On the frontline

The state of the world's water 2020

WaterAid

Introduction

Climate change is happening now. Never before have we witnessed so many extreme weather events this frequently – severe droughts, powerful storms, devastating floods and cyclones. All that disrupt and destroy lives, whilst reshaping our environment and our futures.

Nitsuh Tsehay, 43, waiting for her turn at the hand-dug well in Gorad Village, Gojjam Zone of the Amhara Regional State, Ethiopia, December 2019.

WaterAid/ Frehiwot Gebrewold

Climate change will impact every aspect of life on the planet – and its effect on vulnerable communities, water resources and water supply systems threatens to be one of the most devastating. For the two billion people who already lack daily access to a reliable source of drinking water,[1] the additional hardship brought about by climate change can mean the difference between health or sickness, thriving or barely surviving. The greatest injustice is that the people who will suffer the most from our changing climate, have done the least to cause it.

By 2050, the number of people who will struggle to get water for at least one month every year will have swollen to five billion[2] – so over 50% of the world's population.

Climate change increases the unpredictability of weather patterns and the frequency and severity of extreme weather events leading to greater hardship. The more we allow global temperatures to rise, the greater the impacts will be on communities without access to clean water.

As water sources dry up, women and girls – who usually bear the heavy burden of water collection – have to walk even further to fetch water, giving them less time to earn a living or stay in school. When heavy rains bring floods, water sources can become contaminated by human waste, leading to disease; whilst rising sea levels contaminate underground water reservoirs with salt, rendering them undrinkable. The communities WaterAid works with – in Mali, Niger, India, Bangladesh, Ethiopia and beyond – are on the frontline of these climatic changes and are already suffering with ill-health and economic hardship as a result.

Village women walk on cracked ground towards a pond, to collect water at Vitaranga, Gunari, Dacope, Khulna, Bangladesh, March 2018.

WaterAid/ Abir Abdullah

Yet the solutions are clear. Clean water and decent toilets are one of the first lines of defence against climate change for communities. Having a reliable source of clean water can help protect people when they are at their most vulnerable – during droughts, floods and other extreme weather events.

This is not only a human right, but also forms part of Sustainable Development Goal (SDG) 6,[3] which pledges to ensure safe water and sustainable sanitation is available to everyone, everywhere by 2030. Time is running out and the water crisis a key environmental challenge of this century.

Far too little is being done, by both national governments and donors, to help the most vulnerable people in the world adapt to the effects of climate change. There is too little recognition of the critical role that water and sanitation plays in helping communities adapt to the impact of climate change and subsequently too little investment in ensuring these systems are climate resilient.

The communities featured in this briefing have done very little to contribute to the carbon emissions that are causing global warming, yet stand to lose everything unless action is taken. Clean water and decent toilets is one of the first lines of defence against climate change for these people.

A thin cow with her calf: due to the salinity of the area and lack of food, cows struggle to survive. Vitaranga, Gunari, Dacope, Khulna, Bangladesh, March 2018.

WaterAid/ Abir Abdullah

Clean water and decent toilets are one of the first lines of defence against climate change.

Mitigation – reducing climate change: actions to reduce the emission of greenhouse gases, or to increase their removal from the atmosphere. Examples include phasing out fossil fuel use or increasing energy efficiency.

Adaptation – adapting to life in a changed climate: actions to adjust to current or future climate impacts such as rising sea levels or increased droughts. Examples include raising houses and buildings above flood lines, or changing to drought-tolerant crops.

State of the world's water

Without clean water, people are denied opportunities that should be open to all and whole communities are held back. Drinking dirty water exposes people to traces of faeces and harmful bacteria, putting them at risk of deadly diarrhoeal diseases like cholera and typhoid. Dirty water makes children too ill to attend school, depriving them of their education. Everyone, everywhere has the human right to safely managed water, but there are still billions of people around the world who go without. What do water services look like around the world?[1]

Safely managed water:
Drinking water from an 'improved' water source which is: located on premises, available when needed and free from contamination. This is the level of provision that the United Nations (UN) has set as the human right to water.

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

Basic water access:
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 roundtrip collection, including queuing.

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

Limited water access:
Drinking water from an 'improved' source for which the collection time exceeds 30 minutes for a roundtrip, including queuing.

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

Unimproved water access:
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 do this? 144 million (2%).

Teodora Nzingo, nearly 80 years old, showing how the flood waters have gone into the water storage tanks and filled up the pit latrines so causing more flooding in Kigamboni, Tanzania. January 2020.

Julia Khatun, 26, is pumping a Pond Sand Filter (PSF) plant. The water in the Dacope region is saline, and so it is unsafe for drinking. PSF is a simple technology in which water is pumped from a pond and passed through a number of chambers containing sand and gravel. The treated water is safe for drinking. WaterAid initiated this project and it is funded by HSBC. Golchera, Bangaldesh. September 2018.

Is the world making progress?

Between 2000 and 2017, 1.8 billion people gained at least a basic water supply and the number of people forced to drink from surface water sources fell from 256 to 144 million.[1] However, basic access falls below the ambition of SDG 6 which has a target level of safely managed water. At current global average rates of progress, projections are that everyone in least developed countries won't have safely managed water until 2131 – over 100 years behind schedule. Given the disparity of progress rates between individual countries, some populations may not have safely managed water even after this date.[i] Unless we can dramatically increase the speed of progress, meeting SDG 6 will take at least a century, not the decade we have remaining.

Which countries are furthest behind?[1]

Even though the global community has pledged to bring everyone a safely managed water supply by 2030 – one in ten of the world's population are still without even a basic water supply.

Country	Total population without access to basic water (%)	People who have access to limited water (%)	People who have access to unimproved water (%)	People who drink from surface water (%)
Chad	9.1m – 62%	17%	39%	6%
South Sudan	7.5m – 60%	34%	17%	9%
Ethiopia	61.9m – 60%	28%	23%	9%
Papua New Guinea	4.8m – 60%	2%	6%	52%
Democratic Republic of the Congo	46.1m – 57%	12%	36%	9%
Burkina Faso	10m – 52%	28%	23%	1%
Uganda	21.8m – 52%	32%	13%	7%
Niger	10.6m – 50%	15%	31%	4%
Somalia	7m – 48%	31%	14%	3%
Madagascar	11.6m – 46%	1%	32%	13%

Which countries have made the most progress?[1]

Country	% of population with access to basic water		Annual rate of change (percentage points)
	2000	2017	
Afghanistan	28%	67%	2.31
Mozambique	20%	56%	2.11
Lao People's Democratic Republic	47%	82%	2.09
Myanmar	46%	82%	2.09
Somalia	20%	52%	1.93
Mauritania	41%	71%	1.75
Mali	49%	78%	1.74
United Republic of Tanzania	27%	57%	1.73
Cambodia	52%	79%	1.54
Yemen	38%	63%	1.51

[1] Based on regional estimates and a current annual rate of progress of 0.57.

What help do countries get to tackle climate change?

The countries most vulnerable to climate change are some of the poorest and least developed countries in the world. If urgent action on climate change isn't taken, it is predicted that the cost for developing countries to adapt to climate change will soar. The cost alone to bring safely managed water and decent toilets to low and middle-income countries is predicted to total $198 billion a year. Climate change will push this cost higher, with a further $103 billion required for flood protection.[4] Providing safe water for an entire population, in the face of climate change, is too big a challenge for developing countries to face alone.

Traditionally, international support for water, sanitation and hygiene (WASH) has come through official development assistance (ODA) – grants or loans provided to developing countries with the aim of promoting economic development and welfare. In the face of climate change it is vital that climate finance complements these resources as an additional source of international support, because delivering a water service that can withstand the impacts of climate change will cost more money.

WaterAid/ Kate Holt

A woman cooks next to her house that is flooded regularly by rising sea tides. Morondavo, Madagascar, April 2016.

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

Climate finance flows through various channels, but the main mechanisms are:

- **Multilateral climate funds: these are initiatives that are governed by various countries. Developed country governments pay into these funds as part of their obligations under the UN Framework Convention on Climate Change (UNFCCC).**
- **Bilateral climate funds: this is when money flows from one government to another, usually through an existing development agency.**
- **Private finance: private sources of climate finance are mainly used for renewable energy and green transport rather than climate adaptation.[5]**

In 2017–2018 a total of $579 billion was spent on climate finance, from both public and private actors. Of this, public finance – from multilateral and bilateral sources – accounted for $253 billion or 44% of the total. Very little of this goes towards the countries experiencing the impacts of climate change now.[5]

Both mitigation and adaptation are essential to protect people and the planet. But for the communities WaterAid works in, climate change is happening now, and solutions are urgently needed. A further 0.5 degrees of warming is already locked in,[6] so helping communities to adapt to the impacts that are already inevitable is vital.

Almost all climate finance for adaptation comes from public sources, and it still only accounts for around $30 billion or 5% of the total. This is also a global figure – not just money spent on helping the most vulnerable.[5]

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.

Half of all countries get less than $5.20 per person, per year to help them cope with the climate crisis. Some of the most vulnerable countries get a lot less than this.[7]

Table title: Vulnerable countries* which receive the least climate finance:

Country	Vulnerability rank[8]	Total climate finance per person per year, 2010–2017 ($)[7]
Yemen	29	1.17
Sudan	7	1.33
Angola	46	1.58
Central African Republic	16	1.61
Democratic Republic of the Congo	12	2.27
Guinea	35	2.93
Togo	40	3.06
Zimbabwe	34	3.09
India	51	3.24
Republic of the Congo	44	3.31

* vulnerable countries defined as those with a vulnerability ranking above 0.5 in the Notre Dame Climate Adaptation Index.

Maimouna Dembele, 70, president of the Benkadi women's group, watering crops inside the market garden in the village of Kakounouso, Mali, February 2019.

How is climate finance spent in vulnerable countries?

There is an imminent crisis facing developing countries as the impacts of climate change begin to bite. However, the low levels of spending on the most vulnerable countries and communities shows that there is no clear plan on how to address this. Not only is investment vastly below where it needs to be, the money that is spent is allocated without prioritising those most in need.

There are some vulnerable countries that have received higher amounts of climate finance per person – mainly small island developing states (SIDS) in the Pacific Ocean. However, absolute amounts for these countries are still modest compared to the challenges they face. For example, one-third of people who live in SIDS live on land that is less than five meters above sea level. The scale of climate finance received – around $14 million in total a year for Tuvalu, $5 million for Nauru, and $7 million for Palau[7] – does not match the existential threats posed by sea level rise, storm surges and coastal destruction.

Low levels of inefficiently allocated climate finance is failing to effectively help countries prepare for climate change and placing billions of lives at risk. It is also a misuse of development assistance to not spend it in ways that support the poorest people who will suffer the most.

WaterAid/ Basile Ouedraogo

How is climate finance spent on water?

Clean water is a first line of defence against the impacts of climate change – but the countries that are most vulnerable to climate change have some of the lowest levels of clean water access in the world.

Many countries with very low levels of water access receive tiny amounts of climate finance for WASH projects

Having a reliable source of clean water that works whatever the weather protects people from the impact of climate change. Many of the countries most vulnerable to climate change have large proportions of their population who are forced to drink dirty water.

Despite being a human right and a first line of defence, a paltry amount of climate finance is currently invested in getting clean water to everyone, everywhere. Money for WASH adaptation accounts for just $9 billion – or 1.6% of total climate finance.[5]


WaterAid/ Abir Abdullah

Mouri, 45, fetches water from a pond at Vitaranga, Khulna, Bangladesh, March 2018.

Half of countries where more than 10% of people do not have water close to home get less than $1 per head per year for WASH service adaptation.[7]


WaterAid/ DRIK/ Habibul Haque

Parul Begum, 35, walking through the damaged road near her house. Ward 9, Khulna, Bangladesh. September 2018.

How much money do the countries with the lowest levels of water access receive for WASH from climate finance?

Country	% of people lacking access to water close to home[1]	Climate finance for water, sanitation and hygiene per person, per year[7]
Chad	61	$0.19
Ethiopia	59	$0.39
Papua New Guinea	59	$0.82
South Sudan	59	$2.37
Democratic Republic of the Congo	57	$0.29
Burkina Faso	52	$1.94
Uganda	51	$1.01
Niger	50	$0.82
Somalia	48	$0.39
Madagascar	46	$0.17

The ten countries with the lowest number of people with access to water close to home get on average $0.84 per person[1,7] per year to help tackle the impacts of climate change on their water services – despite also being some of the most vulnerable.

This low level of climate finance spent on WASH services reflects the poor recognition of how these services can build resilience to climate change. Not only are clean water, decent toilets and good hygiene fundamental to development, but it is also as a critical adaptation strategy for poor and vulnerable communities. Getting climate-resilient water to everyone, everywhere would have a transformational impact on billons of people around the world and their ability to adapt to climate change.

Country focus

Bangladesh

- **36th most vulnerable country in the world to climate change.[8]**
- **$8.10 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]**
- **3% of the population are without even a basic water service close to home.[1]**
- **Total population – 161.4 million.[9]**

Bangladesh is one of the most vulnerable countries in the world to the impacts of climate change. Two-thirds of Bangladesh sits less than five metres above sea level,[10] leaving these areas highly susceptible to river and tidal flooding. Drought, rising sea levels and cyclones also significantly impact people's access to clean water.

In the village of Manik Khali in the Assasuni district, life is a daily struggle due to the severity of water scarcity. The impacts of climate change are prevalent in this community, with rising sea levels causing increasing salinity of groundwater, so clean water is often difficult to find.

The rapid increase in salinity in these areas threatens soil quality, crop yields, coastal biodiversity and the health of communities. Regularly drinking water with high salt levels causes health problems such as hypertension. Communities may then risk disease by drinking from unprotected surface water sources or have to walk long distances in search of alternative clean water sources.

Villagers mostly use tubewell (a tube that draws water from aquifers deep under the surface) water for washing clothes and utensils, and to perform ablution (wadu) before prayers. But these tubewells contain high quantities of salt and some are contaminated by arsenic or iron.

Saleha Parveen, 35, a widow who lives with her parents and two children, explains:

"We all have tubewells in our houses, but no one can drink from them. Most of the families here will eat less, buy less clothes, sacrifice their other needs just so that they can purchase water."

People living in Manik Khali have to walk a long way to find a tubewell with clean drinking water. This is only possible for those who fit and strong enough to walk to the tubewell, fill their heavy vessels and walk back. This chore tends to fall to younger women or girls.

Saleha's best friend, Onita Rani Mondol, says:

"Sometimes, the thought of walking a far distance to collect water tires us. When it rains too much, the saline water from the farms and even our ponds overflows into our house boundaries. It kills our plants."

WaterAid, supported by partners such as Severn Trent, is working in this community and many others in Bangladesh to improve access to WASH for thousands of climate vulnerable people, helping them adjust to life's unpredictability.

WaterAid/ DRIK/ Farzana Hossen

Sohel, 13, struggling to pull a van full of drinking water for his home along with his neighbour. Assasuni, Khulna, Bangladesh, September 2019.

Country focus

India

- **51st most vulnerable country in the world to climate change.[8]**
- **$3.20 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]**
- **7% of the population are without even a basic water supply close to home.[1]**
- **Total population – 1.4 billion.[9]**

India is the world's fastest growing economies, but socio-economic inequalities and gaps in basic service delivery prevail. The government has now committed itself to provide piped water at the household level to every Indian home by 2024.

The climate crisis threatens the viability of this promise. Last year, large parts of the country suffered the worst drought in decades, with hundreds of millions of people facing water shortages and farmers abandoning their fields. The eastern state of Odisha was battered by cyclone Fani – unusual for the time of year and the strongest storm-surge to hit the region in 20 years – leaving villages submerged and thousands of homes and services destroyed.

Too little attention has been paid to building the human capacity and infrastructure to deliver safe water to all. For example, despite strong evidence that handpumps corrode when installed in soil or groundwater with high levels of salinity, they continue to be installed. The pipes are prone to corrosion which can release iron into drinking water, causing misery for millions of rural households across India and beyond.

Unless the water sector can undergo significant changes, people without access to reliable and clean water will suffer the most as climate change puts more pressure on already stretched water services.

Pushpalata Naik, 60, lives in Sitalpur village in the coastal Bhadrak district. She says:

"The iron in the water from the hand-pump is so high that it leaves behind a stain in the vessel. Children constantly complain of stomach pains that increase during monsoons, when the floods come."

Villagers use a cloth to filter out the high iron content in the water filled from a handpump in the village Sitapur, on the outskirts of Bhadrak, Bhuvaneshwar, Odisha, India, January 2020.

WaterAid/ Anindito Mukherjee

Pushpalata's daughter-in-law, Shantilata points to a plastic bucket with salty water brought from the local handpump. Left to stand, there is a reddish residue at the bottom. "Every few months, the hand-pump starts giving problem and we have to call the plumber to fix it. Most of the times he would say that the water-pipe has got corroded," explains Shantilata.

WaterAid India works with communities, local institutions and district and state administrations to help build effective and resilient systems. In the face of more extreme weather events, strengthening the systems that can bring clean water that can withstand the impacts of climate change to the entire country has never been more important or urgent.

Country focus

Ethiopia

- 23rd most vulnerable country in the world to climate change.[8]
- $5.20 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]
- 59% of the population are without even a basic water service close to home.[1]
- Total population – 109.2 million.[9]

Ethiopia is highly susceptible to climate variability and the impacts of climate change. As one of the world's most drought-prone countries, projections are that it will face increases in temperature and increasingly unpredictable rainfall.[11] These changes are already affecting agricultural practices, damaging water and sanitation services and leading to outbreaks of diarrhoea and other waterborne diseases.

Alene Mengesha, 51, has lived in Ergeb Kebero Medam in the Amhara Regional State of Ethiopia for 25 years. The area is dry and water is scarce.

The community, in collaboration with the area's administration, has helped to set up a Water, Sanitation and Hygiene Committee (WASHCo) to enable local people to have a say in tackling water-related problems. Alene is the chair of the WASHCo, which has helped to construct a water pipe that pulls from a spring serving 230 households with clean water.

Alene said, "Over time...the water became insufficient for the community...we found out that the amount of water from the spring was decreasing. We tried to build another hand-dug well to bring water from another spring. Unfortunately, that spring dried up within a short period of time."

Abeba Amogne, 23, carrying a jerrycan full of water over her shoulder, whilst also carrying her baby Sitotaw on her back, Ergeb Kebero Meda, Amhara Regional state, Ethiopia, December 2019.

WaterAid/ Frehiwot Gebrewold

Abeba Amogne, has to wash her nine month old baby in dirty river water because the water levels in the local hand-dug well have decreased so much that she can only collect enough for cooking and drinking:

"I have to wash my baby's clothes every day. I have to bathe him. I know the water from the river is not clean and safe for us, but I have no other option."

Alene, Chair of the WASHCo, adds:

"Whenever we think of climate change and what is happening in our area, we get so worried about the future. The weather is changing and it's getting hotter."

Country focus

Mali

- 9th most vulnerable country in the world to climate change.[8]
- $8.60 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]
- 22% of the population is without even a basic water supply water close to home.[1]
- Total population – 18.5 million.[9]

Once home to several pre-colonial empires, Mali – one of the African continent's largest nations – is a country now ravaged by conflict and drought. This landlocked West African nation reaches deep into the Sahara Desert and with temperatures in the Sahel region predicted to increase 1.5 times more than the global average, it is on the frontline of climate change.[12]

With 80% of the population dependent on agriculture to make a living, prolonged droughts and advancing desertification are leading to a steady migration to the south of the country.[13] This is increasing population density, exacerbating existing pressures on natural resources, such as clean water, and creating conflicts between communities in the south.

Climate events threaten the significant progress Mali has made towards bringing clean water to its population of 18.5 million people. People like Maimouna Denbele, 70, who lives in the small rural village of Kakounouso in the south-central semi-arid Ségou region of Mali. A changing climate here has meant increasingly unpredictable weather patterns; with longer dry spells and higher temperatures that wreak havoc on farming communities.[7]

"We used to walk in the bush in search of firewood, leaves or wild fruits," explains Maimouna, "We would spend the whole day in the bush without eating or drinking, and we would go home empty-handed. It was difficult to find something. I used to stay at home, waiting for the rainy season for work in the fields."

Working gives women in the group some independence and enables them to buy soap for washing at home, to pay for clothes for their children and, as Maimouna says, "It helps us pay for our children's tuition, and we help our husbands and families."

With the help of WaterAid and partners, a local women's group has been formed. With Maimouna as president, she and other members have been trained in water management techniques to ensure water levels in the village are properly monitored. Now, where drinking water once dried up and crops perished, the community has a reliable supply of drinking water and the women's group can grow and harvest crops in their local market garden.

WaterAid/ Basile Ouedraogo

Maimouna says:

"In the market garden we produce onions, garlic, cucumbers, salad, tomatoes, potatoes, papaya, and so forth. This work that we do is very beneficial to us. What we produce, we consume, and we sell. We sell to have some money."

Maimouna Dembele, 70, president of the Benkadi women's group, collecting firewood in the bush in the village of Kakounouso, Ségou Region, Mali, February 2019.

Country focus

Tanzania

- **30th most vulnerable country in the world to climate change.[8]**
- **$7.30 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]**
- **43% of population is without even a basic water supply close to home.[1]**
- **Total population – 56.3 million.[9]**

Tanzania is already experiencing rising temperatures, longer dry spells,more intense rainfall and a rise in sea levels, all exacerbated by climate change.

Around a third (34%) of the population live in urban areas,[9] and 75% of that population lives in informal settlements that are at increasing risk from water scarcity, flooding and extreme temperatures.[14]

Salim Said, 71, lives in Mbagala, Dar es Salaam and explains how flooding has changed his and his family's life: "Over the years, I have seen changes in the weather, particularly with flooding. The water entered into my house and now we have to sleep outside. My house has been destroyed.

"It also affects us being able to get clean water from the shallow wells. We have to collect money to build a new one and, in the meantime, we have to buy water."

In the coastal ward of Kigamboni, Dar es Salaam, 80 year old Teodora Nzingo has noticed an increase in illnesses related to a changing climate:

"Before, it never used to rain like it does these days. Diseases come around during the rainy season, like cholera. Diseases like this come when there is lots of water as the water isn't clean."

Flooding in Kigamboni has also meant Teodora is not able to use her toilet.

"The flood water has gone into the storage tank, so I have covered it because I can't use it anymore. I have the materials to build a new one, but the water came again so now I have to wait."

Salim, 71, has seen changes in the weather in Dar es Salaam, Tanzania.

WaterAid/ Sam Vox

In Temeke Municipal, Dar es Salaam, WaterAid is working with entrepreneurs on a pit latrine emptying project to prevent them from overflowing. If they are maintained and regularly emptied then the impacts of flooding on the community is reduced as there is less of a risk of contamination by human waste which can quickly lead to cholera outbreaks.

Despite these steps forward, it is clear that the poorest communities are those that are feeling the effects of climate change the most.

Country focus

Niger

- **2nd most vulnerable country in the world to climate change.[8]**
- **$7.70 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]**
- **50% of the population is without even a basic water supply water close to home.[1]**
- **Total population – 22.4 million.[9]**

Ranked by the UN as the world's poorest nation,[15] Niger is also the second most vulnerable country to climate change. Named after Africa's third largest river, it is a country frequently gripped by water insecurity and drought.

Around 10 million people in Niger currently live without clean water.[1] Mounting instability and conflict across the Sahel region, irregular rainfall, rising temperatures, widening desertification[4] and flooding, are compounding the desperate situation faced by communities.

Ali Sabo, 51, lives in Dungass in southern Niger. Despite an abundance of water ponds (unusual in this arid landscape), villagers in the area have noticed the water table drop in recent years as a result of farming and over-irrigation. A trend which climatic factors will likely intensify if not properly managed. When water tables drop, water pumps and wells can cease to function, taking away a community's water supply.

WaterAid Niger and partners aim to help communities become more resilient to climate change. By training locals, including Ali, in water monitoring, measuring rainfall and the level of the water table – the communities are able to recognise when the water supplies may be running low. They can then make decisions, such as stopping the manufacture of bricks or limiting the village water pump to domestic use only, to help prolong the water supply during the dry season.

Ali shares the rainfall data with the local government and compares it to previous years. This helps the local community, regional authorities and national government to foresee problems and put in place plans to manage them.

The municipality is now planning to plant trees to form 'wind-breaks', which will significantly reduce wind speeds and therefore reduce water loss through evaporation, as well as helping to reduce the spread of desertification and erosion. The trees will also help in 'recharge' – funnelling water down to aquifers below the surface.

But, as Ali warns, "This is the beginning and there is still a lot of work to be done. We must continue information sharing in the long term."

Ali Sabo, 51, a water monitor, demonstrating how he uses a rain gauge to monitor rainfall. Dungass, Zinder, Niger, February 2019.

Ali says,

"I do the rain surveys every time it rains. And at the end of each month we sum the readings of the rainfall. This allows us to see the number and the quantity of water we received from the rain in our locality. Previously, water resources and vegetation were more abundant in Dungass. But today they tend to disappear."

WaterAid/ Basile Ouedraogo

Country focus

Timor-Leste

- 25th most vulnerable country in the world to climate change.[8]
- $24.80 of climate finance is received per person, per year on average for both adaptation and mitigation.[7]
- 22% of population is without even a basic water supply close to home.[1]
- Total population – 1.3 million.[9]

Timor-Leste is a country in recovery. Centuries of Portuguese colonial rule followed by decades of Indonesian occupation and brutal conflict dominated this tiny island nation before it finally became independent in 2002.

While the government has made significant inroads in rebuilding the country; investing in health, education and electricity – progress on WASH services lag. Over a quarter of the population do not have access to clean water and over half do not have a decent toilet.

This situation could worsen as climate events such as cyclones, flooding and drought – already frequently experienced in Timor-Leste – increase, leaving islanders vulnerable and exposed.

Felisberta da Costa, 57, lives in the coastal village of Vatuvou in the municipality of Likisa, in the far north-west of the country. Like many in her village she depends on farming to survive but the prolonged dry-season is making life increasingly difficult.

“We plant things so that we have food to eat and we have animals, which we sell. But the number of animals we have has decreased. The animals are dying because we don’t have enough water to feed them,” explains Felisberta, “And that makes it hard for us too because we won’t have enough food, plus we won’t have enough income.”

While the village has a piped water connection to a large tank, it can take up to a week to fill and some is lost because it is old and leaking. When water isn’t available, villagers are forced to buy it and those that can’t afford it face a long, 2.2km, uphill walk along a rocky, dried up river bed to the nearest water source.

“My daughter and I go to the water source every day to collect water”, says Felisberta, “At this time of year it is hot, so we wait until the afternoon when the sun has gone down again. Sometimes, I feel a little bit faint and get tired walking with the jerry cans. But I have to, because if I don’t then the kids are not going to eat. I feel sad because of the daily routine that I go through to have water. It makes me feel as if I am almost giving up my life.”

Felisberta da Costa, 57, carrying jerry cans filled with water in a basket on her back attached by a headband walking along a rocky dried up river bed. Vatuvou Village, Maubara post-administrative area, Liquica, Timor-Leste. November 2019.

Top image: The bridge on the only road was washed away during a cyclone in January 2018, so everything had to be transported on foot. Ambohiborona commune, Vakinankaratra region. Madagascar, March 2018.

Bottom left: Srei Suong, 67, getting water back to her home, Koh Keo Village, Kampong Chhnang Province, Cambodia, April 2019.

Bottom right: The community have used rubbish and solid waste as a flood defence in the Kiburugwa. Dar es Salaam, Tanzania. January 2020.

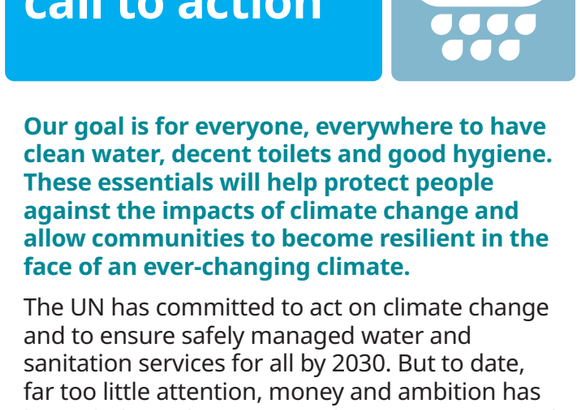
WaterAid's call to action

Our goal is for everyone, everywhere to have clean water, decent toilets and good hygiene. These essentials will help protect people against the impacts of climate change and allow communities to become resilient in the face of an ever-changing climate.

The UN has committed to act on climate change and to ensure safely managed water and sanitation services for all by 2030. But to date, far too little attention, money and ambition has been dedicated to meeting these interconnected challenges – leaving billions of people to face an uncertain future.

Climate change and how we respond to it will be the defining challenge of our time. The need to address this issue has never been greater, but with significant action, change is possible.

WaterAid is calling on leaders around the world to step up and commit, to ensure millions of people today, and for generations to come, can lead healthy and fulfilled lives.



WaterAid/ Vlad Sokhin

Olinda da Silva Nunes, 59 (right) Lautekas, AI Technology Community, Timor-Leste, November 2019.

Shantilata uses a cloth to filter out the high iron content in the water, filled from a handpump, in the village Sitapur, Odisha, India. January 2020.

WaterAid/ Anindito Mukherjee

Our action plan

1 Governments must include clean water in their climate adaptation plans.

The UN Framework Convention on Climate Change supports governments as they make plans setting out how their country will adapt to climate change.

Many countries have developed national adaptation plans, but few include detail on implementing the sustainable water and sanitation facilities needed to withstand the impacts of climate change.

Governments must put urgent measures in place to increase access to safely managed water and decent toilets by; monitoring and managing WASH services, sustainably managing water resources and ensuring there is a disaster management plan in place. This will demonstrate a recognition of the significant threat to life, health and economic wellbeing that comes from overlooking the links between WASH and climate change adaptation.

2 Governments must develop clear strategies to address the huge capacity gaps that currently exist in order to bring climate-resilient water to all.

Without adequate human resource capacity in every part of the sector, countries will not be able to deliver sustainable WASH services or adapt them to the challenges of climate change.

We need to increase human resource capacity across the water and sanitation sectors. Sufficient budget should be allocated to hire and retain staff, with decent incentives and good training offered. Rural areas must be prioritised and the attraction, recruitment, retention and advancement of women within the sector is also vital, as they are typically under-represented. These jobs need legal protection, operating procedures and decent laws and policies to protect people's rights and health.

3 We want to see a tenfold increase in current levels of climate finance that goes to WASH services from donor governments and climate finance institutions.

To meet the two objectives above, a ten-fold increase in public climate finance is needed for WASH, as current investment is falling way below what is required. This should be in the form of grants, not loans, and over and above existing ODA.

To help the poorest countries create effective climate-resilient water programmes, a pipeline fund needs to be created that provides these countries with the technical support needed to access climate finance.

Appendix

Country	Climate vulnerability[4]	Population with access to at least a basic water service[1]	Total climate finance 2010–2017, USD (thousands)[5]	Total climate finance for water, sanitation and hygiene, 2010–2017, USD (thousands)[5]
Afghanistan	11	67	2446337	130690
Albania	91	91	1040743	228510
Algeria	141	94	170405	33852
Andorra	-	>99	-	-
Angola	46	56	389700	1536
Anguilla	-	97	13	13
Antigua and Barbuda	56	97	49196	1969
Argentina	142	>99	3233342	825877
Armenia	96	>99	1102430	102931
Aruba	-	>99	-	-
Australia	177	>99	-	-
Austria	168	>99	-	-
Azerbaijan	101	91	700447	113658
Bahamas	135	99	-	-
Bahrain	72	>99	-	-
Bangladesh	36	97	10429997	866333
Barbados	128	98	77836	-
Belarus	158	96	399775	22492
Belgium	147	>99	-	-
Belize	64	98	124947	6924
Benin	17	66	837980	180773
Bermuda	-	>99	-	-
Bhutan	53	97	352915	4345
Bolivia	70	93	2979945	848717
Bosnia and Herzegovina	140	96	1263785	47729
Botswana	66	90	172811	143915
Brazil	129	98	8506848	529340
British Virgin Islands	-	>99	-	-
Brunei	109	>99	-	-
Bulgaria	156	>99	-	-
Burkina Faso	20	48	1517304	306954
Burundi	14	61	892262	52042
Cabo Verde	-	87	440739	222682
Cambodia	45	79	1604656	187904
Cameroon	58	60	1020057	334211
Canada	176	>99	-	-
Central African Republic	16	-	60210	6589
Chad	4	39	488055	22908
Channel Islands	-	94	-	-
Chile	155	>99	1761662	19589
China	116	93	10109521	790142
Colombia	119	97	5127351	603146
Comoros	61	80	86928	5145
Congo, Dem. Rep.	12	43	1529542	194385
Congo, Rep.	44	73	138718	70601
Cook Islands	-	>99	78383	13229
Costa Rica	115	>99	1241399	5553
Cote d'Ivoire	48	73	959937	24132
Croatia	122	>99	92533	70
Cuba	87	95	156852	15134
Curacao	-	>99	-	-
Cyprus	148	>99	-	-
Czech Republic	170	>99	-	-
Democratic People's Republic of Korea	-	95	10842	310
Denmark	157	>99	-	-
Djibouti	52	76	243055	118074
Dominica	107	-	75853	1221
Dominican Republic	86	97	983857	54012
Ecuador	77	94	2149416	217939
Egypt	89	>99	8661063	517281
El Salvador	76	97	735729	38802
Equatorial Guinea	60	65	5368	30
Eritrea	10	-	149759	9633
Estonia	136	>99	-	-
eSwatini	32	69	113154	27386
Ethiopia	23	41	4558949	341989
Falkland Islands	-	95	-	-
Faroe Islands	-	>99	-	-
Fiji	75	94	222519	52699
Finland	171	>99	-	-
France	175	>99	-	-
French Guinea	-	94	-	-
French Polynesia	-	>99	-	-
Gabon	80	86	345208	269020
Gambia	41	78	375397	12242
Georgia	98	98	1664258	178243
Germany	178	>99	-	-
Ghana	68	81	1363797	69659
Gibraltar	-	>99	-	-
Greece	153	>99	-	-
Greenland	-	>99	-	-
Grenada	113	96	34013	280
Guadeloupe	-	>99	-	-
Guam	-	>99	-	-
Guatemala	73	94	660762	14619
Guinea	35	62	290618	79857
Guinea-Bissau	6	67	182338	4756
Guyana	59	96	458986	1688
Haiti	27	65	980687	33588
Honduras	69	95	1056332	42415
Hungary	145	>99	-	-
Iceland	169	>99	-	-
India	51	93	35055549	2250910
Indonesia	78	89	8950172	312204
Iran	123	95	228408	207481
Iraq	83	97	2863319	728880
Ireland	154	97	-	-
Isle of Man	-	>99	-	-
Israel	162	>99	-	-
Italy	167	>99	-	-
Jamaica	85	91	264939	352
Japan	139	>99	-	-
Jordan	134	99	3566205	1172631
Kazakhstan	163	96	2371565	59239
Kenya	33	59	5989355	671732
Kiribati	-	72	154214	30094
Kosovo	-	-	370901	44109
Kuwait	84	>99	-	-
Kyrgyzstan	114	87	664004	47666
Lao People's Democratic Republic	42	82	999219	280777
Latvia	111	99	-	-
Lebanon	102	93	570910	331473
Lesotho	49	69	142193	29552
Liberia	8	73	700309	1288
Libya	126	99	6815	641
Liechtenstein	-	>99	-	-
Lithuania	121	98	-	-
Luxembourg	179	>99	-	-
Macedonia	144	93	785966	50287
Madagascar	13	54	932465	36696
Malawi	31	69	1638529	119404
Malaysia	133	97	63743	326
Maldives	24	>99	188350	34392
Mali	9	78	1319554	185554
Malta	149	>99	-	-
Marshall Islands	-	88	107939	13122
Martinique	-	>99	-	-
Mauritania	22	71	341592	5260
Mauritius	82	>99	436748	79184
Mayotte	-	97	-	-
Mexico	127	>99	5507486	396121
Micronesia	5	79	53563	4656
Moldova	93	89	783842	39503
Mongolia	103	83	777687	65975
Montenegro	120	97	509674	87305
Montserrat	-	-	10083	
Morocco	132	87	7297914	926728
Mozambique	39	56	2006177	161810
Myanmar	38	82	2977223	310086
Namibia	54	83	449400	8130
Nauru	-	>99	43281	464
Nepal	47	89	2542470	227436
Netherlands	150	>99	-	-
New Zealand	165	>99	-	-
Nicaragua	74	82	1050593	129245
Niger	2	50	1380357	146619
Nigeria	55	71	1615079	181467

Country	Climate vulnerability[4]	Population with access to at least a basic water service[1]	Total climate finance 2010–2017, USD (thousands)[5]	Total climate finance for water, sanitation and hygiene, 2010–2017, USD (thousands)[5]
Niue	-	98	41740	8
Norway	180	>99	-	-
Oman	94	92	11	4
Pakistan	50	91	6682037	350567
Palau	-	>99	58321	17062
Panama	104	96	915319	276497
Papua New Guinea	19	41	844137	56295
Paraguay	124	>99	322899	18987
Peru	88	91	3707397	563739
Philippines	71	94	6942162	369783
Poland	166	>99	-	-
Portugal	151	>99	-	-
Puerto Rico	-	97	-	-
Qatar	138	>99	-	-
Republic of Korea	137	>99	-	-
Romania	97	>99	-	-
Russian Federation	164	97	-	-
Rwanda	28	58	1916396	214633
Samoa	57	97	311981	52674
Sao Tome and Principe	62	84	85476	25132
Saudi Arabia	118	>99	-	-
Senegal	43	81	2705297	510889
Serbia	99	86	2520525	101654
Seychelles	65	96	62507	32715
Sierra Leone	26	61	276617	49786
Singapore	95	>99	-	-
Slovakia	146	>99	-	-
Solomon Islands	3	68	381040	35374
Slovenia	159	>99	-	-
Somalia	1	52	621314	46405
South Africa	108	93	3054556	85836
South Sudan	-	41	1009198	208319
Spain	172	>99	-	-
Sri Lanka	67	89	3034717	1088337
St. Kitts and Nevis	92	>99	14987	6
St. Lucia	112	98	105716	1614
St. Vincent and the Grenadines	131	95	97123	6
Sudan	7	60	445533	70173
Suriname	106	95	130752	14762
Sweden	173	>99	-	-
Switzerland	181	>99	-	-
Syria	79	97	39965	7520
Tajikistan	81	81	1208676	92627
Tanzania	30	57	3281953	544215
Thailand	100	>99	2506526	21979
Timor-Leste	25	78	262212	58437
Togo	40	65	193347	51875
Tonga	18	>99	177328	3040
Trinidad and Tobago	105	98	1003	
Tunisia	110	96	3163422	1181235
Turkey	161	99	14479556	422989
Turkmenistan	90	99	34310	63
Turks and Caicos	-	94	-	-
Tuvalu	-	>99	114749	5524
United Arab Emirates	130	98	-	-
Uganda	15	49	1808199	346534
UK	174	>99	-	-
Ukraine	143	94	6364661	1034087
Uruguay	125	>99	962065	201
USA	160	>99	-	-
Uzbekistan	117	98	3007468	199246
Vanuatu	21	91	439339	9217
Venezuela	152	96	680563	6864
Vietnam	63	95	884484	1810895
Yemen	29	63	266910	100237
Zambia	37	60	1585622	319133
Zimbabwe	34	64	356588	71750

WaterAid/ Dennis Lupenga

Felisita Nangwale standing in front of her home which was damaged by Cyclone Idai. Chanda village, Zomba, Malawi, July, 2019.

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About this briefing

Two billion people around the world currently lack access to a source of safe water that can withstand the adverse and unpredictable effects of climate change. Clean water and decent toilets are one of the first lines of defence against a changing climate – and are the difference between coping and not coping with life on our warming planet.

On the frontline: The state of the world's water 2020 reveals the countries who are most at risk from both climate change and low levels of access to clean water. These are often the countries who have done the least to contribute to climate change, but are experiencing the impacts today.

Written by Anna France-Williams, Rosie Stewart and Susan Springate, with support from Emily Pritchard, Fiona Callister, Jonathan Farr, Stuart Kempster, Josh Bryant, Ella Lines, Virginia Newton-Lewis, Vincent Casey, Erik Harvey, Claire Seaward and WaterAid teams in Australia, Bangladesh, Ethiopia, India, Mali, Niger, Tanzania and Timor-Leste.

March 2020

#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 images from the top down:

- **Maimouna Dembele, 70, president of the Benkadi women's group, standing next to shrubs in the bush in the village of Kakounouso, Samabogo, Circle of Bla, Ségou Region, Mali, February 2019.**
- **Abeba Amogne, 23, carrying her baby Sitotaw on her back and fetching water from a hand-dug well located near her house. Ergeb Kebero Meda, Jabi Tehnan District, Amhara Regional State, Ethiopia, December 2019.**
- **Flooded rubbish at the Lamakara latrine. Lamakara, Tamale, Ghana. September 2016.**

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