



Executive Summary

Thirsting for a Future: Water and children in a changing climate

Foreword

Water is elemental. Without it, nothing can grow. And without safe water, children may not survive.

Children without access to safe water are more likely to die in infancy – and throughout childhood – from diseases caused by water-borne bacteria, to which their small bodies are more vulnerable.

When these diseases don't kill outright, they can contribute to the stunting of children's bodies and minds – and the blighting of their futures – by undermining their ability to absorb nutrients.

When a community's water supply dries up or becomes contaminated – because of drought, because of flooding, because of conflicts that undermine infrastructure and prevent people from reaching safe water sources – such diseases abound.

Thirst itself kills children and jeopardizes their futures.

And beyond health, a lack of safe water and sanitation exposes children to other threats to their wellbeing. Many children in drought-affected areas spend hours every day collecting water, missing out on a chance to go to school. Girls are especially vulnerable to attack during these times.

The effects of climate change intensify all these risks by reducing the quantity and quality of water. Rising temperatures

help bacteria and other pathogens to flourish. Rising sea levels salinate freshwater sources. Increased flooding washes away sanitation systems and contaminates drinking water supplies, bringing cholera and other killer diseases. Disappearing glaciers leave land dry and arid.

We see the terrible effects of water scarcity today all over the world – and nowhere more tragically than in parts of Nigeria, Somalia, South Sudan and Yemen, where drought conditions and conflict are producing deadly effects. Nearly 1.4 million children face imminent risk of death from severe acute malnutrition as famine grows in these areas. In Ethiopia alone, we anticipate that more than 9 million people will be without safe drinking water in 2017.

As industrialization and demographic shifts increase consumption needs, demand for water will continue to rise – while supplies diminish. By 2040, 1 in 4 children – 600 million children – will live in areas of extremely high water stress. It should come as no surprise that the poorest, most disadvantaged children will suffer the most.

But this crisis is not inevitable.

This report is the third in a series that explores different ways that climate change endangers the lives and futures of our children – and shows how we can and must take collective action to address these threats.

Governments need to start planning for changes in water availability and demand in the coming years. Climate risks should be integrated into all water and sanitation-related policies and services, and investments should be made to target high-risk populations. Businesses also play a role – supporting communities in preventing contamination and depletion of safe water sources. Communities themselves should explore ways to diversify water sources and to increase their capacity to store water safely.

Most important, children’s access to safe water for drinking should be made a priority.

In a changing climate, we must change the way we work to reach those who are most vulnerable. One of the most effective ways we can do that is safeguarding their access to safe water.

It’s elemental.



A handwritten signature in black ink that reads "Anthony Lake". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Anthony Lake
Executive Director, UNICEF

Executive summary

No one suffers more from a change in climate than a child. Their small bodies are vulnerable to the changes in the air they breathe, the water they drink and the food they eat. For many children, a change in climate is felt through a change in water. In times of drought or flood, in areas where the sea level has risen or ice and snow have unseasonably melted, children are at risk, as the quality and quantity of water available to them is under threat. When disasters strike, they destroy or disrupt the water and sanitation services that children rely on.

Climate change is contributing to a growing water crisis and putting the lives of millions of children at risk.

The changing climate is one of many forces contributing to an unfolding water crisis. In the coming years, demand for water will increase as populations grow and move, industries develop and consumption increases. This can lead to water stress, as increasing demand and use of water strains available supplies.

By 2040, almost 600 million children are projected to be living in areas of extremely high water stress. If action is not taken to plan for water stress, and to safeguard access to safe water and sanitation, many of these children will face a higher risk of death, disease, and malnutrition.

The world is on the brink of a crisis, as the combination of water stress and climate change is creating a deadly outlook for children. As water stress increases, the effects of climate change threaten to destroy, contaminate or dry up the water that remains.

For children, water is life.

Without water, children simply cannot survive. When forced to rely on unsafe water, they are at risk of deadly diseases and severe malnutrition. Every day, more than 800 children under 5 die from diarrhoea linked to inadequate water, sanitation and hygiene.¹ Unsafe water and sanitation are also linked to stunted growth. Around 156 million children under five years old suffer from stunting, which causes irreversible physical and cognitive damage and impacts children's performance in school.²

The deprivations caused by a lack of safe water and sanitation can compound and affect children's health, education and future prospects, creating a cycle of inequality that affects generations.

A change in climate is felt through a change in water.

The effects of climate change intensify the multiple risks contributing to an unfolding water crisis by reducing the quantity and quality of water, contaminating water reserves, and disrupting water and sanitation systems. Rising temperatures, greater frequency and severity of droughts and floods, melting

snow and ice, and rising sea levels, all threaten the water supplies that children rely on and can undermine safe sanitation and hygiene practices.

Rising temperatures increase the atmosphere's water storage capacity, which essentially reduces water availability on the ground, particularly during the warmer months of the year. Then, when the air eventually cools, more intense rainfall occurs.³ This can lead to increased frequency and intensity of tropical cyclones and other extreme weather events.

Rising temperatures also impact water by creating an environment for bacteria, protozoa and algae to grow, which can lead to illness and death in children.⁴

More frequent and extreme heatwaves will result in a higher demand for water. Higher temperatures mean that more water for plants, animals and humans evaporates into the atmosphere, increasing demand for already dwindling water sources.


Droughts pose a variety of disastrous risks to children. As temperatures rise, more moisture evaporates from land and water, leaving less water behind for human consumption. Most droughts are slow-onset in nature, but they can be more acute when they occur in arid zones or happen in combination with heatwaves.⁵

For children, dehydration occurs quickly and can be deadly. With less water available, children will eat less nutritious foods and will often have to walk long distances to collect water, missing out on school and other important childhood activities. Without water, many families are forced to migrate in search of it.

A lack of water also inhibits good sanitation and hygiene practices, as supplies are rationed to meet a family's immediate survival needs – drinking and food preparation. This means that practices such as hand washing and toilet cleaning are often minimized in order to conserve water.

Flooding and increased precipitation can be deadly in areas with unsafe water and sanitation services, or where open defecation is practised. Floods can destroy or damage infrastructure such as water distribution points and toilets. When latrines and toilets are flooded, they can contaminate water supplies, making water deadly to drink. Recurring floods can cause communities to abandon safe sanitation and hygiene practices and return to defecating in the open.

Peaks in diarrhoeal mortality and morbidity are commonly associated with seasonal rains, flooding and extreme weather.⁶ Cholera, for example, spreads through contaminated water and can kill children within hours if left untreated.



The risk of vector-borne diseases for children also rises with heavy rainfall. That risk escalates with floods – especially where a lack of drainage systems creates stagnant water. Stagnant water increases dangers because it creates favourable breeding conditions for the mosquitoes that transmit such vector-borne diseases as malaria, dengue or Zika.⁷ Vector-borne diseases account for more than 17 per cent of all infectious diseases, causing more than 1 million deaths annually.⁸

Melting snow, glaciers and sea ice impact access to water in the present and greatly threaten to change water sources in the future. Around 70 per cent of the world’s freshwater is ice and permanent snow cover located in Antarctic, Arctic and mountainous regions.⁹ As ice melts, it not only contributes to rising sea levels, but also depletes other freshwater resources. According to the Intergovernmental Panel on Climate Change, this ice and snow cover is decreasing significantly in most regions because of global warming.

Rising sea levels can lead to saltwater infiltrating freshwater sources, rendering the water undrinkable. Rising sea levels are already having a major impact, particularly in low-lying coastal areas and Small Island Developing States, which, when combined, are home to at least 25 per cent of the world’s population.¹⁰ These regions have less than 10 per cent of the global renewable water supply, leaving populations dependent on groundwater sources – which are highly vulnerable to the impacts of salinization.¹¹

This crisis is not inevitable, if we act now.

There are actions that can be taken at a community, state, national and global level to protect children from the worst impacts of climate change. This includes developing resilient water and sanitation services, particularly in areas that will be hardest hit by climate change.

At the community level: Communities can play an important role in creating more-resilient water and sanitation systems. This might involve diversifying sources of drinking water or increasing storage capacity. In areas prone to flooding and extreme weather, communities can work together to reinforce safe sanitation behaviours to deter open defecation, and to work with local markets to establish affordable and resilient sanitation solutions.

At the sub-national level: At a sub-national level, a strong understanding of available water resources and patterns of use is needed to inform management and planning. In some areas, it will include investing in the protection of river basins and the systematic testing of water quality. Above all, it means prioritizing the most vulnerable children’s access to safe water above other water needs to maximize social and health outcomes.

At the national level: For governments, policies need to be in place to plan for future changes in water supply and demand, and

to adapt to climate risks. This includes carrying out climate risk assessments and compiling data on the impacts of water stress and climate change on water and sanitation services. Risks should be integrated into national water and sanitation policies, strategies and plans, and high-risk populations should be targeted with investment.

At the global level: Action is fuelled by knowledge. More data and evidence are needed to inform global advocacy efforts. Governments, non-government organizations (NGOs), United Nations agencies, private sector actors, and civil society need to harmonize and align in global action. Children are an important part of the solution and should be given opportunities to actively engage and contribute to climate activities and policies.

Climate change is not just an environmental crisis, it is also a crisis for children.

One of the most effective ways to protect children in the face of climate change is to safeguard their access to safe water and sanitation. Only then, can we begin to create a brighter future, for every child.

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