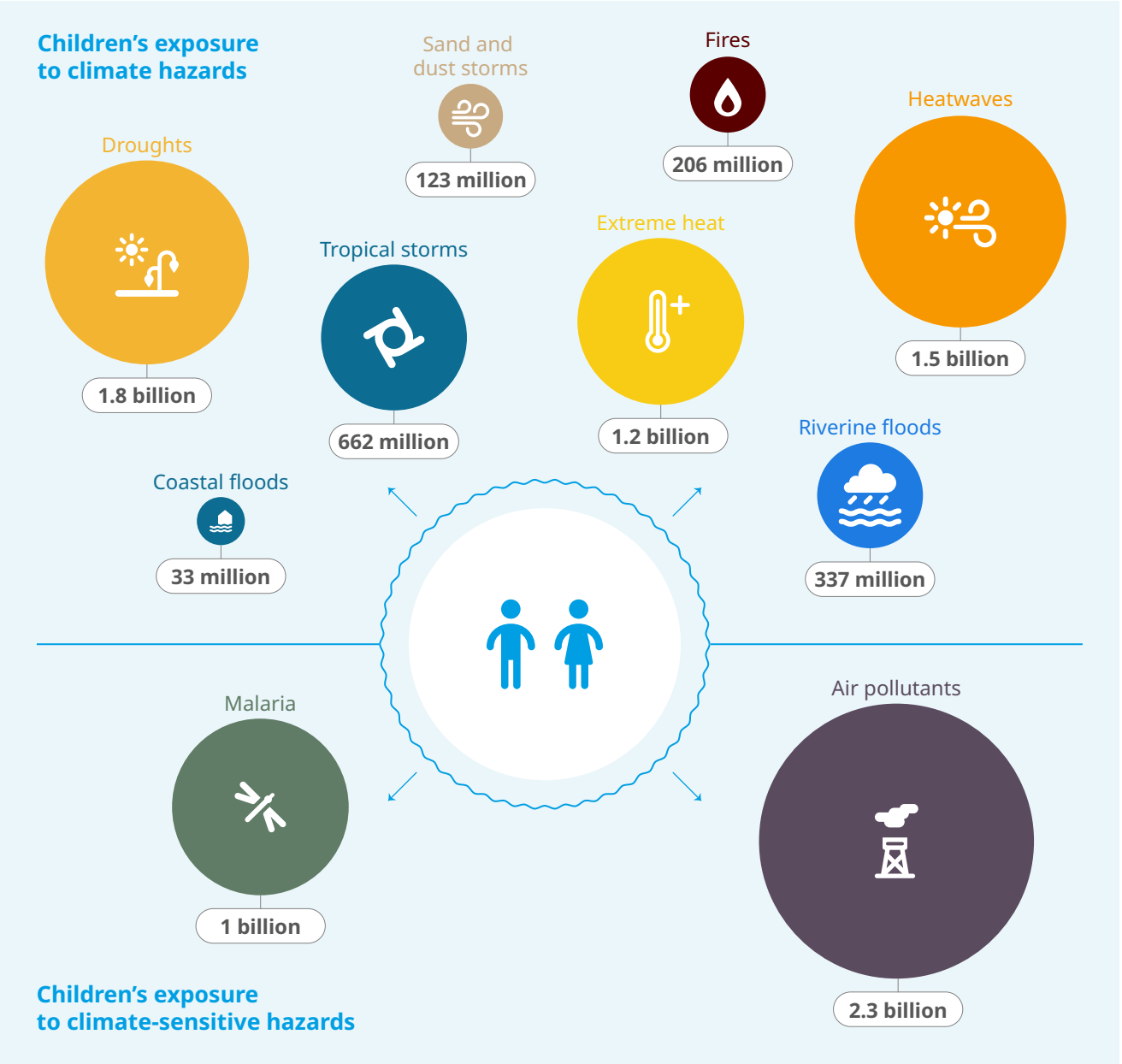
The analysis of hazards is linked to data on coverage of essential social services that directly affect children's vulnerability and capacity to cope with the climate crisis, including health, nutrition, water, sanitation and hygiene (WASH), education, child protection, and social protection services. This evidence is presented in a framework that governments and partners can use to identify where children are most at risk from climate-related hazards and act to reduce children's climate vulnerabilities.

Children's exposure to hazards

Climate hazards can occur anywhere. However, they only become a risk when they overlap with where people, livelihoods or other assets are; that is, where people are exposed to the hazard.

Children's exposure to hazards varies widely between and within countries. When hazards are geographically concentrated, they may affect children in one region of a country while others remain relatively unaffected. In such a context, governments can redirect resources and target the children affected. Risks are serious but remain localized. In other countries, when entire territories are exposed, almost all children can be affected at once. Health systems, schools, water and sanitation services, and social

Figure 1: Overview of the number of children exposed to climate-related hazards



protection systems come under simultaneous strain. In such a context, risks are no longer local but system-wide.

The capacity of governments to protect and support children to cope with and adapt to climate hazards varies widely depending on income, fragility and wider structural constraints, particularly in Small Island Developing States (SIDS) and landlocked developing countries (LLDCs).

Multiple overlapping hazards

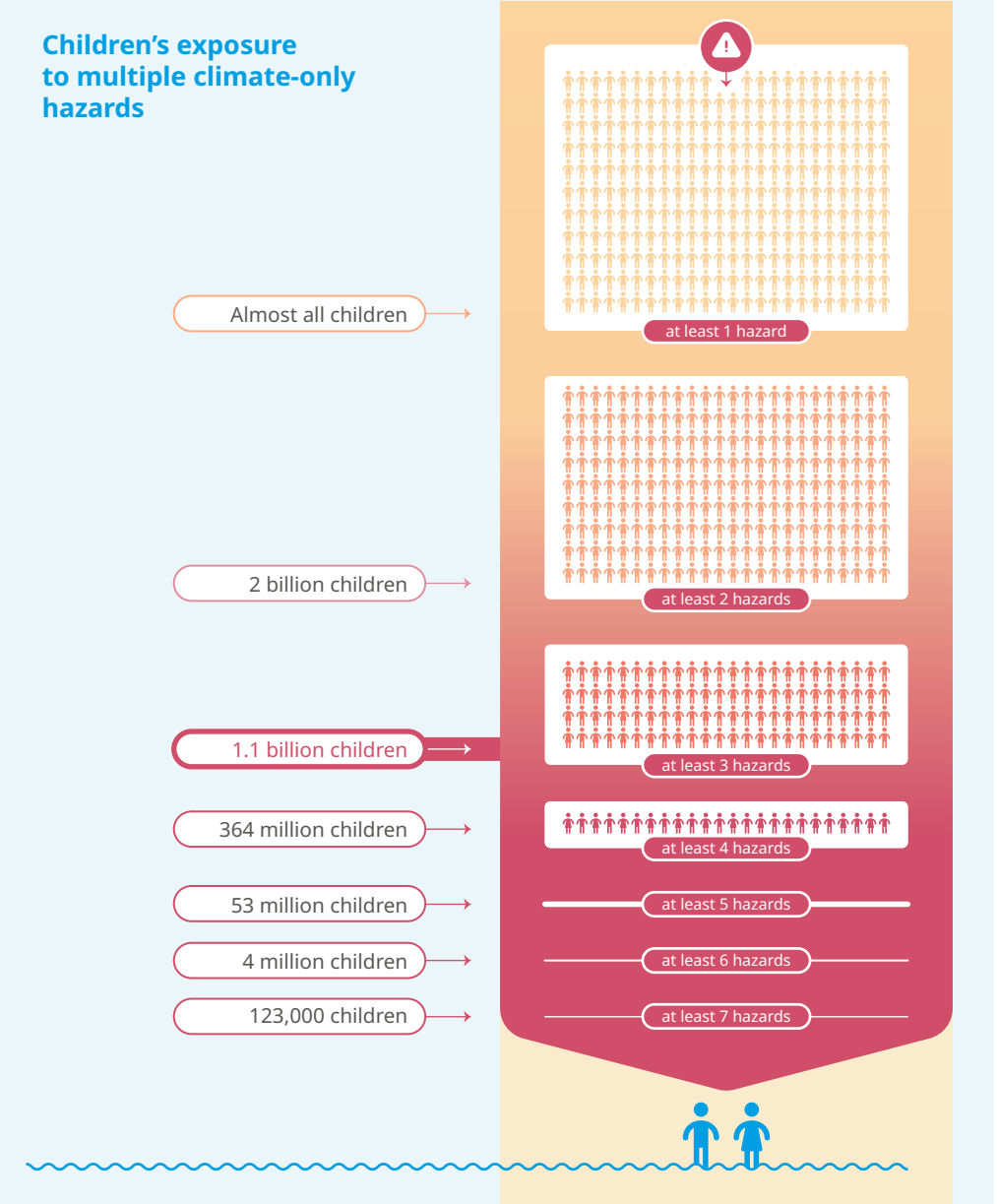
Globally, 1.1 billion children are exposed to at least three overlapping climate hazards.

The climate crisis does not manifest as a single event. For millions of children, the reality is a complex and dangerous cascade of multiple, overlapping hazards. This compounding of threats overwhelms the capacity of unprepared social services and undermines the resilience of families and communities.

For instance, intense droughts can devastate crops and worsen food insecurity. Dry vegetation left behind by a drought can fuel wildfires, which in turn exacerbate air pollution and leave the land vulnerable to flash floods later in the year. These floods can destroy infrastructure such as homes, schools and hospitals, displace communities and spread waterborne diseases.

These effects can create a vicious cycle: destroyed homes can lead to displacement, which can result in a lack of shelter, depriving children of protection from additional impacts and making them even more susceptible to future hazards. Disrupted education can have lifelong consequences, making it harder for children to build a stable future and break free from hardship.

Figure 2: Overview of the number of children exposed to multiple climate hazards



Absolute and relative exposure

Unsurprisingly, countries with large child populations consistently appear at the top of the absolute exposure lists. In countries with massive child and youth populations – such as **Bangladesh**, **India**, **Nigeria** and **Pakistan** – even if in some cases the relative percentage of children exposed to multiple climate hazards is low, the absolute number exposed is still high. Conversely, countries with relatively low absolute populations, especially in SIDS and LLDCs, often experience the highest relative exposure to individual climate hazards, reflecting the high concentration of specific risks across their territories.

Multi-hazard intensity

Multi-hazard intensity analysis distinguishes areas that experience frequent but mild events from those that face less frequent but more devastating events. High intensity multi-hazard exposures are often greatest in the most populated countries, such as **Egypt**, **India**, **Nigeria** and **Pakistan**. When examining the relative exposure of children to multi-hazard intensity, we find that children in the Sahel are the most exposed, especially in **Burkina Faso**, **Central African Republic**, **Mali**, **South Sudan** and **Sudan**.

Children's vulnerability

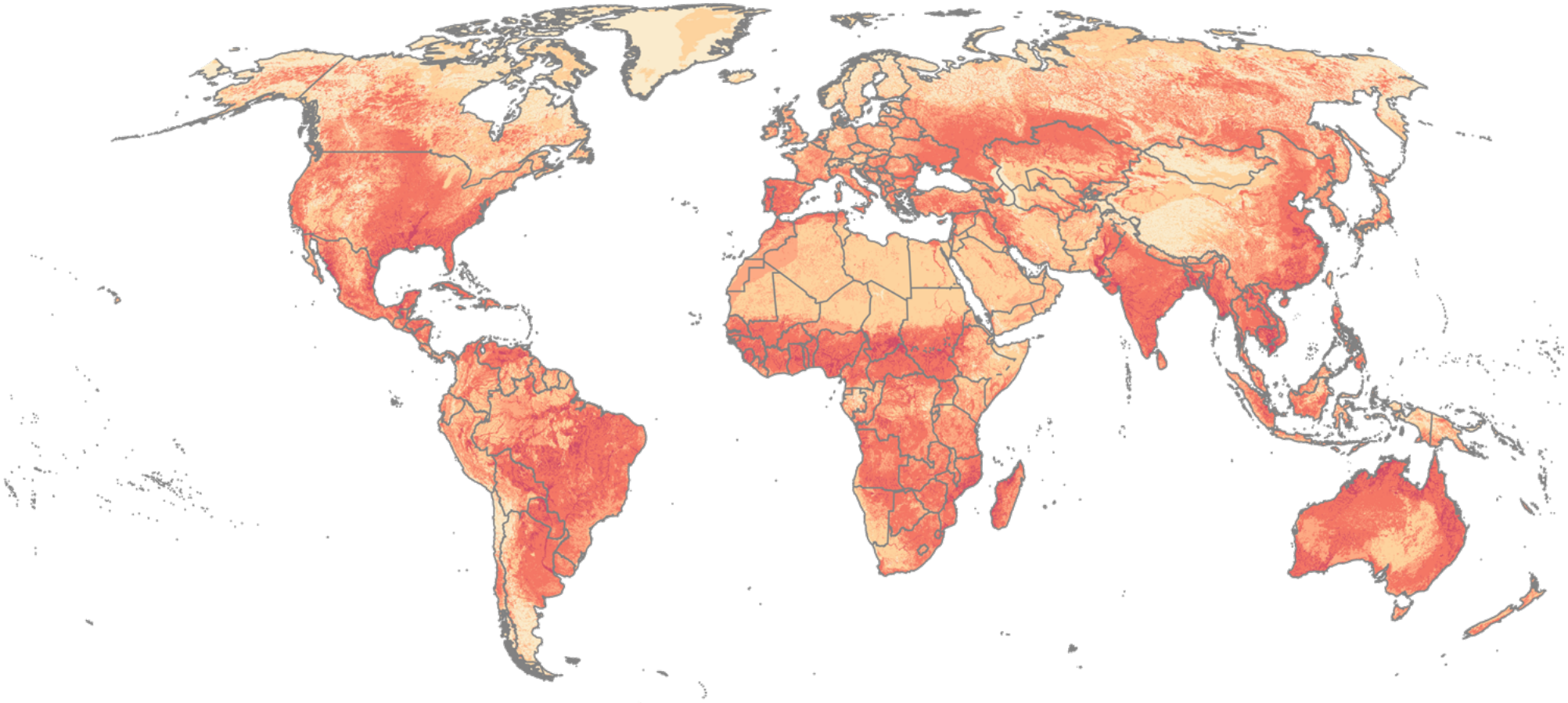
A climate hazard becomes a disaster only when it disrupts the lives and livelihoods of individuals, families and communities. For a child, vulnerability is defined both by biological sensitivity and coping capacity. This coping capacity is measured through access to essential social services children rely on to survive and thrive. When these systems are weak, inaccessible or not resilient to climate shocks, children's lives are at risk.

This report examines six key service areas critical to children's resilience to climate hazards:

1. **Health services:** In 2024, 20 million children missed out on life-saving vaccines, including 14.3 million children who did not receive a single dose of a diphtheria, tetanus and pertussis-containing vaccine. Climate shocks could further worsen existing vulnerabilities by destroying clinics, disrupting vaccine cold chains and increasing the spread of diseases.
2. **Nutrition services:** Droughts and floods devastate crops, disrupt food supply chains and drive malnutrition. Without timely action, climate change is estimated to cause an additional 28 million children to be wasted and 40 million children to be stunted globally by 2050.
3. **Water, sanitation and hygiene services:** In 2024, 634 million children still lacked safely managed drinking water, 1 billion lacked safely managed sanitation and 489 million lacked basic hygiene. Floods contaminate water sources and droughts dry them up, leaving children vulnerable to deadly diseases and increasing burdens such as fetching water.
4. **Education services:** Storms destroy schools and heatwaves disrupt learning, robbing children of their future. In 2024 alone, at least 242 million students in 85 countries and territories had their schooling disrupted by climate-related hazardous events.
5. **Child protection services:** Climate-driven displacement and poverty increase the risks of child labour, child marriage and family separation. Between 2016 and 2023, there were 62.1 million internal displacements of children from climate hazards, the equivalent of more than 21,000 child displacements per day.
6. **Social protection services:** Families without access to shock-responsive cash transfers or other support are compelled into negative coping mechanisms. Over 130 million people could be pushed into extreme poverty by 2030 because of climate change.

The ability of governments to reduce children's vulnerability and increase their capacity to cope with and adapt to climate hazards is often affected by wider structural constraints,

Map 1: **Areas with exposure to multiple hazards at the highest intensities for eight hazard subsets – riverine floods, coastal floods, tropical storms, droughts, heatwaves, extreme heat, fires, and sand and dust storms**



Multi-hazard intensity exposure (index)

Very low (0–1.7) Low (1.7–4.0) Medium (4.0–5.1) High (5.1–7.1) Very high (7.1–10)

especially in low income countries, fragile states, SIDS and LLDCs. While these important factors are not quantified in the Children's Climate Risk Framework, they can have far reaching impacts on children's vulnerability and are important to consider as contextual information in addition to the analysis presented.

Children's climate risk analysis

This report presents a framework for assessing where children are most at risk and argues that risk-informed decisions are best made based on a systematic analysis of hazard exposure and vulnerability that considers the specific country context.

The latest available data on children's hazard exposure and child-specific vulnerabilities can be used to support different types of risk analysis, depending on the context:

- **Hazard-specific risk analysis** can help governments, humanitarian and development organizations develop targeted interventions in response to specific hazards, such as establishing early warning systems and planning infrastructure.
- **Sector-specific risk analysis** can help ministries identify hazards that compound specific types of child vulnerability in child-critical social sectors and develop strategies for child-critical systems and services, such as WASH, nutrition, education, child protection, health, and social protection.
- **Multi-dimensional risk analysis** can help policy makers gain a comprehensive understanding of system-wide risk that affects multiple populations, sectors and services. Rather than addressing threats in isolation, this holistic approach can help design comprehensive national adaptation plans that protect the most marginalized communities from multiple, overlapping hazards.

A call to action: for every child

> **Upholding every child's right to a clean, healthy and sustainable environment requires urgent, coordinated and child-responsive climate policies, action and investment.**

To protect children, governments and partners must strengthen the climate resilience of the key sectors that shape young lives. UNICEF calls on governments and partners to:

- Reduce emissions across all sectors and take ambitious action to fulfil existing international commitments, grounded in the best available science. This includes the urgent phasing-out of fossil fuels and a just transition towards renewable energy and energy efficiency in line with 1.5°C pathways, ensuring the best interests of the child are a primary consideration.
- Protect children through inclusive climate adaptation and responses to loss and damage that prioritize the resilience of social services children rely on to survive and thrive. Ensure children and child-critical services are prioritized in national adaptation plans and sectoral strategies, disaster preparedness and response plans, and strategies to respond to loss and damage.
- Empower children and young people to meaningfully participate in climate action and a just transition by investing in climate education, knowledge and skills, and strengthening the capacity of decision makers and experts to respect children's rights to be heard, freedom of expression, and participation in decisions that affect their lives. Ensure children's needs and perspectives are reflected in local, national, regional and global decision making on climate policy and climate finance.

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Abbreviations

ACAG	Atmospheric Composition Analysis Group
AF	Adaptation Fund
BMZ	German Federal Ministry for Economic Cooperation and Development
BoWSA	Ethiopia Regional Bureau of Women and Social Affairs
BTR	Biennial Transparency Report
CCRI	Children's Climate Risk Index
CERD	Center for Educational Research and Development
CRC	Committee on the Rights of the Child
CRC	Convention on the Rights of the Child
CSSF	Comprehensive School Safety Framework
DRR	Disaster risk reduction
DTP	Diphtheria, tetanus and pertussis
ECD	Early childhood development
ECMWF	European Centre for Medium-Range Weather Forecasts
EIA	Environmental impact assessment
EU JRC	European Union Joint Research Center
FAO	Food and Agriculture Organization
FIRMS	Fire Information for Resource Management System
FRP	Fire radiative power
FWI	Fire Weather Index
GCF	Green Climate Fund
GCHD	Global Child Hazard Database
GDP	Gross domestic product
GEF	Global Environment Facility
GGA	Global Goal on Adaptation
GIRI	Global Infrastructure Risk Model and Resilience Index
GIZ	German Agency for International Cooperation
GNI	Gross national income
ICJ	International Court of Justice
IDP	Internally displaced persons
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
LLDC	Landlocked developing country
MAP	Malaria Atlas Project
MBBR	Moving bed biofilm reactor
MEHE	Ministry of Education and Higher Education (Lebanon)
MHPSS	Mental health and psychosocial support
MICS	Multiple Indicator Cluster Survey
NAP	National Adaptation Plan
NbS	Nature-based solutions
NDC	Nationally Determined Contribution
OECD	Organization for Economic Co-operation and Development
PDNA	Post-disaster needs assessment
Pf	Plasmodium falciparum
PISFCC	Pacific Islands Students Fighting Climate Change
PPP	Public–private partnership
Pv	Plasmodium vivax
SDS	Sand and dust storm
SIDS	Small Island Developing States
SNNP	Southern Nations, Nationalities and Peoples
SRP	Sahel Resilience Partnership
SRSP	Shock-responsive social protection
TTI	Today and Tomorrow Initiative
UNAMI	United Nations Assistance Mission for Iraq
UNCCD	United Nations Convention to Combat Desertification
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization
WRI	World Resources Institute

Chapter 1

Children living with risk

Overview

The impact of climate hazards on children's physical and mental health and wellbeing is huge, yet barely quantified.

Storms and floods displace families and interrupt daily life. Record-smashing heat causes widespread heatstroke and dehydration. Droughts cause food and nutritional insecurity. These climate hazards exacerbate deadly infectious diseases, such as cholera and malaria, and lead to air-polluting wildfires.

This report builds on what we already know: children are uniquely threatened by climate hazards. But while the climate crisis is a global phenomenon, its effects are not felt equally. Children are not a homogeneous group. They are affected in different ways and degrees depending on age, gender, economic position, disability, ethnicity (including Indigenous identity) and status of displacement.

The *Children's Climate Risk Report* provides the most comprehensive picture to date of the threat to children from the climate crisis and its impacts. In an unprecedented level of detail, it illustrates how children's exposure to multiple, overlapping climate hazards – combined with their inherent physical vulnerabilities and the shortcomings of the social services they depend on – undermines their rights and increases their risk of harm.

Using new UNICEF datasets, this report presents data on a range of climate hazards that affect children, including **riverine and coastal floods**, **droughts**, **tropical storms**, **heatwaves**, **extreme heat**, **fires** and **sand and dust storms**. It also considers two hazards that are not climate specific but are highly sensitive to and compounded by climate change – **vector-borne diseases (malaria)** and **air pollution**.

The analysis of hazards is connected to data on coverage of essential social services that directly affect children's vulnerability and capacity to cope with the climate crisis, including **health**, **nutrition**, **water**, **sanitation and hygiene (WASH)**, **education**, **child protection** and **social protection** services. Ultimately, this evidence is presented in a framework that governments and partners can use to identify where children are most at risk from climate-related hazards and match these with a set of actionable recommendations to reduce children's climate vulnerabilities by investing in more resilient social services.

Children are uniquely threatened by climate-related hazards

> **Without identifying who the most exposed children are, where they live and how they are affected by climate-related impacts, developing practical and effective solutions for adaptation and disaster risk reduction is nearly impossible.**

While climate hazards have always occurred naturally, we have ample evidence that human-induced global warming is already changing much of the world as we know it. Every year since 2015, individually, has been the warmest year on record. According to the Intergovernmental Panel on Climate Change (IPCC), several climate hazards have increased in frequency and intensity, and often overlap.

These risks are expected to continue to increase as global greenhouse gas emissions reductions remain well off track to curb human-induced climate change.

Children are disproportionately affected by the consequences of climate hazards, as their bodies are still developing and find it harder to cope with the physical and psychological stress of climate shocks and stresses.

Exposure to multiple climate hazards is a special threat to children's health and wellbeing. For instance, intense droughts can devastate crops and increase food insecurity. Dry vegetation left behind by a drought can fuel wildfires, which in turn aggravate air pollution and leave the land vulnerable to flash floods later in the year. These floods can destroy infrastructure like homes, schools and hospitals, displace communities and spread waterborne diseases. These effects can become a vicious cycle: destroyed homes can lead to displacement, which can lead to a lack of shelter, depriving children of refuge from additional impacts and making them even more susceptible to future hazards. Disrupted education can lead to lifelong impacts, making it harder to build a stable future and break free from hardship.

While the climate crisis is a global threat to all children, some are far more vulnerable than others due to limited access to essential social services. This intersects with wider dimensions of inequality, including geographic location, socio-economic status and individual characteristics, to create overlapping vulnerabilities. Children also increasingly experience displacement and instability in the wake of climate shocks, which can further exacerbate vulnerabilities.

The climate crisis is a child rights crisis

International legal and regulatory bodies are increasingly acknowledging that the climate crisis is a child rights crisis. The UN Convention on the Rights of the Child (CRC), the Inter-American Court and the International Court of Justice (ICJ) have clarified the obligations of the international community to address climate change under international law.

> **"Today the world's smallest countries have made history. The ICJ's decision brings us closer to a world where governments can no longer turn a blind eye to their legal responsibilities. It affirms a simple truth of climate justice: those who did the least to fuel this crisis deserve protection, reparations, and a future. This ruling is a lifeline for Pacific communities on the frontline."**
>
> – Vishal Prasad, Director, Pacific Islands Students Fighting Climate Change

Source: Pacific Islands Students Fighting Climate Change, 'The World's Youth Hail Historic Climate Ruling by World Court', PISFCC, 23 July 2025 <pisfcc.org/news/the-worlds-youth-hail-historic-climate-ruling-by-world-court>.

Driven by the powerful advocacy of youth, especially from the Pacific Islands, the ICJ has made it clear: countries have a duty to act on climate change, protecting the environment and human rights, including child rights. Failure to curb emissions, including from private sources, could make countries liable for reparations for climate-related damages in other countries. Put plainly, addressing climate change is not a matter of political commitment or preference – it's a legal obligation.

These landmark advisory opinions align with the UN CRC, the most widely ratified human rights treaty in history. With 196 State Parties, the CRC reflects a global consensus on the importance of upholding children's rights. However, the climate crisis is threatening children's fundamental rights to life, survival and development; to protection and social services; and to a safe, clean and healthy environment. Urgent action is required to:

- **Reduce emissions across all sectors** and take ambitious measures to fulfil existing international commitments, grounded in the best available science. This includes the urgent phasing-out of fossil fuels and a just transition towards renewable energy and energy efficiency in line with 1.5°C pathways – ensuring the best interests of the child are a primary consideration.

Children's exposure to climate hazards

- **337 million** children exposed to riverine floods
- **33 million** children exposed to coastal floods
- **1.8 billion** children exposed to droughts (agricultural and meteorological)
- **662 million** children exposed to tropical storms
- **1.5 billion** children exposed to more frequent, longer or severe heatwaves
- **1.2 billion** children exposed to extreme heat
- **206 million** children exposed to frequent and severe fires
- **123 million** children exposed to sand and dust storms

Children's exposure to climate-sensitive hazards

- **1 billion** children exposed to malaria
- Almost all children, **2.3 billion**, estimated to live in areas with detectable air pollutants

Children's exposure to multiple climate hazards

- **Almost all** children, 2.3 billion, exposed to at least one climate hazard
- **2 billion** children exposed to at least two climate hazards
- **1.1 billion** children exposed to at least three climate hazards
- **364 million** children exposed to at least four climate hazards
- **53 million** children exposed to at least five climate hazards
- **4 million** children exposed to at least six climate hazards

Children's exposure to multiple climate hazards at high intensity

- **1.6 billion** children exposed to multiple climate hazards at 75th percentile
- **1.4 billion** children exposed to multiple climate hazards at 80th percentile
- **1.2 billion** children exposed to multiple climate hazards at 85th percentile

- **Protect children** through inclusive climate adaptation and responses to loss and damage that prioritize the resilience of social services children rely on to survive and thrive. Ensure children and child-critical services are prioritized in national adaptation plans and sectoral strategies, disaster preparedness and response plans, and strategies to respond to loss and damage.
- **Empower children and young people to meaningfully participate in climate action and a just transition** by investing in climate education, knowledge and skills, and by strengthening the capacity of decision makers and experts to respect children's rights to be heard, freedom of expression, and participation in decisions that affect their lives. Ensure children's needs and perspectives are reflected in local, national, regional and global decision making on climate policy and climate finance.

International law is clear: countries must take the most ambitious action possible according to their differential responsibilities, capacities and national circumstances to limit climate change and protect children from harm. Using new UNICEF datasets, this report shows how governments can take account of climate risks for children in national policies and plans for adaptation and disaster risk reduction, and design targeted interventions to support and protect the most vulnerable children from climate change.

Key concepts

UNICEF's approach to the analysis of climate risks for children aligns with the IPCC, which defines climate risk as a function of hazard, exposure and vulnerability.[1] **Hazard** refers to the potential occurrence of a climate-related event; **exposure** is the presence of people, livelihoods or other assets in places that could be affected by a climate-related event; and **vulnerability** refers to the propensity of exposed human beings, livelihoods or other assets to suffer adverse effects when impacted by hazardous events.[2]

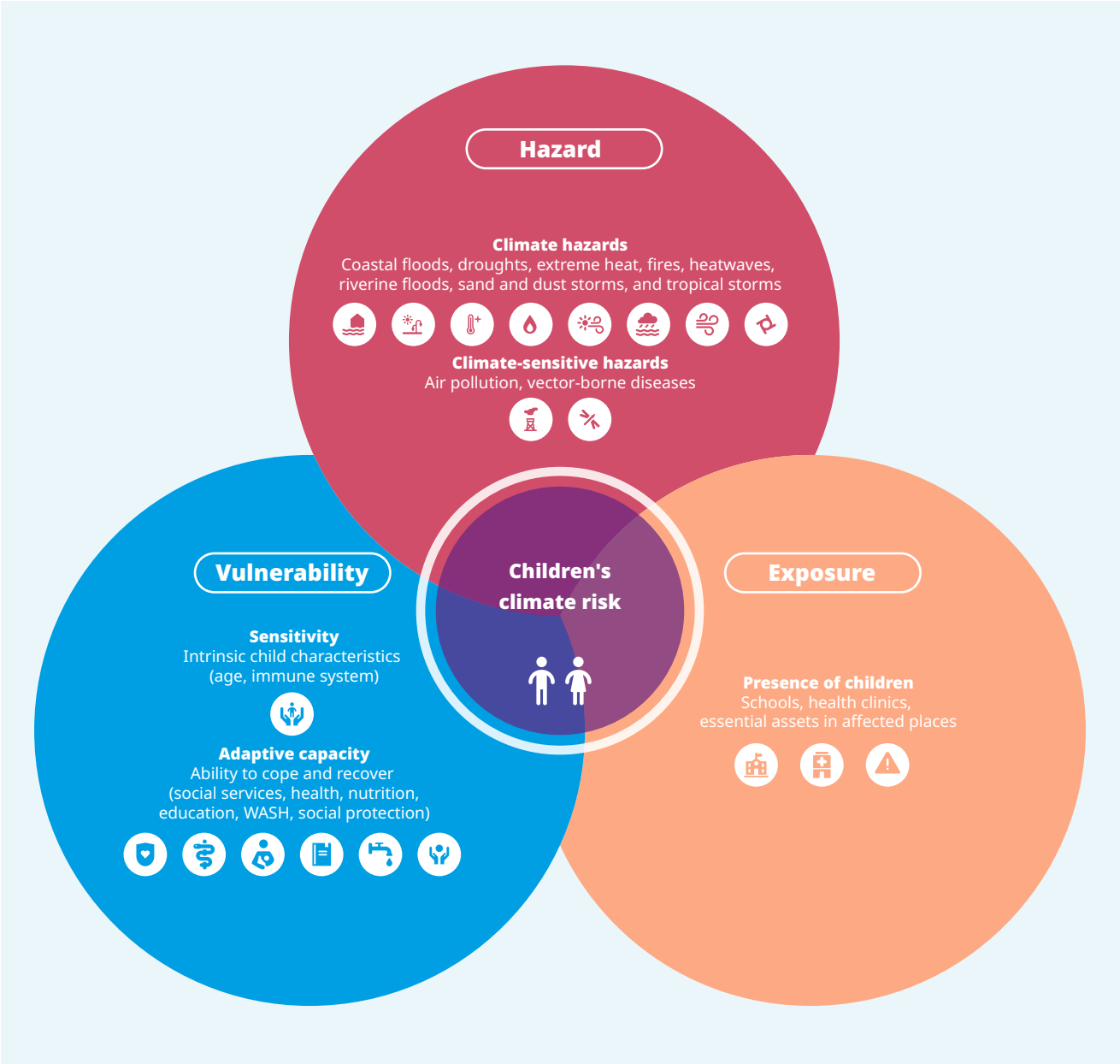
In this report, hazards that are directly caused by Earth's climate system (e.g., heatwaves, floods and droughts) are referred to as **climate hazards** and those that are indirectly exacerbated by the impact of climate change (e.g., air pollution and vector-borne diseases) are referred to as **climate-sensitive hazards**. When referring to both climate hazards and climate-sensitive hazards together, they are referred to as **climate-related hazards**. **Exposure** refers to the presence of children, child-critical infrastructure or related assets that could be affected by a climate-related event.

Vulnerability in this report is defined as the propensity or predisposition of children to be adversely affected by climate-related hazards. It encompasses a variety of elements that determine sensitivity or susceptibility to harm and lack of capacity to cope and adapt. Vulnerability includes two primary sub-components: sensitivity and adaptive capacity. **Sensitivity** is the predisposition to harm based on intrinsic characteristics, such as children's heightened biological susceptibility to climate threats. **Adaptive capacity** refers to the ability of children to adjust to hazards, cope with their effects and recover from the impacts. In this report, adaptive capacity is discussed through a child-specific lens by analysing the coverage of social systems and services that are essential to support and protect children from climate-related hazards.

Some countries also have unique characteristics that increase their susceptibility to climate-related events and limit their capacity to adapt to climate hazards, such as geographic isolation and resource diversity. In this report, these circumstances are referred to as **structural constraints**. Structural constraints are not quantified in this report. However, they are important to consider as contextual information for the analysis to understand children's varying climate risk across different national circumstances.

By grounding the concept of risk in UNICEF's child-centred mandate and spheres of influence,

Figure 3: Children's climate risk, combining hazard, exposure and vulnerability



this report emphasizes both the biological realities that amplify risk for children and the importance of child-critical systems, which are needed to support and protect children from climate-related hazards, including health, nutrition, WASH, education and protection services (see Chapter 5).

Foundational instruments for child climate risk

This report presents frameworks and metrics for generating data on climate risk for children, which support a diverse range of stakeholders, including governments. This includes the introduction of the new Global Child Hazard Database which provides the foundation for UNICEF's Children's Climate Risk Analysis.

The Global Child Hazard Database

This report draws from the new Global Child Hazard Database, a UNICEF-led initiative to provide comprehensive, high-resolution and globally standardized datasets on children's exposure to various hazards. The database aims to improve accessibility and provide actionable insights for country and regional offices, host governments and other key stakeholders, thereby supporting informed decision making and policy advocacy.

The database contains:	Comprehensive, high-resolution datasets on children's exposure to individual and multiple climate-related hazards, as well as new high-resolution data on the spatial distribution of children (under the age of 18).
The database delivers:	High-quality, high-resolution data that is publicly available for all countries, areas and territories, enabling analysis of children's exposure to single and multiple hazards. Data is available in different formats (tabular and spatial) to serve different user needs.
The database includes:	Eight climate hazards – riverine floods, coastal floods, droughts, tropical storms, heatwaves, extreme heat, fires, sand and dust storms. Two climate-sensitive hazards – vector-borne diseases (malaria) and air pollution. As more global datasets become available, the database will be expanded to include geophysical, environmental and other hazards that are relevant to children's wellbeing.
Database methodology can be found at:	CCRR Technical Documentation <https://data.unicef.org/wp-content/uploads/2026/06/CCRR-2026-Technical-Documentation.pdf>

The database is an open-source tool that can support risk-informed decision making on hazards that directly affect children. For each hazard, both the absolute and relative number of children exposed are included at all geographic levels, with disaggregation by sex and age using WorldPop's new Children's Population Layer, the first global, high-resolution spatial dataset that maps child populations, allowing direct measurement of child-specific exposure.[3]

The database provides evidence for risk analysis, programme planning, emergency preparedness and other actions to increase adaptive capacity and reduce disaster risk for children. It is also highly flexible and can be adopted directly or as derived products for a range of uses.

The database can be used to:

- Assist governments in establishing criteria for the allocation of climate adaptation and disaster risk reduction (DRR)-specific financing, such as for the targeting of priority locations in proposals submitted to the Green Climate Fund (GCF), Adaptation Fund (AF) or Global Environment Facility (GEF).
- Review and target priority investments under Nationally Determined Contributions (NDCs) to the Paris Agreement and government ministry strategies for the adaptation of child-critical social services.
- Inform government strategies and plans to adapt critical social sectors to the impacts of climate change.
- Support data-driven risk hot spot analysis to support child-sensitive approaches to adaptation and strategically guide budget and resource allocation efforts based on the number of children exposed to climate hazards.
- Inform disaster preparedness and disaster response planning by providing planning estimates of the number and locations of children exposed to individual and multiple hazards.
- Inform intergovernmental collaboration workstreams under the United Nations Framework Convention on Climate Change (UNFCCC). This includes acquiring data on children that can be embedded into global frameworks and commitments, including the Global Goal on Adaptation (GGA), National Adaptation Plans (NAPS), and loss and damage policies and finance.

- Strengthen public–private partnerships with data on child risk at regional and national levels. This includes the targeting of disaster risk financing solutions, such as climate risk insurance, the allocation of revenues from carbon market projects, and the use of green bonds or catastrophe bonds.

In this report, we present several metrics that can be used to support decision making for different stakeholders:

Individual hazard scores: This indicator combines the number of children in each country exposed to a hazard (absolute number) with the percentage of children exposed (relative number), enabling comparison between large and small countries (see Chapter 2).

Multi-hazard count: This indicator quantifies the number of distinct climate hazards that a specific geographic area is exposed to. When combined with high-resolution data on the distribution of children within countries, the multi-hazard count can be used to pinpoint hotspots where children are exposed to a disproportionately high number of climate hazards (see Chapter 3).

Multi-hazard intensity: This indicator assesses the severity or magnitude of each climate hazard, combining them into a composite intensity score to distinguish between areas that experience frequent but mild events and those that face less frequent but more devastating high-intensity events (see Chapter 3).

Children's Climate Risk Analysis: This framework shows the importance of a differentiated approach to highlight where children are the most at risk at the national level by combining hazard exposure and vulnerability (see Chapter 5).

By having modular measurement tools and metrics, the Global Child Hazard Database can be updated as the science evolves and improved datasets become available. This allows for the future integration of data on a wider range of hazards as well as climate projections to ensure continuity of the tools for analysing current and future trends, with the potential for expansion as needed. The analysis presented in the report is a starting point for conducting child-specific risk assessments to support national policy. Further analysis at sub-national levels is essential in order to inform targeted programming interventions.

How to use this report

This report provides the most comprehensive picture to date of the magnitude of threats now facing children worldwide. Chapter 2 outlines children's exposure to 10 climate-related hazards and explains the impacts children experience from them. Chapter 3 looks beyond individual hazards to examine children's exposure to multiple, overlapping and compounding hazards. Chapter 4 explores the impacts of climate hazards on child-critical social systems and services. Chapter 5 presents a framework for understanding children's climate risk by combining hazard exposure and child-critical social systems and services. Chapter 6 concludes with policy recommendations that national governments can implement to protect children from climate-related impacts.

Chapter 2

Children’s exposure to climate-related hazards

Exposure to intense climate hazards is a global reality for children

The climate crisis is a global phenomenon, and almost all children are now exposed to one of the following **climate hazards**: riverine floods, coastal floods, droughts, tropical storms, heatwaves, extreme heat, fires, sand and dust storms, or **climate-sensitive hazards**: vector-borne diseases (e.g., malaria) and air pollution.*

While the climate hazards outlined in this report also consider the natural occurrence of climate events, there is clear evidence of the link between rising human-induced greenhouse gas emissions and extreme weather events. Heatwaves, floods, droughts, wildfires and storms have all increased in frequency and intensity over the past few decades due to human-caused climate change.

Hazards are not confined to any one geography, and the effects can be felt thousands of miles away through disrupted food and freshwater systems, supply chains, trade and migration, and economic, environmental, social and cultural impacts. These effects are often worsened when countries are faced with other large-scale emergencies at the same time, such as conflict, or have limited resources to prepare for and respond to climate impacts.

* The currently available list of climate-related hazards in the database is not comprehensive. Other relevant hazards may not be included due to a lack of globally available open-source datasets.

In October 2023, the Somali region of Ethiopia was struck by violent and widespread flooding, triggered by unusually intense seasonal deyr rains. Over 611,000 people were affected, with more than one third being displaced. Thousands of public facilities – including schools, health clinics and water systems – were damaged or destroyed. The flooding impacted nine-year-old Bindu when her school was shut for more than six weeks, jeopardizing her aspirations to be a teacher. ©UNICEF/UNI485922/Pouget

2.1. Climate hazards

2.1.1. Floods

> **Globally, an estimated 337 million children are exposed to riverine floods and approximately 33 million children are exposed to coastal floods.**

Floods have a widespread impact on human and natural systems, affecting children's health care, nutrition, education, and access to WASH and infrastructure. These impacts will continue to grow as climate change intensifies. According to the IPCC,[4] flood risk and damage are projected to increase with every increment in global warming. In many countries, rapid urbanization without adequate planning or resilience infrastructure is increasing people's exposure to flooding.[5]

Floods have multiple impacts on children

Floods often lead to infrastructural damage, disruption to critical services, water contamination and the displacement of communities. Children are especially vulnerable to these impacts. Floods cause direct mortality from drowning, but children also suffer morbidity from flood-associated injuries and increased spread of infectious diseases – including vector-borne diseases like malaria and waterborne diseases like cholera. Flood-damaged households are also more prone to mould, leading to respiratory illnesses.

Disruptions in access to WASH services, either through infrastructural damage or contamination, can lead to severe illnesses such as diarrhoea, disproportionately affecting very young children, children with disabilities and those with chronic health issues. A child's developing immune system is less equipped to fight off these infections. With increased chances for food insecurity and illnesses, in the long term floods may also increase the risk of undernutrition in children under the age of five, especially in low and middle income countries.[6]

Floods can severely disrupt children's access to education (directly by destroying education facilities or indirectly by cutting road access) leading to a loss in learning that is rarely quantified. Floods often cause families to be displaced and can be traumatic events for children. They can cause enormous social and financial disruptions.

Riverine floods

Of the 337 million children exposed to riverine floods, nearly 80 per cent live in 10 countries including **Bangladesh**, **Iraq**, **Egypt**, **Pakistan** and **Philippines**. Unsurprisingly, exposure

Floods

Can be riverine (fluvial), pluvial or coastal.

Due to limited data availability, only riverine and coastal floods are considered in this report.

Riverine floods: A rise, usually brief, in the water level of a stream or water body to a peak from which the water level recedes at a slower rate. The primary cause is an extended precipitation event that occurs at, or upstream from, the affected area. However, riverine floods can also occur when traditional flood-control structures, such as levees and dikes, are overtopped.

Coastal floods (e.g., storm surge/sea-level rise)**:** Most frequently the result of storm surges and high winds coinciding with high tides.

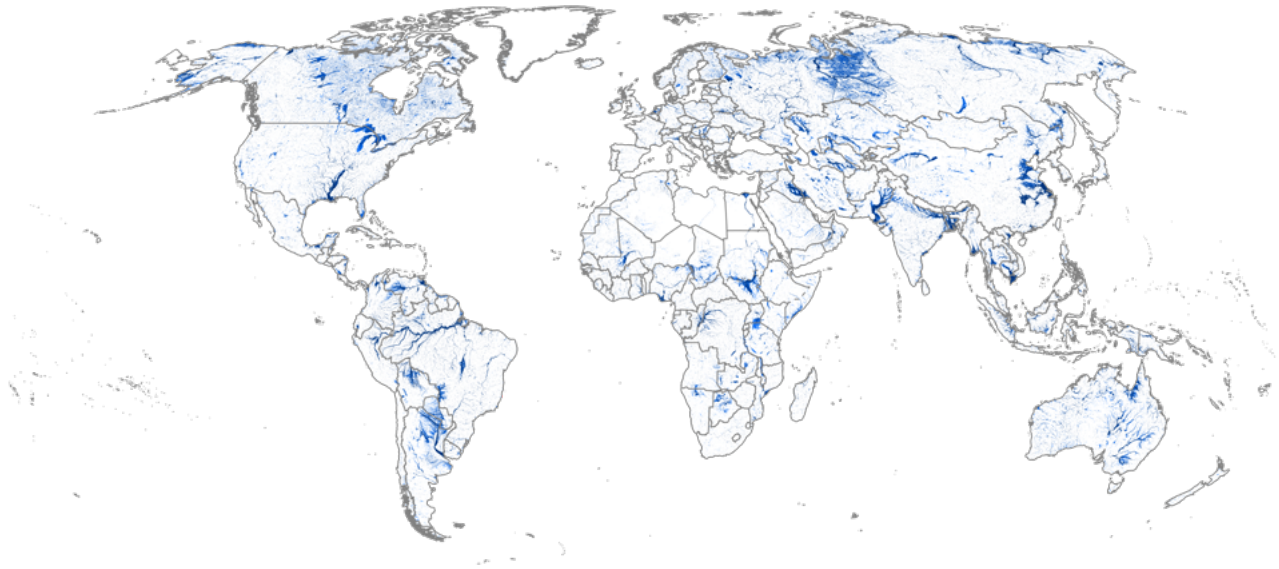
Definitions: World Meteorological Organization and United Nations Educational, Scientific and Cultural Organization, *International Glossary of Hydrology*, WMO and UNESCO, 2012 <https://library.wmo.int/viewer/35589>.

is highest along major rivers such as the Brahmaputra, Congo, Ganges, Indus, Nile and Yellow River. In **Suriname**, over 75 per cent of children live in riverine flood hazard zones. More than 50 per cent of children in **Bangladesh**, **Guyana** and **Iraq** are in areas with a high likelihood of riverine flooding.

Coastal floods

Countries with extensive or low-lying coastlines bear the brunt of coastal flood exposure. Of the 33 million children exposed to coastal floods, nearly 90 per cent live in 10 countries including **Japan**, **Myanmar**, **Netherlands** and **Viet Nam**. Relative exposure is also high in these countries as well as in island countries such as **Fiji**, **Kiribati** and **Marshall Islands**.

Map 2: Global riverine flood hazard areas along major river basins

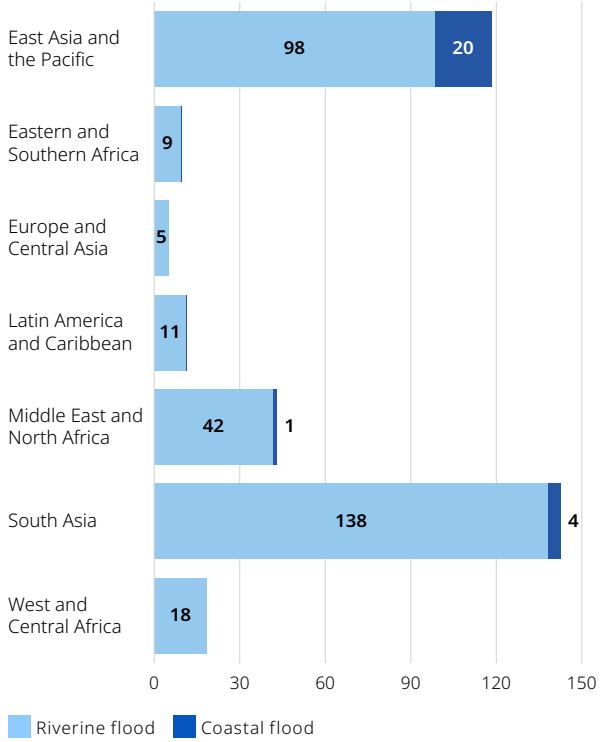


Riverine Floods (depth in m)

Very low (0.01–0.15) Low (0.15–0.5) Medium (0.5–1.5) High (1.5–2) Very high (>2)

Source: European Union Joint Research Center (EU JRC)

Figure 4: The number of children exposed to riverine and coastal floods by UNICEF region (millions).



Source: EU JRC, WorldPop

Note: While major riverine floods in global models are available at higher resolution, it is possible that the data might not cover smaller rivers. Flood risk could be underestimated in areas where smaller rivers cause significant flooding, especially in rural or peri-urban settings. Communities affected by flash floods from small catchments might not appear in the model. The coastal flood hazard layers currently lack intensity (depth) information, which could be crucial for understanding the varying impacts.

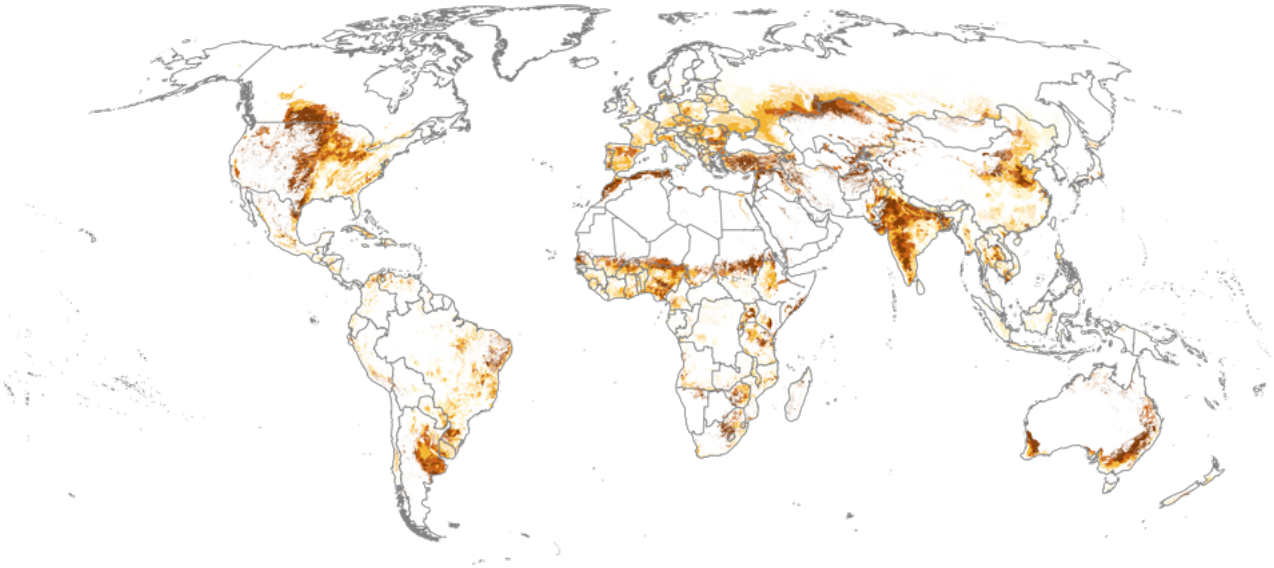
2.1.2. Droughts

Globally, 1.8 billion children are exposed to droughts (agricultural and meteorological).

Drought – a prolonged dry period in the natural climate cycle – can occur anywhere in the world and is one of the most complex natural hazards with far geographical reach. The effects of a lack of rainfall can result in short-term droughts that can last from a few weeks to a couple of months and long-term droughts that can last for several years.

Impacts are not only felt in immediate areas of hazard exposure but also by populations in other areas that are reliant on resources produced in drought-affected regions. For example, drought can affect crop production

Map 3: Croplands likely to be affected by severe drought derived from Agricultural Stress Index, a proxy measure for agricultural drought



Agricultural drought (Agricultural Stress Index) (%)

Very low (0–36) Low (36–51) Medium (51–67) High (67–85) Very high (>85)

Source: Food and Agriculture Organization (FAO)

Drought

A prolonged dry period in the natural climate cycle. It is typically a slow-onset phenomenon caused by a lack of rainfall.

Meteorological drought: Occurs when dry weather patterns dominate an area, defined by the degree of dryness and the duration of the dry period.

Agricultural drought: Occurs when agricultural production is affected due to precipitation shortages, soil water deficits and reduced groundwater.

Agricultural drought is a direct consequence of a prolonged meteorological drought.

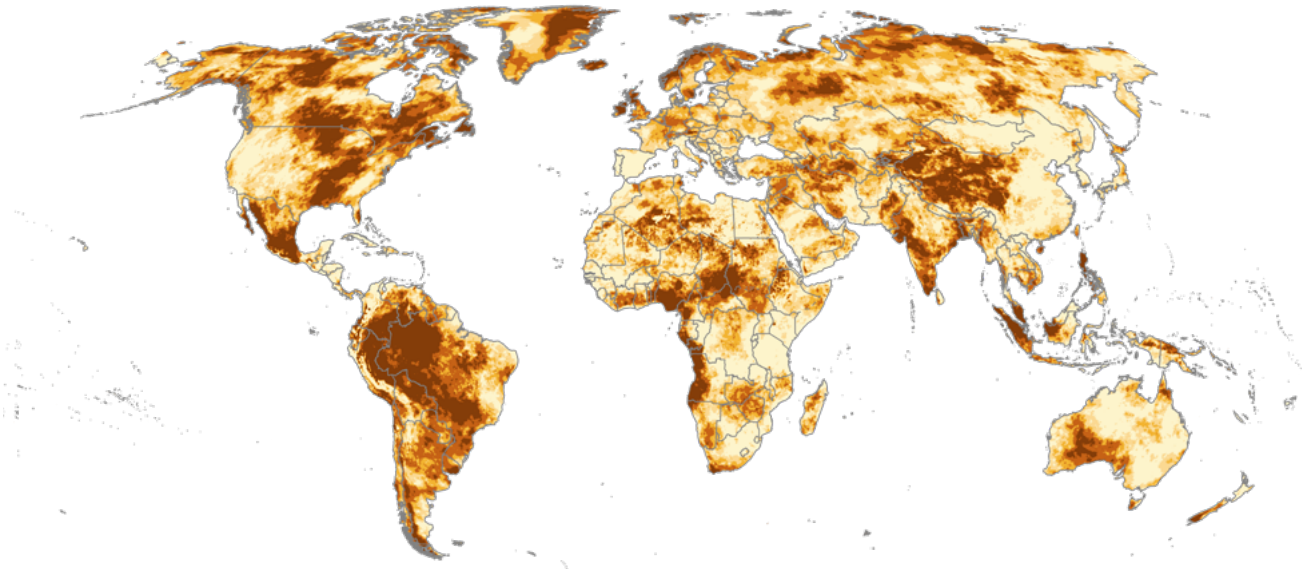
Definitions: United Nations Office for Disaster Risk Reduction, 'Drought', UNDRR <www.undrr.org/understanding-disaster-risk/terminology/hips/mh0401>; World Meteorological Organization, 'Drought', WMO <https://wmo.int/topics/drought>.

in one community and the impact can be felt anywhere that depends on the food from that place, even in adjacent or faraway countries. Worsening drought conditions are associated with persistent upward pressure on inflation in fragile states.[7] Drought has always been a part of the natural variability of Earth's climate but human-induced climate change is increasing the frequency, intensity and duration of droughts.[8]

Drought have multiple impacts on children

With greater stress on global food production, extreme drought events may lead to increasingly severe food insecurity around the world.[9] Drought events also result in water scarcity and large-scale displacements. Children are especially impacted by long-term drought events.[10]

Map 4: Areas likely to receive erratic rainfall derived from Standardized Precipitation Index, a proxy measure for meteorological drought

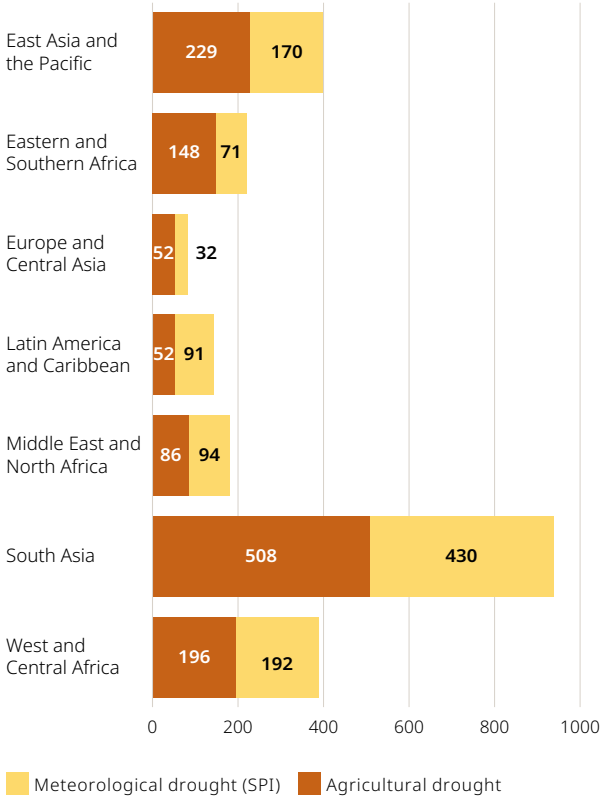


Meteorological drought (Standardized Precipitation Index – SPI)

Very low (<0.052) | Low (0.053–0.072) | Medium (0.073–0.094) | High (0.095–0.127) | Very high (>0.128)

Source: Copernicus

Figure 5: The number of children exposed to agricultural and meteorological droughts by UNICEF region (millions)



Source: Copernicus, FAO, WorldPop

Note: For agricultural drought, the current analysis focusses solely on children residing in the immediate vicinity of drought-affected agricultural areas. It doesn't account for children in regions that are heavily reliant on these distant crop-producing areas for their primary food supply, a complex dependency that is challenging to model accurately on a global scale.

During periods of drought, water levels typically fall in traditional sources of water, such as rivers, lakes and wells, often causing women and children, particularly girls, to have to walk long distances to collect water, placing them at greater risk of gender-based violence. Carrying water over long distances reduces the available water volume for home use, increasing the risk of illness. The time, energy and effort required to collect water or forage for food often means children, especially girls, cannot attend school and are at higher risk of falling behind and ultimately dropping out. Even if children continue to stay enrolled, their ability to learn is negatively affected because of high food insecurity, poor sleep and the necessity to do other essential tasks.[11]

Extreme drought events may lead to increasingly severe food insecurity around the world, particularly due to reduced availability of nutritious, safe, affordable and sustainable food, impacting children's nutrition and overall health. Limited access to water and food shortages can have a disproportionate impact on children with disabilities, who may require more water to meet hygiene needs, face additional barriers to accessing water sources and have specific dietary needs.

Prolonged drought events often plunge families in low income communities into deeper poverty and economic hardships, which can lead to harmful coping mechanisms such as child labour and child marriage. Competition for increasingly scarce resources like water and grazing land can fuel conflict between communities, forcing families to flee their homes and exposing children to violence and instability. The chronic stress of living through a drought – including food and water scarcity, displacement and economic hardship – can lead to long-term psychological distress, anxiety and depression.[12]

Additionally, droughts add stress to existing health systems, particularly in low and middle income countries, by limiting their ability to function adequately and deliver services to communities. Drought has been found to have associations with lower odds of completion of crucial childhood vaccinations, which increases the odds of infections in children.[13]

Children's exposure to droughts

The highest numbers of children exposed to both agricultural and meteorological droughts are found in the world's major agricultural powerhouses, whose economies largely depend on farming, such as **Bangladesh**, **Nigeria**, **Pakistan** and **Tanzania**. Relative exposure is also found to be higher in smaller countries such as **Armenia**, **Cameroon** and **Tajikistan** and small island states such as **Federated States of Micronesia**, **Palau** and **Samoa**.

Water scarcity continues to place additional burdens on children living in displacement sites, as families struggle to access safe and sufficient water for drinking, cooking, and hygiene. Long distances and limited water availability increase protection risks and health concerns. © UNICEF/ UNI971777/Yasin

2.1.3. Tropical storms

Globally, 662 million children are exposed to tropical storms.

Tropical storms cause significant damage through high winds, heavy rainfall and storm surges, leading to flooding, property and crop destruction, injuries and loss of life.

There is clear evidence that climate change is increasing the intensity of tropical storms. Warmer sea surface temperatures and higher atmospheric moisture levels contribute to more powerful storms with greater precipitation. This intensification is linked to human-induced greenhouse gas emissions, which have led to observable changes in storm patterns and behaviours.

Tropical storms have multiple impacts on children

Severe storms result in extensive infrastructural damage, disruption to essential services, mass displacement and large-scale water contamination. Children's smaller size and developing bodies make them especially vulnerable to storms' physical effects. They have a higher ratio of surface area to body mass, making them more susceptible to hypothermia from exposure to rain and wind. Their developing lungs are also more sensitive to inhaling mould, dust and other debris in storm-damaged environments, which can lead to respiratory illnesses and chronic health issues. They also have limited mobility and less physical strength to withstand powerful winds or floodwaters, increasing their risk of direct injury or drowning.[14]

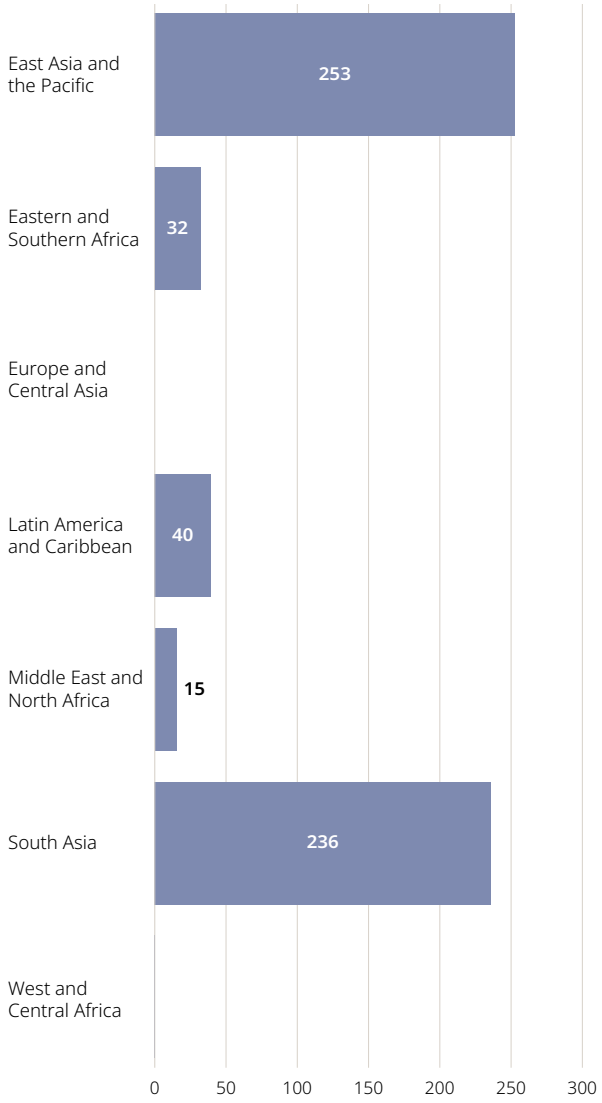
Tropical storm

A type of storm system characterized by a low-pressure centre, a closed low-level atmospheric circulation, strong winds and thunderstorms that produce heavy rain.

A tropical storm can develop into a cyclone, hurricane or typhoon depending on the ocean. It is usually classified under five levels, with five being the most intense.

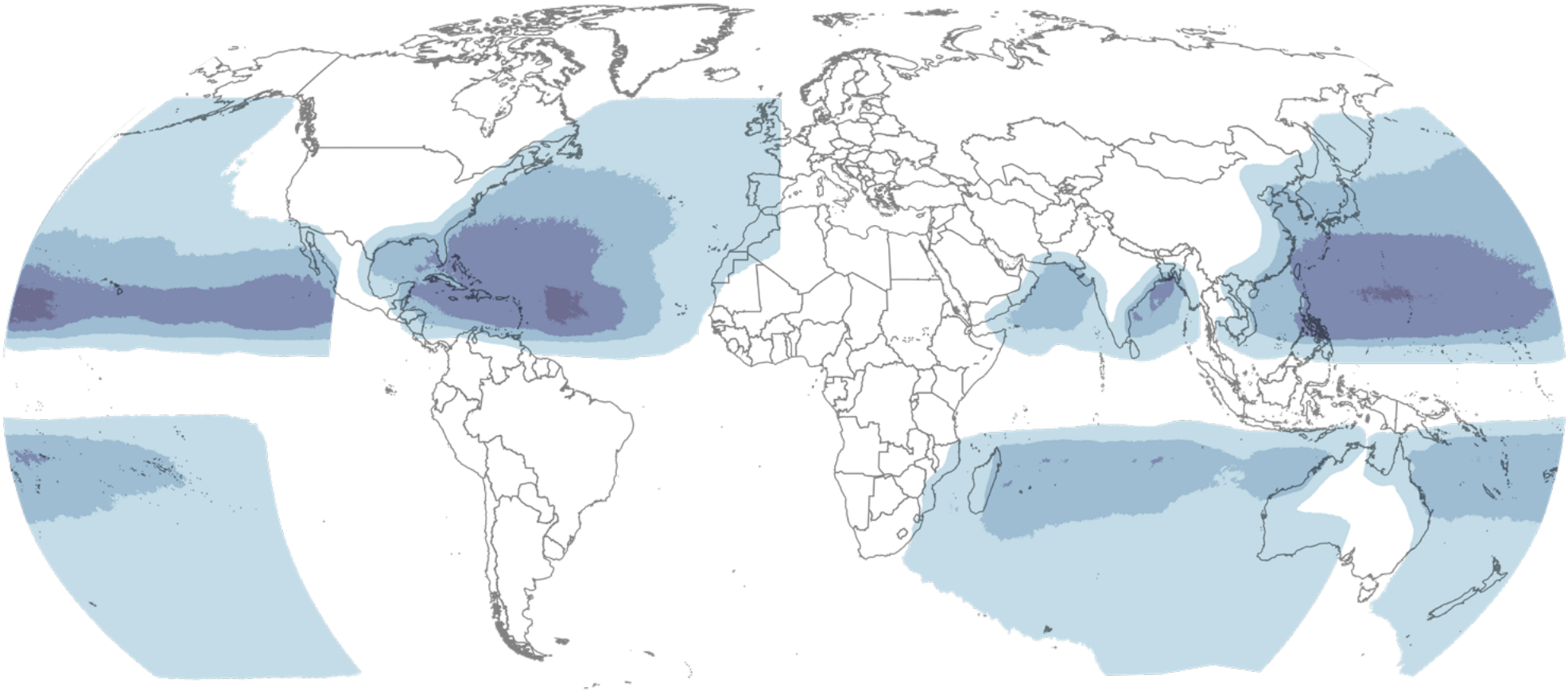
Definitions: Tropical storm classification is adopted from WMO's guidance where wind speed greater than 63 km/hr is considered as a named tropical storm.
Source: World Meteorological Organization, 'Classification of Tropical Cyclones', WMO <https://wmo.int/content/classification-of-tropical-cyclones>.

Figure 6: The number of children exposed to tropical storms by UNICEF region (millions)



Source: UN Environment Programme (UNEP) Global Infrastructure Risk Model and Resilience Index (GIRI), WorldPop

Map 5: Storm intensities across Atlantic, Indian and Pacific oceans



Tropical storms (wind speed in m/s)

Very low (0.01–17.5) Low (17.5–33.06) Medium (33.06–42.78) High (42.78–49.44) Very high (>49.44)

Source: UN Environment Programme (UNEP) Global Infrastructure Risk Model and Resilience Index (GIRI)

Note: The accuracy of the probabilistic model depends on the completeness of historical cyclone data.
This varies from one ocean to another which can lead to underestimation or overestimation of storm exposure.

Disruption of access to WASH services, such as the destruction or overflow of sewage services, often leads to increased spread of infectious diseases, including life-threatening illnesses such as diarrhoea. Immediately following a storm event, children have limited access to health care services. The most intense storm events can cause essential service disruptions lasting from a few weeks to months or years. Damage to schools and other educational facilities can lead to sustained loss of learning. Storms often lead to large-scale displacement, increasing children's exposure to trauma, with significant consequences for their mental health and psychosocial wellbeing.[15]

Children's exposure to tropical storms

Over 80 per cent of global exposure is found in 10 countries including **Bangladesh**, **Madagascar**, **Mozambique**, **Philippines** and **Viet Nam**.

Countries with the highest relative exposure to tropical storms are concentrated across the Atlantic, Caribbean, Indian and Pacific oceans, including **Comoros**, **Fiji**, **Haiti**, **Jamaica** and **Mauritius** and where almost all children are exposed to tropical storms.

Thi Tuyet Nhung, 13, sits on the ruins of a house destroyed by a landslide that was triggered by super typhoon Yagi, which hit her village in Viet Nam in September 2024. With wind speeds surpassing 220 km/hr and relentless rainfall exceeding 400 mm in many areas, millions were displaced, and more than 300 people died or went missing in Viet Nam alone. Approximately 2.4 million schoolchildren faced interrupted education due to damaged schools and flooded communities across Southeast Asia, and 3 million people lost access to safe drinking water, including many children. ©UNICEF/UNI654509/Le Lijour

2.1.4. Heatwaves

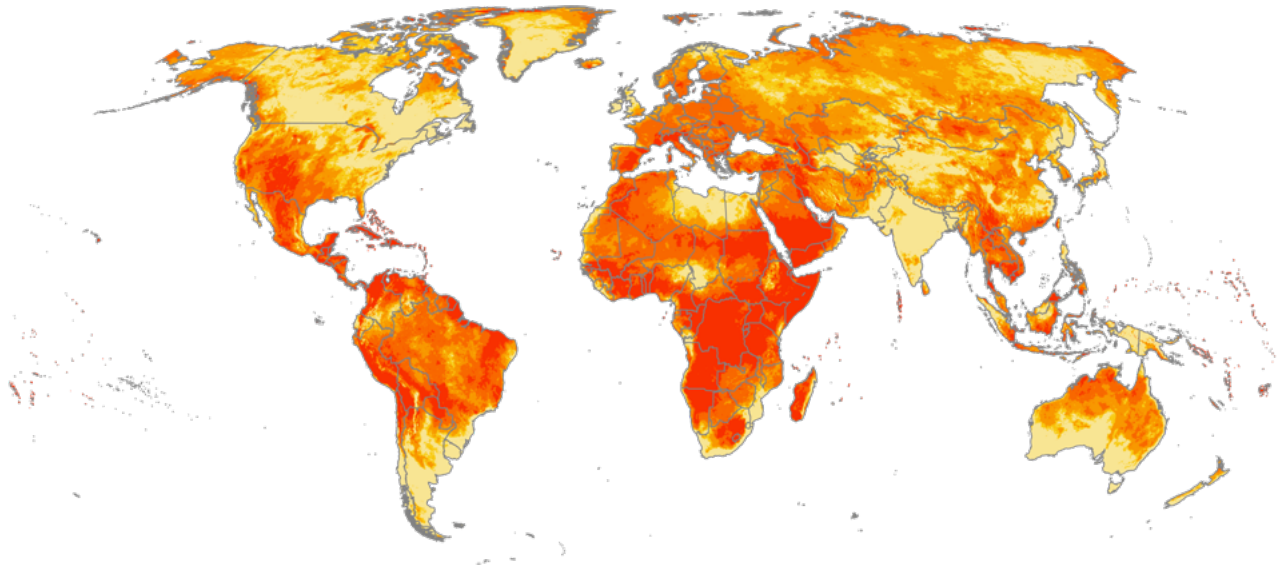
Globally, 1.5 billion children are exposed to more frequent, longer or more severe heatwaves.

Human-induced climate change is increasing global temperatures and causing historic heatwaves across the world, with higher frequencies, duration and severity.[16] Although heatwaves are deadlier in tropical areas that are already hot and humid, rising heat has profound effects across geographies, especially in urban areas.

Heatwaves have multiple impacts on children

Biologically, children – especially infants and young children – are more susceptible than adults to the short- and long-term effects of

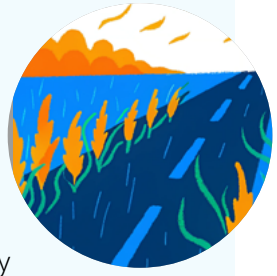
Map 6: Heatwave frequency



Heatwave frequency (times per year)

Very low (<14) | Low (14–15) | Medium (15–17) | High (17–20) | Very high (>20)

Source: European Centre for Medium-Range Weather Forecasts (ECMWF)



Heatwaves

Heatwaves are complex phenomena, and there is no universal consensus on a global metric. The specific criteria can vary by region, but it generally involves temperatures being significantly higher than the average for that area and time of year.

For this report, we define a heatwave as any period of three days or more when the maximum temperature each day is in the top 10 per cent of the local 15-day average.

- **Heatwave frequency:** The number of heatwaves a year in a specific location.
- **Heatwave duration:** The total number of days a heatwave lasts.
- **Heatwave severity:** The temperature above the local 15-day average during the heatwave.

heat stress. Infants and young children sweat less per kilogram than adults and have a higher metabolic rate, which means they get hotter much more quickly in a heatwave. Heatwaves often lead to service disruptions as a result of excessive energy and water use, which can further exacerbate the precarious health status of infants and young children.

School closures because of heatwaves are becoming increasingly common, leading to a negative impact on children's education and social wellbeing, as well as on access to nutritious foods often provided by schools. Moreover, heatwaves can affect sleep quality for children when affordable cooling options are not available, which subsequently impacts their physical and mental health, shaping poorer cognitive and physical development.[17]

With 68 per cent of the world's population projected to live in urban areas by 2050,[18] rapid urbanization will amplify the risk through the Urban Heat Island effect, a dynamic that disproportionately endangers children in low income families who often live in densely built areas with less vegetation and limited resources to cope.

Heatwave dimensions

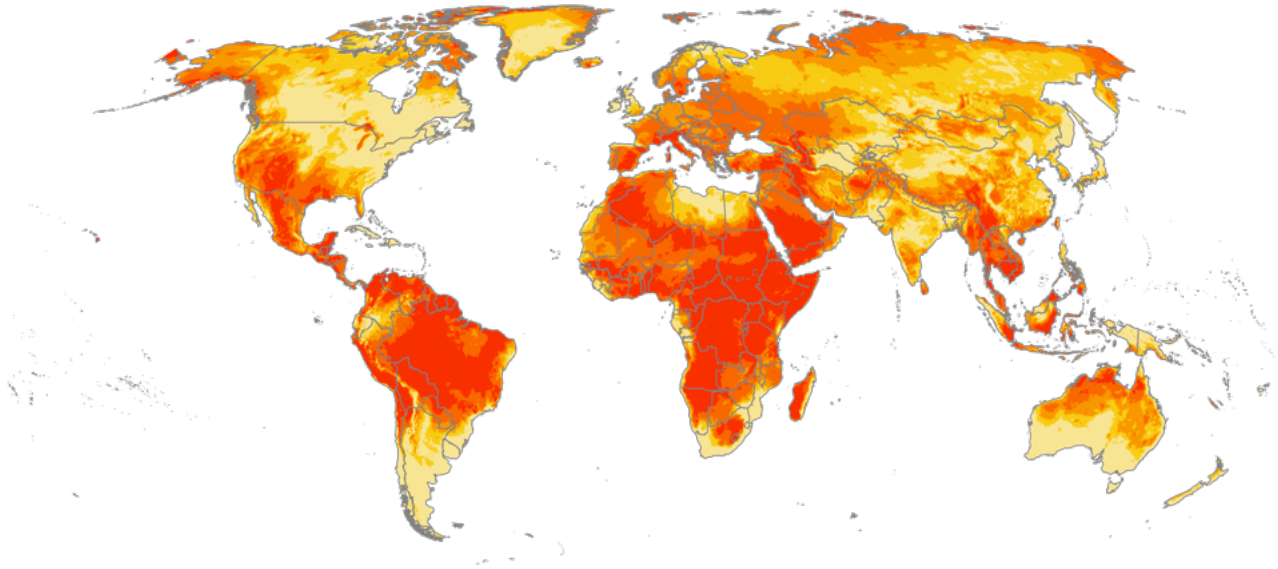
Heatwave measures are considered in different dimensions (frequency, duration and severity) to better understand their spread and impact. While frequent and longer heatwaves are spread across the world, heatwave severity is increasingly concentrated in countries in higher latitudes, where children are less accustomed to such severe conditions. This indicates a worrying trend where regions historically less accustomed to such severe conditions are now facing profound risks to children's health and wellbeing.

Children's exposure to heatwaves

Absolute exposure to frequent, longer and more severe heatwaves is highest in more populous countries close to the equator, such as **Democratic Republic of Congo**, **Ethiopia**, **Indonesia**, **Mexico** and **Nigeria**.

While extreme heat is often associated with equatorial regions, our data reveals that the highest exposure to heatwave severity is

Map 7: Heatwave duration



Heatwave duration (time period of heatwaves per year)

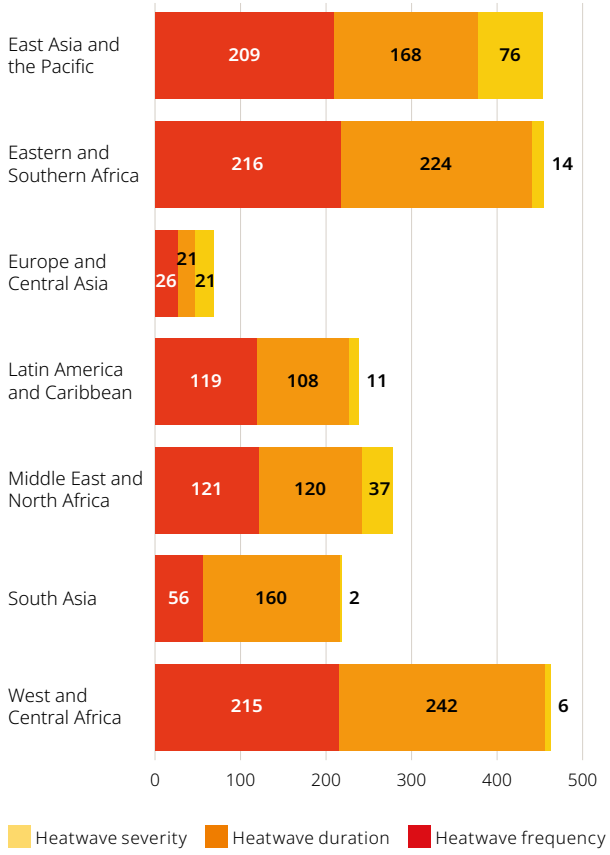
Very low (<66) Low (66–76) Medium (76–88) High (88–110) Very high (>110)

Source: European Centre for Medium-Range Weather Forecasts (ECMWF)

concentrated in higher latitudes, including in **France**, **Italy** and **Russian Federation**. When examining the relative exposure to severe heatwaves, several nations stand out where more than **90 per cent of children** are exposed to temperatures far above the local average, including in **Belarus**, **Belgium**, **Luxembourg** and **Moldova**.

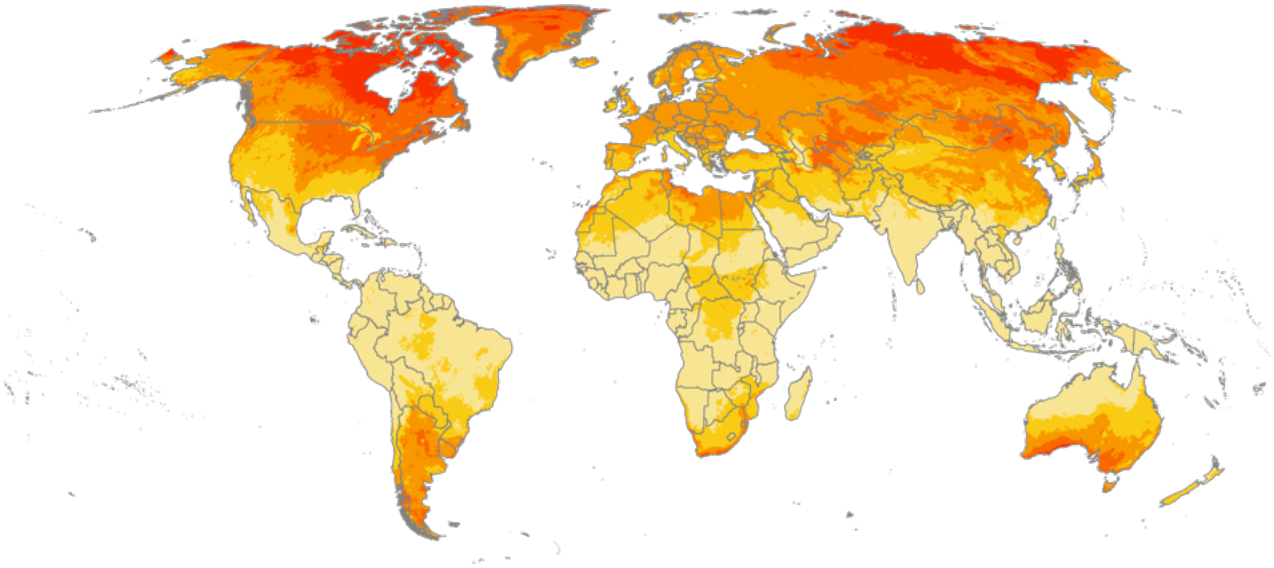
In a significant number of countries, all children are exposed to frequent heatwaves. This list includes a geographically diverse range of countries, including landlocked high income countries such as **Slovakia** and **Switzerland**, Small Island Developing States (SIDS) such as **Antigua and Barbuda** and **St Lucia**, and African Great Lakes region countries such as **Rwanda** and **Uganda**.

Figure 7: The number of children exposed to different heatwave dimensions – frequency, severity and duration – by UNICEF region (millions)



Source: ECMWF, WorldPop

Map 8: Heatwave severity



Heatwave severity (temperature above normal in °C)

Very low (<2.5) Low (2.5–3.6) Medium (3.6–4.7) High (4.7–6.0) Very high (>6.0)

Source: European Centre for Medium-Range Weather Forecasts (ECMWF)

Note: Longterm temperature estimates are only available at a coarse resolution (30 km), especially for some small island states, and may impact estimates of the total number of children exposed to heatwaves.

2.1.5. Extreme heat

Globally, 1.2 billion children are exposed to extreme heat.

Worldwide, the planet is heating up as a direct result of human-induced greenhouse gas emissions which are fundamentally altering our global climate system. What were once rare occurrences of extreme heat are becoming the new normal, posing a significant and growing threat to human health, infrastructure and livelihoods.

Extreme heat differs from heatwaves in that it refers to days where the temperature exceeds a fixed threshold (35°C) whereas a heatwave is an event that is measured relative to average temperatures of a specific geographic area.

Extreme heat has multiple impacts on children

Like heatwaves, dangerously high temperatures pose an immediate and profound threat to children's health and wellbeing. Pregnant women and foetuses are particularly vulnerable to the effects of extreme heat, with odds of still birth increasing by 14 per cent per 1°C increase in temperature. High levels of exposure to heat also increase the risk for preterm birth, congenital anomalies, and complications for pregnant women, such as gestational diabetes and hypertensive disorders.[19] Dehydration often leads to serious complications during pregnancy.[20]

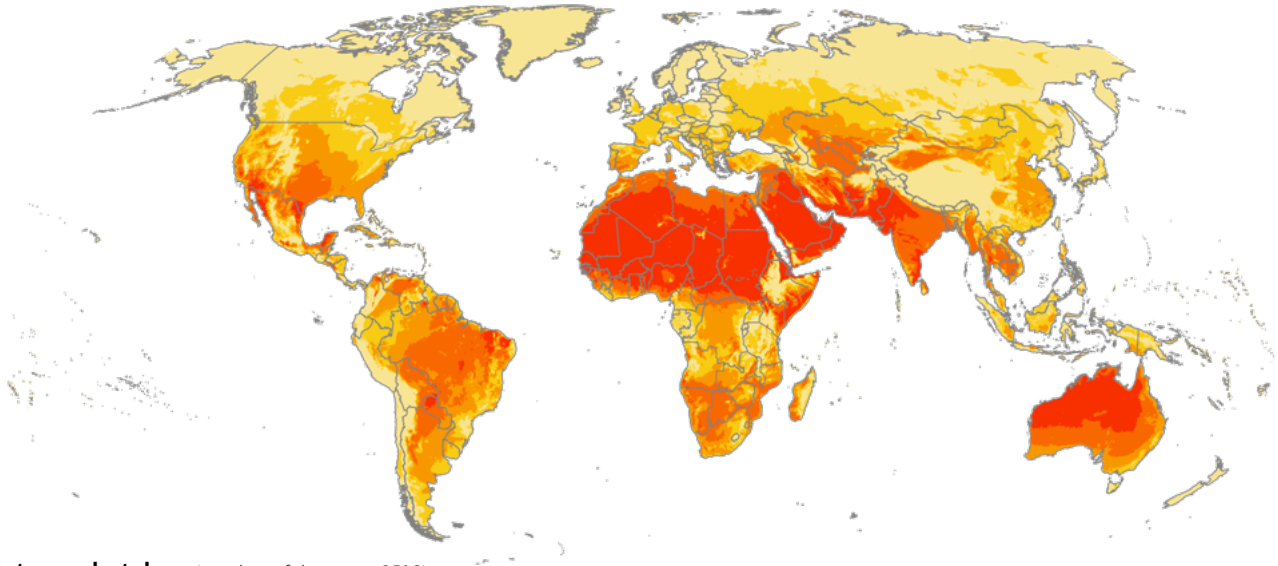
Infants and young children are particularly vulnerable due to their low levels of sweat production, underdeveloped immune system and slower adjustment to weather changes. Extreme heat can affect sleep quality, which in turn impacts children's mental health and contributes to poorer cognitive and physical development. \Additionally, as rising temperatures add strain to energy grids,

Extreme heat

Any day where the temperature exceeds 35°C (95°F).

Definitions: United Nations Children's Fund, *The Climate Crisis is a Child Rights Crisis: Introducing the Children's Climate Risk Index*, UNICEF, New York, 2021 <www.unicef.org/media/105376/file/UNICEF-climate-crisis-child-rights-crisis.pdf>; and Intergovernmental Panel on Climate Change, *Sixth Assessment Report*, IPCC, 2023 <www.ipcc.ch/assessment-report/ar6/>.

Map 9: Areas likely to experience days where temperatures exceed 35°C



Extreme hot days (number of days over 35°C)

Very low (0) | Low (0–12) | Medium (12–58) | High (58–141) | Very high (>141)

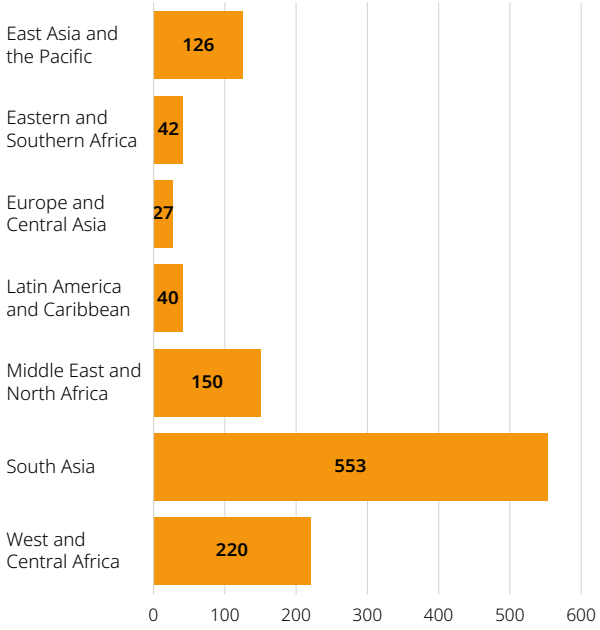
Source: ECMWF

systems that are not adapted can feed into more disruptions in critical services from health facilities, schools and other institutions.

Children's exposure to extreme heat

The number of children exposed to extreme heat is alarmingly high in several populous countries, particularly those near or within tropical and subtropical zones. Countries with the greatest absolute exposure include **Iraq**, **Nigeria**, **Pakistan** and **Sudan**.

Figure 8: The number of children exposed to extreme heat by UNICEF region (millions)



Source: ECMWF, WorldPop

Countries with the greatest relative exposure are often found in arid regions, especially in the **Sahel**, including **Benin**, **Niger**, **Senegal** and **Togo**. High proportional exposure demands targeted and comprehensive interventions to protect these vulnerable young lives.

Children walking to a water point in Kanem Province, northern Chad. In Kanem, where extreme heat and prolonged dry seasons are intensified by climate change, water is not only essential for survival but also for hope. Children often carry water over long distances, a daily reality that shapes their routines and limits their time for learning and play. © UNICEF/UNI990017/Dejongh

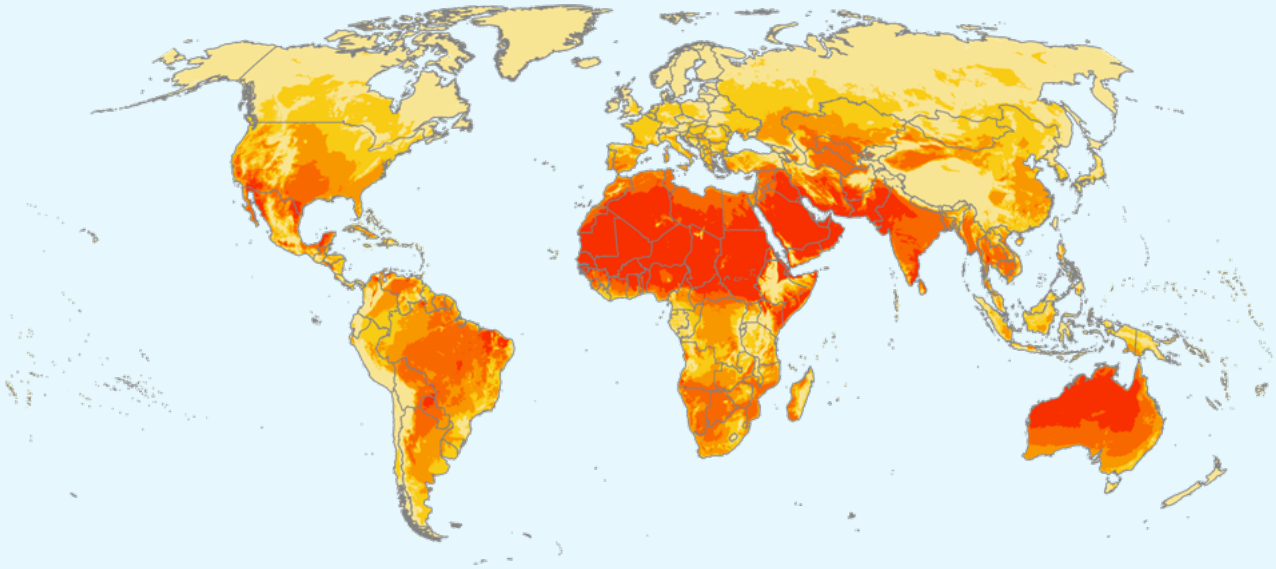
Attribution of extreme heat intensity to human-induced climate change

Attribution in climate science quantifies the human influence on specific weather events, answering whether human-caused climate change has made a particular event more likely or intense. This establishes direct scientific linkages between human-induced global warming and observed events, informs the development of more effective climate mitigation and adaptation policies, and raises public awareness regarding the tangible impacts of a warming planet. It improves our understanding of how extreme events might evolve in the future.

It is estimated that in 2024, around 550 million children were exposed to additional extremely hot days that can be directly attributed to human-induced climate change.

While it is essential to note the limitations and data gaps of attribution science, the field is rapidly advancing, and it is now possible to conduct quantitative assessment of human induced climate change including estimated economic damages and public health costs.[21]

Map 10: The attributable number of extreme hot days (>35°C) which are highly likely to have materialized due to human-induced climate change



Extreme hot days (number of days over 35°C)

Very low (0) | Low (0–12) | Medium (12–58) | High (58–141) | Very high (>141)

Source: Vrije Universiteit Brussel

The precise attribution of every single extreme event can be challenging due to the inherent variability of natural climate systems and the complexity of disentangling human and natural influences.

2.1.6. Fires

Globally, 205 million children are exposed to more frequent or severe fires.

Fires are devastating, leading to significant biodiversity loss, destruction of property, and air pollution. They can also contribute to climate change by releasing large amounts of carbon dioxide and other greenhouse gases into the atmosphere.[22]

Fires

Uncontrolled burns of vegetation, including forests, shrublands, grasslands, savannas and croplands. They can be caused by human activity or natural causes.

- **Fire frequency:** The number of times fire occurs in a particular area over a defined period.
- **Fire intensity:** The amount of heat energy released when fire burns a specific location, as well as its height and spread rate.

Definitions: UNDRR, 2020

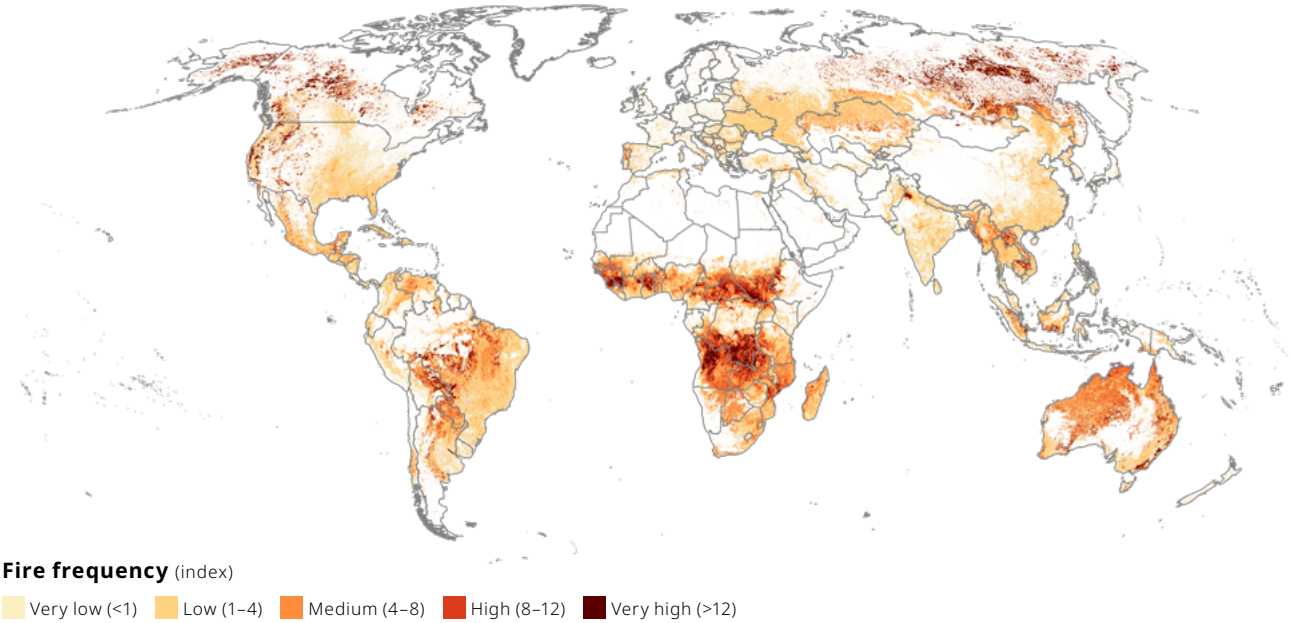
While fires are a natural component of ecosystem function, human-induced climate change is linked to increasing frequency and intensity of wildfires. Higher temperatures, prolonged droughts and changes in vegetation patterns create conditions that are more conducive to wildfires, while human activities such as land-use changes and deforestation further exacerbate the risk of fires.[23]

Fires have multiple impacts on children

Fires often lead to infrastructure damage, disruption to essential services and displacement. Because their bodies are still developing and they breathe more rapidly, children are more susceptible to the harmful effects of smoke and air pollution from fires.

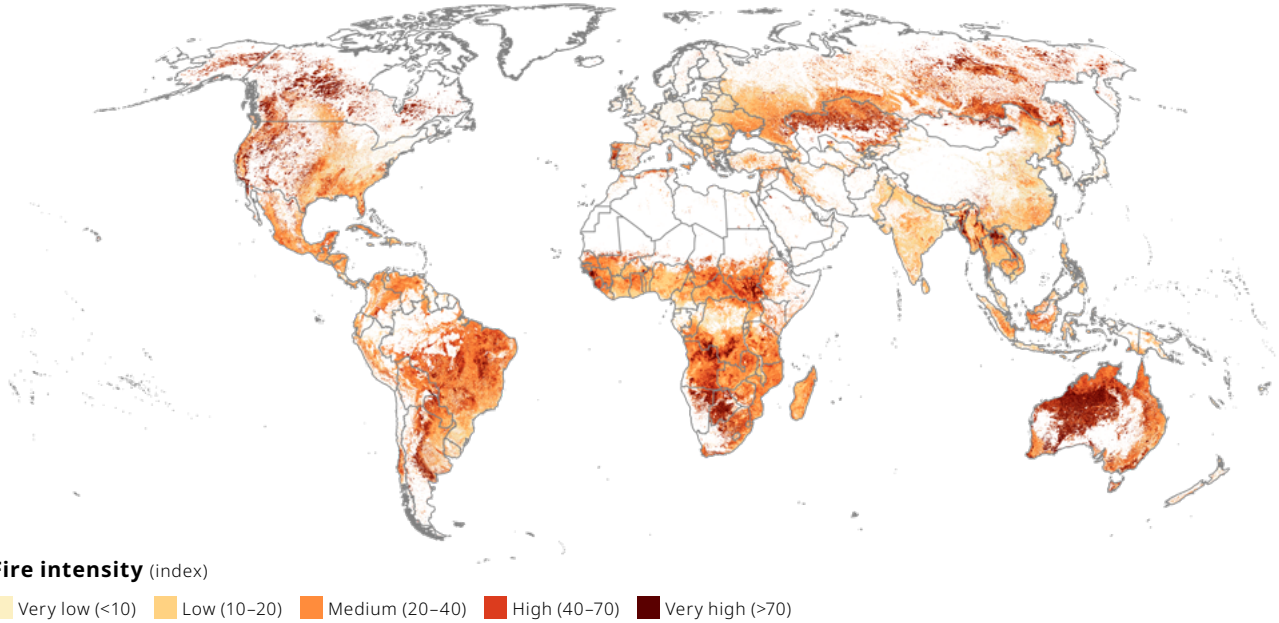
Wildfire smoke can be significantly more toxic and harmful than regular ambient air pollution, especially for children under the age of five.[24] Fires can also increase mortality and morbidity by direct impact. Some children, such as those with disabilities, are particularly susceptible, as

Map 11: Areas likely to experience frequent fires



Source: NASA Fire Information and Resource Management System (FIRMS)

Map 12: Areas likely to experience intense fires, measured by fire radiative power (FRP)



Source: NASA FIRMS

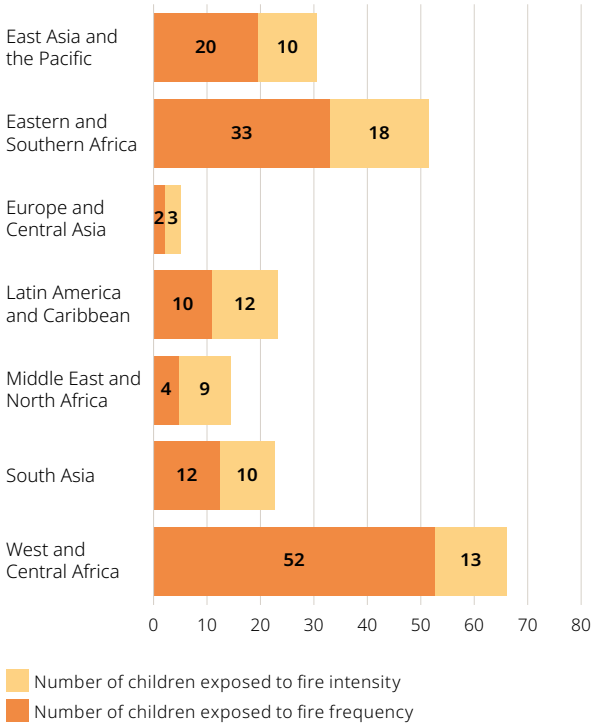
Note: Data on fire frequency and intensity are limited in identifying all areas that have potential to experience fires. It is adopted as a proxy for the lack of high-resolution global hazard data for the Fire Weather Index (FWI). A combination of the two could give a better picture of fire hazard.

they may face obstacles in fleeing from fires. Fires also impact children's overall physical and mental health and can contribute to higher risks of psychological distress.[25] Damage to school buildings from fires can lead to learning loss, and damage to houses and residential areas can lead to temporary or long-term displacement. These in turn can significantly reduce children's ability to learn, work and thrive in their communities.

Children's exposure to fires

The number of children facing frequent and intense exposure to fires is alarming. Countries with significant forested areas or intensive land-use practices, vast natural landscapes or complex interfaces between urban and wildland areas, where blazes can quickly escalate into major disasters, report the largest number of children exposed to fires. Nearly 45 per cent of global exposure is in 10 countries including **Brazil**, **Democratic Republic of Congo**, **Ghana** and **Indonesia.** This highlights how widespread these dangers are in some of the ecologically diverse regions. Relative exposure to intense fires is disproportionately high in smaller countries such as **Eswatini**, **Guinea**, **Portugal**, **Sierra Leone** and **Uruguay**.

Figure 9: Number of children exposed to frequent and intense fires by UNICEF region (millions)



Source: NASA FIRMS, WorldPop

2.1.7. Sand and dust storms

Globally, 123 million children live in areas exposed to sand and dust storms.

The most significant dust sources globally are concentrated in arid and semi-arid regions, particularly major deserts such as the Sahara in Africa, the Arabian desert in the Middle East and the Gobi in Asia. Sand and dust storms (SDS) originate from natural sources like deserts, dry lake beds and coastal regions with loose sediment.

Sand and dust storms

Occur when strong winds lift sand and dust from dry soil into the atmosphere, transporting particles over vast distances.

Definitions: World Meteorological Organization, 'Sand and dust storms', WMO <https://wmo.int/topics/sand-and-dust-storms>.

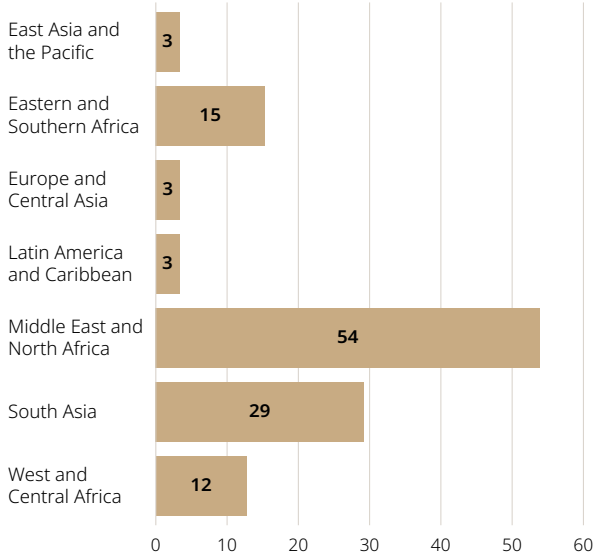
Human activities exacerbate the problem through construction, agriculture and poor land management practices that strip vegetation and expose soil to wind erosion. Human-induced climate change amplifies the occurrence of SDS by altering weather patterns. Other human activities, such as the reduction of vegetation cover or the extensive tilling of agricultural landscapes, also increase the risk.[26] Over the past few decades, land degradation has contributed significantly to the increased number and size of SDS sources. Deforestation, agricultural expansion and more frequent and destructive climate hazards make countries more susceptible to SDS hazards.[27]

Sand and dust storms have multiple impacts on children

SDS can lead to temporary closures of access to essential services. For children, exposure to SDS can lead to respiratory and cardiovascular problems.[28] The disruption of daily activities and schooling due to poor air quality can also affect children's education and overall wellbeing.[29] Long-term impacts of exposure include poor pregnancy and birth outcomes, and respiratory diseases like asthma. Prenatal exposure to SDS has been associated with poorer cognitive outcomes in children.[30]

Additionally, some infectious diseases are transmitted by dust, such as meningitis, a bacterial infection that sees the highest incidence in the part of sub-Saharan Africa also highly exposed to SDS.[31] Without early warnings and more resilient agricultural practices, SDS risk further harming children and increasing emergency visits to health facilities.

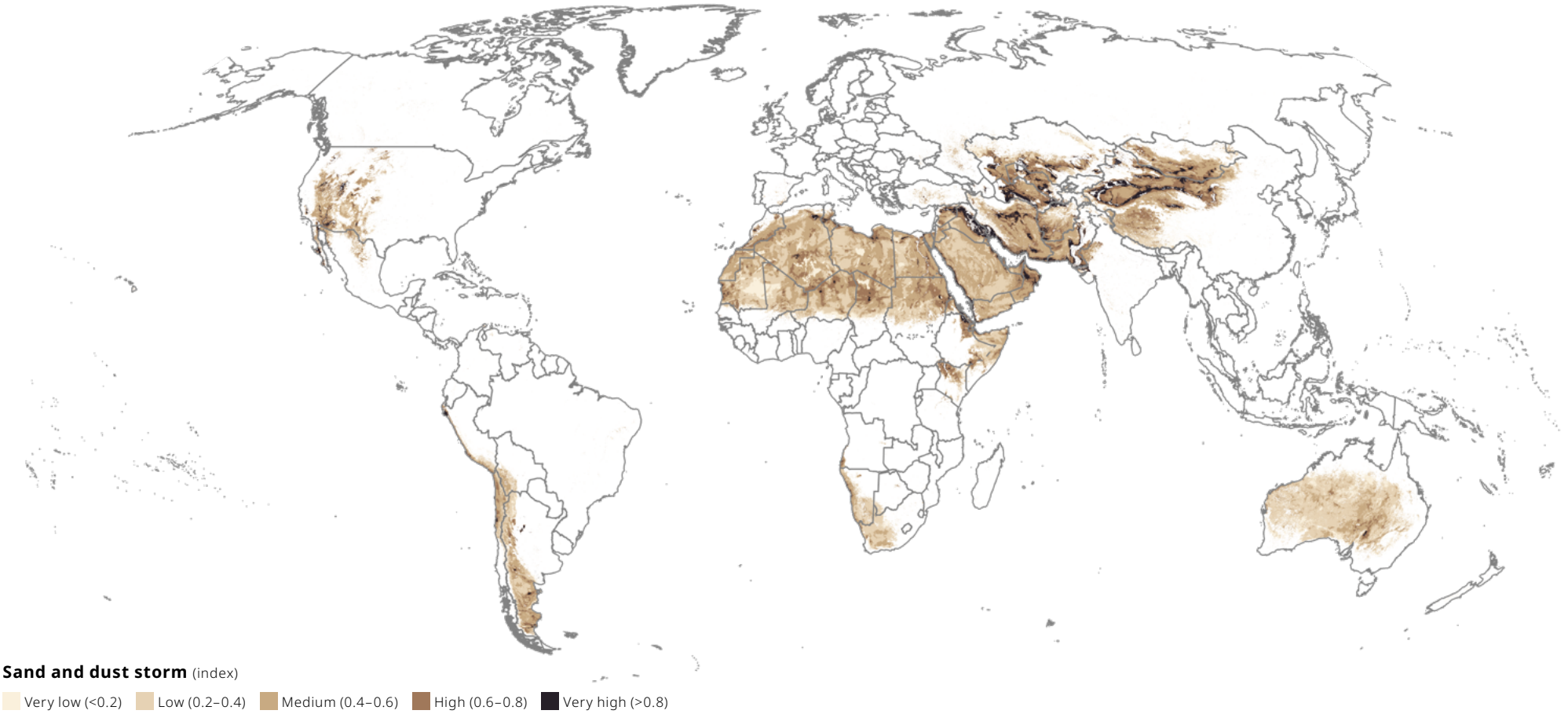
Figure 10: Number of children living in areas that are susceptible to SDS by UNICEF region (millions)



Source: UNCCD, WorldPop

Note: SDS susceptibility layer includes areas of origin but not where the wind could transport the particle, which could underestimate the overall global exposure. The model also has limited precision in identifying lower-intensity sources due to the lack of data and has uncertainty associated with soil-related data.[40]

Map 13: Areas susceptible to SDS



Source: United Nations Convention to Combat Desertification (UNCCD)

Children's exposure to sand and dust storms

Countries situated within or near the world's major arid belts, which are often characterized by extensive drylands and desertification, bear the brunt of SDS. Over 60 per cent of the global exposure to SDS is found in 10 countries including **Afghanistan**, **Pakistan**, **Somalia**, **Sudan** and **Yemen**, with approximately **77 million children** exposed. Several countries, particularly those in the Arabian Peninsula and parts of Africa, see nearly their entire child population affected. **United Arab Emirates** stands out with **over 75 per cent of children exposed**, with high relative exposure also found in countries such as **Djibouti**, **Mauritania**, **Oman** and **Saudi Arabia**.

2.2. Climate-sensitive hazards

2.2.1. Vector-borne diseases (malaria*)

> **1 billion children are exposed to malaria, highlighting the scale of this ongoing health crisis.**

The increasing threat of climate change to global health is evident in the growing prevalence and shifting patterns of climate-sensitive diseases. A key example is how rising global temperatures, changes in rainfall and humidity patterns are influencing the geographical range and seasonality of vector-borne illnesses such as malaria, dengue and West Nile fever.[32]

As their environments become more suitable, the mosquitoes that carry the diseases begin to thrive in new regions that were once too cold or dry. This expansion into previously unaffected areas presents new public health challenges, as communities and health care systems may not be equipped to handle the emergence of these diseases, potentially leading to increased morbidity and mortality rates.

In this report, malaria is used as an example of a climate-sensitive vector-borne disease in the absence of globally available data for other diseases (such as dengue, chikungunya, zika, tick-borne encephalitis, West Nile fever, and diarrheal diseases). The total number of children exposed to a greater range of vector-borne diseases is likely to be significantly higher.

Vector-borne diseases have multiple impacts on children

In children, malaria can lead to mortality and long-term impacts on neurodevelopment, affecting school performance and learning capacities. Unlike adults in malaria-endemic regions who have developed a partial immunity to the disease over a lifetime of exposure, children have a naive immune system. This leaves them unable to effectively control the rapid multiplication of the *Plasmodium* parasite in their blood that often causes life-threatening infections. Children are particularly susceptible to severe malarial anaemia, a leading cause of death among young children with the disease.

Repeated infections can prevent children's bodies from producing new red blood cells fast enough, resulting in a dangerously low count and potentially leading to organ failure. There is a complex and often bidirectional relationship between malaria and malnutrition. A malnourished child has a compromised immune system, making them more susceptible to malaria infection. Conversely, malaria can cause a loss of appetite and impair the absorption of nutrients, worsening a child's

Vector-borne diseases

Pathogen-driven illnesses transmitted to humans through other living beings. Pathogens can include viruses, bacteria or parasites.

Malaria: A life-threatening disease caused by parasites transmitted to humans through the bites of infected mosquitoes.

Two malaria parasite species pose the greatest threat. *Plasmodium falciparum* is the deadliest malaria parasite, most prevalent on the African continent. *Plasmodium vivax* is dominant in most countries outside of sub-Saharan Africa.

Definitions: WHO

*While there are many other vector-borne diseases, such as dengue and zika, due to a lack of global data availability only malaria is currently included in the Global Child Hazard Database.

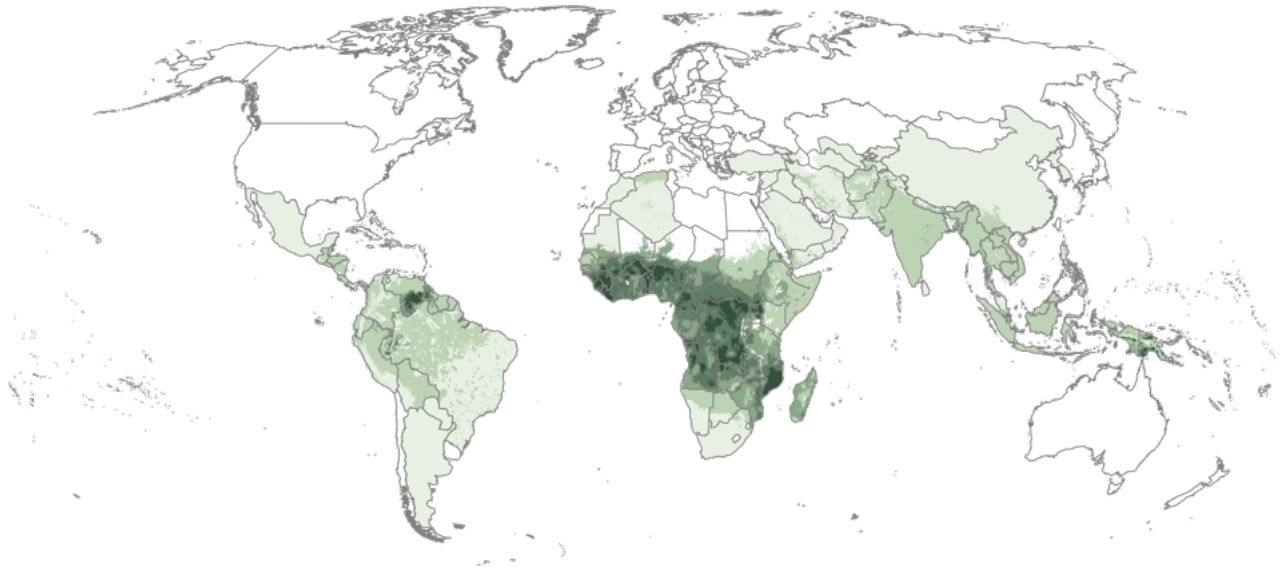
nutritional status and creating a vicious cycle of illness and undernutrition.

Children's exposure to malaria

The highest absolute number of children exposed to the more severe *Plasmodium falciparum (Pf)* malaria is in sub-Saharan Africa where malaria is endemic and one of the leading causes of child mortality. High *Pf* exposure is found in countries such as **Democratic Republic of Congo**, **Ethiopia**, **Nigeria**, and **Tanzania**.

In many countries, particularly across West and Central Africa, nearly every child faces the risk of exposure to *Pf* malaria, including in **Burkina Faso**, **Central African Republic**, **Malawi** and **Zambia** to name a few.

Map 14: The average incidence rate of malaria caused by the *Pf* parasite

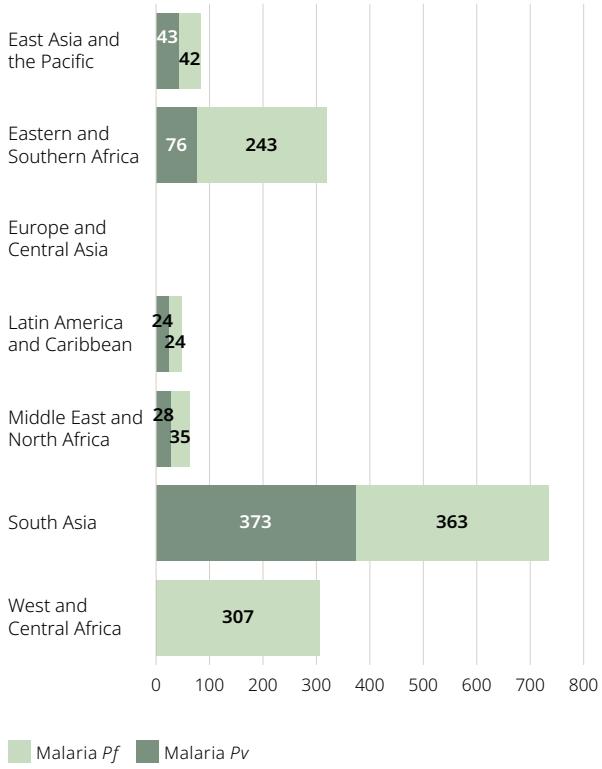


Malaria *Pf* (rates per person)

Very low (<0.0001) | Low (0.0001–0.1) | Medium (0.1–0.25) | High (0.25–0.40) | Very high (>0.40)

Source: Malaria Atlas Project (MAP)

Figure 11: Number of children exposed to malaria by UNICEF region (millions)



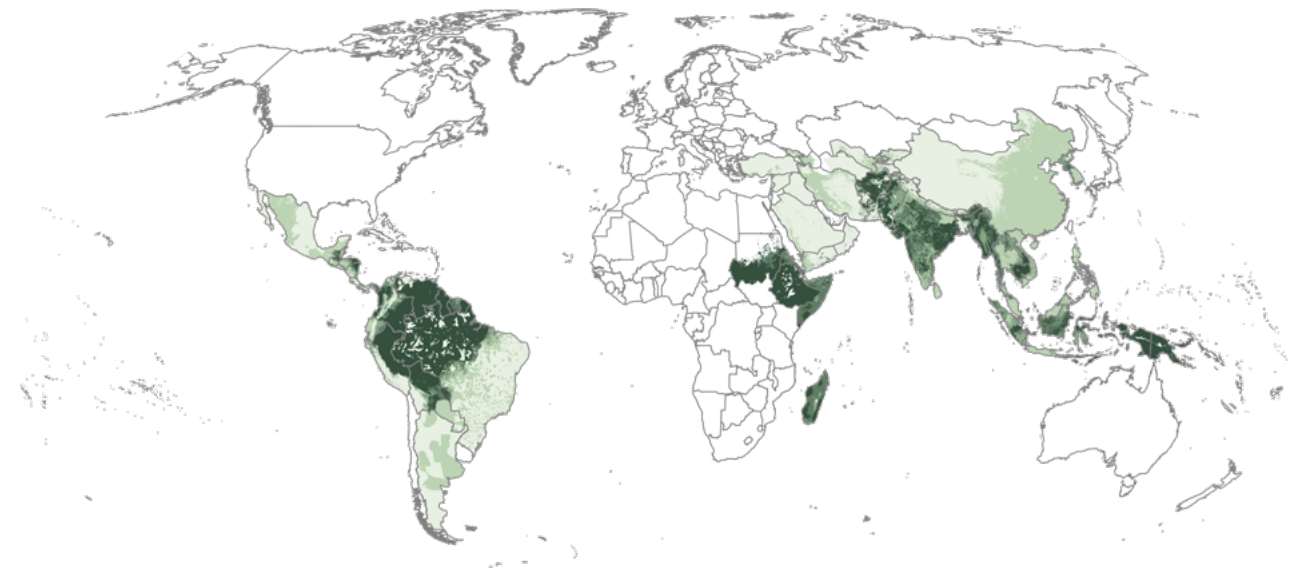
Source: MAP, WorldPop

Note: Due to limitations in data availability, malaria indicators only include estimates based on reported cases and do not include areas susceptible to malaria based on climate indicators. It is recommended to use a combination of both long-term cases and susceptibility. Several other relevant climate-sensitive health risks are not part of the Global Child Hazard Database currently, due to a lack of global, open-source data.

While often less severe than *Pf* malaria, *Plasmodium vivax (Pv)* still poses a significant threat, particularly across parts of Asia and the Horn of Africa. The highest absolute number of children exposed to Pv malaria is found in countries such as **Afghanistan**, **Ethiopia**, **Pakistan** and **Sudan**, collectively accounting for 150 million children, highlighting critical hotspots outside the primary *Pf* malaria strongholds. Relative exposure is quite high in **Guyana** (with nearly all children exposed, especially in hinterland regions with increased mining and logging activities) and in countries such as **Papua New Guinea**, **Solomon Islands**, **Somalia** and **Sudan**.

It is important to note that some countries have made significant progress in malaria eradication in recent years, such as **Indonesia** and **Timor Leste**, which has been declared malaria-free. As malaria is taken as a proxy for vector-borne diseases, with identified limitations, a long term average (10 years) has been considered for this analysis.

Map 15: The average incidence rate of malaria caused by the *Pv* parasite



Source: MAP

2.2.2. Ambient air pollution

> **Globally, almost all children, 2.3 billion, live in areas with unhealthy air.**

Air pollution poses a silent yet pervasive threat, impacting children in **every country globally**. This ubiquitous exposure means no child is safe from its harmful effects.

Human-induced climate change and air pollution are linked in different ways. Many activities that produce greenhouse gases also emit air pollutants, which have devastating and wide-reaching impacts on children. In turn, increasing frequencies of climate hazards like fire and SDS worsens air quality, perpetuating a vicious cycle of polluted air.

Multipliers and impact of air pollution on children

Air pollution threatens children's health and is the biggest environmental health risk factor.[33] Children are highly susceptible to the health impacts of air pollution because of their unique physiological and developmental characteristics. Air pollution was the second leading risk factor for death among children under age five in 2023, after malnutrition. Children are not just small adults; their bodies are actively growing, making them especially vulnerable to the long-term damage caused by inhaling toxins.

A child's lungs, airways and immune system are still maturing until early adulthood. Their narrower airways can be more easily inflamed, obstructed and damaged by pollutants, leading to a higher risk of developing conditions like asthma and other respiratory illnesses. These effects are exacerbated for children with disabilities and those with chronic health issues. Poor air quality can also affect children's development and cognitive function, leading to significant learning loss over time.

Children's exposure to air pollution

Countries with the highest number of children exposed to ambient air pollution include those that are highly populated and have rapidly developing economies, such as **India**, **Indonesia**, **Nigeria** and **Pakistan**. For over 100 countries, including **Bosnia and Herzegovina**, **Lesotho**, **Moldova**, **Mongolia**, **Nepal** and **Senegal** almost all children are exposed to ambient air pollution above the established WHO guidelines of PM2.5 > 5 μg/m^3 (micrograms per cubic metre of air).

Air pollution

The presence of substances in the atmosphere that are harmful to human health and the environment. These substances include particulate matter, nitrogen dioxide, sulphur dioxide, carbon monoxide and ozone.

Fine particle air pollution, or particulate matter (PM2.5), refers to airborne particles measuring less than 2.5 micrometres in diameter that are emitted from vehicles, residential fuel use, coal-burning power plants, agricultural and industrial activities, waste burning, wildfires and many other sources.

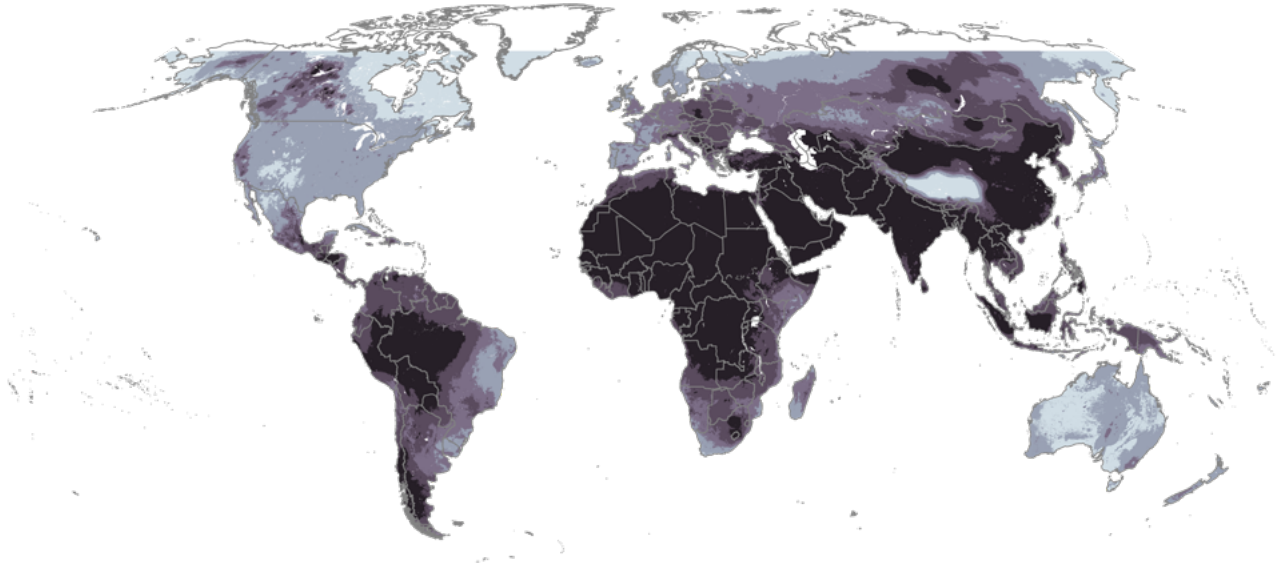
Among the key air pollutants that are currently measured, long-term exposure to PM2.5 is the most consistent and accurate predictor of poor health outcomes across populations.

Definitions: WHO

Figure 12: Number of children exposed to ambient air pollution by UNICEF region (millions)

Source: ACAG, WorldPop

Map 16: Areas exposed to air pollution (PM2.5 > 5 µg/m³)



Air pollution (PM2.5 in µg/m³)

Very low (<5) | Low (5–10) | Medium (10–15) | High (15–25) | Very high (>25)

Source: Atmospheric Composition Analysis Group (ACAG)

Note: Physical air quality monitoring stations are sparse in many regions of the world, particularly in low and middle income countries. For example, in Papua New Guinea, there are few ground monitoring stations that could be used to calibrate the satellite-based observation which could affect the accuracy of results and exposure analyses. In addition to PM2.5, there are several other air pollutants that are not included due to a lack of reliably modelled long-term global data at the time of this report. ACAG data is currently unavailable at higher latitudes, so it is not fully global and could be an underrepresentation for some countries.

Chapter 3

Children's exposure to multiple, overlapping hazards

The rapidly intensifying climate crisis rarely manifests through a singular event. Instead, communities, and particularly children, are facing a complex and dangerous reality: the simultaneous or sequential impact of multiple climate-related hazards.

> **These hazards can compound, multiplying each other's devastating consequences and further marginalizing vulnerable communities.**

Multiple hazards can impact children more than individual hazards

Exposure to multiple hazards can overwhelm a child's developing body, making manageable risks life-threatening. The physiological impacts of one hazard can make a child more susceptible to the next. For example, a prolonged flood can lead to a surge in waterborne diseases like cholera, which cause severe dehydration and nutrient loss. If this is followed by a drought in a few months, a child's nutritional status – already weakened by the flood – can deteriorate rapidly due to food scarcity. These compounding stressors weaken the immune system, making children more vulnerable to subsequent infectious diseases.

A family's resources – natural, financial, social and emotional – are finite. Multiple hazards can leave families without the means to protect their children, forcing them into negative coping mechanisms, like child labour or early marriage. Constant disruption of essential services, like education, health care and safe water, creates

Multi-hazard

(1) The selection of multiple major hazards that children are facing.
(2) The specific contexts where hazardous events may occur simultaneously – cascading or cumulatively – causing interrelated effects.

Multi-hazard count: An indicator that quantifies the number of distinct hazards a specific geographic area is exposed to.

Multi-hazard intensity: An indicator that assesses the severity or magnitude of each hazard.

Definitions: UNDRR, internal UNICEF

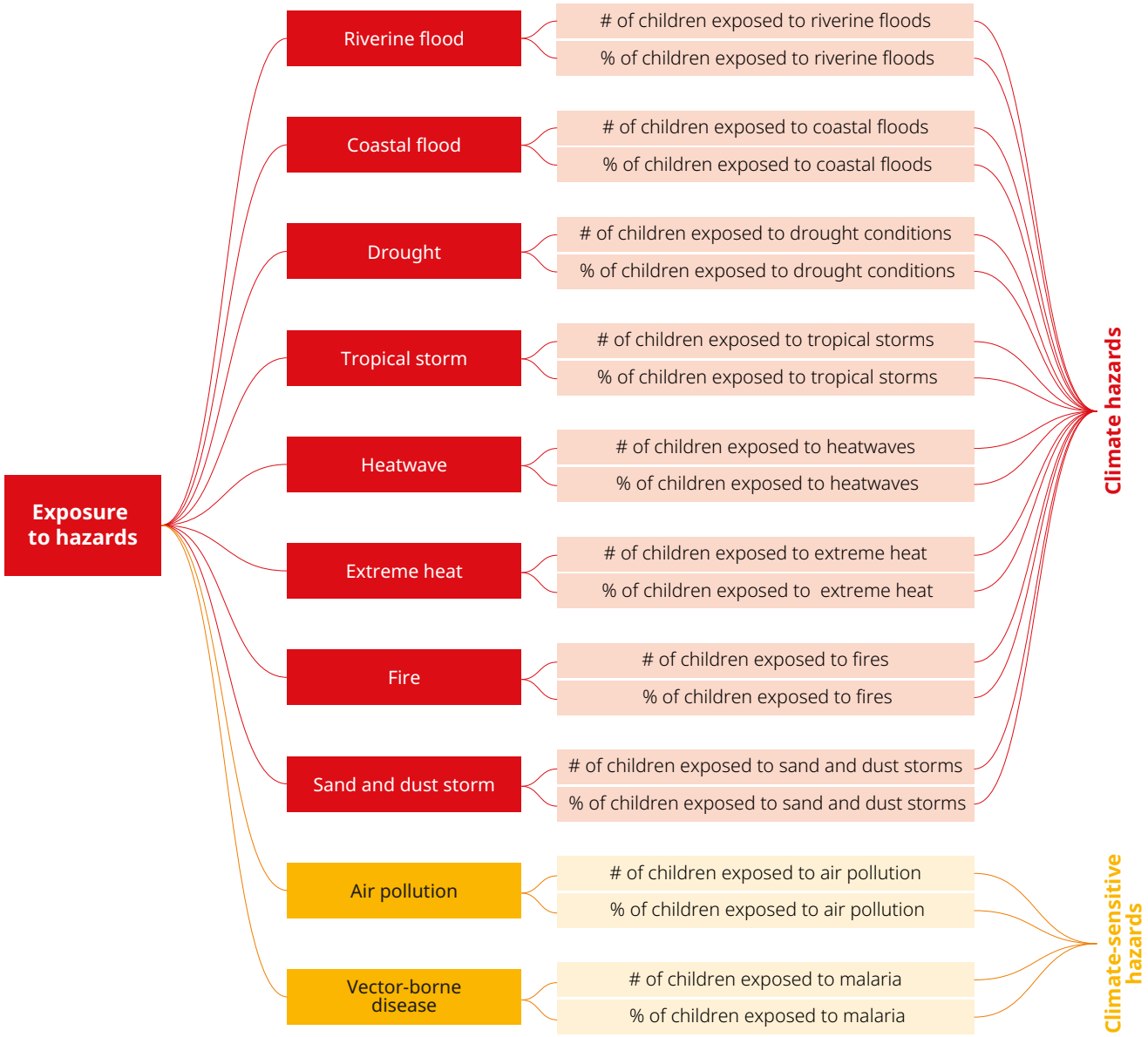
prolonged periods of vulnerability, preventing children from receiving the support they need to recover. The psychological toll of experiencing one disaster is immense, but surviving a series of disasters creates cumulative trauma. This can lead to severe and chronic mental health issues, including anxiety, depression and post-traumatic stress disorder (PTSD), which can hinder a child's long-term development.

3.1. Assessing multi-hazard exposure

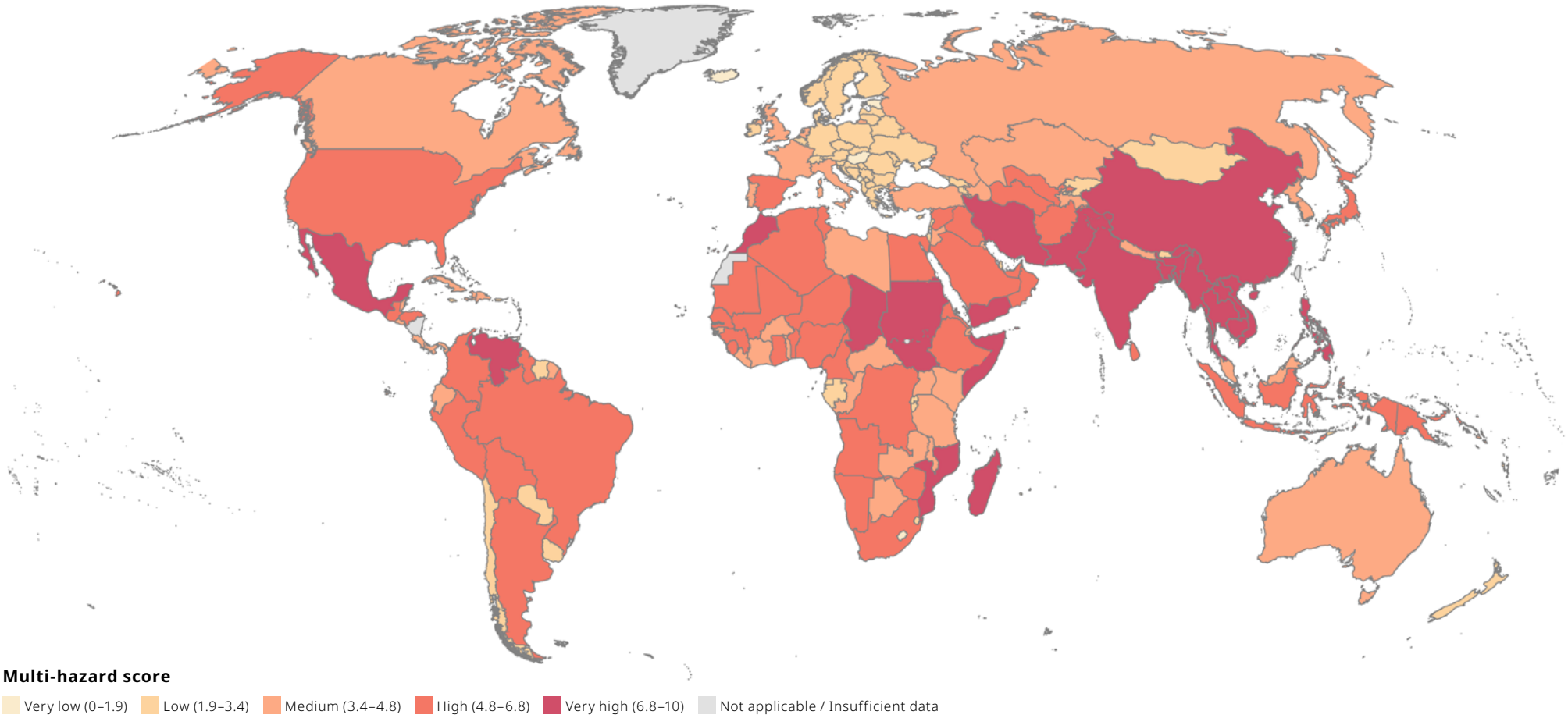
This chapter explores approaches to assessing multi-hazard exposure at different levels, moving beyond the analysis of individual hazards to illuminate the compounded risks that threaten children's lives and futures. It shows how, when faced with multiple hazards, governments and other decision makers can use the Global Child Hazard Database to select and analyse data for whichever subset of hazards is most relevant for risk-informed planning, decision making and investment.

Countries such as **Cambodia**, **Madagascar**, **Myanmar**, **Pakistan** and **Somalia** have the highest overall multi-hazard exposure score..

Figure 13: The conceptual framework to build combined exposure to climate-related hazards
(climate hazards are in red and climate-sensitive hazards in yellow)



Map 17: Countries where children are exposed to multiple climate-related hazards, combining both absolute and relative exposures



Exposure to multiple climate hazards at the local level

Multi-hazard combinations can be understood in several different ways. Most studies look only at the compound effects of two hazards, such as heatwaves and air pollution or drought and floods. With the new Global Child Hazard Database, it is now possible to select a subset of hazards and analyse both the number of children exposed to multiple, overlapping hazards (**multi-hazard count**) and the number of children exposed to multiple hazards at high intensity (**multi-hazard intensity**). In this section, we focus on children's exposure to the subset of **eight climate hazards**: riverine floods, coastal floods, droughts, tropical storms, heatwaves, extreme heat, fires (vegetation and wildfires), and sand and dust storms.

3.2. Multi-hazard count

This indicator quantifies the number of distinct climate hazards that a specific, smaller geographical area is exposed to (up to a 100 m grid level, which can be aggregated to different administrative levels). When combined with high-resolution data on the distribution of children, this indicator can be used to quickly pinpoint hotspots where children are disproportionately exposed to a large number of climate hazards. Multi-hazard count can be expanded to include other relevant hazards as needed, making it an effective tool for use in local planning for improved resource allocation and targeted interventions.

Children exposed to at least three overlapping climate hazards

The multi-hazard count shows that globally, **1.1 billion children are now exposed to at least three climate hazards**. The countries with the highest absolute exposure to at least three of the eight climate hazards analysed account for nearly half the global child population. In these countries, hundreds of millions of children are exposed to a perilous and compounding cycle of multiple hazards, with some areas exposed to as many as six overlapping hazards.

Which three overlapping climate hazards have the highest combined exposure?

Recent studies indicate that the co-occurrence of climate hazards is becoming more frequent. From 2003–2012 to 2012–2021, the number of individuals exposed to three or more hazards increased by 69 per cent.[64] While many hazard combinations are still uncommon, their rising frequency shows the urgent need for a deeper understanding of these overlapping risks to effectively design and implement climate-resilient programmes.

- An estimated **296 million children** worldwide are currently exposed to a combination of **drought, extreme heat and heatwaves.** These three hazards are closely linked, often creating a dangerous feedback loop where they intensify one another. This feedback loop poses a severe threat to children's health and well-being by driving consequences such as malnutrition, water scarcity and heat-related illnesses.
- Additionally, close to **115 million children** live in areas exposed to **drought, extreme heat and tropical storms** – another devastating combination of climate hazards that can severely disrupt children's lives, with their co-occurrence creating a complex and compounding cycle of crises. This is particularly dangerous for children, as it leads to food and water scarcity, disrupts access to health services and education, and increases the risk of displacement and disease.

Overlapping hazard combinations	Number of children exposed globally
Drought, extreme heat, heatwaves	296 million
Drought, extreme heat, tropical storms	115 million
Drought, heatwaves, tropical storms	94 million
Drought, extreme heat, riverine floods	58 million
Drought, heatwaves,dire	37 million

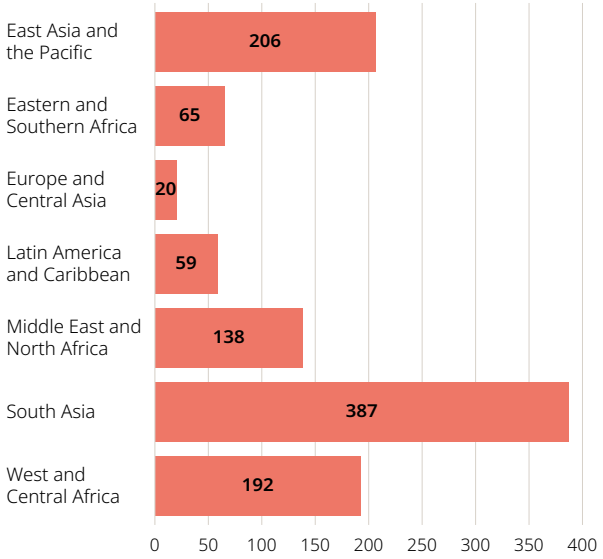
For example, in the Sahel, **4 million children** are exposed to a combination of **heatwaves, extreme heat and sand and dust storms.** This widespread combination of hazards requires a particular set of context-specific actions to protect children experiencing them. This hazard combination analysis can support better regional and national prioritization, especially in multi-hazard preparedness planning, resource allocation and advocacy, by pinpointing relevant overlapping and cascading climate impacts for decision makers to address.

Children exposed to at least three overlapping climate hazards by region

Unsurprisingly, countries with large child populations consistently appear at the top of the absolute exposure lists, such as **Bangladesh**, **Brazil**, **Mexico**, **Nigeria** and **Pakistan**.

Children in many parts of sub-Saharan Africa, particularly in the Sahel, such as **Burkina Faso**, **Central African Republic**, **Chad**, **Mali**, **Niger**, and **South Sudan**, are also widely exposed to at least three climate hazards.

Figure 14: Number of children exposed to at least three overlapping climate hazards (millions)

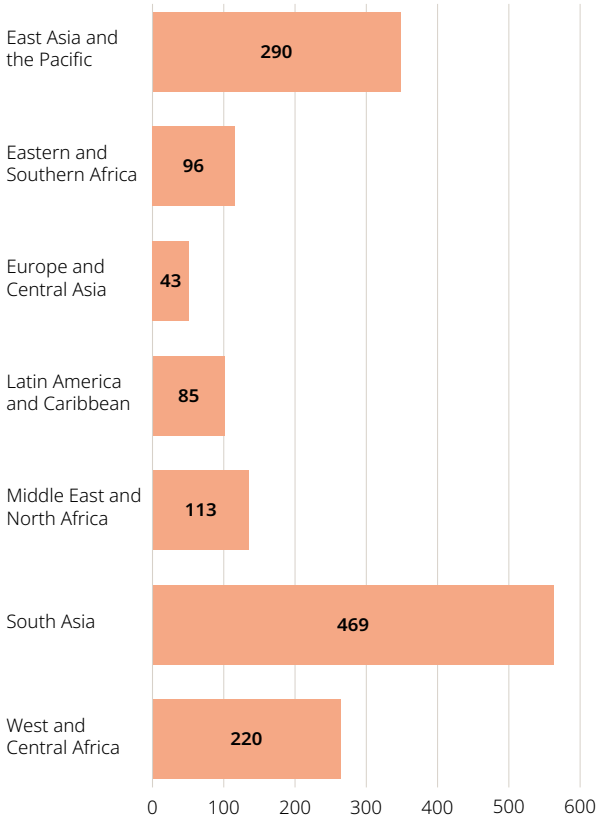


Impoy, 8, sits in the debris of broken houses December 20, 2021 in Barangay Tapon, Purok 6 in Ubay, Bohol, Philippines whose family lost their house like almost every other family in this purok. ©UNICEF/UNI654509/Le Lijour

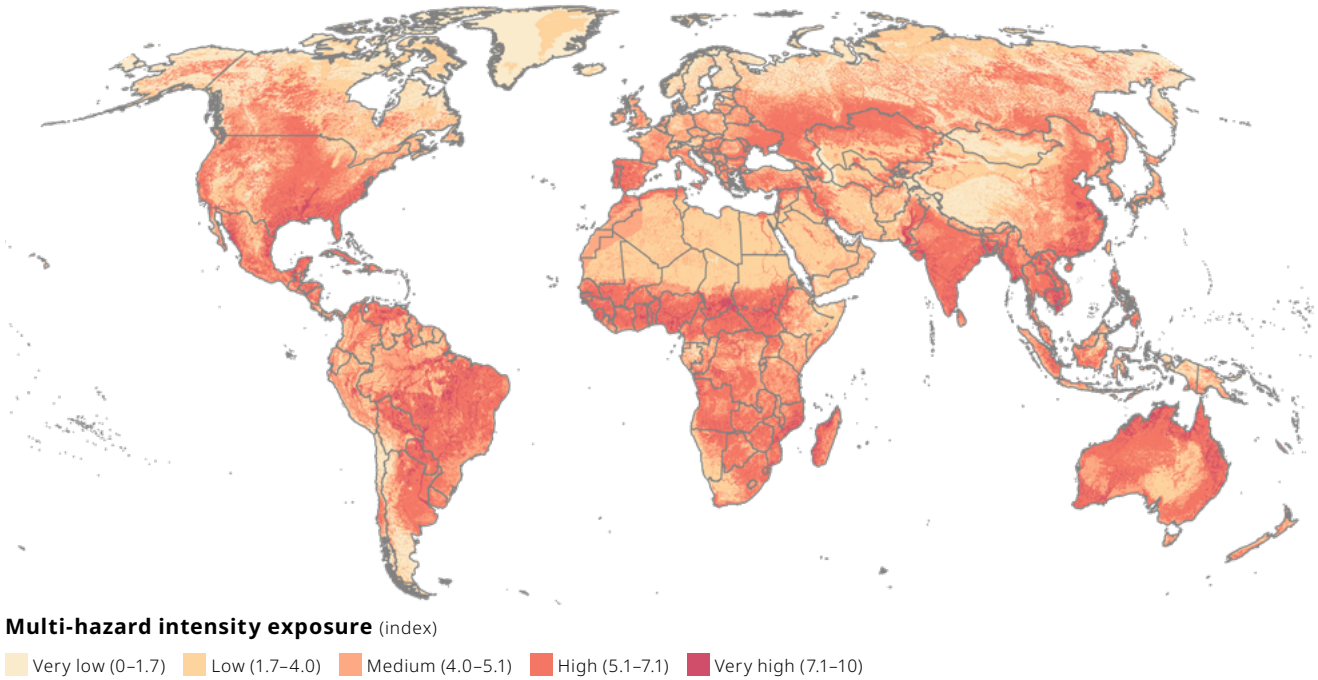
3.3. Multi-hazard intensity

Multi-hazard intensity analysis distinguishes between areas that experience frequent but less intense events and those that face less frequent but more devastating events.

Figure 15: Number of children exposed to multiple hazards at the highest intensities (80th percentile refers to children living in areas in the top 20 per cent for multi-hazard intensity) by UNICEF region (millions)



Map 18: Areas with exposure to multiple hazards at the highest intensities for eight hazard subsets – riverine floods, coastal floods, tropical storms, droughts, heatwaves, extreme heat, fires, and sand and dust storms



This indicator goes beyond counting hazards and assesses the magnitude of each hazard, combining them into a composite intensity score at a high resolution (from 10 km^2, which can be aggregated at different administrative levels). Understanding where these more intense hazards take place allows for more robust and targeted interventions at the local level to protect children.

Multi-hazard intensity exposures are high in the most populated countries, such as **Egypt**, **India**, **Nigeria** and **Pakistan**. When examining relative exposure, we find that children living in countries such as **Cambodia**, **Central African Republic**, **Iraq**, **Mali** and **South Sudan** have the highest proportion of children exposed to multiple high intensity hazards.

Figure 16: Child-population weighted multi-hazard count and multi-hazard intensity scores by country

Child-population-weighted averages for multi-hazard count and multi-hazard intensity are used to compare the average child's hazard exposure in each country by giving greater weight to areas with more children. The country-level scores can be categorized into one of four quadrants (e.g., high intensity and high count, high intensity and low count), offering a clearer view of countries in which children face frequent and devastating hazard exposure.

Chapter 4

Children's vulnerability in relation to social systems and services

The climate crisis is a reality and no child-critical service is unaffected by its impacts. Climate-related hazards do not generate disasters in isolation; they expose deeply rooted vulnerabilities in communities and socio-economic systems and services, which can result in disasters that endanger children's lives and rights.

We know children are more sensitive to the impacts of climate-related hazards. This sensitivity, in many cases, is inherent (see Chapter 2). Governments cannot change how efficiently children can regulate their body temperatures during heatwaves. They can, however, strengthen access to, and the resilience of, the social services children most rely on. Against this backdrop, this report discusses children's vulnerability to climate-related hazards by examining the **status of child-critical social systems and services as a proxy indicator of adaptive capacity.**

Children depend on governments, communities and caregivers to protect them from harm. When hazardous climate events occur, children – especially the youngest children – cannot make the decisions required to withstand and recover from their impacts.

Yet, when resilient and accessible services are available during times of disruption, children can be supported to cope with adverse conditions and grow up healthy, educated and protected. For child-critical social services to support children before, during and after hazardous events, they must be risk-informed and resilient.

Child-critical social services

are essential systems, environments, structures and programmes that the youngest generation relies on to survive and thrive. These services include health, education, nutrition, WASH, social protection and child protection services.

Source: United Nations Children's Fund, *UNICEF Toolkit: Child- and youth-sensitive Nationally Determined Contributions*, UNICEF, 2024 <https://www.unicef.org/media/163776/file/ChildandYouthSensitiveNDCsToolkit-English.pdf>.

Climate-resilient services

are robust to disturbances, anticipative to hazards and responsive to climate-related shocks and stresses in ways that reduce disruptions and maintain the service's essential functions. In doing so, they promote inter-generational equity and reduce the backsliding of development investments.

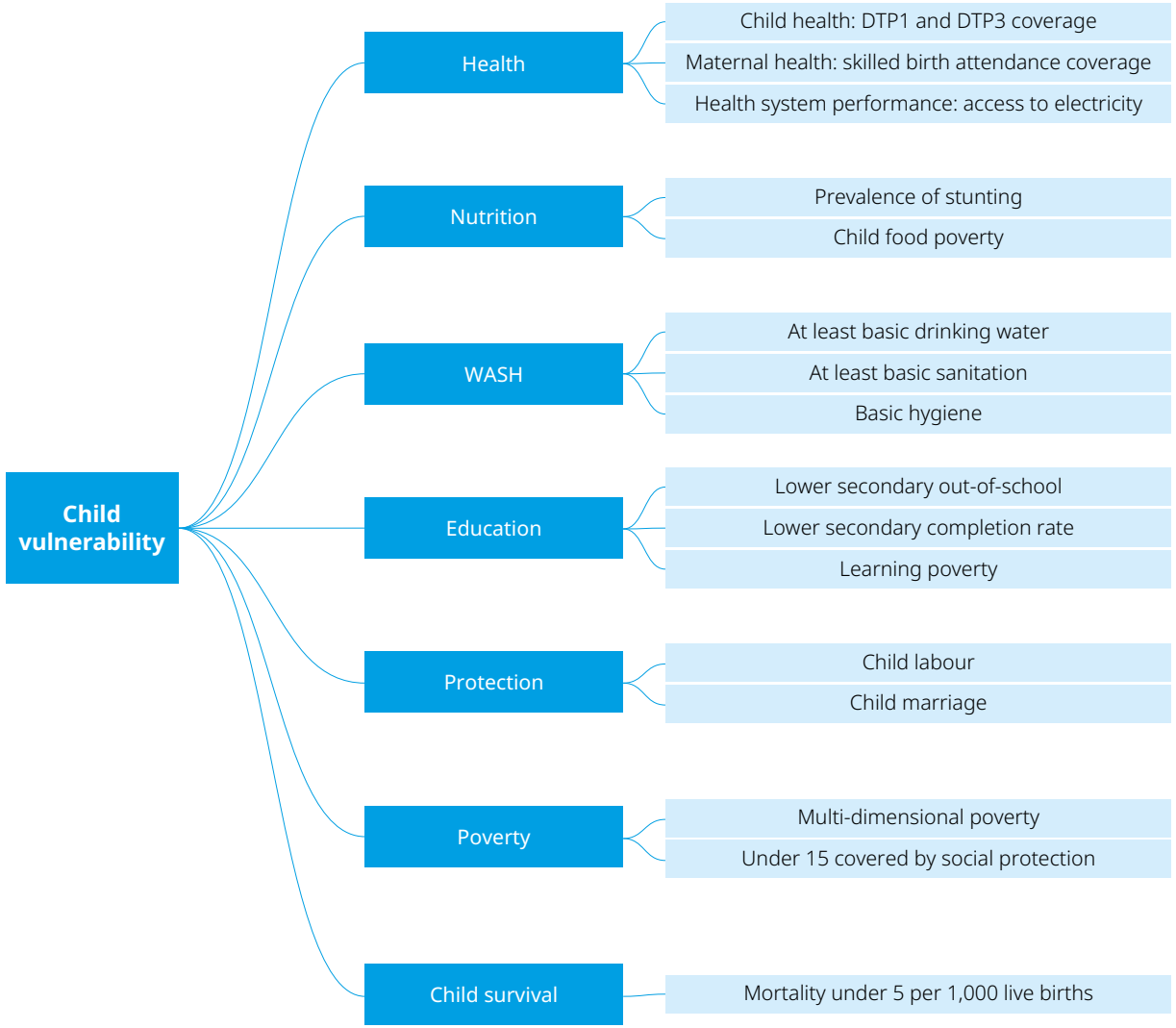
Definition: Adapted from IPCC AR6 definition of resilience

The ability of governments to reduce children's vulnerability and to increase their capacity to cope with and adapt to climate hazards is often affected by wider structural constraints, especially in low income countries, fragile states, SIDS and LLDCs. While these important factors are not quantified in the Children's Climate Risk Framework, they can have far reaching impacts on children's vulnerability and are important to consider as contextual information in addition to the analysis presented.

This chapter focuses on six child-critical areas of service delivery that provide an indication of the adaptive capacity of social systems and services to climate hazards (figure 16).* While this report highlights individual services, it is important to note that these systems do not operate in isolation. Greater adaptive capacity is needed across and between child-critical social services to meet children's needs.

Adaptive capacity is determined by a complex interaction of context-specific factors, which can facilitate or hinder a child's ability to cope with and recover from climate impacts. In the absence of standardized global indicators for monitoring adaptive capacity, the indicators in figure 16 were selected as proxies across several key dimensions, such as economy, infrastructure, institutions and social factors.

Figure 16: The conceptual framework to build child vulnerability scores



* Although it is not a service itself, child survival (measured by the mortality per 1,000 live births of children under five years of age) is included as a crucial overarching indicator of the effectiveness of child-critical social systems and services. Therefore, while it is included in the data, it is not discussed as a standalone section in this chapter.

The indicators also contain a mix of indicator types (input, output and outcome levels) reflecting the complexity of child-critical services and systems and data availability.

The input indicators of adaptive capacity represent the foundational capacity of government systems and services – the physical and human resources available to deliver essential services (e.g., access to electricity). Output indicators measure the reach and functionality of those systems through the number of children served (e.g., immunization coverage, school completion rates, basic drinking water and sanitation, social protection coverage). Outcomes reflect the real-world results of service delivery, especially during or after climate-related hazards, and provide insight into children's wellbeing (e.g., stunting prevalence, multi-dimensional poverty).

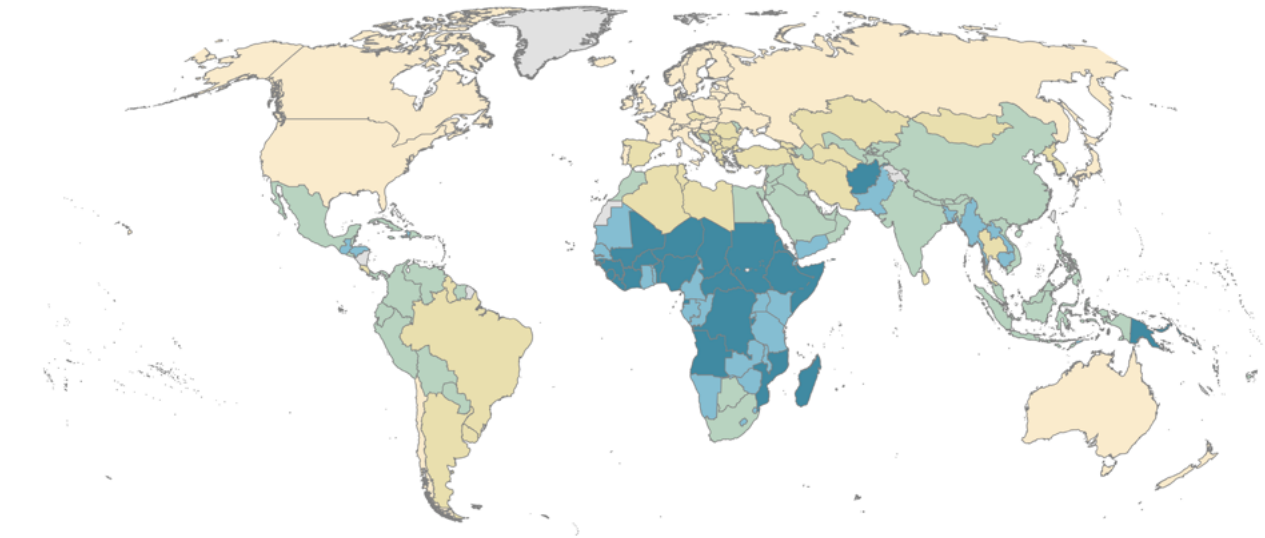
Children's vulnerability is lowest in those countries with the highest coverage of child-critical social systems and services (e.g., health, education, WASH, child protection) and the best child outcomes (e.g., survival, nutrition, poverty, learning). Combined vulnerability scores are highest in countries characterized by high levels of poverty, inequality and conflict and low levels of access to basic services, such as **Central African Republic**, **Chad**, **Niger**, **Somalia** and **South Sudan** (Map 19).

Key dimensions of adaptive capacity and corresponding indicators of children's vulnerability

- Economic capacity (multi-dimensional poverty)
- Information and skills (school enrollment rates, learning poverty)
- Infrastructure (at least basic access to WASH, access to electricity)
- Institutions (children covered by social protection systems and services)
- Social factors (child marriage, child labour)

Source: Chapagain, Prem S., et al., 'Studies on adaptive capacity to climate change: A synthesis of changing concepts, dimensions, and indicators', Humanities and Social Sciences Communications, vol. 12, 2025 <www.nature.com/articles/s41599-025-04453-3>.

Map 19: Children's vulnerability score combining data on health, nutrition, WASH, education, child protection and social protection services



Source: UNICEF data warehouse

4.1. Health services

Resilient health services

anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stresses to bring about sustained improvements in population health.

Source: World Health Organization, Measuring the Climate Resilience of Health Systems, WHO, Geneva, 2022 <https://iris.who.int/server/api/core/bitstreams/6592f5ec-0a0a-425e-8eb7-6ebb0bdab0f2/content>.

In 2024, 20 million children missed out on life-saving vaccines, including 14.3 million children who did not receive a single dose of a diphtheria, tetanus and pertussis (DTP)-containing vaccine.

This illustrates the insufficient capacities of many public health systems to provide critical services to children who are exposed to shocks and stresses.

How climate hazards affect critical health services for children and their families

Climate change is the largest global health threat of the 21st century.[34] The World Health Organization (WHO) conservatively projects 250,000 additional yearly deaths by the 2030s from undernutrition, malaria, diarrhoea and heat stress alone.[35] For children with limited or unreliable access to health care, the health consequences of climate change are dire. As hazards intensify across timescales – from immediate threats like heatwaves and storms to protracted crises like drought – health care systems are contending with inadequate infrastructure, insufficient climate-related disease surveillance systems and gaps in access to critical health services.

When health care systems and facilities are not resilient, they fail children and their communities. Extreme climate events destroy health infrastructure, cause disruptions in electricity, limit safe water supply, erode accessibility to health services and lead to new disease outbreaks. Impacts can disrupt the availability of, and access to, essential services, such as pre-natal check-ups, support for childbirth and routine immunizations. They can upend supply chains transporting life-saving supplies and overwhelm the capacity of health care delivery systems. As the severity and frequency of climate-related hazards increase, so too will the stresses on health systems due to the growing need for care.

Proxy indicators included to assess the adaptive capacity of health systems and services

- **DTP1 and DTP3 coverage:** Percentage of surviving infants (live-born infants who survive long enough to be eligible for vaccination) who receive the first dose of DTP, and the percentage receiving their third dose. Immunization rates are a proxy for child health service access and coverage.
- **Skilled birth attendance coverage:** The extent to which the health system can support mothers during childbirth. Skilled birth attendance coverage is a proxy for maternal health system performance.
- **Access to electricity:** Whether people have access to electricity or not, which is defined as the ability to connect to the official grid provided by the industry. Access to electricity is a proxy for health system coverage and functionality.

Recommended actions for increasing the resilience of health systems and services

- Make primary health care facilities climate resilient.
- Equip the health workforce for climate threats.
- Empower communities with climate and health information.

For additional recommendations and more details on how governments and partners can improve the resilience of health systems and services, see Chapter 6.

SPOTLIGHT

Pakistan

Applying sustainable energy and nature-based solutions to protect child health and learning

Children in Pakistan are at risk from glacial melt and erratic rainfall, which leads to devastating large-scale flooding. They were disproportionately affected by the 2022 flood disaster, which impacted 33 million people, with half of them being children. The flooding led to 5.4 million people losing access to safe water. Pakistan also experiences extreme heatwaves and prolonged droughts, with temperatures regularly exceeding 48°C (118.4°F) in multiple regions over the past decade.

UNICEF is expanding access to solar energy across Pakistan to strengthen the resilience of essential services for children against drought, floods and heatwaves. Solar-powered water systems ensure reliable access to safe water at home, school and health care facilities, preventing dehydration and maintaining drinking water during crises. Solar energy also powers cooling and lighting, allowing schools to remain open despite climate disruptions.

Health care facilities benefit greatly from solar power, which provides continuous energy for medical services, safe vaccine storage and the operation of life-saving equipment. Expanding sustainable energy in Pakistan's health facilities could prevent over 175,000 deaths by 2030 and add US$296 million to the economy by 2044.

Through support from UNICEF and its partners, rural health units have been upgraded, including the provision of solar energy for vaccine cold storage. As vaccines need to be consistently stored at temperatures as low as between 2 and 8°C (35.6 and 46.4°F), the solar system ensures that cold chain equipment receives an uninterrupted power supply. From 2022 to 2026, over 1.7 million people in Pakistan have gained access to solar-powered, climate-resilient water systems installed by UNICEF and its partners. Nearly 2 megawatts of solar capacity at 784 health care facilities provide electricity for maternal and child health care, benefiting 3.5 million patients.

Staff Nurse Fatima checks Aisha's weight. The programme aims to improve immunization coverage and health services for children under the age of five in five districts. As part of the upgrades, the cold chain system for vaccines has been strengthened through the solarization of the cold storage rooms and provision of energy-efficient cooling systems. ©UNICEF/Pakistan/Aliraza Khatri

4.2. Nutrition services

Without timely action, climate change is estimated to cause an additional 28 million children to be wasted and 40 million children to be stunted globally by 2050.

How climate hazards affect critical nutrition services for children and their families

Good nutrition is the bedrock of child survival, growth and development. However, in countries that have required or requested emergency assistance, the number of people in need of urgent food and livelihood assistance has risen for six consecutive years.[36] Globally, 66% of children under five (440 million children) are living in child food poverty.[37]

Effective food and nutrition systems allow children to fully develop and reach their potential. However, the existing shortcomings of food systems have resulted in nutritional insecurity for millions of children, as one in four children globally experience severe child food poverty.[38] In combination with poor access to services and care, child food poverty contributes to the high global burden of malnutrition, with 150 million children experiencing chronic malnutrition.[39] Child malnutrition is expected to become a more severe problem, as higher carbon dioxide levels decrease the nutritional quality of staple crops, potentially increasing the numbers of children affected by micronutrient and protein deficiencies by hundreds of millions.[40] By 2050, climate change may drive stunting in an additional 40 million children and result in 28 million children wasted.[41] This burden is not shared equally, as nearly 70 per cent of all children living in child food poverty are located in South Asia and sub-Saharan Africa,[42] regions this report has identified as having high climate hazard exposure. In sub-Saharan Africa alone, climate change is projected to drive stunting in an additional 10 million children by 2050.[43]

Climate shocks and stresses are putting increasing pressure on food systems. Rising temperatures and extreme weather reduce crop, livestock and fishery productivity. Extreme weather events disrupt food supply chain and distribution networks.[44] Climate disruptions drive food price increases and volatility, while depressing rural incomes, making nutritious foods less affordable and accessible.[45]

Resilient nutrition services enable nutrition and nutrition-connected systems to prepare for, respond to and recover from crises while safeguarding diets, services and practices and contributing to equitable nutrition outcomes.

Source: United Nations Children's Fund and World Food Programme, *Standing Together for Nutrition and Micronutrient Forum, Global Resilience Report: Safeguarding the nutrition of vulnerable children, women, families and communities in the context of polycrisis*, MNF, Washington D.C., 2024 <www.unicef.org/media/156496/file/Global%20Resilience%20Report%202024.pdf>.

Recommended actions for increasing the resilience of nutrition systems and services

- Increase the capacity of food systems to deliver nutritious, climate-resilient foods for children.
- Deliver climate-risk informed packages of flexible and anticipatory nutrition services for families.
- Support communities and families to adopt climate resilient food and nutrition practices.

For additional recommendations and more details on how governments and partners can improve the resilience of nutrition systems and services, see Chapter 6.

Climate hazards disrupt other systems and services that are necessary to support child nutrition, such as malnutrition treatment services, while simultaneously increasing the demand for them.[46] Childcare and feeding practices are also disrupted by climate-driven displacement and the increased burden on women's time spent gathering increasingly scarce resources.[47]

Proxy indicators included to assess the adaptive capacity of food systems

- **Prevalence of stunting:** Prevalence of stunting (height for age <-2 standard deviation from the median of the WHO Child Growth Standards[48]) among children under five years of age. Stunting is an indicator of systemic failures in food security, health and care.
- **Child food poverty:** A child's inability to access and consume a nutritious and diverse diet in early childhood. Children are defined as living in **severe child food poverty** if they consume foods from two or fewer food groups out of eight food groups.[49] Child food poverty is a direct, equity-sensitive indicator of access to nutrition services and nutritious food.

4.3. Water, sanitation and hygiene services

> **In 2024, 634 million children still lacked safely managed drinking water, 1 billion children lacked safely managed sanitation, and 489 million children lacked basic hygiene services.**

How climate hazards affect critical WASH services for children and their families

The effects of climate change are most immediately felt through water. Nearly 160 million children already live in areas of high or extremely high drought severity, and more than 270 million children live in extremely high flood-prone zones in countries where less than half the population has access to improved sanitation facilities. By 2040, an estimated 600 million children will live in areas of extremely high water stress.[50]

Increased demand for water in times of low rainfall can cause water sources (including boreholes and springs) to run dry, which can increase the time children, typically girls, spend gathering household water. Heavy rainfall and flooding can damage water sources and sanitation facilities, for example, carrying runoff and waste into streams and lakes, contaminating the water supply. This can limit safe drinking water and irrigation. Water-related disruptions can heighten the risk of disease outbreaks, accelerating the spread of vector-borne diseases, such as malaria, which thrives in stagnant floodwater and warmer temperatures.

Water scarcity related to climate hazards like droughts and heatwaves, and the resulting increase in water services costs, can lead to inequitable water access, limiting people's ability to collect the safe water needed for proper handwashing and hygiene, and threatening children's health and wellbeing. WASH services must be able to continue to function as needed under increased uncertainty and pressures, changing hydrological conditions and more frequent extreme hazardous events.

Resilient WASH services

identify potential impacts of extreme weather events, are reliable at all times, and have service models designed to cope with crises and ensure longer-term infrastructure sustainability.

Source: United Nations Children's Fund, *Advancing Climate Resilient WASH Services,* UNICEF, 2025 <www.unicef.org/executiveboard/media/33586/file/Advancing-Climate-Resilient-WASH-Services.pdf>.

SPOTLIGHT

Iraq

Wastewater innovation combats environmental and health risks for children and communities

Climate change is making water shortages worse in Iraq, putting millions of children at risk. Droughts, unpredictable rainfall and extreme heat limit access to safe water, leading to more disease and malnutrition. Urgent action is needed as Iraq's temperatures are rising seven times faster than the global average and rainfall is expected to drop by 9 per cent by 2050, further straining water supplies.

Moving bed biofilm reactor (MBBR) technology for wastewater treatment is compact, incorporates energy-efficient design and is ideal for areas facing water shortages and extreme weather. These systems work in both hot and cold climates, support solar power and enable water reuse by removing pollutants, reducing reliance on freshwater sources. Their modular design also allows for quick recovery after floods. Treated wastewater meets national safety standards for irrigation, while biosolids, a treatment byproduct, can be used as fertilizer. By recycling water for farming – such as for agricultural drip irrigation, particularly useful in dry regions – MBBR systems help improve water efficiency in a changing climate. Other benefits include improving wastewater treatment in health care facilities, reducing pollution and promoting water reuse.

Between 2021 and 2025, UNICEF partnered with government ministries, UN agencies and local partners to install 26 MBBR wastewater treatment systems across seven of Iraq's governorates. The Ministry of Health led the effort by identifying locations that would have the biggest impact, where hazardous waste exacerbates pollution and health risks for children and families, and provided technical guidance while overseeing operations and maintenance. The Ministry of Environment acted as the surveillance entity, while UNICEF supported the initiative with technical expertise and implementation assistance, including the design, procurement, installation and proper operation of MBBR systems.

The 26 systems are connected to 18 hospitals, academic institutions, residences for displaced people and refugees, UN offices and a public park in Erbil. They ensure safe, treated wastewater benefiting 144,000 people, including 66,300 children. They also improve water quality downstream, reducing river pollution and benefiting an additional 3.5 million people, including 1.5 million children.

UNICEF and the United Nations Assistance Mission for Iraq (UNAMI) collaborated to install an MBBR wastewater treatment system at the UNAMI office building. MBBR systems installed across Iraq help reduce water shortages worsened by climate change. ©UNICEF Iraq

Proxy indicators included to assess the adaptive capacity of WASH systems and services

Access to at least basic drinking water and sanitation and basic hygiene are direct indicators of WASH access and coverage, a proxy for the infrastructure and institutional dimensions of adaptive capacity.

- **Access to at least basic drinking water:** Proportion of population using improved drinking water sources, provided the collection time is not more than 30 minutes for a round trip, including queuing.
- **Access to at least basic sanitation:** Proportion of population using improved sanitation facilities that are not shared with other households.
- **Access to basic hygiene:** Proportion of population with a handwashing facility with soap and water available at home.

Recommended actions for increasing the resilience of WASH systems and services

- Build and maintain climate-resilient WASH infrastructure.
- Decarbonize and improve the efficiency of WASH services.
- Implement climate-informed water and sanitation safety planning.

For additional recommendations and more details on how governments and partners can improve the resilience of WASH systems and services, see Chapter 6.

4.4. Education services

In 2024 alone, at least 242 million students in 85 countries and territories had their schooling disrupted by climate-related hazardous events.

How climate hazards affect critical education services for children and their families

Critical foundational skills are essential for child development, and for preparing them as leaders for a sustainable and resilient future. However, climate-related hazards are disrupting education for millions of children every year, impacting lifelong learning and threatening the development of the next generation of leaders and changemakers. In low and middle income countries, disrupted education and learning poverty may result in today's generation of students losing up to US$11 trillion in lifetime earnings.[51]

Resilient education services

protect children with climate-resilient school infrastructure, access to early warning services, and education in disaster preparedness and recovery planning. These limit learning disruptions.

If educational systems are not resilient and connected with disaster preparedness and management protocols, governments risk widespread economic losses and children face learning losses due to school disruptions, adverse mental health impacts and increasing inequality.[52]

When hazardous events – sudden onset events such as floods and tropical storms as well as slow onset events such as droughts and heatwaves – occur, schools are often damaged or destroyed, forcing them to shut down and children to drop out. Even when students can attend school, climate-related hazards can reduce the number of days the school can operate and reduce children's performance in school. Sudden shocks often lead to temporary school closures and infrastructure damage, resulting in immediate learning disruptions and losses.

SPOTLIGHT

Lebanon

Climate-resilient infrastructure improves the learning environment for thousands of students

Students in Lebanon are significantly affected by the combined impacts of climate change, ongoing conflict and deepening energy crises.[65] Increasing temperatures above average in hot seasons and longer summer days affect access to reliable and clean electricity sources for facilities, especially schools. In 2025, Lebanon experienced one of the worst droughts in the last 50 years due to low snow and rainfall. A reliable, sustainable and uninterrupted electricity supply in schools is essential for optimal lighting, digital learning, electric pumps and filtration systems, and regulating classroom temperatures. As of 2023, nearly half of all schools in Lebanon received less than four hours of electricity per day from the national grid. To cope, many schools depend on expensive and polluting diesel generators or are forced to close when there is no electricity after dark. Over 340 schools (about 12 per cent of the total) run afternoon shifts in buildings without natural light, severely limiting children's access to quality education, especially in winter. Non-Lebanese students, including Syrian refugees who often attend second shifts, are most affected.

Energy scarcity in Lebanese schools stems from years of conflict, political instability, economic decline and growing climate-related hazards. For example, Lebanon's summer temperatures rose by up to 1.5°C (2.7°F) per decade from 1971 to 2020, reinforcing the World Bank's projection of a 4.8°C (8.6°F) increase by 2050 under high-emissions scenarios, with more frequent heatwaves and longer dry spells. Rising temperatures are increasing electricity demand, placing even greater strain on Lebanon's already fragile school power infrastructure. This especially impacts the youngest and most vulnerable students, as heat exposure can lower academic performance, reduce concentration and cause anxiety and fatigue. From 2023 to 2025, the Ministry of Education and Higher Education (MEHE), UNICEF and technical, municipal and community partners scaled up solar energy solutions to strengthen Lebanon's education system. With a US$12.2 million investment, the initiative equipped up to 235 public schools and 21 technical and vocational education and training facilities with photovoltaic (PV) solar systems, directly benefiting over 111,000 students.

For the installations, capacities ranged from 40 to 100 kW. MEHE provided strategic oversight, aligning with national education and climate adaptation frameworks and policy standards. The Center for Education Research and Development (CERD) worked with UNICEF to integrate renewable energy into infrastructure planning, while regional education offices prioritized sites by assessing vulnerability. Local municipalities supported site preparation, community engagement and maintenance, and certified solar engineering firms managed system design and installation. Reliable electricity enables longer school hours, better attendance, improved learning outcomes and greater teacher retention. Reliable energy also reduces CO_2 emissions and brings financial benefits. The total 235 systems installed at all schools (around 10 MWp of total solar PV capacity) cut more than 20,000 metric tons of CO_2 annually and generate an estimated US$6 million in annual electricity savings, funds schools can reinvest in teacher training, materials and facility upgrades.

In contrast, slow-onset stressors can gradually undermine learning outcomes, as high temperatures affect students' concentration, and drought conditions increase household demands on children, such as water fetching or agricultural work, leading to reduced attendance and poorer educational performance. Where schools are not destroyed, they are often relied upon as shelters for displaced families in the wake of disasters, further limiting their use as child-centric spaces and places of learning, and creating safety risks for children. Without sustainable recovery and coping measures, such as adapted curricula, teaching and delivery – which sustain educational delivery and build the adaptive capacities of students – learning losses can continue to grow following hazardous events.[53]

Recommended actions for increasing the resilience of education systems and services

- Strengthen school-based disaster management and response.
- Ensure safer and greener learning facilities.
- Integrate climate literacy and green skills into curricula.

For additional recommendations and more details on how governments and partners can improve the resilience of education systems and services, see Chapter 6.

Proxy indicators included to assess the adaptive capacity of education systems and services

- **Lower secondary out-of-school:** Percentage of children out of school in lower secondary education. Out-of-school rates are indicators of educational access.
- **Lower secondary completion:** Percentage of children or young people three to five years older than the intended age for the last grade of lower secondary education who have completed that level of education. Completion rates are indicators of educational access and coverage.
- **Learning poverty:** Rate of learning poverty. The World Bank and the UNESCO Institute for Statistics developed this indicator to better understand the global learning crisis.[54] High rates of learning poverty are an early signal that education systems are failing to ensure children develop critical foundational skills.

4.5. Child protection services

> **Between 2016 and 2023, there were 62.1 million internal displacements of children from climate hazards – the equivalent of more than 21,000 child displacements per day.**

How climate hazards affect child protection services for children and their families

Increasingly frequent and severe climate hazards are driving displacement and family separation, eroding livelihoods and raising the risk of violence, exploitation, abuse, harmful practices and childhood trauma. Child protection services are increasingly overwhelmed by the post-disaster needs of communities.

Negative coping mechanisms used by families during prolonged climate impacts or following acute shocks can jeopardize children's fundamental rights. Climate change is multiplying the incidence of child labour, especially in agriculture where 70 per cent of all child labour is found.[55]

Moreover, the prevalence of harmful coping practices like child marriage often increases following disasters and climate shocks.[56] Many families rely on child marriage to secure their

Resilient child protection services

prevent, mitigate and respond to climate-related protection risks (including violence, gender-based violence, abuse, exploitation, neglect, harmful practices and family separation) and harms affecting children, and strengthen family and community coping capacities.

Source: United Nations Children's Fund, *Climate Resilient Child Protection Systems in East Asia and Pacific: Technical brief*, UNICEF, Bangkok, 2025 <www.unicef.org/eap/media/18386/file/Technical%20Brief.pdf>.

Recommended actions for increasing the resilience of child protection systems and services

- Allocate resources to protect children.
- Strengthen shock-responsive child protection services and workforces for climate-related risks.
- Use data and evidence to target the most vulnerable children.

For additional recommendations and more details on how governments and partners can improve the resilience of child protection systems and services, see Chapter 6.

economic future through uncertain prospects or to move girls away from areas prone to predictable disasters.[57] The consequences of this practice can be serious. Girls who marry before 18 are more likely to experience domestic violence and have worse economic and health outcomes than their unmarried peers.[58]

Without support from governments, families often experience increased stress from climate-driven displacement and economic hardship. Such situations have far-reaching consequences, from negative mental health outcomes for children during and following disasters to families being compelled to depend on their children's labour to compensate for lost income, which often results in increasing school dropout rates.[59]

Proxy indicators included to assess the adaptive capacity of child protection services

- **Child marriage:** Percentage of women (aged 20–24 years) married or in union before age 18. Child marriage rates are an indicator of gender and social inequalities that may reduce adaptive capacity.
- **Child labour:** Percentage of children 5 to 17 years old involved in child labour. Child labour rates are an indicator of social and economic inequalities that may reduce adaptive capacity.

4.6. Social protection services

> **Over 130 million people could be pushed into extreme poverty by 2030 because of climate change.**

How climate hazards affect social protection services for children and their families

Alarmingly, nearly 1.8 billion children globally – nearly three quarters of all children – are not covered by social protection systems that help keep them out of poverty.[60] Moreover, only 7.6 per cent of the children in low income countries receive child or family benefits, which is unsurprising considering that only 0.7 per cent of gross domestic product (GDP) is spent on child benefits globally.[61]

Resilient social protection services

stabilize household economies, relieve caregivers of negative coping mechanism pressures and enable a return to normality following climate shocks and stresses.

Source: United Nations Children's Fund, *Programme Guidance: Strengthening shock responsive social protection systems*, UNICEF, New York, 2019 <www.unicef.org/media/68201/file/Practical-Guidance-to-Support-Work-on-Shock-Responsive-Social-Protection.pdf>.

SPOTLIGHT

Cambodia

Cash transfer programmes protect over 1 million households from floods and price increases

Children in Cambodia are increasingly at risk from the impacts of climate change, which is exacerbating hazards. Over 3.3 million people live in areas prone to dangerous floods, and nearly half the child population faces extreme heat and flooding risk. Floods can have destructive consequences for families living in poverty. They can lead to lives lost, reduced incomes, family displacement, and home or crop destruction. Vital services like education, health care, nutrition and WASH may become inaccessible.

The Royal Government of Cambodia has made social protection a priority for reducing poverty and vulnerability. UNICEF, together with the National Social Protection Council (an inter-ministerial governing body responsible for strategic coordination and policy direction) and the National Social Assistance Fund, identified flooding and inflation as shocks that could severely impact vulnerable populations.

Drawing on UNICEF's global expertise in shock-responsive social protection (SRSP) and its experience implementing national cash transfer programmes benefiting 2.8 million people during the COVID-19 pandemic, the government was able to swiftly prepare and integrate measures to respond to the 2022 floods and inflation. This was achieved through the rollout of two national cash transfer programmes targeting at-risk households. This integration ensures families facing economic hardship can access the financial support they need more swiftly and efficiently.

The government ran these integrated programmes in 2022 when flooding and rising prices triggered a pre-set criterion that released additional cash payments to help affected families cope and prevent at-risk households from falling into poverty, reaching 1.8 million people including 700,000 children. This swift response was due to UNICEF supporting the government in the establishment of cash delivery and digital payment tools to improve beneficiary enrolment, registration, cash payment processes and feedback mechanisms.

Building on the implementation of multiple national routine and emergency cash transfer programmes, the government, with UNICEF technical support, designed the government-owned and funded integrated National Social Assistance Family Package, which launched in April 2024. This programme consolidates several existing and new schemes into a single, streamlined system, improving efficiency, coverage and impact by ensuring vulnerable groups receive timely and consolidated support. The programme is designed to provide long-term assistance to vulnerable households, ensuring families continue receiving essential support beyond UNICEF's involvement. This marks a significant step toward institutionalizing inclusive social protection and strengthening national ownership of social assistance delivery.

Recommended actions for increasing the resilience of social protection systems and services

- Make social protection systems climate adaptive and shock responsive.
- Sustain early childhood development (ECD) services during climate disasters.
- Develop just transition plans centred on youth and families.

For additional recommendations and more details on how governments and partners can improve the resilience of social protection systems and services, see Chapter 6.

Exposure to climate-related hazards and child poverty are mutually reinforcing. Underlying poverty – especially multi-dimensional poverty[62] – reduces children's access to quality basic social services. Exposure to climate-related hazards can, in turn, push increasingly vulnerable children into poverty and keep many more locked in intergenerational poverty.

The impacts from hazardous events threaten livelihoods. Disruptions to agricultural activities – which many communities rely on for sustenance and income – can deepen household food insecurity and economic instability. Climate hazards, whether slow or sudden, also bring about devastating losses that poorer communities may struggle to recover from.

The economic strain imposed by these challenges limits the ability of families to invest in their children's education and health. A lack of support and resources also hinders families' mental and physical abilities to adapt to or recover from hazardous events, making everyone in the household even more susceptible to future risks. Shock-responsive social protection programmes are effective tools for responding to climate-sensitive hazards and decreasing their impacts.[63] Despite this, social protection systems rarely account for climate change concerns.

Proxy indicators included to assess the adaptive capacity of social protection systems

- **Multi-dimensional poverty:** Percentage of children with severe material deprivation, such as to goods and services. Multi-dimensional poverty rates are an indicator of structural economic inequalities that can reduce adaptive capacities.
- **Social protection for children under fifteen years of age:** Percentage of children under five that are covered by social protection. Social protection rates are an indicator of the reach and accessibility of social protection services.

Chapter 5

Analysing children's climate risk based on hazard exposure and vulnerability

Risk-informed decisions are best made on the basis of integrated analysis of hazard exposure and vulnerability.

For governments and other decision makers, understanding both hazard exposure and vulnerability is essential for effective policymaking and investment planning to reduce climate risks for children. This chapter explores how the latest available data on children's hazard exposure and vulnerability can be used to support different types of risk analysis. It shows how risk profiles vary widely across countries, depending on the specific type and number of hazards and vulnerabilities considered. It finds that the multi-hazard risks for children are generally highest in countries classified as fragile and in low income countries, and highlights additional structural constraints faced in specific contexts such as SIDS and LLDCs.

Children's Climate Risk Framework

UNICEF's framework for addressing children's climate risk brings together information on children's exposure to individual and multiple hazards, and information on multiple child-specific vulnerabilities at global, regional, national and subnational levels. The analysis in this report builds on the 2021 Children's Climate Risk Index (CCRI), but rather than aggregating

Fragility: The combination of exposure to risk and insufficient resilience of a state, system and/or community to manage, absorb or mitigate those risks. In this report, extreme and high fragility classifications are grouped as fragile.

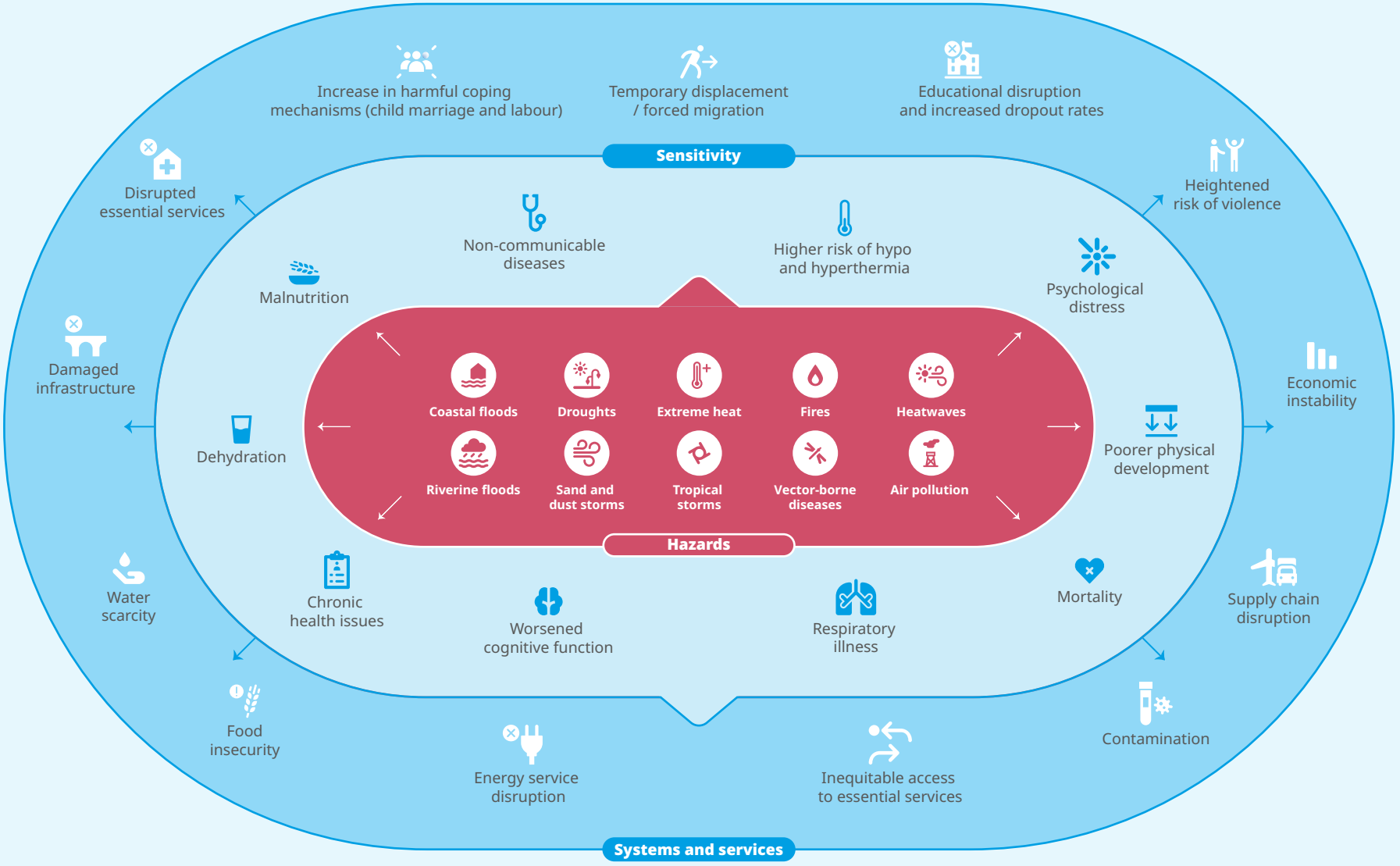
Income groups: The World Bank classifies countries into four income groups based on their gross national income (GNI) per capita.

Landlocked developing countries: Developing nations that lack territorial access to the sea. Often, the development of LLDCs is constrained by isolation from world markets and high trade costs.

Small Island Developing States: A distinct group of nations characterized by their small size and remote island geography. SIDS' unique vulnerabilities include their small size, remoteness, narrow resource and export base, and exposure to external economic shocks.

Definitions: Organisation for Economic Co-operation and Development, *States of Fragility 2025*, OECD Publishing, 2025 <https://doi.org/10.1787/81982370-en 2025>; Metreau, Eric, et al., Understanding country income: World Bank Group income classifications for FY26, World Bank <https://blogs.worldbank.org/en/opendata/world-bank-country-classifications-by-income-level-for-2024-2025>; United Nations, What is a LandLocked Developing Country?, UN <https://www.un.org/en/landlocked/about-landlocked-developing-countries>; Sustainable Development Knowledge Platform, Small Island Developing States, United Nations <https://sdgs.un.org/topics/small-island-developing-states>.

Figure 17: Understanding children's climate risk based on hazard exposure and vulnerability



multiple indicators into a single unified risk score it adopts a differentiated approach to combining information on hazard exposure and vulnerability for different contexts and purposes. In this section, we present illustrative examples of risk analysis at the national level, including hazard-specific risk analysis, sector-specific risk analysis, and multi-dimensional risk analysis.

A differentiated approach to children's climate risk analysis

While multi-dimensional risk analysis provides a broad, system-wide assessment of risk, hazard-specific analysis is helpful to identify contexts and locations where a single high-intensity hazard may pose disproportionate risks to children. Similarly, sector-specific analysis can be used to further unpack aggregate measures of vulnerability and analyse climate risks for individual sectors that are critical for children, such as WASH, nutrition, health, child protection, education and social protection. Together, these complementary lenses provide a more nuanced understanding of risk and help to ensure that country classifications reflect both broad structural patterns and important context-specific dimensions of children's climate risk.

Children in Ucayali, Peru, were greatly impacted from relentless rains in March 2025, which overwhelmed the Amazon Basin and displaced thousands. As the Ucayali River surged beyond its banks, the floods exposed vulnerabilities in child-critical services. Examples include a lack of access to clinics and mobile health units – especially in remote, Indigenous communities, damaged schools that disrupted learning continuity, and child protection systems that monitor those most at risk of abuse or neglect being overwhelmed or inaccessible. ©UNICEF/UNI770750/Romani

5.1. Hazard-specific risk analysis

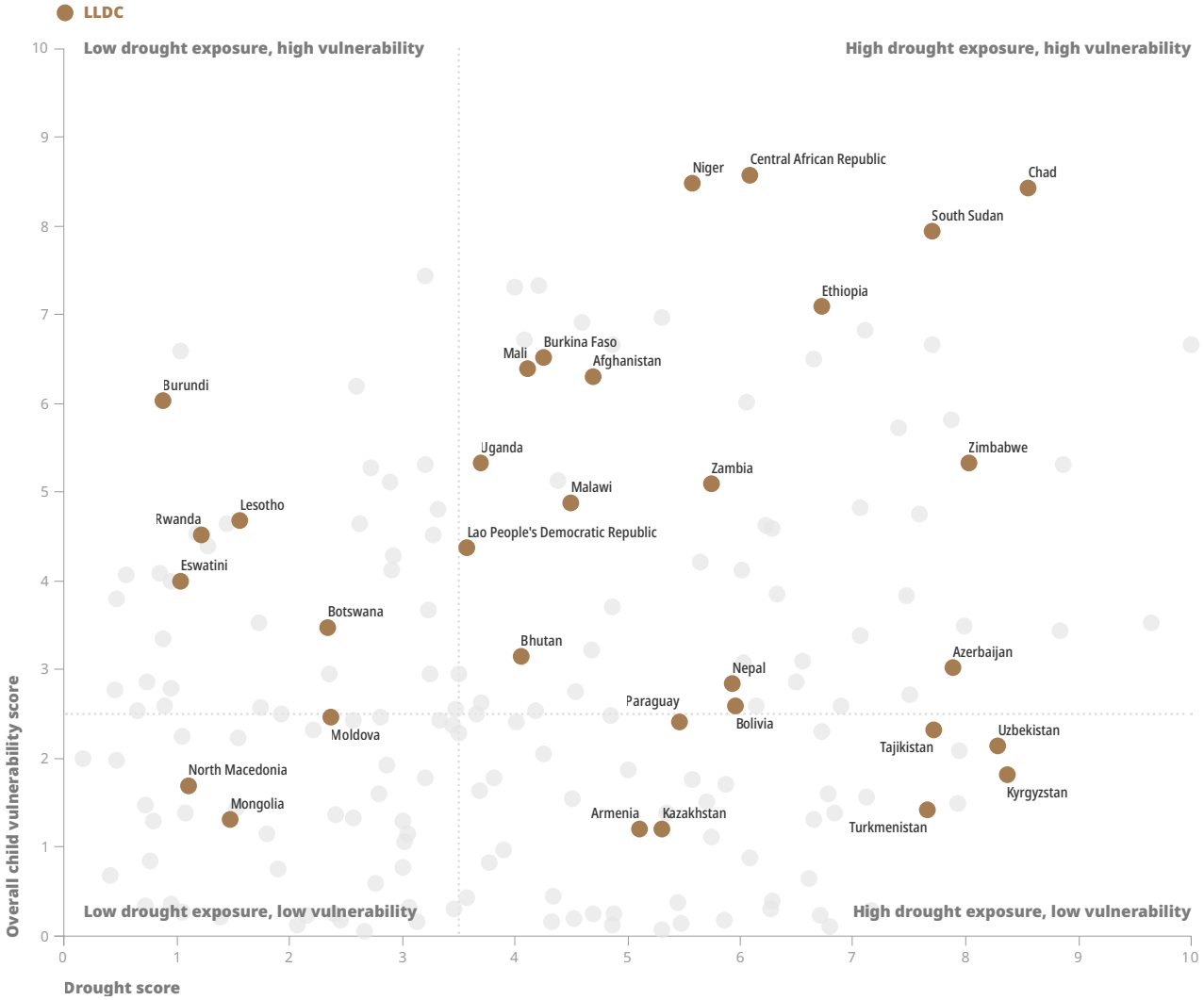
In many contexts, a single high-intensity hazard can have lasting impacts on vulnerable communities. Hazard-specific risk analysis evaluates the distinct threats posed by individual climate shocks and stresses, by combining the severity of a single physical hazard with the underlying vulnerabilities of the affected population. Understanding the risks that children face from specific hazards can help governments and humanitarian and development organizations to prioritize and target resources for disaster preparedness and climate change adaptation, and to tailor interventions for each hazard.

Two examples are considered in this section, but the framework can be applied to any hazard-specific analysis.

5.1.1. Drought risk analysis

LLDCs, which account for about 11 per cent of the global child population (268 million children) and 12 per cent of the world's land surface, have experienced nearly 20 per cent of global droughts in the past decade, underscoring their disproportionate exposure to climate-related disasters. The existing risks are often compounded by additional structural constraints (see Box 1).

Figure 17: Example of single-hazard exposure (drought) combined with overall child vulnerability, highlighting LLDCs



The agricultural drought indicator uses FAO's Agricultural Stress Index which specifically maps croplands. It is important to note that in specific contexts such as in Mongolia, the agricultural sector is dominated by pastoralism and livestock rearing rather than crop production. As the current analysis focuses on global hazards, severe regional phenomena such as Dzud, characterized by extreme winter conditions following a summer drought that lead to the mass starvation and death of livestock, are not captured and it is critical to include additional context-specific indicators for sub-national risk analysis.

BOX 1

Structural constraints of LLDCs

Landlocked developing countries (LLDCs) are a distinct group of 32 nations characterized by a lack of territorial access to the sea. This geographic reality isolates them from international maritime trade routes and the broader global economy. LLDCs face significant challenges in addressing climate-related issues due to their unique geographies, constrained fiscal capacities and climate-sensitive economies, in addition to existing vulnerabilities.

Transit dependence

With a lack of direct access to the sea, the reliance of LLDCs on neighbouring countries for access to global markets results in high logistical costs and delayed emergency responses. When climate hazards destroy overland transportation infrastructure, supply chains for essential commodities such as medicines, vaccines, nutrition supplies, school materials, and water and sanitation equipment are severed. Border closures and transit delays frequently affect essential services. The significant logistical cost of importing heavy construction materials into remote, landlocked regions severely limits the ability of governments to build climate-resilient schools, hospitals and improved WASH infrastructure, leaving existing social services chronically exposed to future environmental shocks.

Geographic remoteness

Children living in remote and underserved areas of LLDCs often experience overlapping forms of exclusion. They are affected by the internal remoteness of rural, borderland and hard-to-reach communities as well as the external remoteness of the country from seaports and global markets. This dual disadvantage limits access to quality essential services. The impacts are most severe for children already facing deprivation, including children with disabilities, adolescent girls, children in poor households, displaced children, and children in mobile or pastoralist communities. For example, in Mongolia, children of nomadic herding families face immense logistical barriers to access child critical services such as education and healthcare, further exacerbated by extreme winter conditions and the country's deep geographic isolation.

Climate-sensitive livelihoods

In LLDCs, approximately 55 per cent of the population is employed in agriculture. Desertification and recurrent droughts undermine these agricultural activities, compromising food security, reducing productivity, and straining local economies. These effects often trigger internal displacement and migration, leading to cascading social and economic challenges. Consequently, 51 per cent of the population in LLDCs faced moderate or severe food insecurity in 2023.*

Energy vulnerability

Due to high fossil fuel import costs, LLDCs are disproportionately reliant on domestic hydropower, which provides roughly 44 per cent of their electricity.* Prolonged droughts or conflicts in neighbouring countries can severely curtail energy access, triggering power outages that cripple hospital life-support systems, vaccine refrigeration, and mechanized water pumping systems, further increasing the existing vulnerability of children.

Strained fiscal capacities

The economic structures of many LLDCs are undiversified and commodity dependent, leading to limitations in their capacity to fund climate mitigation, adaptation, and disaster-risk-reduction measures. This heavy fiscal constraint increases the importance of international climate finance. However, LLDCs often struggle to access these critical resources due to complex governance challenges and limited institutional capacity to meet international funding criteria. For example, the 2024 El Niño drought led to a State of Disaster in 23 of Malawi's 28 districts, showing how climate shocks directly affect food security and rural livelihoods. Malawi's reliance on hydropower also makes the electricity supply vulnerable to hydro-climatic variability, with knock-on risks for hospitals, water pumping and cold-chain dependent services.**

*United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, Climate Vulnerabilities of Landlocked Developing Countries, UN, 2025 <https://www.un.org/ohrlls/news/climate-vulnerabilities-lldcs>.

**World Bank, Malawi Country Climate and Development Report, 2022 <https://openknowledge.worldbank.org/entities/publication/ea68d466-764a-5c06-90c9-14105f558955>

LLDCs are heavily concentrated in drylands, many of which are also in mountainous regions, leaving them highly susceptible to desertification, heat stress, melting glaciers and flash floods. Projections indicate that a third of LLDCs, including Botswana, Burkina Faso and Uzbekistan, are expected to experience high-to-extremely-high water stress by 2050.

Children living in these geographies are likely to face increased water insecurity, making infants and young children more prone to dehydration and diarrheal diseases, which are a leading cause of child mortality in developing countries.

Figure 17 shows that landlocked countries such as **Burkina Faso**, **Chad**, **Malawi**, **Niger** and **Zimbabwe** are among those which not only have high drought exposure but also low levels of access to social services, rendering children in these countries especially vulnerable to drought-related shocks and food insecurity.

For example, **Burkina Faso**, a landlocked country in the Sahel, is experiencing a humanitarian crisis exacerbated by climate hazards. While insecurity has disrupted farming activities and damaged critical infrastructure, drought and extreme heat are placing additional pressure on livelihoods and water access, particularly for families relying on agriculture and livestock. Nearly 80 per cent of children are exposed to at least three climate hazards, with an alarming 90 per cent of children (more than 10 million) exposed to agricultural and meteorological droughts. In addition, all children are exposed to extreme heat (over 35°C) and more than 80 per cent of children are exposed to longer, more severe and more frequent heatwaves.

These climate shocks risk further weakening the capacities of already vulnerable children. UNICEF estimates show that Burkina Faso has one of the highest rates of under-five mortalities in the world. Only 20 per cent of the population has access to electricity, which signifies limited adaptive capacity, especially regarding access to health services. More than 30 per cent of children face severe food poverty. Fifty per cent of the population lacks access to basic drinking water services and almost 70 per cent lacks access to basic sanitation services. Nearly three in four children live with learning poverty and the country faces one of the highest rates of child marriage in the world, with over 50 per cent of women married or in union before age 18.

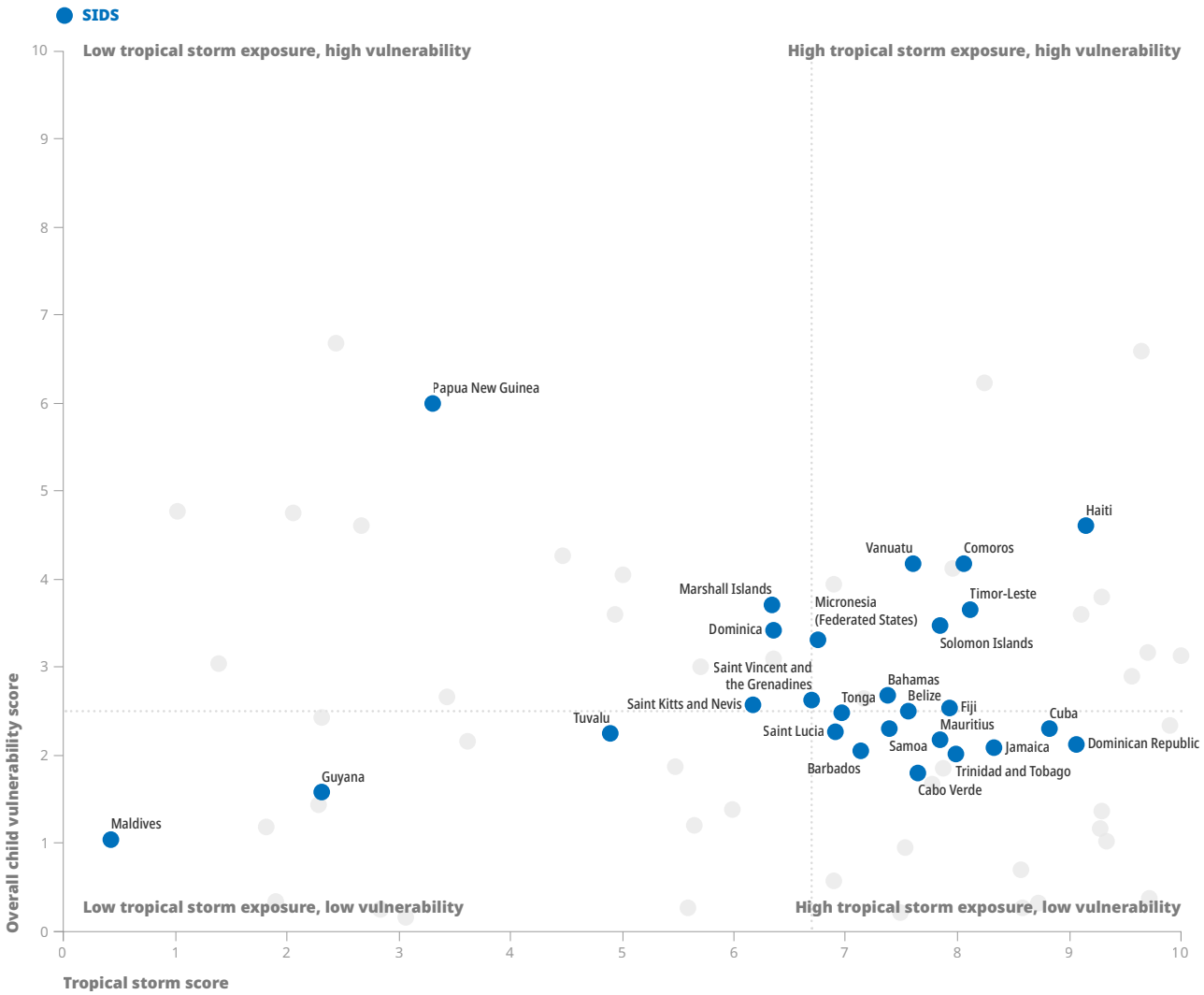
Modesto, a young student, raises his hand in the classroom at Izcóatl Primary School in Ayutla de los Libres, Guerrero, Mexico.
© UNICEF/UNI903608/Marin

5.1.2. Tropical storm risk analysis

SIDS are disproportionately affected by tropical storms, and the impact of these storms is further compounded by the unique structural constraints of small islands (see Box 2). In SIDS that rely on a few, highly vulnerable sectors, like tourism and fisheries, entire economies can be decimated by single events. The limited land area means that, in many islands, most buildings are located near the shoreline, putting them at risk of widespread infrastructure damage from flooding. And the geographic isolation of small islands means that when major roads flood, children cannot get to school or access health services, often for weeks at a time.

Figure 18 shows that countries such as **Comoros**, **Haiti**, **Timor Leste**, **Solomon Islands** and **Vanuatu** not only have high exposure to tropical storms but also high underlying levels of vulnerability due to low coverage of critical social services. Even countries with relatively low child-specific vulnerability can face significant challenges after a single high-intensity event.

Figure 18: Example of single-hazard exposure (tropical storms) combined with overall vulnerability, highlighting SIDS



Note: Excludes countries with no exposure to tropical storms.

BOX 2

Unique structural constraints facing children in SIDS

The United Nations classifies 39 sovereign states as SIDS. While SIDS share common characteristics, individual country contexts vary widely and range from high income, urbanized economies, such as Barbados, Mauritius and Singapore, to upper-middle income countries, like Cabo Verde, Dominican Republic, Jamaica and Maldives, and lower-middle and low income countries, such as Haiti, Papua New Guinea and Timor Leste. They include countries with very small and dispersed populations, such as Kiribati and Tuvalu. There is also significant variation in physical attributes that influence climate risk, including land area, elevation and coastal exposure.

In many of these nations, a single hazard has the potential to wipe out years of socioeconomic progress and cripple essential services nationwide, leaving their child populations exceptionally vulnerable. They are physically and economically bound due to limited land area, geographic isolation, high coastal concentration, low elevation (such as atoll states) and small populations. These are structural, not temporary factors that considerably amplify the risk children in SIDS face from climate change and cannot be fully addressed through policy reform alone, requiring long-term-adaptation and disaster-risk-reduction strategies.

Whole of system exposure

In many SIDS, climate hazards can affect the entire country or multiple islands simultaneously, and there are often no unaffected regions to help absorb shocks or serve as safe havens for people and assets. For example, in 24 SIDS over 99 per cent of children are now exposed to tropical storms. This means that schools, clinics, water systems and food supply chains can all be disrupted at the same time. Similarly, in SIDS there may be limitations due to scale constraints (e.g. only one hospital and a centralized water or energy system). Damage to a single facility can disrupt education and health services entirely. When taken with long distances to access services and other structural constraints, these characteristics mean SIDS face multi-sector disruption that increases overall levels of climate risk significantly for children.

Limited land area

For many SIDS, exposure to sea-level rise causes higher losses of land in proportion to the entire country than in countries with larger land areas or only partial coastlines. In low-lying atoll countries, such as Kiribati, Maldives and Tuvalu, around 99% of the land lies below 5 m of elevation. Moreover, there is little or no hinterland for displaced populations. This creates significant long-term habitability pressures and constrains the ability to relocate communities.

Limited availability of freshwater

Freshwater in SIDS is often very limited, and even temporary disruptions to the water supply can be very risky. Many small islands depend on rainwater harvesting and desalination systems. According to UNESCO, around 73 per cent of SIDS also face the risk of groundwater contamination. This is often worsened by saltwater intrusion into underground aquifers, which poses a real risk for both drinking water and agriculture. This has direct health and nutritional implications for children.

Geographic isolation

Geographic remoteness across small island contexts results in high transport costs and prolonged delivery times for essential goods and services. When disaster strikes, it can take from days to weeks to reach affected populations with the necessities for survival. When schools or health care facilities are damaged, repairs and rebuilds are prolonged, meaning essential social services are paused for an extended period. Moreover, the costs of transporting materials can be prohibitive for many countries and remote settlements. This can shape all aspects of economic life in small islands, making them even more vulnerable to climate shocks.

High import dependence

SIDS import most of their critical medicines, food, fuel and construction materials. High import dependence means limited alternatives and

fewer options to increase adaptive capacity. This has implications for children's nutrition where food is unavailable or nutritious food options are limited; children's health, where medicines and vaccinations cannot be accessed; and children's education, where books and school materials are no longer available. Fuel shortages are also a critical issue, as many health and education facilities rely solely on diesel for energy. Countries are also more exposed to global price shocks. A spike in food or fuel prices globally can create high levels of economic stress as there are few alternatives.

Narrow livelihoods base

Most SIDS have narrow economic bases, which rely on only a few industries that tend to be highly climate sensitive, such as tourism, agriculture and fisheries, with limited options for the diversification of livelihoods. Coral-reef degradation because of ocean warming creates food insecurity and jeopardizes livelihoods; drought, increasing heat and hurricanes can damage crops and croplands, creating similar nutrition and livelihood challenges; storms and cyclones damage tourist infrastructure, which can take months, even years, to rebuild. As a result, climate hazards directly affect the core of the economy. Moreover, the lack of economic diversity reduces the capacity to absorb shocks – people may have limited options for income generation when tourism or fisheries are disrupted. As a result, children experience rapid and widespread socio-economic stress following shocks.

Limited fiscal space

As result of repeated shocks and high costs due to geographic isolation, some governments face high levels of debt. Disaster costs in SIDS average 18 per cent of GDP, six times the global average of approximately 3 per cent. In Comoros, for example, the International Monetary Fund (IMF) has revised potential growth downward to reflect the compounding fiscal impact of increasingly frequent climate-related disasters.

Economic stress also reduces opportunities for public revenue generation, which creates fiscal constraints. This reduces governments' adaptive capacities, making it difficult to finance climate-resilient health, education and social protection systems. This limited fiscal space and consequent under-investment has a cyclical effect, making systems that children depend on less able to withstand and recover from climate impacts.

Infrastructure concentration and interdependence

Infrastructure in SIDS is usually expensive, concentrated and interconnected. Ports, roads, power systems, water supplies, schools and clinics are linked, and damage to just one element in the system can make many others incapable of normal service delivery. This can affect every aspect of the economy and function of daily life, including the provision of services that children depend on. Adaptive capacity needs to account for the significantly higher costs of infrastructure development, service delivery and disaster response.

In some SIDS, the interaction of climate hazards with structural constraints is giving rise to forms of risk that can be described as 'existential'. This refers not to immediate disappearance, but to the progressive loss of conditions necessary for safe, sustainable and continuous human development. For example, the low-lying atoll of Tuvalu is one of the most affected countries globally in terms of climate-related existential risk that severely jeopardizes its long-term habitability, cultural heritage and children's rights. In response to escalating displacement risks, the Falepili Union Treaty offers a pioneering migration pathway to Australia, making Tuvalu an important case study for managing climate mobility and preserving community identity.

SPOTLIGHT

Small Island Developing States

Addressing structural constraints through resilience building and innovative risk financing mechanisms

Many small islands across the world are particularly susceptible to tropical storms. In 2025, Hurricane Melissa made landfall in Jamaica, causing extensive infrastructure damage and prolonged outages of water and power for more than half of Jamaicans (over 1.5 million people); in 2015, Cyclone Pam struck Vanuatu killing 11 people, destroying or damaging over 17,000 buildings and displacing 65,000 people; in 2019, Tropical Cyclone Kenneth ravaged Comoros, displacing 20,000, damaging 465 classrooms and destroying nearly 80 per cent of crops. Due to human-caused climate change, tropical storms are likely to become more intense, resulting in even more devasting impacts.

Through the Today and Tomorrow Initiative (TTI), UNICEF is working with the private and public sectors to deliver rapid response to tropical cyclones through pre-arranged parametric insurance, while investing in community resilience building ahead of cyclones across education, health, WASH, nutrition, child protection and social protection. This innovative model connects humanitarian and development efforts, helping governments enhance their capacities to reduce risks, respond effectively during crises, and build long-term resilience for children and their communities.

In 2023 and 2024, small island nations received over US$650,000 in insurance payouts – in some cases the money received was the only source of humanitarian funding available to support response efforts to cyclone events.

In response to Tropical Cyclone Chido in Comoros, UNICEF distributed school kits to 22 schools by delivering existing supplies and procuring new ones, in coordination with the Primary Education Directorates of Mwali and Ndzuwani; in the Pacific, UNICEF coordinated with national authorities to strengthen future response capacities through preparedness interventions; in Haiti, UNICEF integrated its response into ongoing humanitarian efforts following Hurricane Beryl, focusing on sustaining essential health and hygiene services to prevent further crisis escalation.

In total, over 20,000 children across small islands benefited from the quick response to tropical storms and climate resilience strengthening supported by TTI.

Liveti, 12, jumps from a sandbag staircase in Tuvalu that was built by the government to combat rising sea levels. The structure, called The Reclaimed Land, spans 78,000 m^2 – around 780 m long and 100 m wide – and is fortified on three sides with robust sandbags to hold back the ocean. ©UNICEF/UNI560974/Bak Mejlvang

5.2. Sector-specific risk analysis

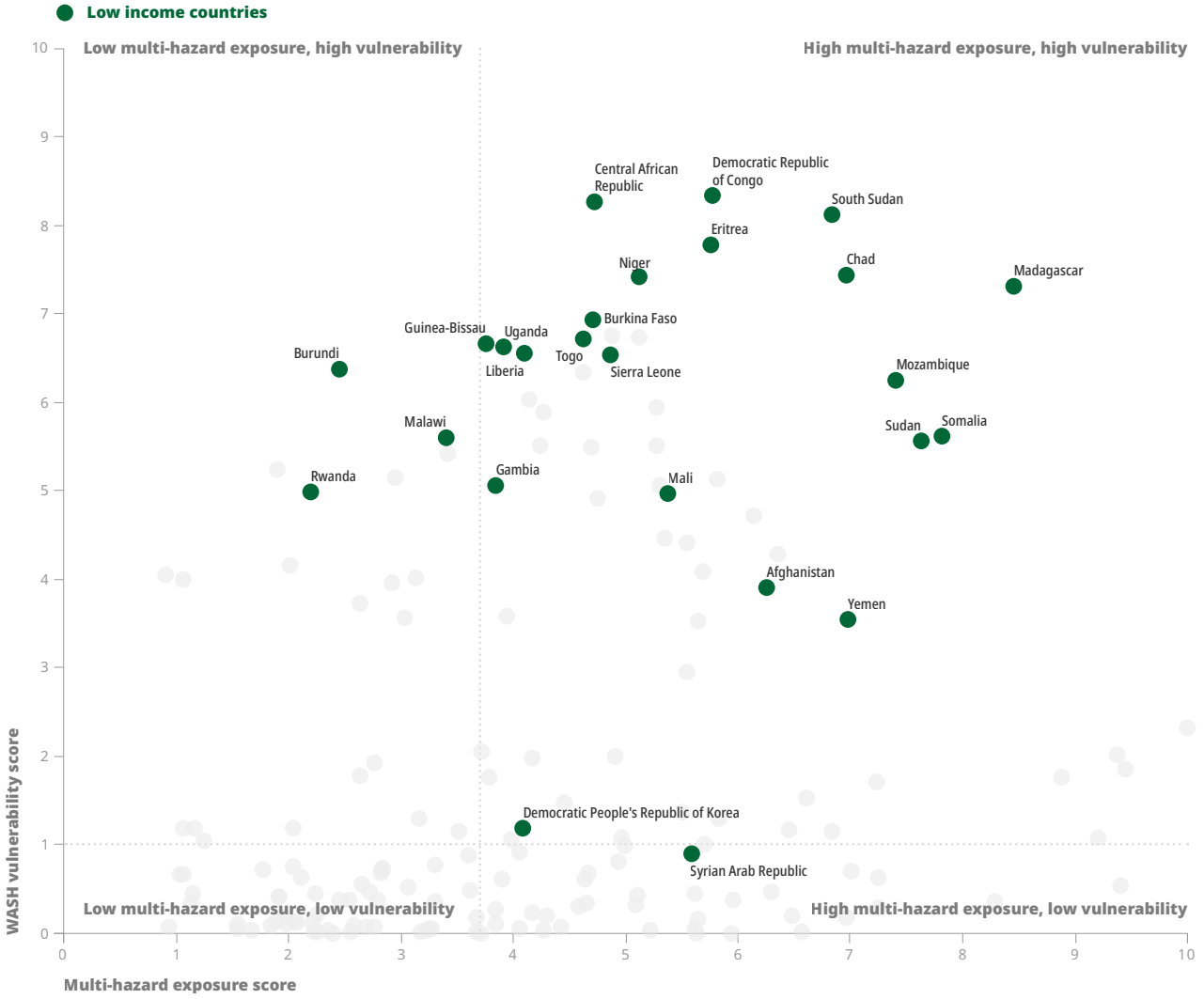
Sector-specific risk analysis is equally important for governments and development partners to protect children from climate-related hazards. Climate-related hazards do not impact all areas of a society equally, and broad, generalized or multi-factor risk assessments can often mask deep, localized vulnerabilities. By disaggregating risk into distinct sector vulnerabilities, such as WASH, nutrition, education, health, child protection and social protection, governments can better understand the ways in which different climate hazards are clustering and cascading in various policy sectors.

Two examples are considered in this section, but the framework can be expanded to any sector-specific analysis.

5.2.1. WASH-specific risk analysis

While severe hazards can affect an entire country, some sectors will be more affected than others. A sector-specific lens reveals where targeted interventions are most needed and provides concrete data and evidence to support decisions and actions to strengthen the resilience of social services and ensure that these continue to serve children and their families in the face of climate shocks and stresses.

Figure 19: Example of sector-specific vulnerability (WASH) combined with multi-hazard exposure, highlighting low income countries



WASH services are vulnerable to multi-hazard impacts. In areas with poor sanitation infrastructure, floodwater containing pathogens can contaminate unprotected drinking water sources and trigger outbreaks of waterborne diseases, like cholera and typhoid. Prolonged meteorological drought, on the other hand, may reduce the availability of traditional water supplies, forcing communities to rely on unsafe water sources. High intensity storms can destroy weak WASH infrastructure, such as rainwater harvesting tanks, and leave communities cut off from safe water, sanitation and hygiene. Analysing the interactions between WASH-specific vulnerabilities and multi-hazard exposure is critical for developing climate-resilient WASH services. Especially when conducted at a sub-national level, such analysis helps governments and service providers identify the adaptation actions needed to ensure that WASH services can withstand multiple overlapping climate hazards.

Low income countries are generally less able to respond to and recover from the impacts of hazards with existing structural constraints rooted in macroeconomic deprivation, institutional underdevelopment and systemic poverty. In 2025, the World Bank classified 25 countries with a GNI per capita of US$1,135 or less as low income, of which 21 are in sub-Saharan Africa.

With constrained fiscal space and increasing debt distress, they often lack the financial and institutional capacity to adequately adapt, prepare or respond to increasing climate hazards. When governments cannot prioritize proactive climate adaptation, especially in child-critical social services such as climate-resilient education, healthcare and WASH, the existing infrastructure can easily be damaged or destroyed by even moderate events.

Figure 19 shows that children in countries such as **Democratic Republic of Congo**, **Eritrea**, **Madagascar**, **Mozambique** and **South Sudan** not only have low coverage of basic WASH services but are also have high multi-hazard exposure.

For example, children in **Madagascar**, a low income country in Southern Africa, continue to face the effects of exposure to multiple hazards and weak socioeconomic conditions and limited access to essential services. Rural communities remain highly vulnerable to climate-related shocks, particularly droughts, storms, floods and rising temperatures, which affect livelihoods, health and children's wellbeing. Although access to WASH services in Madagascar has improved in recent years, a significant share of the population still lacks access to basic services, particularly in rural areas.

In Madagascar, more than 40 per cent of children (~6.3 million) are exposed to at least three climate hazards. Almost all children are exposed to tropical storms. More than 60 per cent of children are exposed to heatwaves and 36 per cent of children are exposed to agricultural and meteorological droughts. Nearly 2 million children are exposed to riverine floods across the country.

At the same time, children are living with severe deprivations in many sectors that shape their capacity to cope with and recover from shocks. Two out of every five children still lack access to at least basic drinking water, three quarters lack basic hygiene, and fewer than one in five have basic sanitation services. These WASH gaps are particularly concerning in a context where other vulnerabilities are also high, including incomplete immunization coverage, limited access to electricity, severe child food poverty, learning poverty and multidimensional poverty. Strengthening climate-resilient WASH services is therefore critical to protect children and support adaptation in Madagascar. However, WASH investments should be understood as part of a broader child-resilience agenda, since it is closely linked to children's health, nutrition, learning, protection, and overall ability to withstand overlapping climate hazards.

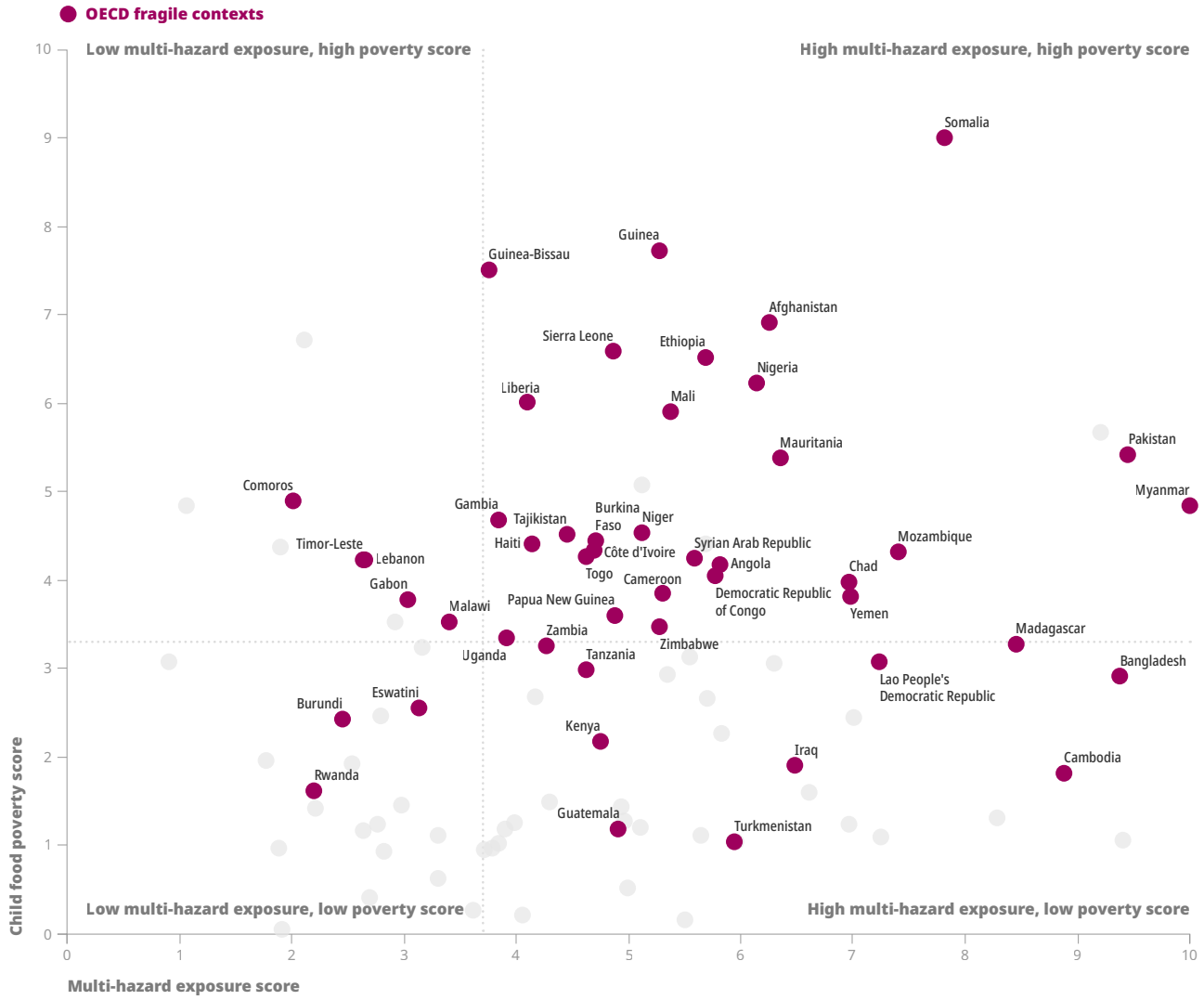
5.2.2. Nutrition-specific risk analysis

Climate-resilient nutrition systems and services provide children with access to nutritious foods, nutrition-influencing services, care, and feeding practices to reduce the risk of malnutrition. Nutritional services are often not equipped to cope with hazardous climate events, and weather extremes represent one of the primary drivers of nutrition system failures.

The changing availability and distribution of natural resources after weather extremes can disrupt unprepared systems and increase competition for scarce resources; drive crop failure and damage infrastructure; increase the number of forcibly displaced people, which can put strain on food availability for both displaced and host populations; and reduce exports, slowing post-disaster recovery.

Countries that are classified by the OECD as highly or extremely fragile face great barriers when it comes to protecting children and supporting them to cope with and adapt to multiple climate hazards. The combined challenges of protracted armed conflict, political instability, weak institutional governance, and economic crisis can severely cripple a government's capacity to analyse, predict, respond to and adapt to climate disasters. Fragility may also be further

Figure 20: Example of sector-specific vulnerability (nutrition) combined with multi-hazard exposure, highlighting fragile contexts



exacerbated by major climate hazards, for example floods and droughts may disrupt livestock grazing activities and limit land and water resources, which can in turn induce tensions and lead to localized and system-wide conflicts.

Too much or too little water can be a key driver of violence, especially in sub-Saharan African countries where many countries are also dealing with protracted conflict. With limited resources invested in disaster response mechanisms and supporting agriculture and markets to adapt to increased demands, nutritional systems are increasingly relying on external assistance to meet demands and, ultimately, failing to meet the needs of children and their communities. By adopting a nutrition-specific approach to climate risk analysis, it is possible to identify the children who are exposed to multiple climate hazards as well as experiencing severe malnutrition/child food poverty.

Children in countries such as **Afghanistan**, **Mali**, **Niger**, **Sierra Leone** and **Somalia** are not only exposed to multiple climate hazards but also have high levels of child food poverty, with evidence that agricultural production is being impacted by a combination of erratic rainfall, floods and persistent or worsening conflicts.

For example, in Afghanistan, which is classified as extremely fragile, children are exposed to multiple climate hazards, including floods, droughts, heatwaves, extreme heat, fires, and sand and dust storms. Of the country's 21 million children, more than 40 per cent are exposed to at least three climate hazards. More than 75 per cent of children are exposed to droughts and more than 50 per cent of children are exposed to longer and more frequent heatwaves. More than 1.7 million children are exposed to riverine floods.

Millions of children also face significant deprivations. Afghanistan has one of the world's highest rates of stunting in children under five. Almost 50 per cent of children live in severe child food poverty. More than 30 per cent of children do not have adequate immunization coverage (measured by DTP1) and nearly 50 per cent of children lack access to basic sanitation and hygiene. More than 60 per cent of children do not complete lower secondary education – the continued ban on post-primary education for girls continues to undermine rights and prospects, affecting more than 2.2 million girls.

This lack of access to basic services combined with weak safety nets increases climate risks for children in Afghanistan and these are compounded by the wider structural constraints of fragile contexts (see Box 3).

5.3. Multi-dimensional risk analysis

Multi-dimensional risk analysis is essential for a more holistic understanding of contexts where children are not only exposed to multiple hazards but also deprived of access to multiple social services. This type of analysis can help policy makers gain a more comprehensive understanding of systemic risks. Rather than addressing specific hazards or sectors in isolation, this holistic approach allows governments and humanitarian and development partners to design multi-purpose early warning systems, design infrastructure capable of withstanding various overlapping shocks, and efficiently allocate resources across multiple sectors toward comprehensive national adaptation plans that protect the most marginalized communities from complex, interrelated emergencies.

Analysis of the intersection of multi-hazard exposure and multiple child-specific vulnerabilities reveals a double burden, especially in countries that are simultaneously landlocked, low income and fragile, and therefore face multiple structural constraints. A severe drought may destroy agriculture, but the impacts are compounded when the state lacks the fiscal capacity to subsidize farmers. International food aid may be further delayed

BOX 3

Additional structural constraints of fragile contexts

The OECD multidimensional fragility framework highlights that fragility is driven by complex, compounding interactions across economic, environmental, political, security, societal and human dimensions. Approximately 900 million children live in contexts that are classified as fragile, comprising close to 45 per cent of the total child population. In these environments, climate-related hazards do not act in isolation but rather as a significant threat multiplier, interacting with protracted armed conflict, institutional collapse and social fractionalization, creating multidimensional emergencies that defy standard humanitarian or developmental interventions.

Constrained governance

The critical constraint in an extremely fragile state is the absence of effective governance and the inability to provide basic services such as healthcare and education. Without state-sponsored interventions, preparing for, warning of and responding to disasters is extremely difficult and climate adaptation projects are often inadequately prioritized or funded. When a climate disaster strikes, the government may not be able to effectively coordinate evacuations or disburse relief.

Economic limitations

Fragile states typically have smaller economies and struggle with domestic revenue mobilization. Their economies are often heavily dependent on a single sector, like climate-sensitive subsistence agriculture. This lack of diversification leaves them highly vulnerable to global market fluctuations and limits their fiscal capacity to invest in climate adaptation.

Mass displacement and severed social networks

The compounded pressures of climate-related hazards and armed violence force many people to flee. Internal and cross-border displacement can permanently sever a child's protective social fabric. Children are thrust into overcrowded, informal camps lacking basic sanitation, clean water and access to healthcare, inflicting long-lasting damage on their mental health and cognitive development.

Limited essential infrastructure

Chronic underinvestment and the destructive impacts of conflict leave fragile states with severely underdeveloped physical infrastructure. Poor road networks, unreliable energy grids and limited digital connectivity isolate rural populations.

In states characterized by active conflict, essential child-critical infrastructure such as schools, hospitals and water treatment facilities is routinely damaged or deliberately targeted. When climate shocks occur within this landscape, the outcomes can be disastrous, eradicating the community's baseline resilience and physically preventing humanitarian actors from delivering life-saving aid.

by exorbitant border transit costs. The resulting resource scarcity can spark or further worsen existing armed violence and mass displacement. This intersectionality means that, in these countries, climate shocks and stresses can rapidly escalate into multi-sectoral emergencies impacting child nutrition, education, WASH, health and protection.

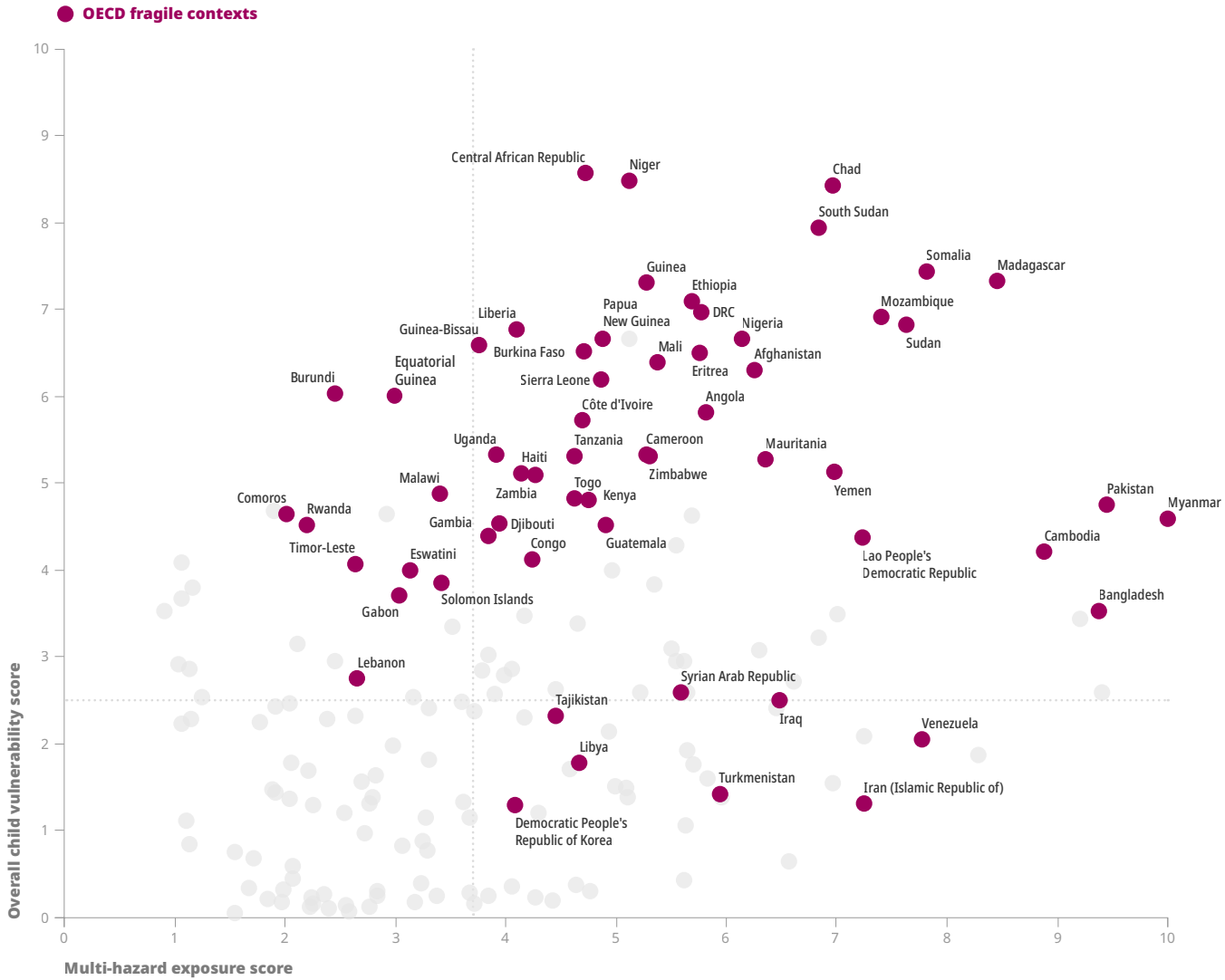
Children in countries such as **Central African Republic**, **Chad**, **Ethiopia**, **South Sudan** and **Sudan** have high exposure to multiple climate-related hazards as well as high overall levels of child-specific vulnerability, which is further exacerbated by their respective structural constraints.

For example, **Chad**, a low income, landlocked nation in the arid Sahel is also facing a prolonged humanitarian crisis, with nearly 40 per cent of the population already in need of humanitarian assistance due to a combination of climate impacts, health emergencies and armed conflict. In addition to intercommunal violence, the deteriorating security situation in neighbouring countries such as Sudan and Central African Republic has also steeply increased an influx of refugees and returnees. This has added a heavy burden to existing infrastructure, further decreasing the coping capacity of vulnerable children to any future climate shocks.

More than 95 per cent of children in **Chad** are exposed to at least three hazards, one of the highest multi-hazard exposures in the world. Ninety four per cent of children are exposed to agricultural and meteorological droughts and 96 per cent are exposed to heatwaves. Almost all children are also exposed to air pollution and malaria. Over 2 million children are exposed to riverine floods.

At the same time, children face significant multi-dimensional deprivations. Almost 90 per cent of children have no access to electricity and 30 per cent of children live in severe child food poverty. More than 85 per cent of children have no access to at least basic sanitation services. Education vulnerability is also high, as only 13 per cent of children have completed lower secondary education. More than 60 per cent of women were first married or in union before age 18. Under-five mortality is greater than 97 per 1,000 live births. In addition to the structural constraints of living in an LLDC which is both low income and extremely fragile, children in Chad face extremely high overall levels of climate risk.

Figure 21: Example of multi-dimensional risk analysis, integration measures of multiple hazards and vulnerabilities in fragile states



Chapter 6

Policy recommendations and calls to action

In 2023, the United Nations Committee on the Rights of the Child (CRC) adopted General Comment No. 26, its first authoritative guidance on children's rights and the environment. With a special focus on climate change, it affirms that States have obligations to protect children from environmental harm, and states that, as environmental decisions generally concern children, the **best interests of the child shall be a primary consideration** in the adoption and implementation of environmental decisions, including laws, regulations, policies, standards, guidelines, plans, strategies, budgets, international agreements and the provision of development assistance.

The Paris Agreement on Climate Change further recognizes that States should, when taking climate action, respect, promote and consider their respective obligations to human and child rights.

In its 2025 Advisory Opinion on Climate Change, the International Court of Justice affirmed that States' obligations to address climate change and protect human rights, including children's rights, arise not only under climate law, but also under international biodiversity law, international law on desertification and land degradation, and the law of the sea.

The increasing and overlapping impacts of the climate crisis put children's lives and futures at risk. These risks are particularly acute for children who already experience deprivation due to intersecting inequalities, such as discrimination based on gender, ethnicity and disability.

Upholding every child's right to a clean, healthy and sustainable environment requires urgent, coordinated and child-responsive climate policies, action and investment to:

- **Reduce emissions across all sectors** and take ambitious action to fulfil existing international commitments, grounded in the best available science. This includes the urgent phasing-out of fossil fuels and a just transition towards renewable energy and energy efficiency in line with 1.5°C pathways – ensuring the best interests of the child are a primary consideration.
- **Protect children** through inclusive climate adaptation and responses to loss and damage that prioritize the resilience of social services children rely on to survive and thrive. Ensure children and child-critical services are prioritized in national adaptation plans and sectoral strategies, disaster preparedness and response plans, and strategies to respond to loss and damage.

- **Empower children and young people to meaningfully participate in climate action and a just transition** by investing in climate education, knowledge and skills, and by strengthening the capacity of decision makers and experts to respect children's right to be heard, freedom of expression, and participation in decisions that affect their lives. Ensure children's needs and perspectives are reflected in local, national, regional and global decision making on climate policy and climate finance.

Child-centred climate action must prioritize the most marginalized children and populations at greatest risk and protect the frontline workers who deliver essential services for children. It must advance gender equality, and respect and integrate Indigenous knowledge and cultural heritage. The collection and use of robust, disaggregated data – especially in countries that are traditionally under covered, such as SIDS and LLDCs – are essential for risk-informed and inclusive policies, action and finance that target children most at risk.

Risk-informed investments and targeted climate finance benefit children and societies

Several recent studies show that investing in the adaptation of essential social services for children pays off. According to analysis from the World Resources Institute (WRI), every US$1 invested in adaptation generates more than US$10 in benefits over a 10-year period.

As the climate crisis unfolds, early investments to adapt essential social services to the needs of children in a rapidly changing climate will reduce future costs and avoid more costly investment needs later on.

Recommendations for child-centred climate action

By acting on the following recommendations, governments and partners can strengthen the climate resilience of key sectors and thereby increase the adaptive capacity of social services children depend on to survive and thrive. These actions can be integrated with policy frameworks at the national, sectoral and subnational levels, including NDCs, NAPs and national disaster risk reduction strategies. To clarify responsibility, the recommendations are organized by the sectors and institutions that are typically responsible for their planning and implementation.

6.1. Agriculture and food systems

The agricultural sector, the foundation of food security, is highly vulnerable to the impacts of climate change. Climate shocks like drought, floods, storms and heatwaves disrupt all pillars of food security – availability, access, use and stability – directly increasing child food poverty, stunting and wasting. Simultaneously, industrial food systems are a primary driver of the greenhouse gas emissions and environmental degradation that pollute children's environments and accelerate the very climate risks threatening their nutrition.

Recommendations:

1. **Combat child malnutrition with nutritious, climate-resilient food:** Implement subsidies and other financial incentives to guarantee children's access to more diverse, nutrient-dense, climate-resilient foods. Establish food policies and standards that prioritize children's nutritional needs over high-emission, unhealthy, nutrient-poor nutrition products.
2. **Secure children's food supply by reducing food loss and waste:** Reduce food loss and waste across value chains and improve food availability and affordability for families, including through minimal processing. Invest in resource-efficient supply chains

SPOTLIGHT

The Sahel

Protecting children through adaptive food and nutrition systems

Rising temperatures and more frequent and intense hazardous events in Sahel countries are disrupting food and health systems already strained by decades of drought-related food insecurity, resource scarcity, conflict and displacement. This increases the risk of child food poverty and malnutrition, especially for children under five years of age. In West and Central Africa, 31 million children experience severe food poverty, and in Western Africa alone, nearly 20 million children under five are chronically malnourished (stunted) and 6.4 million are acutely malnourished (wasted). Strengthening the climate resilience of systems supporting children's nutrition and development is critical to avert this crisis.

Since 2018, the World Food Programme (WFP) and UNICEF – with support from the German Federal Ministry for Economic Cooperation and Development (BMZ) – have partnered with Sahel governments to build the climate resilience of communities to prevent climate-induced food and nutrition insecurity. Together, they have identified areas with the highest levels of food insecurity and child wasting in each country to target a package of actions to build resilience among the most vulnerable households. Actions include building the resilience of local agrifood systems to help them withstand climate shocks; building climate-resilient water and sanitation systems; and strengthening the delivery of direct nutrition services to prevent multiple forms of malnutrition and support the early detection and treatment of child wasting.

Between 2022 and 2023, over 80 per cent of highly food-insecure villages in Niger supported by the programme (representing more than 500,000 people annually) no longer required humanitarian food security assistance during the lean season. Between 2020 and 2025, as a contribution to the programme, UNICEF constructed 623 climate-resilient water systems powered by solar energy, providing nearly 730,000 people with sustainable, safe water. The water systems serve nearly 300 health centres, ensuring facilities treating children with severe wasting have the water needed for hygiene and infection control. Systems were also built to provide safe and sustainable water to over 400 schools, enabling safe drinking water, school meals and hygiene activities. In households, improved access to safe and reliable water has enabled safe food preparation, reduced diarrhoeal disease, and irrigation for kitchen gardens to diversify household diets with nutrient-rich foods.

Building on this success, in 2023, WFP, UNICEF and the German Agency for International Cooperation (GIZ) launched the Sahel Resilience Partnership (SRP) to further strengthen the resilience of local systems to reduce climate nutrition vulnerability. During 2025 alone, joint efforts reached over 6 million people in Burkina Faso, Chad, Mali, Mauritania and Niger with resilience-building activities, with intended expansion to reach 8 million people by 2027.

and support the reduction of household food waste through national policies and consumer education.

3. **Protect the livelihoods and nutrition of farming families:** Provide financial incentives and technical assistance to farmers, particularly smallholder families, to adopt resilient, climate-smart practices like efficient water management, agroforestry, climate-resilient crop, livestock and fisheries production, and the use of climate information and early warning services.
4. **Eliminate agricultural practices that directly harm children:** Enforce a strict ban on open-field crop burning to cut a major source of air pollution. Concurrently, prohibit the use and sale of highly hazardous pesticides scientifically linked to harming children's physical and neurological development.

6.2. Disaster management

As the coordinators of disaster preparedness, response and recovery, national disaster management agencies have a critical duty to address the heightened risks facing children. This requires deliberately incorporating child-protection-focused measures into emergency protocols, evacuation plans and recovery services.

Recommendations:

1. **Integrate child-specific risks into national disaster management strategies:** Coordinate among relevant ministries and local governments to ensure national disaster risk assessments, strategies and preparedness plans consider the essential services children rely on to cope with and survive in emergency settings, with consideration for children on the move.
2. **Establish child-focused early warning and anticipatory action:** Expand inclusive, accessible and age-responsive multi-hazard early warning systems to reach communities, schools, protection services and health centres. This includes involving and educating communities on using and understanding warnings, and developing forecast-based protocols that trigger pre-arranged financing and actions to protect children before predictable climate hazards turn into disasters.
3. **Deploy child-critical services during humanitarian crises:** Activate pre-established emergency protocols to deliver a coordinated package of essential services and supplies for child health, nutrition, education, WASH and protection purposes. Ensure essential supplies for children are immediately deployed to relief sites and affected communities, and that mobile services can reach and support children wherever they are.
4. **Centre children's needs in post-disaster recovery plans:** Prioritize the rapid restoration and reconstruction of schools, health facilities and protection services serving children after disasters, using climate-resilient standards and principles and the local context to build back better.
5. **Strengthen post-disaster data collection and analysis:** Mandate the collection of age-, sex- and disability-disaggregated data in post-disaster needs assessments (PDNAs), integrating child insights and social service analytics on vulnerability, risks and local capacities. Use this data to accurately track losses and damages affecting children and inform evidence-based risk reduction and recovery planning.

6.3. Education

To secure children's futures, the education sector must lead in building resilience against climate change. Worsening climate impacts are destroying schools and disrupting learning, with marginalized students – including those living in humanitarian situations – facing the greatest barriers. These recommendations use the *Comprehensive School Safety Framework (CSSF)* to create safe learning environments, strengthen disaster management, and deliver climate and environmental education.

Recommendations:

1. **Strengthen school-based disaster management and response:** Strengthen the capacity of school leaders and teachers, in collaboration with disaster management agencies, to conduct multi-hazard risk assessments, implement standardized preparedness and response plans, connect with early warning systems, and prepare contingency plans for remote learning options to counter learning disruptions. This can also include developing partnerships and networks with parents and the local community.
2. **Ensure safer and greener learning facilities:** Ensure new school construction and retrofitting projects adhere to green, climate-resilient and accessible building codes and surroundings. This robust and sustainable infrastructure (e.g., storm and flood protection; clean energy; safe WASH facilities; sustainable cooling, cooking and lighting) can also function as safe havens during emergencies and limit learning disruptions.
3. **Integrate climate literacy and green skills into curricula:** Embed climate and environmental education and green skills into formal student curricula and teacher training programmes. Empower students as agents of change by supporting child- and youth-led climate initiatives (e.g., environmental clubs) that contribute to community resilience, cultural heritage and a just transition.
4. **Scale-up school health programmes:** Adapt and scale-up school health programmes in coordination with health ministries as a strategy for building climate resilience and environmental protection. This calls for integrated health and nutrition services to address issues like heat stress and malnutrition in children, as well as for offering psychosocial support to help students cope with climate-related anxiety and trauma.
5. **Embed climate resilience in education sector plans and budgets:** In coordination with ministries of finance and planning, conduct a risk-informed analysis of the education sector and allocate adequate financing to support climate adaptation across education planning and investment, ensuring progress can be tracked for both formal and non-formal learning.

6.4. Energy

By ensuring access to sustainable and resilient energy, policymakers can play a critical role in safeguarding children's rights and guaranteeing the continuity of essential services during climate impacts. The dual threat of poor air quality from polluting energy sources and power disruptions to essential services during climate hazards jeopardizes children's health, safety, learning and access to care.

Recommendations:

1. **Accelerate the transition to clean household energy to prevent child mortality:** Implement targeted subsidies and other incentives to rapidly scale access to cleaner cooking and heating solutions at the household level. This will eliminate indoor air pollution – a leading cause of pneumonia and death in young children – while simultaneously cutting potent climate pollutants like black carbon.
2. **Ensure continuous power for child-critical services:** Implement energy efficiency programmes and back-up energy storage, including by improving the efficiency of existing energy systems and installing renewable energy solutions such as microgrids, for all health care facilities, schools and water infrastructure. This guarantees continued access to life-saving services for children.
3. **Protect children from extreme heat with sustainable cooling:** Accelerate the adoption of low-emissions, high-efficiency cooling technologies through financial incentives and updated energy performance standards. Prioritize access for households, schools and health clinics, particularly

maternity wards and neonatal care units, to protect children from the severe health impacts of rising global temperatures.

4. **Mandate the safe and sustainable lifecycle of green technologies:** Enforce strict regulations for the entire lifecycle of energy generation and storage components, from mineral extraction to disposal and recycling (e.g., substandard lead-acid battery recycling). This prevents environmental contamination and the creation of toxic e-waste that can irreversibly harm children's health and development.

6.5. Environmental management

Environmental agencies have a primary responsibility to protect children's health and futures by leading the national response to the climate crisis. Fulfilling this duty requires embedding children's specific needs and insights in national climate policy, enforcing child-health-based pollution standards, scaling up nature-based solutions and reforming environmental impact assessments.

Recommendations:

1. **Embed child rights and needs into national climate policies and commitments:** Include targets for achieving children's right to a healthy environment and reducing climate-related impacts experienced by children in core climate policies, such as NDCs and NAPs.
2. **Scale-up nature-based solutions (NbS) for climate change adaptation:** Champion and invest in ecosystem-based mitigation and adaptation projects (e.g., mangrove restoration, urban green spaces, watershed protection) that buffer communities and child-critical infrastructure like schools and clinics from extreme weather impacts and contribute to improved mental health and wellbeing outcomes.
3. **Mandate child-centric climate and environmental impact assessments (EIAs):** Update EIA guidelines to require a mandatory review of climate risks and their potential impacts on children's rights and livelihoods.
4. **Protect children from environmental contamination:** Use regulatory authority to establish and enforce legally binding, child-health-based standards for air, water and soil quality management. Prioritize the creation of "pollution-safe zones" around schools and communities by enforcing strict controls.
5. **Formalize child and youth participation in national climate governance:** Establish formal mechanisms, such as youth advisory councils, children's or citizen's assemblies and dedicated seats in policy delegations, to ensure the meaningful participation of children and young people in influencing governmental climate action.

6.6. Health

Ministries of health have a fundamental mandate to protect the health and wellbeing of populations, with a special duty to safeguard mothers, newborns and children. This mandate is under direct threat from the impacts of climate change, which disrupt essential services and increase the prevalence of child malnutrition, infectious diseases, heat stress and poor mental health.

A system-wide transformation is needed in affected countries to build a climate-resilient health system and ensure its infrastructure, workforce and supply chains can guarantee continuous access to quality maternal, child and adolescent health and nutrition, and mental health services.

Recommendations:

1. **Make primary health care facilities climate resilient:** Strengthen primary health care facilities by investing in climate-resilient infrastructure, including reliable access to safe WASH, reliable energy and waste management. Develop, expand and test emergency preparedness plans, early warning systems and climate-resilient supply chains to ensure continuous, life-saving care for children during climate disasters, including displaced children and those on the move.

2. **Equip the health workforce for climate threats:** Train and equip all health workers – from facility staff to public health managers – to manage the full spectrum of climate-related health risks to children, including children on the move and pregnant women. Equip and support community health workers to be local leaders in building household and community resilience.
3. **Empower communities with climate and health information:** Launch targeted public health campaigns to communicate clear, actionable advice to reduce exposure and protect children from climate hazards like heatwaves and floods, while ensuring local communities are engaged to co-create the solutions.
4. **Strengthen surveillance and control of climate-sensitive diseases:** Establish integrated surveillance systems to track growing threats like malnutrition, heat stress, and outbreaks of waterborne and vector-borne diseases. Ensure all data is disaggregated by age, sex and disability status to trigger timely public health responses that protect the most vulnerable children.
5. **Integrate mental health support into climate–health response:** Expand the scale and quality of multisectoral mental health and psychosocial support (MHPSS) for children, adolescents and caregivers. Integrate mental health indicators into all climate–health surveillance and vulnerability assessments to ensure a comprehensive response.

6.7. Local governance, urban/rural development, land management and housing

As the critical link between national policy and community-level action, ministries of local governance and urban/rural development are responsible for shaping the physical environments where children live. They can use their authority over urban and rural planning, infrastructure development and local government financing to enable climate-resilient communities that protect children from escalating climate hazards by ensuring local services, systems and structures are designed with children's safety and wellbeing in mind.

Recommendations:

1. **Develop child-sensitive local climate change adaptation plans:** Lead the development of risk-informed local adaptation plans in partnership with ministries of health and education, community leaders and civil society. These plans should prioritize needs as identified by children themselves, build the capacity of frontline workers, and channel national climate funds to protect child-critical services at the local level.
2. **Establish and equip community-level emergency response teams:** Collaborate with national disaster management agencies to establish and train community-based preparedness and response teams. Equip these teams with locally relevant information from early warning systems and the tools needed to safeguard children during climate disasters.
3. **Invest in climate-resilient housing and community infrastructure:** To protect children from extreme weather events, invest in climate-resilient housing and community infrastructure. This requires enforcing strong building codes and upgrading informal settlements with safer structures, reliable safe WASH, and climate-proof access to essential services. Concurrently, invest in green spaces for heat management and nature-based solutions for flood management, and collaborate with local and urban planners to prevent new construction in high-risk zones.
4. **Use climate-risk zoning to create safe environments for children:** Implement and enforce risk-informed zoning and land-use regulations to prevent the construction of homes, schools and health facilities in high-risk areas. Work with the private sector and communities to create and protect urban green spaces, such as parks and playgrounds, that reduce urban heat and provide safe areas for children.

5. **Mandate pollution control and waste management to protect child health:** Locally regulate and monitor air, water and soil pollution, particularly in and near waste and landfill sites. In collaboration with the ministry of environment and private sector operators, enforce a phase-out of open waste burning and develop circular economy models to reduce children's exposure to toxic environmental hazards.

6.8. Planning, finance and economic development

As the strategic and financial core of government, ministries of planning, finance and economic development, supported by the national bureau of statistics, are responsible for translating national priorities into funded realities. These institutions have a critical mandate to address the fact that children, despite being most at risk, remain underrepresented in climate finance flows. By using their authority over national budgets, development plans and data systems, these ministries can ensure climate finance investments are equitable and child responsive. This involves not only directing funds to protect children but also recognizing that such investments avert the catastrophic long-term cost of inaction on their health, education and future wellbeing.

Recommendations:

1. **Collect child-specific risk and vulnerability data:** Integrate child-sensitive indicators (disaggregated by age, sex and disability) into national surveys such as Multiple Indicator Cluster Surveys (MICS) to assess the impact of climate-related hazards on children and the essential services they depend on. Use this data as an evidence base for all climate-related planning, budgeting, and loss and damage assessments.
2. **Integrate child-focused measures into national policies:** Ensure national development strategies, climate policies and plans (e.g., NDCs, NAPs), and infrastructure pipelines include specific, costed interventions that protect child-critical sectors like health, education, water and social welfare from climate impacts.
3. **Allocate resources to protect children:** Increase and focus budgetary allocations to improve the resilience of essential services for children to protect them from climate-related hazards and associated risks and harms. Increase allocations for local financial instruments and shock-responsive social protection mechanisms (e.g., cash transfers) that can rapidly deliver resources across sectors to children and families affected by climate disasters.
4. **Scale-up climate financing:** Create clear regulations and incentives to attract and blend public, private and multilateral financing for child-responsive climate projects. Establish dedicated funds, public–private partnerships (PPPs) with international financing institutions and others, and disaster-risk financing frameworks to de-risk investment in resilient infrastructure for schools and health facilities, while accounting for unique structural constraints.
5. **Improve accountability mechanisms:** Create transparent, public-facing accountability mechanisms to track the allocation, expenditure and impact of climate-related funding with benefits for children.

6.9. Social welfare, women and child development

Ministries focused on social welfare, women and children are often the state's primary duty-bearers, mandated to protect the most vulnerable populations from harm and uphold the rights of every child. The escalating climate crisis directly threatens this mandate by damaging household stability, increasing poverty, and exposing children to severe protection risks, such as family separation, child labour and violence. Therefore, it is critically important for these ministries to step up and lead the way in building social protection

systems that are not only robust but also contribute to national climate goals, including making them responsive to climate shocks, ensuring the protection of every child is at the heart of the nation's climate response.

Recommendations:

1. **Make social protection systems climate adaptive and shock responsive:** Adjust national social protection systems to automatically scale-up support, such as cash transfers and food assistance, in anticipation of, and in response to, climate shocks.
2. **Strengthen shock-responsive child protection services and the workforce for climate-related risks:** Equip social workers and case management systems to identify, prevent and respond to the heightened protection risks, including child labour, family separation, violence and trafficking, that often follow climate disasters. Work with health and education partners to ensure displaced children have access to mental health and psychosocial support services and safe and accessible child-friendly spaces in shelters.
3. **Sustain early childhood development services during climate disasters:** Ensure the continuity of crucial early childhood development services during climate-related emergencies. In collaboration with ministries of health and education, develop and deploy ECD kits for displaced families, ensure safe childcare is available in shelters, and integrate nutrition support into emergency response to protect the youngest children.
4. **Champion gender equality in national climate policy and finance:** Advocate directly with ministries of planning, finance and environment to ensure climate adaptation and disaster-response plans are gender transformative and allocate adequate funding to address the specific needs of women and girls, including services to prevent and respond to gender-based violence in emergencies.
5. **Use data and evidence to target the most vulnerable children:** In partnership with national statistics departments, generate and analyse age-, sex- and disability-disaggregated data on climate impacts. Use this evidence to refine targeting mechanisms for social and child protection programmes, ensuring they effectively reach and overcome access barriers for the most excluded children.

6.10. Transportation and industry

Ministries of transportation and industry are critical in protecting children from climate change by regulating sectors that are primary drivers of both greenhouse gas emissions and pollution. Ministries of transportation hold the responsibility for ensuring mobility is safe, clean and resilient, directly impacting the air children breathe and their access to essential services. Ministries of industry are responsible for steering the private sector towards a green and just transition, regulating industrial pollution and managing the economic shifts necessary to build a stable and healthy future for the next generation.

Recommendations:

1. **Prioritize clean and resilient transport for children:** Accelerate the transition to low-emissions public and active transport (e.g., walking, cycling), particularly on routes to schools and parks, by updating national policies and providing subsidies for cleaner alternatives. Ensure all transport infrastructure is built to be climate resilient and accessible, guaranteeing safe evacuation routes and access to emergency aid for children and families.
2. **Establish and enforce child-safe industrial zones:** Ministries of industry, in coordination with environmental agencies, can implement and enforce strict environmental standards that reduce industrial emissions and mandate the safe management of waste. A key part of this is enforcing zoning regulations that prohibit the siting of heavy industries near schools, playgrounds and residential areas to prevent children's exposure to hazardous pollutants.

SPOTLIGHT

Ethiopia

Shock-responsive protection reduces child marriage, reaching displaced populations

Ethiopia, home to 136 million people, faces severe climate hazards. Children and families, who heavily rely on rain-fed agriculture and livestock, are highly impacted by droughts, floods and erratic rainfall. Compounded by ongoing conflicts in Oromia, Amhara and Tigray since 2020, these crises have displaced hundreds of thousands of children and their families, increasing child protection risks and undermining access to essential services.

Between 2017 and 2023, an estimated 1.6 million internal displacements of children occurred due to weather-related disasters, exacerbated by climate change. Drought alone accounted for 522,000 of those displacements. In 2022, the region experienced its most significant climate displacement event in a decade, due to drought, peaking at 324,000 child displacements. Displacement and economic hardship have driven a surge in harmful coping mechanisms, notably child marriage. In the worst drought-affected regions and at internally displaced persons (IDP) sites, child marriage rates in 2022 more than doubled in a single year.

In response, at 15 IDP sites and in affected communities, the Ethiopia Regional Bureau of Women and Social Affairs (BoWSA), UNICEF and local partners launched a coordinated, shock-responsive child protection effort. This included social workers and community leaders implementing targeted interventions. They worked together to monitor government marriage registries to track risks and inform rapid interventions, embed child marriage prevention in emergency response planning, engage adolescents to build peer support and agency (e.g., through community clubs, radio dramas and youth-led activities), create safe spaces for girls and women for protection and psychosocial support, mobilize religious leaders to shift harmful social norms, build alliances with men and boys to foster a shared prevention responsibility, and run advocacy campaigns on alternative coping strategies.

These efforts contributed to the identification, rescue and reporting of 1,416 child marriage cases, with 1,316 cases being prevented – all tracked through caseloads reported by BoWSA. In the drought-affected regions of Oromia, Somalia and Southern Nations, Nationalities and Peoples (SNNP), child marriage surged by 119 per cent between 2021 and 2022. However, shock-responsive prevention programmes by BoWSA, UNICEF and civil society partners achieved a 14 per cent reduction in child marriage by the end of 2023. From January to June 2021, 524 cases were reported; in the same months in 2022, cases surged to 1,147. By December 2023, cases fell to 841.

While still higher than in 2021, the 2023 post-drought decrease in child marriage cases from 2022 highlights the importance of responding to climate shocks with timely and targeted child protection services. The reduction has been attributed to the targeted scale of prevention interventions during the crises and limited population movements following rainfall in the Somali region. Today, safe spaces and surveillance committees, comprising leaders, schools, health workers and local administrations, continue to track child protection cases, negotiate with families and link girls to protection services, including on child marriage.

3. **Develop just transition plans centred on young people and families:** Ministries of industry can develop formal transition plans for shifting industrial operations to renewable energy and green technologies. This plan should include investments in "green skills" training for young people and social protection measures in collaboration with ministries of labour, education and vocational training.

6.11. Water and sanitation

Ministries of water and sanitation are the primary duty-bearers for providing safe, reliable WASH services, which are fundamental to public health and human dignity. The escalating climate crisis directly threatens this mandate, as floods contaminate water sources, droughts create severe water scarcity, and extreme weather destroys critical infrastructure, exposing children to life-threatening waterborne diseases and malnutrition. Ministries of water and sanitation can lead a strategic shift towards building a climate-resilient WASH sector, with a focus on nature-based solutions, ensuring the sustainability and continued operation of these essential services to safeguard the health and future of every child.

Recommendations:

1. **Build and maintain climate-resilient WASH infrastructure:** Prioritize investment in climate proofing new and existing WASH infrastructure. This includes sustaining culturally relevant practices for resource management, designing resilient and accessible latrine models for flood-prone areas, ensuring greywater management and reuse, making water sources drought resistant, increasing water storage capacity, and ensuring all schools and health clinics have resilient and safely managed water and sanitation.
2. **Decarbonize and improve the efficiency of WASH services:** Reduce the climate footprint of the WASH sector by transitioning to renewable energy sources, such as solar-powered water pumps, and promoting energy efficient technologies. In partnership with the private sector and utilities, implement programmes to reduce water loss (non-revenue water) in distribution systems.
3. **Implement climate-informed water and sanitation safety planning:** Develop and implement water and sanitation safety plans based on anticipated climate-related hazards and following a long-term adaptation strategy. This involves implementing incremental improvements and management actions to build resilience, such as flood-proofing infrastructure, diversifying water sources, increasing water storage capacity and updating operating procedures.
4. **Ensure sustainable, equitable and integrated water resource management:** Develop and enforce policies for the sustainable extraction, protection and management of water resources. Working with local governments and community leaders, implement plans for the collaborative management of surface water and groundwater to ensure supply during disruptive climate events, and promote equitable water allocation that prioritizes the needs of children, marginalized groups and different water-user collectives.
5. **Strengthen governance and community participation for inclusive WASH:** Develop gender-transformative policies that empower women and girls in decision making for WASH services. In coordination with civil society, strengthen the capacity of local community water committees to manage and maintain their own systems, ensuring local knowledge and Indigenous knowledge, including the distinctive knowledge of women and girls, is integrated into adaptation planning.

Appendices

Appendix 1: Data table

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vul-nerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protec-tion Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Afghanistan	6.25	3.65	0	0	4.7	5.22	6.19	1.84	9.89	9.43	9.75	6.3	4.88	8.03	4.35	6.93	4.7	9.96	5.24
Albania	2.79	3.09	4.76	0	1.08	5.28	0	2.08	0.62	7.92	0	1.38	0.04	2.02	0.42	0.4	1.93	4.06	0.81
Algeria	5.83	2.04	0	2.28	6.78	7.58	7.98	4.39	6.36	9.19	0	1.6	0.3	2.07	1.44	2.03	0.5	2.77	2.06
Andorra	1.06	0	0	0	1.54	5.12	0	0	0	6.03	0	2.23	0		0			8.78	0.13
Angola	5.82	2.78	1.4	0	7.87	4.41	3.71	6.9	3.44	9.4	2.44	5.81	6.15	7.08	5.7	4.85	3.56	8.5	4.83
Antigua and Barbuda	1.41	0	0.42	6.56	0.96	1.21	0	0	0	6.07	0	I/D	0.04		0.11				0.79
Argentina	5.09	4.61	1.19	0	7.93	4.63	3.87	4.92	1.91	9.03	0.75	1.5	1.92	1.97	0.36	2.76	1.4	1.22	0.84
Armenia	2.54	1.68	0	0	5.11	4.8	1.05	1.05	1.21	7.92	0	1.2	0.23	1.59	0.43	0.95	0.83	3.48	0.84
Australia	4.76	2.73	1.58	5.59	3.46	3.58	2.9	4.3	1.55	7.23	0	0.3	0.52	0.42	0	0.64		0	0.24
Austria	2.07	3.45	0	0	4.34	3.67	0	1.26	0	8.38	0	0.45	0.76		0	1.26		0	0.21
Azerbaijan	3.85	2.84	0	0	7.88	5.28	4.38	2.07	2.5	8.11	0	3.03	3.68	1.16	0.3	3.64	1.76	8.97	1.68
Bahamas	2.46	0	2.85	7.35	3.25	1.31	0	1.04	0.61	5.04	0	2.95	0.36		0.43			9.87	1.12
Bahrain	2.38	0	1.48	0	3.5	1.37	8.06	0	2.96	4.24	0	2.29	0.16	0.74	0	2.86		9.24	0.76
Bangladesh	9.38	10	8.13	9.7	9.65	2.05	9.24	2.17	1.76	9.7	2.69	3.52	1.17	4.08	2.25	3.72	4.92	5.55	2.96
Barbados	1.15	0	0	7.14	0	1.28	0	0	0	6.04	0	2.29	0.4	0.97	0.51			8.69	0.86
Belarus	2.26	2.28	0	0	3.13	6.34	0	1.78	0.49	8.43	0	0.16	0	0.01	0.02	0.06	0.78		0.11
Belgium	3.18	2.32	3.93	0	5.86	5.08	0	2.29	0.47	8.54	0	0.18	0.06	0.32	0.03	0.58	0.02	0	0.25
Belize	3.98	3.35	1.35	7.56	0	3.5	3.37	2.89	0.25	6.42	1.34	2.79	1.11	1.79	1.19	2.96	5.49	5.81	1.15
Benin	5.12	2.27	0.82	0	7.7	4.5	7.18	4.51	1.24	8.78	2.39	6.66	4.52	6.11	7.49	7.26	4.68	9.14	7.44
Bhutan	2.11	1.65	0	0	4.05	1.19	0	3.45	0	7.47	1.4	3.15	0.06	5.45	0.7		1.48	9.6	1.61

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vulnerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protection Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Bolivia (Plurinational State of)	5.65	2.27	0	0	5.96	6.22	5.51	4.47	4.21	8.8	5.56	2.6	3.43	1.61	3.93	1.24	2.8	3.72	1.46
Bosnia and Herzegovina	1.91	2.53	0	0	3.34	3.35	0	1.65	0	7.89	0	2.43	1.17	1.41	0.47			8.54	0.57
Botswana	4.17	2.69	0	0	2.34	3.73	8.05	4.45	1.91	8.17	1.71	3.48	0.81	4.08	2.2	0.76		9.77	3.25
Brazil	5.96	3.16	1.55	0	6.84	6.3	5.74	4.98	1.77	9.4	3.45	1.38	0.71	1.39	0.42	2.12	0.28	3.41	1.31
Brunei Darussalam	1.71	3.32	0.47	0	0.41	3.6	0	1.78	0.14	5.8	0	0.68	0.01	1.82	0				0.88
Bulgaria	2.04	1.82	0.2	0	2.41	5.21	0	2.1	0.12	7.99	0	1.37	0.49	0.92	0.84	1.6		3.9	0.45
Burkina Faso	4.71	1.56	0	0	4.26	3.97	9.59	3.49	3.45	9.19	2.43	6.52	2.84	4.36	7.7	7.46	6.72	9.13	7.46
Burundi	2.46	1.42	0	0	0.88	4.57	0	3.02	0.95	9.01	2.32	6.03	4.24	6.35	7.08	7.84	6.56	5.49	4.64
Cambodia	8.88	7.23	1.16	9.29	5.64	4.52	9.05	4.05	1.6	8.76	8.4	4.22	1.31	3.15	1.95	9.16	2.93	9.3	1.74
Cameroon	5.3	3.11	1.17	0	8.87	3.88	5.97	3.48	1.63	9.27	2.43	5.31	3.65	4.82	5.61	5.45	4.89	6.33	6.44
Canada	3.67	2.69	1.41	2.84	7.16	3.4	0	2.18	1.23	8.79	0	0.28	0.64		0.21	0.14		0	0.42
Cape Verde	I/D	0	I/D	7.65	0.17	1.81	0	0.54	7.27	4.54	1.34	2	0.6	0.87	2.39		1.38	5.77	1
Central African Republic	4.73	2.61	0	0	6.09	7.93	8.79	4.33	0	8.66	3.34	8.57	9.25	7.74	9.18	7	8.32	9.51	8.96
Chad	6.96	5.41	0	0	8.55	6.69	9.56	5.53	4.97	9.17	4.04	8.42	6.38	5.33	8.27	9.47	9.84	9.94	9.72
Chile	3.25	2.27	0.76	0	6.08	2.76	0	5.54	2.67	8.73	0	0.88	0.15	0.14	0.07	1.01	0	4.25	0.56
China	8.28	7	6.8	7.77	5.01	5.86	5.39	3.37	2.21	9.85	1.06	1.87	0.1	1.09	0.4	0.92	0.46	9.71	0.45
Colombia	6.45	3.17	1.54	3.62	4.01	6.18	3.73	2.94	1.54	9.23	6.18	2.41	0.92	2.15	1.3	2.69	2.16	6.61	1.04
Comoros	2.02	0	0.5	8.06	1.45	2.37	0	0	0	4.88	2.16	4.64	2.27	4.4	4.63		2.74	10	3.82
Congo	4.24	4.09	0.7	0	6.01	4.03	1.68	3.12	1.3	8.49	2.33	4.13	3.24	3.11	6.13	4.58	3.92		3.83
Costa Rica	3.62	1.46	0.96	5.65	2.57	5.4	1.63	2	0	8.17	0.54	1.34	0.04	1.13	0.54	2.2	1.76	2.79	0.93
Côte d'Ivoire	4.7	2.44	0.8	0	7.41	4.64	6.22	3.34	0.56	9.24	2.44	5.72	3.21	4.38	6.1	7.23	3.65	9.05	6.4
Croatia	2.26	2.59	0.91	0	3.01	3.58	0	2.1	0.15	7.94	0	1.29	0.26		0.24	0.09		5.43	0.44
Cuba	3.9	1.12	1.36	8.82	1.74	1.44	3.71	3.55	0.91	8.41	0	2.57	0.01	1.31	0.68	0.43	4.82	9.98	0.74
Cyprus	2.35	0	0.52	0	1.05	2.87	5.06	1.63	2.49	6.38	0	0.27	0.18		0.05	0.76		0	0.38
Czechia	2.06	2.27	0	0	3.21	5.45	0	1.38	0.16	8.48	0	1.78	0.57	0.28	0.15	1.18		8.37	0.14

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vul-nerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protec-tion Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Democratic People's Republic of Korea	4.09	3.74	1.59	9.28	0.79	2.4	0	2.39	0.87	8.48	2.88	1.3	1.28	3.18	1.32	0	0.43		1.56
Democratic Republic of Congo	5.78	3.26	0.83	0	5.31	7.46	5.91	7.42	1.71	9.64	2.5	6.97	4.95	6.65	9.25	5.92	3.85	9.25	8.95
Denmark	2.55	0.65	2.71	0	5.48	4.69	0	1.28	0.85	7.45	0	0.15	0.25		0.02	0.22	0.11	0	0.27
Djibouti	3.94	2.36	1.02	0	1.18	2.8	5.21	0.45	8.29	4.35	4.43	4.53	3.57	4.06	3.99		1.07	9.65	4.82
Dominica	1.16	0	0	6.36	0.47	1.14	0	0	0	5.24	0	3.8	0.44		1.33			9.93	3.48
Dominican Republic	3.72	1.66	1.38	9.07	3.44	1.46	2.26	1.8	0.53	8.45	0	2.37	0.58	1.01	2.29	3.64	2.94	3.18	2.97
Ecuador	4.06	4.72	1.34	0	6.5	5.18	0	3.2	1.55	8.84	1.63	2.87	2.51	1.83	1.02	2.86	3.64	7.08	1.18
Egypt	6.3	9.78	4.02	0	6.03	6.16	9.51	2.36	3.26	9.63	0	3.08	0.15	2.92	0.52	5.59	2.63	7.61	2.14
El Salvador	3.52	1.39	1.13	5.7	0.88	4.35	4.08	2.81	0	8.4	0	3.34	0.2	1.72	1.29	6.96	2.37	9.95	0.89
Equatorial Guinea	2.95	2.79	0.67	0	6.06	5.02	0	0.36	0.93	7.93	2.15	6.02	4.48	3.29	5.72			9.86	6.76
Eritrea	5.76	1.17	1.01	0	6.65	4.09	5.39	1.51	8.86	7.94	8.5	6.49	1.89	9.58	8.65			8.98	3.35
Estonia	1.67	1.2	0.2	0	0.72	5.17	0	1.22	0.55	7.43	0	0.34	1.54	0.06	0.05			0	0.08
Eswatini	3.14	0.78	0	4.94	1.04	0.76	3.05	6.24	0.9	7.88	0.51	4	1.69	3.24	4.45		1.77	8.41	4.44
Ethiopia	5.69	1.84	0	0	6.72	7.74	3.08	3.85	3.78	9.79	9.47	7.09	5.02	7.14	8.9	7.77	6.61	9.78	4.38
Fiji	I/D	I/D	5.6	7.94	0.95	1.36	0	0.64	0	5.92	0	2.79	0.55	1.17	0.96		2.34	8.92	2.82
Finland	2.22	2.63	1.02	0	2.07	6.46	0	0.52	0.61	7.71	0	0.12	0.37	0.14	0.03	0.19	0.02	0	0.11
France	4.43	3.2	1.77	3.07	4.52	6.82	1.22	2.4	1.12	9.19	0	0.19	0.17		0.08	0.38		0	0.31
Gabon	3.04	2.6	0.98	0	4.86	3.4	0	1.62	0.83	8.06	2.19	3.71	3.75	3.4	3.97	2.91	2.47	6.3	3.18
Gambia	3.85	1.77	0.35	0	1.28	3.49	6.63	5.3	1.22	8.02	2.25	4.39	3.13	3.93	5.62		3.93	5.57	4.17
Georgia	2.82	2.24	1.17	0	3.69	3.44	1.5	1.48	0.85	8.15	0	1.63	0.67	0.9	0.77	0.46	0.85	6.98	0.74
Germany	3.24	2.92	2.37	0	6.28	7.01	0	1.8	0.62	9.26	0	0.4	0.57	0.25	0.04	1.31		0	0.25
Ghana	5.35	2.39	1.37	0	7.47	4.45	7.26	4.38	1.41	8.88	2.43	3.83	1	3.12	4.96	3.51	3.77	6.96	3.51
Greece	3.27	1.3	1.14	0	3.05	4.19	2.64	4.95	0.99	7.89	0	1.15	0.14	0.19	0.06			5.11	0.26
Grenada	1.06	0	0	6.73	0	1.19	0	0	0	4.76	0	I/D	0.63		0.75				1.69
Guatemala	4.91	1.7	1.1	5.01	3.27	4.48	2.38	4.51	0	8.98	3.89	4.51	1.5	5.11	2.23	6.21	4.84	9.72	1.95

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vul-nerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protec-tion Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Guinea	5.28	1.77	1.47	0	4	3.91	7.21	9.69	1.44	8.97	2.38	7.3	5.65	6.91	6.6	8.24	6.79	7.72	9.2
Guinea-Bissau	3.76	1.24	0.74	0	1.03	3.35	7.78	6.25	0.81	7.02	2.21	6.59	5.93	6.95	7.41	6.65	5.89		6.69
Guyana	5.7	7.64	4.78	2.31	5.57	3.82	1.71	1.21	0	6.59	8.13	1.76	0.27	2.1	1.12	1.3	3.34		2.43
Haiti	4.14	1.38	1.26	9.15	2.9	1.48	1.91	1.48	1.31	8.71	1.39	5.12	5.04	4.55	6.7	4.15	2.44	7.71	5.22
Honduras	4.97	2.64	1.14	9.11	0.95	5.45	3.38	3.62	0	8.72	2.94	4	2.51	2.43	1.2	6.02	6.35	8.13	1.39
Hungary	1.85	3.43	0	0	1.39	3.32	0	1.6	0.17	8.4	0	0.21	0.05		0.11	0.65		0	0.25
Iceland	1.54	1.09	4.92	0	1.9	1.49	0	0	0	4.94	0	0.75	0.26		0.07			2.53	0.16
India	9.21	5.81	1.98	6.36	8.84	3.6	10	3.11	2.38	9.94	8.8	3.44	0.68	6.41	1.2	2.94	3.82	6.49	2.56
Indonesia	6.61	3.8	2.01	2.31	7.5	6.08	2.88	3.43	1.54	9.39	4.74	2.71	1.73	3.1	1.71	2.45	2.67	5.64	1.66
Iran (Islamic Republic of)	7.25	3.96	1.86	1.81	6.65	6.97	7.54	3	7.86	9.39	0.99	1.32	0.04	0.78	0.7	4.06		1.31	1.02
Iraq	6.48	9.54	1.51	0	3.66	6.77	9.8	5.06	7.23	9.4	0	2.51	0.54	1.92	0.23	4.78	2.74	5.28	2.08
Ireland	2.84	1.65	1.33	8.58	6.27	0.62	0	1.32	0	7.78	0	0.3	0.53	0.23	0.8	0		0	0.26
Israel	3.37	0.97	0.37	0	2.4	7.83	3.59	2.54	2.72	8.57	0	0.26	0.02		0	1.2	0.13	0	0.21
Italy	3.72	2.89	1.63	0	4.32	6.2	1.87	3.04	1.14	8.67	0	0.16	0.38		0.01	0.26		0	0.15
Jamaica	2.64	1.06	1.17	8.32	2.21	1.4	0	2.39	0	7.88	0	2.33	0.04	1.25	1.98		2.54	6.49	1.67
Japan	5.61	5.43	9.64	9.71	3.57	6.63	0	2.29	1.19	8.64	0	0.43	0.01	0.85	0.07	0.06		1.46	0.12
Jordan	4.17	1.17	0	0	6.73	5.34	8.56	1.8	5.79	8.79	0	2.3	0.14	2.17	0.26	2.81	0.9	8.64	1.18
Kazakhstan	4.3	3.86	0	0	5.3	4.54	5.1	3.44	4.26	8.96	0	1.2	0	1.18	0.22	0.26	1.33	4.56	0.83
Kenya	4.75	1.88	0.75	0	3.32	4.62	3.31	3.29	4.03	9.25	3.77	4.81	1.71	2.94	5.46	8.03	2.05	9.68	3.81
Kiribati	1.06	0	6.45	0	0.85	1.24	0	0	2.07	0.17	0	4.08	0.73	4.08	4.44	2.05	3.5	8.51	5.25
Kuwait	4.45	2.65	1.31	0	3.7	5.36	7.77	2.55	5.33	5.59	0	2.63	0	0.7	0	5.06		9.3	0.69
Kyrgyzstan	3.3	1.84	0	0	8.37	3.32	2.52	2.17	2.28	8.56	0	1.81	0.98	1.65	0.41	0.09	3.14	4.83	1.57
Lao People's Democratic Republic	7.23	4.83	0	6.89	3.57	4.24	6.36	9.66	1.17	8.61	6.82	4.38	3.18	4.65	1.9	6.18	5.33	6.59	2.84
Latvia	2.24	4.15	0.74	0	2.16	5.42	0	1.06	0.15	7.68	0	0.24	0.1	0.13	0.51	0.57		0	0.13
Lebanon	2.65	0.94	0.87	0	4.54	2.15	0.86	2.24	1.86	8.45	0	2.76	3.62	3.27	0.62		0.98	6.42	1.65
Lesotho	1.9	1.1	0	0	1.56	4.27	0	1.42	1.49	8.17	0	4.68	2.92	5.9	5.82	6.16	2.75	3.28	5.94

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vul-nerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protec-tion Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Liberia	4.1	5.8	1.04	0	4.08	3.22	0.73	5.38	0.86	8.59	2.25	6.71	3.46	5.98	7.28		5.48	9.42	8.62
Libya	4.66	2.18	1.41	0	3.82	4.22	6.78	2.81	7.41	8.24	0	1.78	2.33	1.66	0.77		0.61	4.47	0.86
Liechtenstein	I/D	3.03	0	0	1.75	2.56	0	I/D	0	5.7	0	I/D							
Lithuania	1.97	1.38	0.73	0	2.45	6.85	0	0.93	0	7.88	0	0.18	0.69	0.11	0.21	0.03	0.03	0	0.21
Luxembourg	1.54	1.14	0	0	2.66	2.37	0	1.46	0	7.25	0	0.06	0.01		0.13			0	0.09
Madagascar	8.46	4.53	3.52	9.65	4.21	4.68	3.74	4.18	1.75	8.73	9.61	7.33	6.8	5.63	8.12	8.02	7.76	8.8	6.19
Malawi	3.41	1.66	0	0	4.49	3.11	2.64	2.86	0.89	8.78	2.42	4.87	3.03	5.25	6.22	5.03	4.84	4.9	4.81
Malaysia	4.65	5.06	1.56	1.39	7.06	3.61	2.53	2.34	1.02	8.6	0.53	3.38	0.47	4.76	0.38	4.11		9.84	0.71
Maldives	I/D	0	I/D	0.42	0	1.31	0	I/D	3.16	0.9	0	1.17	0	1.71	0.17	0.51	0.36	5.03	0.42
Mali	5.38	3.58	0	0	4.11	4.38	9.64	3.67	5.03	9.24	2.43	6.39	3.61	5.55	5.52	8.97	6.76	7.04	7.26
Malta	1.13	0	0	0	0.77	3.03	0	1.35	0.71	4.07	0	0.84	0.05	0.5	0	0.75		3.33	0.41
Marshall Islands	I/D	0	6.13	6.34	2.91	1.07	0	I/D	0	0	0	4.12	0.84	5.23	1.95			10	2.58
Mauritania	6.35	3.67	1.33	2.06	2.72	3.33	8.28	2.35	9.27	8.45	2.18	5.28	3.17	5.08	4.77	6.53	4.67	9.15	3.61
Mauritius	I/D	0	I/D	7.84	2.57	1.35	0	1.33	0	5.99	0	2.43	0.27	1.38	0.15			8.92	1.43
Mexico	7.25	3.4	1.8	5.47	7.94	6.65	4.86	4.8	2.64	9.61	1.16	2.09	2.07	1.84	0.33	2.28	2.13	4.78	1.19
Micronesia (Federated States of)	1.06	0	0.51	6.75	3.23	1.23	0	0	0	0	0	3.68	1.94		1.32			9.32	2.14
Moldova	2.04	1.73	0	0	2.37	6.96	0	1.83	0.17	8.03	0	2.46	1.08	0.65	1.32			7.71	1.54
Monaco	I/D	0	0	0	0	0.08	0	0	0	I/D	0	I/D							
Mongolia	2.76	2.27	0	0	1.48	5.48	0.72	1.56	4.96	8.29	0	1.31	0.14	1.31	2.15	0.59	2.04	1.75	1.23
Montenegro	1.89	1.92	0.38	0	0.73	6.01	0	2.68	0	7.27	0	1.47	1.08	1.26	0.14	0.66	1.33	5.67	0.11
Morocco	6.83	2.49	1.42	9.56	4.68	7.82	6.98	2.5	5.92	9.15	0	3.22	0.58	2.59	1.29	5.97	2.25	8.42	1.47
Mozambique	7.4	2.91	1.67	8.24	4.6	6.02	5.71	7.54	1.48	8.88	2.44	6.91	4.66	6.08	6.94		7.93	9.99	5.89
Myanmar	10	5.57	6.35	7.96	6.28	4.27	8.38	4.58	1.68	9.27	8.46	4.59	4.46	5.09	2.58	6.02	2.45	7.94	3.61
Namibia	5.54	4.6	0.46	0	2.92	6.09	7.54	4.08	5.24	8.3	1.96	4.28	3.34	3.14	4.9			6.13	3.87
Nauru	I/D	0	I/D	0	2.79	1.08	0	I/D	0	I/D	0	1.6	0.07	2.42	1.5		1.5	3.4	0.71
Nepal	3.79	3.05	0	0	5.93	1.73	7.03	2.04	1.09	9.13	1.58	2.85	1.02	3.1	1.95	1.81	4.01	5.67	2.42
Netherlands	3.85	5.85	9.47	0	4.88	5.07	0	1.59	0.71	8.64	0	0.26	0.87	0.12	0.13	0.16		0	0.27

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vulnerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protection Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
New Zealand	3.29	1.61	0.93	8.57	3	3.56	0	2.05	0.83	7.17	0	0.78	0.72		0	0.83		2.01	0.35
Nicaragua	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D
Niger	5.12	2.85	0	0	5.58	2.42	9.68	1.99	8.04	9.29	2.43	8.48	4.97	7.35	8.25	9.2	10	9.58	10
Nigeria	6.14	3.39	1.58	0	10	4.38	9.88	3.57	1.96	9.97	2.57	6.66	5.78	6.8	5.24	4.33	6.65	7.84	10
North Macedonia	2.21	2.32	0	0	1.11	5.42	1.36	2.78	0	7.74	0	1.7	0.64	1.07	0.14	1.32	0.86	7.74	0.16
Norway	2.58	1.93	1.16	0	5.31	6.11	0	1.12	0.7	7.49	0	0.07	0.08		0.11	0.14	0	0	0.12
Oman	5.61	3.23	1.26	7.17	2.35	2.44	7.66	1.78	9.01	6.94	0.05	2.95	0	2.43	0.5	3.96		9.87	0.91
Pakistan	9.44	8.31	1.51	4.47	7.59	4.55	9.86	2.54	5.17	10	7.51	4.75	1.99	6.33	2.06	6.09	3	8.26	5.54
Palau	0.93	0	0.38	5.52	2.76	1.09	0	0	0	0	0	I/D	0.06		0.09				2.04
Panama	3.6	2.32	1.15	0	4.85	5.7	1.4	1.62	0.42	8.09	2.48	2.49	1.77	2.65	0.98	7.95	0.33	2.33	1.42
Papua New Guinea	4.88	2.52	1.56	3.3	4.86	4.13	0.85	2.11	0.16	7.86	9.07	6.66	8.71	6.76	7.5		4.48	8.67	3.86
Paraguay	3.3	2.56	0	0	5.46	2.34	7.26	3.15	0.56	8.52	0	2.41	1.64	0.58	0.86	3.76	3.94	4.58	1.52
Peru	5.51	3.19	1.09	0	6.56	5.78	2.37	3.46	3.91	9.12	4.05	3.1	1.84	1.07	1.52	4.36	3.2	8.56	1.18
Philippines	7.01	4.41	4.06	10	7.99	3.61	3.42	2.35	1.42	8.39	1.77	3.49	2.49	4.09	0.79	3.99	1.54	9.01	2.55
Poland	2.83	2.28	1.51	0	4.7	6.27	0	1.77	0.61	8.95	0	0.26	0.19	0	0.83	0.27		0	0.3
Portugal	4.06	1.56	1.11	8.73	0.95	3.4	1.79	6.26	1.05	8.05	0	0.36	0.05	0.43	0.07	0.52		0.85	0.2
Qatar	2.98	1.14	0.72	0	0.47	2.57	7.9	1.16	7.17	5.59	0	1.98	0.09	1.27	0	1.9	0.28	9.87	0.47
Republic of Korea	3.67	3.4	1.67	9.33	1.8	2.7	0	2.05	1.22	8.6	0	1.15	0.05	0.16	0.02	0.02		6.47	0.16
Republic of Türkiye	4.58	2.15	1.4	0	5.87	5.65	5.11	3.91	2.76	9.28	0	1.71	0.11	0.92	0.35	1.63	1.83	6.26	0.85
Romania	2.72	2.61	0.81	0	3.9	6.95	0	1.84	0.72	8.63	0	0.98	1.83	1.22	0.53	1.55	1.13	0	0.61
Russian Federation	4.64	3.32	1.5	1.9	5.45	6.33	1.91	2.94	1.67	9.36	0	0.38	0.1		0.68	0.08	1.02	0	0.4
Rwanda	2.2	1.27	0	0	1.22	4.59	0	1.58	0.5	8.94	2.2	4.51	1.59	3.84	5.53	6.25	1.19	9.48	3.69
Saint Kitts and Nevis	1.13	0	0	6.17	0.74	1.17	0	0	0	3.87	0	2.86	0.12		0.39			9.47	1.48
Saint Lucia	1.25	0	0	6.91	0.65	1.25	0	0	0	5.63	0	2.53	0	0.36	1.16			9.49	1.62

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vul-nerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protec-tion Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Saint Vincent and the Grenadines	1.04	0	0	6.69	0	1.23	0	0	0	4.38	0	2.92	0.04		0.75			9.88	1.01
Samoa	I/D	0	I/D	7.39	3.48	1.3	0	2.09	0	1.12	0	2.56	1.02	2.49	1.11	0.53	1.39	10	1.38
San Marino	0.66	0	0	0	1.01	0.79	0	0	0	5.51	0								
Sao Tome and Principe	0.91	0	0	0	1.73	1.31	0	0	0	2.48	2.04	3.52	1.75	2.62	4.5	2.75	3.51	8.28	1.25
Saudi Arabia	5.64	2.79	1.42	0	2.87	6.84	8.94	2.59	9.75	8.81	0.86	1.93	0.11	2.07	0.19	3.1	0.56	6.98	0.48
Senegal	5.69	3.09	1.51	0	6.23	3.35	7.85	4.38	3.2	8.89	2.38	4.63	1.53	4.1	4.55	7.2	5.27	6.19	3.57
Serbia	1.92	3.17	0	0	1.53	4.87	0	1.71	0	8.39	0	1.44	0.29	0.4	0.47	0.22	1.54	6.74	0.42
Seychelles	I/D	0	I/D	0	2.81	1.24	0	0	0	0.96	0	2.47	0.18	1.06	0.19			9.65	1.29
Sierra Leone	4.87	2.25	1.28	0	2.6	2.54	7.25	10	1.38	8.64	2.33	6.2	3.04	6.13	7.27	4.73	5.53	7.7	9.04
Singapore	1.1	0	0	0	5.75	1.41	0	0	0	6.41	0	1.12	0.06	0.36	0	0.04	0.02	7.22	0.14
Slovakia	2.07	3.3	0	0	2.76	5.83	0	1.32	0	8.2	0	0.59	0.29		0.15	2.01		0	0.51
Slovenia	1.98	1.67	0.32	0	3.06	3.88	0	1.26	0.42	7.75	0	0.33	0.99		0.13	0.44		0	0.1
Solomon Islands	3.42	0	3.18	7.84	6.33	1.88	0	0	0	5.75	7.91	3.86	2	5.88	6.03		3.49		1.9
Somalia	7.81	4.8	1.55	2.44	3.2	4.36	6.54	2.06	9.76	8.15	9.6	7.43	6.13	7.33	6.25				10
South Africa	5.55	1.65	1.19	3.43	3.5	6.82	2.92	6.15	2.3	9.06	1.22	2.96	2.63	4.13	3.28	3.45	1.13	2.7	3.42
South Sudan	6.84	6.3	0	0	7.7	10	9.17	8.88	1.51	8.9	3.94	7.94	6.89	5.91	9.01			8.23	9.67
Spain	5.63	2.28	1.12	7.53	3.02	6.71	5.2	3.57	3.03	8.24	0	1.06	0.18		0.01	0.45		4.47	0.2
Sri Lanka	4.99	2.88	1.13	9.29	5.7	3.97	4.54	1.61	0.97	8.46	0	1.52	0.06	1.22	1.11	0.59	0.8	6.39	0.47
State of Palestine	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D	I/D
Sudan	7.63	5.51	0	0	7.11	6.68	9.85	3.3	8.54	9.35	10	6.83	8.03	7.02	6.19		4.41	9.19	6.11
Suriname	3.16	7.63	0.23	0	4.19	3.88	2.11	0.74	0.04	7.45	1.4	2.53	2.43	2.51	1.44	3.36	3.37	3.1	1.47
Sweden	2.77	2.19	1.3	0	4.87	8.15	0	1.54	0.44	8.1	0	0.13	0.18		0.09	0.24		0	0.12
Switzerland	2.4	2.29	0	0	6.8	7.25	0	1.24	0.23	8.27	0	0.11	0.18		0.01			0	0.26
Syrian Arab Republic	5.59	2.87	0.95	0	6.14	7.37	8.54	4.86	5.87	9.07	0	2.59	2.98	4.66	1				1.74
Taiwan																			

I/D = insufficient data

Country/ Territory	Hazard Exposure Score	Riverine Flood Score (0–10)	Coastal Flood Score (0–10)	Tropical Storm Score (0–10)	Drought Score (0–10)	Heatwave Score (0–10)	Extreme Heat Score (0–10)	Fire Score (0–10)	Sand And Dust Storm Score (0–10)	Air Pollution Score (0–10)	Vector-Borne Disease Score (0–10)	Child Vulnerability Score	Health Score (0–10)	Nutrition Score (0–10)	WASH Score (0–10)	Education Score (0–10)	Child Protection Score (0–10)	Child Poverty Score (0–10)	Child Moratlity Score (0–10)
Tajikistan	4.45	2.25	0	0	7.71	6.07	6.67	1.46	2.92	8.78	1.25	2.33	0.13	3.74	1.65	0.47	1.44	6.14	2.72
Thailand	6.96	6.88	1.47	5.98	4.51	4.46	8.62	2.54	1.34	8.98	2.37	1.54	0.38	1.85	0.21	0.98	2.79	3.82	0.78
Timor-Leste	2.64	0.62	0.86	8.12	0.55	1.39	0	2.1	0	7.53	2.6	4.07	2.26	6.87	4.15	2.59	2.27	5.62	4.7
Togo	4.62	1.51	0.55	0	7.07	4.31	7.16	3.96	1.09	8.49	2.36	4.82	2.81	4.61	7.47	5.4	5.35	2.55	5.56
Tonga	I/D	0	I/D	6.97	0.45	1.24	0	0	0	1.15	0	2.77	0.06	1	0.95	2.49	4.05	10	0.84
Trinidad and Tobago	1.77	0	0.32	7.99	1.05	1.36	0	1.02	0	7.55	0	2.25	0.56	1.78	0.81	1.86	0.77	8.19	1.77
Tunisia	5.11	2.1	2.26	0	5.35	7.19	7.19	2.23	6.43	7.57	0	1.38	0.17	1.47	0.48	1.98	0.48	4.01	1.09
Turkmenistan	5.94	7.03	1.23	0	7.66	4.64	8.91	2.06	5.55	8.59	0.71	1.43	0.01	1.14	0.01	0.05	0.5	4.46	3.82
Tuvalu	I/D	0	I/D	4.9	1.93	1	0	I/D	0	0	0	2.51	0.19	1.47	0.66	2.89	0.53	10	1.81
Uganda	3.92	1.51	0	0	3.7	6.36	3.15	4.28	0.99	9.38	2.46	5.32	2.35	4.16	7.37	6.16	7.79	4.59	4.81
Ukraine	3.06	3.07	1.37	0	3.77	5.79	0	2.72	1.19	8.79	0	0.83	0.77	2.17	0.58		0.77	0	0.67
United Arab Emirates	5.22	3.52	6.12	0	0.9	5.2	8.35	1.93	9.18	8.24	0	2.6	0.19		0.05	2.41		9.98	0.36
United Kingdom of Great Britain & Northern Ireland	4.27	2.32	3.58	7.49	6.71	2.61	0	2.28	1	9.07	0	0.24	0.74	0.51	0.05	0.04	0	0	0.35
United Republic of Tanzania	4.62	1.91	1.2	1.02	3.2	4.64	1.85	4.56	1.75	9.3	2.48	5.31	3.25	4.62	7.03	8.89	4.77	5	3.62
United States of America	6.57	3.12	2.39	6.9	6.61	6.76	5.28	3.49	2.32	9.77	0	0.65	0.22	0.65	0.02	0.7		1.76	0.53
Uruguay	2.7	2.48	0.74	0	7.12	1.11	0.98	5.31	0	7.43	0	1.57	0.22	0.8	0.08	4.28		3.44	0.63
Uzbekistan	4.93	4	0	0	8.29	5.2	8.93	2.21	2.98	9.24	0.8	2.15	0.78	1.38	0.91	3.09	2.79	4.9	1.22
Vanuatu	2.92	0	1.75	7.6	2.62	1.73	0	0.7	0	4.41	7.47	4.64	2.83	5.03	4.4		5.24	8.71	1.61
Venezuela	7.78	2.78	1.57	7.87	4.25	6.06	5.53	4.39	1.66	8.81	8.41	2.06	3.15	2.17	0.61				2.32
Viet Nam	9.41	9.08	10	9.9	6.9	5.68	7.08	2.85	1.73	8.82	1.47	2.6	0.12	2.45	0.61	1.59	1.95	9.86	1.62
Yemen	6.98	2.07	1.54	2.66	4.39	4.67	5.23	1.74	10	9.15	5.73	5.13	6.77	6.85	3.94		4.34		3.74
Zambia	4.27	1.91	0	0	5.74	3.72	3.49	7.26	1.08	9.09	2.42	5.09	2.18	5.01	6.54	6.45	4.23	6.45	4.77
Zimbabwe	5.28	1.48	0	1.57	8.03	5.42	4.11	6.33	1.62	9.05	2.4	5.33	2.5	4.25	6.13	4.49	6.21	7.34	6.42

I/D = insufficient data

Appendix 2: Limitations

It is important to understand the following considerations and limitations when interpreting the data presented in this report. For more information, refer to the full technical documentation <https://data.unicef.org/wp-content/uploads/2026/06/CCRR-2026-Technical-Documentation.pdf>.

- **Children's Climate Risk Framework scope:** The framework conceptualizes risk as hazard x children's exposure x vulnerability, and there are inherent limitations in the definitions of the individual components. A single composite index is insufficient to accurately represent the complex climate reality of the world and the different country-specific deprivations. The framework with the associated national-level estimates is intended to be used as a starting point to better understand diverse risk profiles.
- **Population data:** The population estimates, including all 2025 figures derived from WorldPop data, are subject to the inherent limitations of that dataset. These limitations specifically apply to estimates of the number of children and often do not account for dynamic population movements, such as internal migration or displacement. The estimates may also differ from national data sources.
- **Hazard data characteristics:** It is also useful to note the distinction between hazard data types; some hazards are represented by probabilistic models (e.g., likelihood), while others are based on historical observations (e.g., past events). This distinction influences their interpretation. The hazard data presented comprises global estimates derived from a range of publicly available datasets. These estimates do not necessarily represent or align with official datasets collected by national governments. While measures were taken to ensure the thresholds could be applied globally, it is important to note that the impact could vary widely depending on the local context. In the context of small countries, for some hazards the resolution might not be sufficient to understand and estimate the exposure of children.
- **Data gaps in hazard coverage:** While striving for comprehensive coverage, certain critical hazards, despite their relevance, currently lack globally available, open-source data that meets the necessary standards for inclusion in this database. These are noted where applicable. Particularly for coastal flood, considering the feedback from UNICEF country offices, mainly from SIDS, we have marked countries as having insufficient data where JRC flood hazard models showed zero exposure but higher resolution flood models showed exposure. Further validation will be carried out in the future to update the coastal flood datasets.
- **Vulnerability concepts:** The database and tools have adapted the vulnerability dimensions recognized by the IPCC. They do not include data on biological sensitivity or additional country-specific structural constraints such as macroeconomic diversification and structure, governance quality, cultural capital and ecosystem conditions.
- **Vulnerability indicators:** While critical for a holistic understanding of risk, some dimensions of vulnerability are inherently difficult to measure consistently across diverse countries. This presents a challenge for their inclusion in a standardized global measure, leading to a focus on indicators with greater cross-country comparability.
- **Vulnerability data gaps and limitations:** Information on the number of countries with available data for specific vulnerability dimensions, along with detailed explanations of how missing data are managed (e.g., complete case analysis, where records with at least 75% missing data are omitted, with acknowledgement of potential biases), is provided in relevant sections. Analysis is based on latest available global datasets but more recent estimates might be available at national level.

Appendix 3: Resources

Overview

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Disaster risk reduction

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