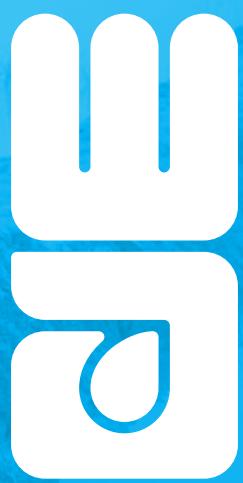


# TURN THE TIDE



The state of the  
world's water

2021



# Introduction

● Parul Begum, 35, walking through the damaged road near her house in Shaibbati Poshchim Para, Bangladesh. Parul received a household Rain Water Harvesting plant from WaterAid after cyclones caused the river to become salty and undrinkable. The plant stores, preserves and harvests rainwater so it can be consumed. Paikgacha, Khulna, Bangladesh. September 2018.

● Gita Maity, 63, collecting dirty water from the bank of the pond near her house. Madhab Nagar area of Pathar Pratima under South 24 Parganas district of West Bengal, India. February 2021.



● A stock breeder watering cows and oxen in a partially dried riverbed crossing. Sablogo, Burkina Faso. January 2018.

**Without a reliable source of clean water, a life that is safe, dignified, and healthy is not possible.**

**When people cannot find clean water when they need it, their lives are blighted by ill-health, poverty and the endless burden of searching for water. Climate change makes the situation harder by impacting water through extreme flooding, longer droughts and rising sea levels.**

**But a simple waterpoint that provides clean water to drink, no matter the weather, can help bring protection against climate change and the knowledge that tomorrow's water will be as easily obtained as yesterday's water.**

Without a reliable source of drinking water close at hand, day-to-day life is a challenge. Climate-impacted communities are forced to depend on dirty water that makes them sick, or walk long distances for clean water.

Time spent fetching clean water, recovering from illness or caring for those who are sick, is time that could be spent learning and earning a living. For the girls and women tasked with fetching water, having to walk further to find a clean water source takes time away from their education and disproportionately impacts on their lives.

The 2.2 billion people<sup>1</sup> who do not have a reliable and safe supply of water, are without the most fundamental protection against climate change which increases the unpredictability of weather patterns, resulting in extreme natural disasters. It is through water that the immediate impact of the climate crisis is felt. More frequent and extreme flooding is polluting fragile water sources, and longer droughts are drying up springs and wells.

With no clean water to drink, cook or wash with, communities falter and people get sick – putting their lives, livelihoods and futures at risk.

**With our existing climate change scenario, it is predicted that by 2030, water scarcity in some arid and semi-arid places will force between 24 million–700 million people to leave their homes.<sup>2</sup>**

**Currently, around four billion people live in water scarce areas, where the demand for water outstrips available supply at some points of the year.<sup>3</sup> By 2050, it is predicted that number will rise to around five billion.<sup>4</sup>**

Intense flooding caused by climate change makes it harder for people to find clean water. Worldwide, around 1.5 billion people are directly exposed to the risk of extreme flooding – over a third are poor.<sup>5</sup> Floods can deprive communities of clean water by damaging water infrastructure as well as contaminating water sources, leading to the spread of deadly diseases such as cholera.<sup>2</sup>

As we face the growing impacts of climate change, urgent attention must be given to ensure that every community has a sustainable water source. Otherwise in the near future, more and more time will be wasted searching for clean water by those who need time to attend school and build a prosperous future for their families.

The communities featured in this report are living on the frontline of the climate crisis. Unless urgent action is taken to both help protect vulnerable people against its growing impacts and reduce the carbon emissions that cause climate change, communities will lose their livelihoods and lives, as water scarcity and contamination takes hold. These communities have done the least to cause climate change but stand to lose the most.

# State of the world's water

## What does water access look like around the world?<sup>1</sup>

### ● Safely managed:

Drinking water from an improved water source<sup>i</sup> which is: located on premises, available when needed and free from contamination. This is the standard that the international community has committed to delivering to everyone by 2030 in Sustainable Development Goal 6. In this briefing, safely managed water will also be referred to as 'safe water'.

**How many people have this? 5.3 billion (71%)**

### ● Basic water:

Drinking water from an 'improved' source – one that is designed to deliver safe water (e.g. a borehole or covered well), taking no more than 30 minutes for a round trip collection, including queuing. In this briefing, this will be referred to as 'clean water'.

**How many people have this? 1.4 billion (19%)**

### ● Limited water:

Drinking water from an 'improved' source for which the collection time exceeds 30 minutes for a round trip, including queuing.

**How many people have this? 206 million (3%)**

### ● Unimproved water:

Drinking water from an unprotected dug well or unprotected spring.

**How many people have this? 435 million (6%)**

### ● Surface water:

Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal.

**How many people have this? 144 million (2%)**



● **Kailash Chandra, a farmer, is pictured fishing near his field in the village of Singiri, on the outskirts of Bhadrak, Bhuvaneshwar, Odisha, India. January 2020.**



<sup>i</sup>. Improved drinking water source is a source that, by nature of its construction, adequately protects the water from outside contamination, in particular from faecal matter. Examples include: piped household water connection, public standpipe, protected dug well, protected spring.

● **Eveline Kabore carrying dirty water collected from a hole dug in the sand, in a partially dried riverbed located in Sablogo, Burkina Faso. January 2018.**

Around the world, one in ten people – that's 785 million people<sup>1</sup> – do not have even the most basic source of clean water, and 2.2 billion<sup>1</sup> do not have their own tap or pump that provides a reliable source of water to drink.

Through the Sustainable Development Goals (SDGs), almost all governments have committed to ensure that by 2030 everyone, everywhere is able to rely on a sustainable source of safe water. But the impact of climate change is putting that goal at greater risk of failure and even taking away previously reliable clean water sources.

When access to water becomes more difficult and less predictable, the impact on people often goes unseen. Aside from the natural catastrophes that fleetingly grab the headlines, the daily effect of climate change is often felt through the finite resource of time.

Climate change threatens water through flooding and rising sea levels that pollute fresh water sources and contaminates underground water reservoirs with salt, rendering them undrinkable. More frequent droughts, combined with reduced rainfall and rising temperatures, also lead to less available water in an area. Unpredictable weather patterns hit communities even harder if there is little or no management of the water resources available and the competing requirements from domestic, industrial and agricultural use are not kept in careful balance.

The impact of climate change in addition to poor water management of water supplies, means people are walking for miles each day to get water, often having to resort to using dirty water, and then spending time recovering from the severe illnesses it causes. This perpetuates a vicious cycle of poverty, depriving people of educational opportunities and the time needed to make a living. Every minute spent fetching water is a minute not available for building a better future.

The World Health Organization (WHO) estimates that a minimum of 50 litres of water per person per day is needed to meet basic drinking, cooking and washing needs.<sup>6</sup>

So, a woman responsible for fetching the water for a family of four, whose walk for water is a half hour round trip with a 20 litre jerrycan, would spend five hours a day just fetching water. Or the equivalent of two and a half months per year.

Having a reliable source of clean water is a frontline defence against climate change – yet too little focus and investment is being directed to help to fulfil this most basic of needs for vulnerable communities.



## Why don't people have access to clean water?



Between 2000 and 2017, 1.8 billion people gained access to at least a basic water service<sup>1</sup> – but one in ten people still do not have clean water close to home. Climate change threatens to set this progress back decades as it is a threat multiplier, exacerbating the many barriers that prevents clean water from reaching everyone.

Some of the reasons why people do not have clean water include:

### ● Lack of investment:

While some governments have water, sanitation and hygiene (WASH) strategies in place, inadequate investment in ensuring the provision of reliable, clean water supplies, means these plans are usually unfulfilled. Further, there's a lack of investment in making sure the water service workforce is suitably paid and trained to deliver water infrastructure.

### ● Inequalities:

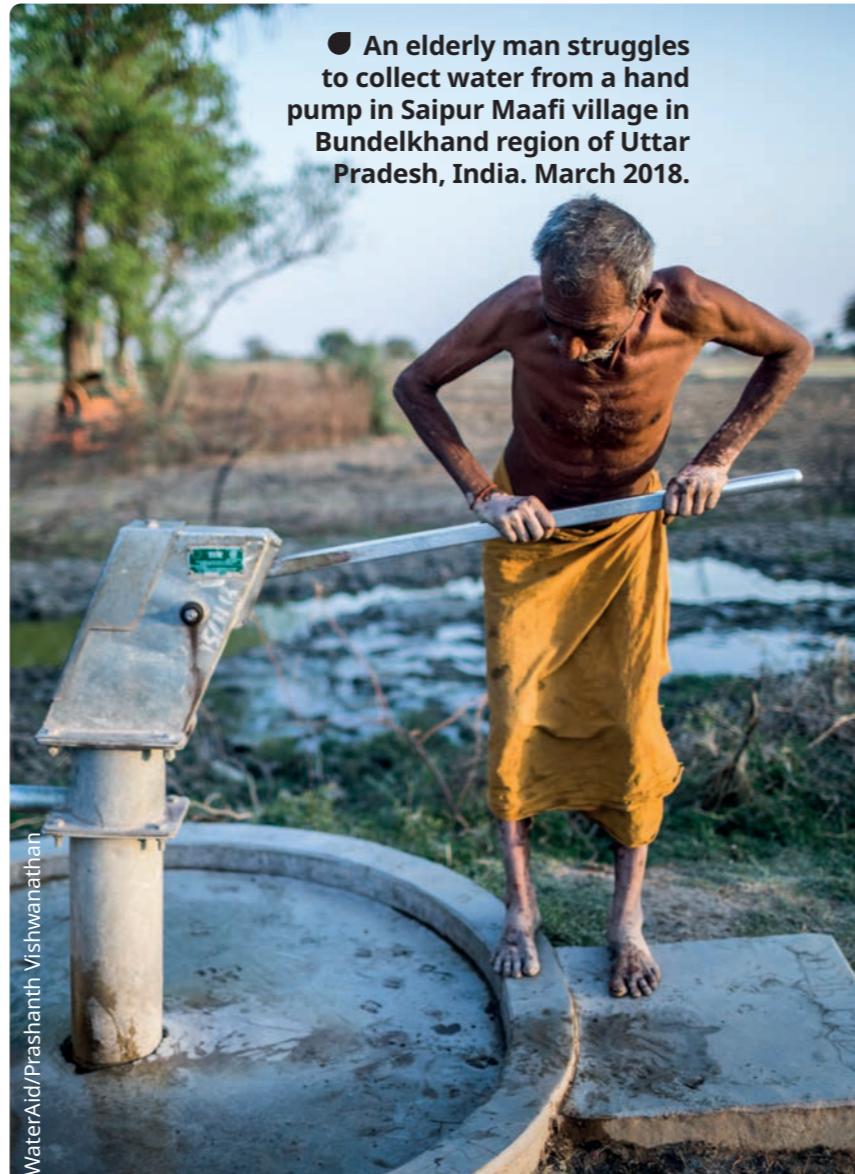
While access to safe water is a human right<sup>7</sup> and an ambition of the United Nation's SDGs,<sup>8</sup> political, social and economic factors, impact on how likely someone is to have access to it. Social groups who are marginalised based on their gender, ethnicity, disability, caste and religion are often less likely to have access to safe water.

### ● Competing demands:

Nearly 70% of the world is covered by water, but only 2.5% of that water is fresh.<sup>9</sup> Freshwater is critical to human life, but only 1% of the total freshwater is easily accessible, with most of it locked up in glaciers.<sup>9</sup> While the amount of freshwater has remained roughly the same over time,<sup>4</sup> growing industrialisation, the requirements of emerging economies increases demand for water, placing pressure on domestic and agricultural needs.

**But ultimately, people do not have clean water because it is not seen as essential by those in power.**

## Why does climate change affect water?



### ● Poor sanitation:

Water and sanitation issues are intertwined. One in four people – that's two billion people worldwide – don't have a decent toilet.<sup>1</sup> Less than half of the world's population can rely on a toilet that is connected to a system that safely manages and disposes of human waste, and 673 million people have no choice but to defecate outside.<sup>1</sup> This leads to human faeces contaminating water sources, exposing communities to harmful bacteria that lead to fatal illnesses.

Climate change has profoundly impacted the world's water cycle.

While the extent of some climate change effects cannot be completely predicted, such as the level of rainfall and precipitation, around 74% of natural disasters between 2001 and 2018 were water related.<sup>10</sup> The often unpredictable impacts of climate change on water means increased uncertainty, which makes planning around water management much more important.

But why are the immediate impacts of climate change manifested through the water cycle?

### ● Evaporation

Warm air holds more moisture than cool air. Globally, moisture increases by about 7% for every 1-degree rise.<sup>11</sup> This means as the world becomes hotter, the air will draw more water from oceans, rivers, lakes, soil and plants. The process contributes to leaving water sources depleted. In Burkina Faso, for example, it has been estimated that around 60% of water collected in reservoirs is lost to evaporation before it can be used.<sup>12</sup>

### ● Precipitation

When air is packed with more warm, wet air due to an intense evaporation process, extra rain or snow is more likely to fall. A hotter world means heavier, frequent rainfall, which can lead to floods, particularly in low-lying coastal regions. Flooding destroys crops and homes, and stunts the economic development of communities.

In regions where rain has not occurred for some time, heavy rainfall may arrive as an intense downpour that doesn't do much to help crops or add to the water supply. Instead of gradually soaking into the soil and recharging groundwater sources, the water hits hard ground and runs off, often causing disastrous flooding.

### ● Surface runoff and stream flow

More concentrated and heavier rainfall can increase the amount of water that flows over the ground after a storm or cyclone. Surface runoff may collect sewage, dirt and harmful bacteria and dump them in clean water sources.

### ● Oceans

As ice sheets and glaciers melt because of warmer weather, extra water is added to oceans, resulting in sea level rises. While sea level rise is not uniform globally and varies regionally, over the course of the twenty-first century, global sea levels are projected to rise to between 0.6m and 2.1m, and possibly more.<sup>13</sup> Sea level rise is a critical factor that makes low-lying nations like Bangladesh – which will see sea levels rise along its coastline by up to 1.5m by the end of the century<sup>14</sup> – particularly vulnerable to climate change.

Sea level rise can lead to saltwater intrusion on land used for crops and seep into groundwater supplies, making them undrinkable. This process of salinisation destroys all vegetation and other organisms living in the soil, transforming fertile and productive land into barren land.<sup>15</sup> Further, it is detrimental to human health as drinking water salinity is connected to cardiovascular diseases, high blood pressure, diarrhoea and abdominal pain.<sup>16,17</sup>

### ● Droughts

Whilst drought has many causes – regions not receiving rainfall or snow for a long period of time – climate change increases the likelihood of drought in many parts of the world. Warmer weather can cause more evaporation from the soil, so periods with low precipitation are drier than they would be in cooler conditions.<sup>17</sup>

Recent years has seen extended, intense dry periods in different places like California and Australia, South Africa and parts of East Africa.<sup>18</sup> The impact of drought is also often exacerbated by poor water management and infrastructure, which fails to capture and retain rainwater, as well as a lack of monitoring systems to predict water shortages.

## How a lack of clean water impacts marginalised groups



WaterAid/Drik Picture Library Limited/Farzana Hossen

Lack of access to clean water, disproportionately affects marginalised groups, particularly women and girls, disabled people and older people. So the loss of a water source is particularly challenging, making it harder to live an independent, healthy and dignified life.

**Each year, women and girls collectively spend an estimated 200 million hours – or around 23,000 years – walking, just to collect water.<sup>19</sup>** In some cases accessing water can be particularly challenging, like in sub-Saharan Africa, it has been estimated that around 63% of women are responsible for household water collection in rural areas.<sup>20</sup>

When so much time is spent collecting water, it prevents women and girls from gaining an education or earning a living. Globally, one in five girls of primary-school age are not in school, compared to one in six boys – and collecting water is one of the reasons behind this statistic.<sup>21</sup>

Older people in low- and middle-income countries, are among the most vulnerable group when exposed to the effects of climate change.

● **Ansar Ali, 72, and another man carrying their own safe drinking water. They live in Satkhira where water is highly salty and contaminated with iron and arsenic. WaterAid, supported by partners including Severn Trent, is working in this community to improve access to WASH. Assasuni, Bangladesh. September 2019.**

Two-thirds of people aged 60 or over live in low- and middle-income countries, where disasters are more likely to happen.<sup>22</sup> Water insecurity is a major source of stress and expense that affects older people, who are often unserved by existing services and facilities in their communities.

People with disabilities make up around 15% of the global population.<sup>23</sup> Discrimination and marginalisation mean people with disabilities are uniquely affected by the climate crisis. Disasters severely affect the access of persons with disabilities to clean drinking water and sanitation, as well as food and healthcare services.

## How a lack of clean water impacts health



WaterAid/Dennis Lupenga

Without clean water, communities have no choice but to rely on unprotected, dirty water sources, that often contain faecal matter.

Flooding results in overflowing latrines and sewers, contaminating water sources. In addition, the higher temperatures caused by climate change makes it easier for harmful bacteria and pathogens, including cholera bacteria, to reproduce making outbreaks of the deadly disease more likely.<sup>24</sup> While people recover from illnesses, they are unable to work or attend school – putting them at increasing risk of extreme poverty and marginalisation.

Under-resourced healthcare facilities are left to fight water-related health crises. Worldwide, one in four healthcare facilities have no water services on-site, impacting two billion people.<sup>25</sup> The situation is worst in the world's 47 least developed countries (LDCs), where one in two healthcare facilities do not have basic drinking water.<sup>25</sup> Not only does this place health workers at risk, but it potentially leaves them having to identify and collect from alternative sources of water, taking critical time away from patient care.



WaterAid/Guilhem Alandry

● **Top: Mary Khobiri, 34, nurse and midwife, washing her hands at Mangamba Health Centre, Machinga, Malawi. April 2019.**

● **Bottom: Salimata Dagnogo, 32, Matron of Talo Health Centre. Salimata faced big challenges in her role without the availability of clean water, and worried about the impact this had on the exposure to infectious diseases. Municipality of Fallo, Circle of Bla, Segou Region, Mali.**

# What needs to happen?

● Salim Said, 71, and his wife outside their house which has been destroyed by flooding in Mbgala, Dar es Salaam, Tanzania, January 2020.



## Adaptation

Both mitigation (cutting carbon emissions) and adaptation (managing threats from climate change) are essential to protect people and the planet. 2020 was the joint hottest year on record, and the world is hurtling towards an average temperature rise of 3.2 degrees by the end of this century.<sup>26</sup> Alarmingly, there is a one-in-five chance annual global temperatures will be at least 1.5 degrees warmer than in pre-industrial times in the next five years.<sup>27</sup>

While it is clear the climate and water crises are inextricably linked, not enough is being done by national governments and donors, to help the world's most vulnerable people adapt to the effects of climate change.

**Only 1% of the billions pledged globally to fight climate change is invested in protecting and providing clean water to vulnerable communities.<sup>28</sup>**

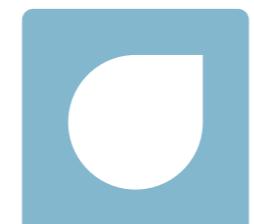
In some countries, where access to water is already inadequate, this equates to \$1 per person per year.<sup>28</sup>

Very few low-income countries are among the top recipients of public climate finance for water. Of the 20 countries receiving the most climate funding for water programmes, 19 are middle-income, despite the world's poorest countries being most vulnerable to climate change.<sup>28</sup>

The low levels of spending on the most vulnerable countries indicates that the role of water – and WASH services in general – in building resilience among climate-impacted communities is not recognised.

Bringing climate-resilient water to everyone, everywhere would have a transformational impact on people's ability to adapt to climate change – and to a country's overall development.

The good news is that in most cases there is – with the right infrastructure that responds to climate disasters, resource management and investment – water available to meet everyone's domestic needs. For example, recent research shows that most African countries, even those in the Sahel region, have good groundwater supplies that if extraction is carefully monitored, could provide a water source to help communities be resilient to climate change.<sup>29</sup>



## Water adaptation strategies

Everyone, everywhere needs a reliable supply of water. Governments must seek to adopt practical, affordable and sustainable solutions to ensure people have access to clean water all year round.

- Raising hand pumps and toilets in flood-prone areas, so communities have clean water when the floods arrive. The pumps tap into groundwater and protect water supplies from contamination. Raised toilets mean that people can use them safely when the waters rise, and that drinking water isn't contaminated with human waste.
- Drilling boreholes to get to groundwater, which is more reliable and less vulnerable to changes in climate. However, the levels of supply must be carefully monitored to prevent extracting more than is replenished by recharge.
- Storing rainwater in rooftop tanks or sealed ponds for times of drought and when groundwater is salty or contaminated, so communities have fresh water at critical times. The pond water is filtered to make it safe for drinking.
- Helping communities monitor water levels so they can prepare for shortages.
- Strong water systems need to be in place to ensure services can be rapidly restored after climate-induced disasters.



● Kalabogi village is situated in the Sutarkhali Union at Dacop Upazila. As a coastal region, it is susceptible to climate-induced natural disasters such as a cyclones, floods, tidal surges and sea-level rises. Dacop, Khulna, Bangladesh. August 2020.

● A woman washing clothes in the pond water. Trimohoni, Dacop, Khulna, Bangladesh. August 2020.

## Investment

Climate finance is investment aimed at both reducing emissions that contribute to climate change, and also adaptive actions to minimise the negative impacts of climate change.

While climate change impacts us all, for the billions of people who don't have access to a reliable supply of clean water close to home, its effects will be devastating.

Countries facing the brunt of the climate crisis are some of the world's poorest and least developed countries. In 2009, richer nations committed to give \$100 billion of climate finance a year by 2020, from public and private sources, to these countries to help them address the climate crisis.<sup>30</sup>

Climate finance provided and mobilised by developed countries for climate action in developing countries only reached \$78.9 billion in 2018.<sup>31</sup> But it is estimated that only around 5% of the total global spending on climate change supports adaptation.<sup>28</sup> Even then, that 5% figure is spread across all countries – not targeted at those that need it the most. There is very little correlation between how vulnerable a country is and how much money it receives to help to respond to the climate crisis.

Low levels of inefficiently allocated climate finance is failing to effectively help countries prepare for climate change and placing billions of lives at risk.

## Case study:

### India



- Total population – 1.4 billion.<sup>32</sup>
- 9.6% of the population are without even a basic water service close to home.<sup>33</sup>
- 48th most vulnerable country in the world to climate change.<sup>34</sup>
- Average carbon footprint per person per year: 1.8 tonnes.<sup>32</sup>
- In the UK, the average carbon footprint per person per year is more than three times as much at 5.6 tonnes.<sup>32</sup>



● Susmita Mandal Jana, 22, a housewife, washes utensils in a pond. Madhab Nagar area of Pathar Pratima under South 24 Parganas district of West Bengal, India. February 2021.



● Susmita crosses an unstable bridge while carrying a large pot to collect water. Madhab Nagar area of Pathar Pratima under South 24 Parganas district of West Bengal, India. February 2021.

Susmita's carbon footprint is minimal. Her electricity supply only powers her lights, fan and television. When it gets cold, she covers her doors and windows with a thick cloth.

She grows her own food and uses wood for cooking, as well as gobar gas – a mixture of animal dung and other organic matter, such as remains of plants and animals.

Walking is Susmita's main mode of transport; she uses a bus when her journey is over 10km, but this doesn't happen frequently, just once a month.

Neither her nor anyone in her family has ever travelled on a plane. Susmita seldom buys clothes or footwear, making a purchase only once a year.

**India is the world's third largest emitter of greenhouse gases, after China and the US, and is under pressure to reduce its emissions.<sup>35</sup> Its status as one of the world's biggest producers of emissions is largely down to the size of its population. India's per-capita emissions, is well below the global average,<sup>36</sup> and significantly lower than both China and the US.**

Due to the melting of the Himalayan glaciers and changes to the monsoon season – which is predicted to bring increased rainfall in the future – India is very vulnerable to the impacts of climate change. The country's more than 7,500 square km of coastline is at high risk of sea-level rise related to climate change, with sea levels along the Indian coast having risen by 8.5cm during the past 50 years.<sup>37</sup>

Predictions suggest that 36 million people in India are likely to be living in areas that will experience chronic flooding by 2100.<sup>37</sup>

Over the last 65 years, the country has seen a three-fold increase in extreme rain events.<sup>38</sup> In 2018–19, 2,400 Indians lost their lives to extreme weather events such as floods and cyclones; and the India Meteorological Department says these events are increasing in both frequency and intensity.<sup>36</sup> The country will need to adapt to increased water scarcity, droughts, floods, cyclones and other natural disasters.

Susmita Mandal Jana, 22, is a housewife, and lives in the Madhab Nagar area of Sundarbans, West Bengal. After completing her chores, Susmita is on her way to fetch water by 7.30am. Until last year, she collected water from a tubewell in the Bazarpara area, but it has dried up.

Now, a round trip to collect water takes her about one hour. She has to cross a rickety bridge over a canal about two to three times a day – while carrying heavy water containers – which scares her. Susmita says: "The water quality is not good either. This water that I collect now is salty."

A frequent phenomenon in the area are high tides, which can be a consequence of rising sea levels.<sup>39</sup> When high tides occur, the canal gushes with water, making the walk over the bridge even more perilous for Susmita.

"This way of collecting water takes a lot of time and effort and doesn't leave much scope for other gainful work and recreation. I have a sewing machine and can stitch clothes and contribute to the family income, but all this leaves me with little time to take a vocation."

## Case study:

### Nepal



**Due to its geography, Nepal is exposed to a range of climate risks and water-related hazards triggered by rapid snow- and ice-melt in its mountains, and intense rainfall in the foothills during the monsoon season.**

Dolakha is a region in the country prone to climate-related disasters. It was devastated by a landslide last September, following unseasonably heavy rains. While water management issues also affect the area, the Nepalese government has designated it as having 'high' vulnerability to climate change – with communities enduring droughts and flooding.

Govinda Budthapa, 31, is responsible for overseeing the water system in the area and coordinating the local community groups who help maintain the pumps and piping.

The community had already dug the new trenches to lay pipes, but COVID-19 interrupted the work. Govinda resumed the work once safety measures were in place, but then the landslide hit, blocking access to water supplies.

"Due to the landslide and then the flood, one of the water sources was completely covered up by the debris and the other three were badly affected. There was no human casualty, but the landslide destroyed the pipeline and the water sources very badly."

**Govinda Budthapa, 31, Kalinchowk, Dolakha, Nepal. September 2020.**



WaterAid/Mani Karmacharya

- Total population – 28.6 million.<sup>32</sup>
- 11.3% of the population are without even a basic water service close to home.<sup>1</sup>
- 73% of the population are without a safe water source.<sup>1</sup>
- 44th most vulnerable country in the world to climate change.<sup>34</sup>
- Average carbon footprint per person: 0.3 tonnes,<sup>32</sup> slightly less than a return flight from London to Istanbul (0.37 tonnes).



WaterAid/Mani Karmacharya

"If the landslide occurs next year in the rainy season, it will be useless to do any construction. It will be a total waste of time and resources."

"Once work can start, the plan is to create a gabion wall in which baskets are filled with stones to create a barrier which will help protect the pumps."

Govinda works with the authorities to ensure water supplies are sustainable and designed to meet the local population's needs long into the future.

"Sustainability is another challenge. On the one hand we are quite prone to natural disasters like landslides and floods, and on the other hand there are chances that the water source might dry up or the water flow will become small. In such cases, it will be a big challenge for us to make sure that the water scheme we construct will run for a long time."

## Case study:

### eSwatini



**The Kingdom of eSwatini is a landlocked country surrounded by South Africa and Mozambique. Climate change is severely impacting the water resources in the country due to changes in precipitation and run-off patterns. River streamflow in the country is also projected to decrease by 40% by 2050.<sup>40</sup> Almost one in three people do not have clean water, which is having a big impact on health and national life expectancy. eSwatini has the world's highest proportion of people living with HIV and AIDS – almost a third of the population.**

Sipheisiwe 'Minky' Sithole, 40, lives with her children in New Thulwane, which lies on a mountainous district in the Lubombo region of east eSwatini. The area has faced severe water scarcity, exacerbated by years of low rainfall.

"When it rains, after two days it becomes very hot and windy, so it just takes all the water we have on the ground. Even if we have ploughed something, it is just burnt by the sun because I think the climate change has disturbed the whole community."

The community collected water from hand dug holes in a dried-up riverbed and a muddy dam. These water sources are often a considerable distance away and have not been tested for safety. While a spring is available in the region, it takes hours to walk there.

"Where we fetch water in the river, it is not clean. When you drink that water, sometimes you don't even have time to boil the water for drinking. You just drink, because we are thirsty and then you have these diseases of diarrhoea and vomiting, and you become weak. Sometimes because you are weak, you can't even go and fetch the water."

Minky who volunteers at a school, started an HIV support group for the community after discovering she was HIV positive. Living with HIV means clean water and good hygiene is vital to Minky:

**Sipheisiwe 'Minky' Sithole, 40, with a bottle of water from a riverbed that she and her extended family depend on for water in New Thulwane, Lubombo Province, eSwatini. November 2018.**

- Total population – 1.4 million.<sup>32</sup>
- 31% of the population are without even a basic water service close to home.<sup>1</sup>
- 73% of the population are without safe water source.<sup>1</sup>
- 40th most climate vulnerable country in the world.<sup>32</sup>
- Average carbon footprint per capital: 1.0 tonnes.<sup>32</sup>



WaterAid/Nyani Quarmyne/Panos

"People living with HIV need clean water because they are easily affected by diseases. When you are sick you have to have the clean water, because when you have the dirty water, you get infected easily."

"If I didn't have to spend that time collecting water, I would choose to go and visit sick people and sell my products. When I had water, I used to make ice blocks for the kids. If I had water, I would do this and also make fat cakes to sell."

With financial support provided by The Coca Cola Foundation, WaterAid and its partner Nazarene Compassionate Ministries installed water systems in five communities, including New Thulwane and two clinics in the Lubombo region – which is severely affected by drought. More than 60,000 people now have access to clean water because of this project.

## Case study:

### Burkina Faso



- Total population – 20.3 million.<sup>32</sup>
- 52.2% of the population are without even a basic water service close to home.<sup>1</sup>
- 21st most climate vulnerable country in the world.<sup>34</sup>
- Average carbon footprint per person: 0.2 tonnes.<sup>32</sup>

**Burkina Faso is highly exposed to extreme weather and the impacts of climate change. As with other countries in the Sahel region, Burkina Faso is increasingly prone to intense droughts and desertification. Lower rainfall and higher temperatures have also contributed to the siltation and evaporation of lakes and rivers.<sup>41</sup>**

Yargho is a village located in the rural commune of Toece, in south central Burkina Faso, where many in the community earn money from growing vegetables. Crops are watered by using water from a dam in the village – but in January this year, it completely dried up.

For father-of-three François Nikiema, 31, growing vegetables is his family's main source of income. Although the number of market

gardens in the village has increased demands on the dam, he believes that climate change contributed to its drying up:

"When we were children, the water from the dam often lasted until the month of May. Water was available practically throughout the dry season. The rainy season is getting shorter. All this, in my opinion, explains why the water tends to finish quickly now."

"Surprisingly, this year the water in the dam began to decrease in December and completely dried up around 22 January 2021. Last year, it was around the 16 February 2020 that the water was finished in the dam and two years ago, in 2019, it was around 11 March. This means that we are going backwards every year and the gap between the periods of drying up of the dam is only widening from year to year now."

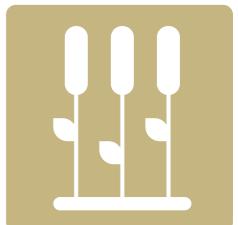
In the centre of Yargho, there are also three water pumps but only two function properly. When François is unable to use one, he relies on a traditional well, but he believes the changing climate might be affecting the availability of water:

"For our drinking water and domestic consumption, next to my house we have one borehole where we usually go to fetch water. But there are times when the pump becomes hard and if there are many people, it becomes difficult to get water there."

"When we have trouble finding water from the borehole, we go to the traditional wells. But these springs have problems during the hottest time of the year. The worst time is in April, sometimes you have to juggle with the little water you have or simply give up certain needs due to lack of water."



**François' carbon footprint is minute. He has no electricity or heating in his home. He cooks using wood as fuel; rarely eats meat and either grows his own food or purchases them from a local market. While a bus is François' main mode of transport, he boards one less than once a month, and when he makes a journey that is more than 10km, he uses a bicycle. He has never been on a plane, and neither has anyone in his family. He only buys clothes or footwear once a year.**



# WaterAid's call to action



Climate change is happening now – and it is those who have done the least to contribute to this crisis, who are living on the frontlines of our changing weather.

WaterAid is already working across the world to support vulnerable communities secure access to water, sanitation and hygiene that is fit for the future. However co-ordinated national and international action is needed to help support vulnerable communities, who are already struggling to cope and are being deprived of essential water, sanitation and hygiene. Without them, it will be a struggle for these communities to survive and thrive amid the effects of climate change.

## Increased focus on adaptation and water risk

We want governments in low-middle income countries, especially those with high levels of water stress combined with low access to WASH resources, to specifically and fully address the threats to water as part of their national climate action plans.

WASH resources and services need to be incorporated as key adaptation strategies in national climate plans, including Nationally Determined Contributions, National Action Plans and national budgets. Provision of WASH to vulnerable communities should be integral to broader climate resilience strategies, to ensure resources and services can withstand climate change. To identify risks to water availability, monitoring structures should be put in place to feed into early warning systems.

Governments and international funding bodies must also urgently prioritise investment in adaptation plans, ensuring spending reaches the same level as mitigation spending.



Ncenekile Maziya, 60, fetching water from a dirty pond, Nkuleni, Dvokodvweni constituency, eSwatini. November 2018.

## Locally-led adaptation

National climate plans should reflect local and regional climate-resilience planning. Local institutions should be put in place to lead responses to climate and WASH threats at a local level, with the ability to call on wider national resources as needed.

Donors and development agencies should actively engage with marginalised groups and local stakeholders to ensure their voices are included in adaptation decisions that directly impact their livelihoods and lives.

Women and girls, who are disproportionately affected by lack of access to WASH, should be central to discussions on climate change and enabled to participate in decision-making around climate policy.

## International climate finance

We want all donors to urgently increase adaptation finance and make it accessible to vulnerable communities in the poorest countries.

High-income countries need to fulfil their responsibility to provide new and additional climate finance. Donors must prioritise adaptation spending at the same level of mitigation spending, ensuring at least 50% of investment towards adaptation. As part of this, climate finance should be made available for WASH services that underpin climate resilience.

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# Appendix

Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,i</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>
1	Somalia	52	-	0.07
2	Niger	50	-	0.24
3	Chad	39	-	0.14
4	Guinea-Bissau	67	-	0.01
5	Micronesia	79	-	2.63
6	Liberia	73	-	0
7	Sudan	60	-	0.04
8	Mali	78	-	0.47
9	Congo, Dem. Rep.	43	-	0.05
10	Afghanistan	67	-	0.01
11	Eritrea	-	-	0.16
12	Uganda	49	7	0.29
13	Solomon Islands	68	-	0.22
14	Benin	66	-	0.5
15	Sao Tome and Principe	84	-	0.68
16	Tonga	>99	-	1.08
17	Central African Republic	-	-	0.08
18	Burundi	61	-	0.13
19	Madagascar	54	-	0.1
20	Ethiopia	41	11	0.13
21	Burkina Faso	48	-	0.46
22	Sierra Leone	61	10	0.17
23	Myanmar	82	-	0.06
24	Malawi	69	-	0.62
25	Vanuatu	91	44	-
26	Yemen	63	-	0.03
27	Bangladesh	97	55	0.27
28	Maldives	>99	-	1.12

Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,i</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>
29	Rwanda	58	-	0.67
30	Mauritania	71	-	0.22
31	Comoros	80	-	0.33
32	Haiti	65	-	0.19
33	Tanzania	57	-	0.18
34	Gambia	78	-	0.18
35	Zimbabwe	64	-	0.08
36	Pakistan	91	35	0.17
37	Lao People's Democratic Republic	82	16	0.41
38	Senegal	81	-	0.9
39	Kenya	59	-	0.64
40	Eswatini	69	-	1.77
41	Zambia	60	-	0.52
42	Guinea	62	-	0.07
43	Papua New Guinea	41	-	0.11
44	Nepal	89	27	0.39
45	Mozambique	56	-	0.18
46	Togo	65	-	0.18
47	Timor-Leste	78	-	1.53
48	India	-	58.4% <sup>33,iii</sup>	0.06
49	Bhutan	97	36	1.09
50	Angola	56	-	0
51	Côte d'Ivoire	73	37	0.05
52	Congo	73	45	0.75
53	Cambodia	79	26	0.51
54	Nigeria	71	20	0.05
55	Seychelles	96	-	12.23
56	Samoa	97	59	4.11

Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,ii</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>	Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,ii</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>
57	Antigua and Barbuda	96	-	1.14	90	Albania	91	70	1.24
58	Vietnam	95	-	0.75	91	Tajikistan	81	48	0.43
59	Belize	98	-	0.51	92	Jamaica	91	-	0.01
60	Sri Lanka	89	-	1.11	93	Gabon	86	-	6.48
61	Djibouti	75	-	6.58	94	Thailand	>99	-	0.01
62	Lesotho	69	-	1.08	95	Libya	99	-	0
63	Namibia	83	-	0.15	96	Lebanon	93	48	2.33
64	Bolivia	93	-	4.35	97	Oman	92	90	0
65	Cameroon	60	-	0.65	98	Moldova	89	73	0.34
66	Philippines	94	47	0.13	99	Serbia	86	75	0
67	Honduras	94	-	0.05	100	South Africa	93	-	0.08
68	Botswana	90	-	3.54	101	Georgia	98	80	0.05
69	Guyana	95	-	0	102	Colombia	97	73	0.3
70	Ghana	81	36	0.07	103	Kuwait	>99	>99	-
71	Equatorial Guinea	65	-	0	104	Azerbaijan	91	74	0.21
72	Bahamas	>99	-	-	105	Armenia	>99	87	3.26
73	Syria	97	-	-	106	Mexico	>99	43	0.05
74	Bahrain	>99	99	-	107	Turkmenistan	99	94	0.03
75	Saint Kitts and Nevis	-	-	0	108	Romania	>99	82	-
76	Guatemala	94	56	0.02	109	Iran	95	92	0.14
77	Indonesia	89	-	0.08	110	Saudi Arabia	>99	-	-
78	Nicaragua	82	52	0.39	111	Paraguay	>99	64	0
79	Iraq	97	59	0.11	112	Argentina	-	-	0.78
80	Ecuador	93	75	0.61	113	Uzbekistan	98	59	0.58
81	Cabo Verde	87	-	21.29	114	Brazil	98	-	0.03
82	Mauritius	>99	-	3.56	115	Singapore	>99	>99	-
83	El Salvador	97	-	0.02	116	China	93	-	0.04
84	Dominica	-	-	8.46	117	Suriname	95	-	3.72
85	Egypt	>99	-	0.22	118	Algeria	94	-	0
86	Peru	91	50	0.2	119	Mongolia	83	24	0.52
87	Fiji	94	-	0.74	120	Uruguay	>99	-	0
88	Cuba	95	-	0	121	Trinidad and Tobago	98	-	-
89	Dominican Republic	97	-	0.39	122	Latvia	97	95	-
					123	Panama	96	-	3.12
					124	Barbados	98	-	-

Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,i</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>
125	Tunisia	96	93	2.16
126	Morocco	87	70	1.17
127	Lithuania	98	92	-
128	Croatia	>99	90	-
129	Qatar	>99	96	-
130	Costa Rica	>99	94	0.06
131	Niue	98	97	-
132	Venezuela	96	-	0
133	Brunei	>99	-	-
134	Ukraine	94	92	0
135	Jordan	99	94	3.16
136	Grenada	96	87	0
137	Montenegro	97	94	-
138	United Arab Emirates	98	-	-
139	Kyrgyzstan	87	68	0.36
140	Bosnia and Herzegovina	96	89	0.22
141	Republic of Korea	>99	67	-
142	Malaysia	97	93	-
143	Saint Lucia	98	-	0.47
144	Japan	>99	99	-
145	Estonia	>99	93	-
146	Hungary	>99	90	-
147	Belgium	>99	>99	-
148	Turkey	99	-	0.02
149	Bulgaria	>99	97	-
150	Kazakhstan	96	90	0.07
151	Netherlands	>99	>99	-
152	Curaçao	>99	-	-
153	USA	>99	99	-
154	Slovakia	>99	>99	-
155	Malta	>99	>99	-
156	Belarus	96	95	0
157	Greece	>99	>99	-

Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,i</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>
158	Russian Federation	97	76	-
159	Portugal	>99	95	-
160	Chile	>99	99	0.05
161	Denmark	>99	97	-
162	Israel	>99	99	-
163	Australia	>99	-	-
164	Slovenia	>99	98	-
165	Ireland	97	97	-
166	Iceland	>99	>99	-
167	Italy	>99	95	-
168	Poland	>99	99	-
169	New Zealand	>99	>99	-
170	Canada	>99	99	-
171	France	>99	98	-
172	Spain	>99	98	-
173	Cyprus	>99	>99	-
174	United Kingdom	>99	>99	-
175	Sweden	>99	>99	-
176	Finland	>99	>99	-
177	Germany	>99	>99	-
178	Austria	>99	99	-
179	Luxembourg	>99	>99	-
180	Switzerland	>99	96	-
181	Norway	>99	98	-
NR	Andorra	>99	91	-
NR	Anguilla	97	-	-
NR	Aruba	-	-	-
NR	Bermuda	>99	-	-
NR	British Virgin Islands	>99	-	-
NR	Channel Islands	94	92	-
NR	Cook Islands	>99	-	2.7
NR	Czech Republic	>99	98	-

Climate Vulnerability ranking <sup>34</sup>	Country	% Population with access to at least a basic water service <sup>1</sup>	% Population with access to a safely managed water service <sup>1,i</sup>	Adaptation-related development finance to water per capita 2000–2018 annual average – Commitment (USD) <sup>28</sup>
NR	Democratic People's Rep. of Korea	95	67	0
NR	Falkland Islands	95	-	-
NR	Faroe Islands	>99	-	-
NR	French Guiana	94	91	-
NR	French Polynesia	>99	-	-
NR	Guadeloupe	>99	97	-
NR	Guam	>99	>99	-
NR	Isle of Man	>99	97	-
NR	Kiribati	72	-	3.15
NR	Liechtenstein	>99	>99	-
NR	Marshall Islands	88	-	10.12
NR	Martinique	>99	99	-
NR	Mayotte	97	84	-
NR	Montserrat	-	-	0
NR	Nauru	>99	-	0.8
NR	Puerto Rico	97	94	-
NR	Saint Vincent and the Grenadines	95	-	0
NR	Tokelau	>99	-	-
NR	Turks and Caicos Islands	94	-	-
NR	Tuvalu	>99	-	83.31
NR	Gibraltar	>99	>99	-
NR	Greenland	>99	97	-
NR	South Sudan	41	-	0.01

## About this briefing

With our climate changing at an alarming rate, it is becoming harder and harder for the world's poorest people to get clean water. 785 million people currently lack access to this basic resource – that's one in ten people – making it harder to cope with the growing effects of the climate crisis.

*Turn the tide: The state of the world's water 2021* looks at the tangible impact on the daily lives of individuals living in areas impacted by climate change.

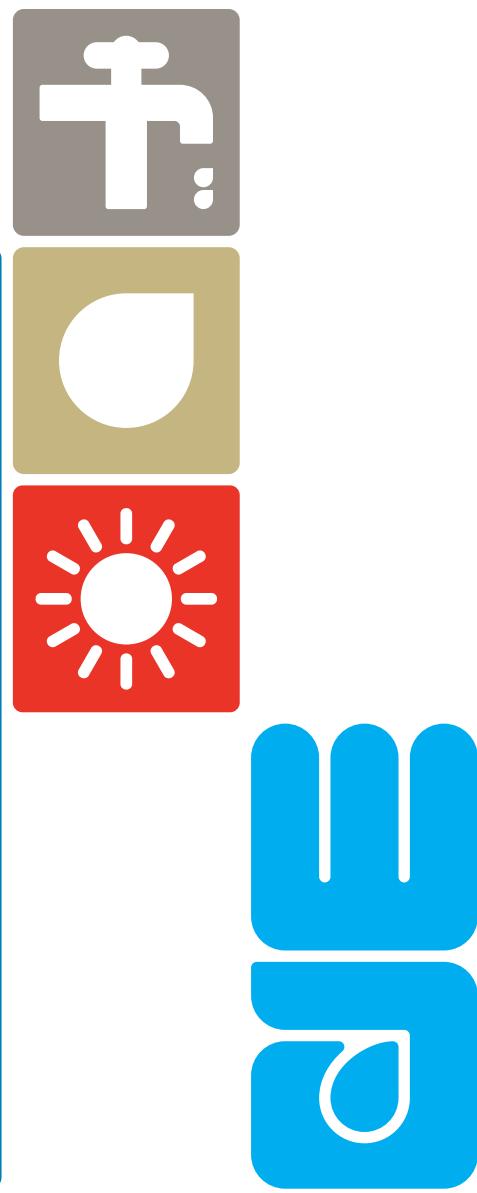
Everyone, everywhere should have access to clean water, whatever the changing climate brings.

Written by Ekene Oboko and Fiona Callister with support from Virginia Newton-Lewis, Bernard Aryeetey, Tina Mlinaric, Jonathan Farr, Ben Wilson, Josh Bryant, Claire Seaward, Kathryn Tobin, Chilufya Chileshe, Caroline Dalton, Ella Lines, Helen Davis, Laura Summerton, Kate Timbrell, WaterAid Nepal, WaterAid Malawi, WaterAid India, WaterAid eSwatini and WaterAid Burkina Faso.

#WorldWaterDay

WaterAid is an international not-for-profit, determined to make clean water, decent toilets and good hygiene normal for everyone, everywhere within a generation. Only by tackling these three essentials in ways that last can people change their lives for good.

Front cover image: WaterAid/DRIK/Habibul Haque



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