

**WHY WATER, SANITATION AND HYGIENE MUST BE TOP OF YOUR**  
**CLIMATE AGENDA**



# WHY WATER, SANITATION AND HYGIENE MUST BE TOP OF YOUR CLIMATE AGENDA

## EXECUTIVE SUMMARY

**Climate change has a tremendous negative impact on WASH services. But at the same time, the WASH sector presents a huge opportunity to contribute to global adaptation and mitigation goals, through the building of a climate-resilient, low-carbon WASH sector.**

This briefing note is aimed at planners, policy makers, and experts in both the climate sector and the water, sanitation and hygiene (WASH) sector. It looks at the links between the two sectors, considers how both can benefit from closer integration, and highlights why an **increased focus on climate-resilient water, sanitation and hygiene is a critical element of taking action on climate.**

The Paris Climate Accords aim to strengthen the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty. Climate change directly impacts communities through water in many different ways. **Water is the primary medium through which we feel the effects of climate change.** Droughts mean less water is available, creating conflict and inhibiting good sanitation and hygiene practices. Floods lead to water contamination, and heavy rainfall favours vector-borne diseases. Increased rates of glacial melting impact many millions of people that rely on it as a source of drinking water, and sea-level rise leads to the salinisation of aquifers in coastal areas used for drinking by a large amount of the global population. In addition, climate shocks mean repairs and upgrades to infrastructure, service disruptions, and increasing reliance on emergency operations, all of which cause huge economic costs to affected countries.

This intimate relationship between climate change and water means that **investing in climate-resilient WASH services is a vital part of solving the global climate crisis.** In the **Race to Resilience** and **Race to Zero** the, businesses, cities, regions, investors and civil society are acting fast to transform the prospects of billions of people. Beyond the finish lines a safer, healthier, more sustainable and cleaner world awaits.

**Supporting adaptation and climate-resilient WASH services** makes sense from a financial point of view, both for governments and users. It fosters community resilience by **reducing human, social, environmental and physical vulnerability.** It can also help reduce conflict in areas affected by water scarcity. It provides an opportunity to policy makers and service providers to rethink access to basic services, adhere to a circular economy and green growth, and improve several pending aspects of service provision.

There are also huge, so far largely **untapped opportunities for the sector to contribute reductions in greenhouse gas emissions.** These opportunities include improving water and energy efficiency in the sector, and by ensuring the use of renewable energy wherever possible for water and sanitation operations, as well as shifting to cleaner, more efficient sanitation and treatment processes for wastewater and excreta disposal.

The WASH sector can also contribute to the Paris Agreement goal of mobilising US\$ 100 billion per year to address the pressing mitigation and adaptation needs of developing countries. **The WASH sector is already investing in climate resilience.** Furthermore, the WASH sector is also **working to mobilise climate finance,** and to ensure that climate-resilient WASH is increasingly seen as both an essential and attractive investment.

In order to realise the **huge potential contribution of the WASH sector to global climate goals,** UNICEF calls for planners, policy makers and experts in the **climate and water, sanitation and hygiene sectors to come together,** to accelerate climate adaptation and mitigation by acting on the points set out at the end of this document.



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## INTRODUCTION

This briefing note is aimed at planners and policy makers in both the climate and water, sanitation and hygiene (WASH) sectors. It looks at the links between the two sectors, considers how both can benefit from closer integration, and highlights why an increased focus on climate-resilient water, sanitation and hygiene services must be considered a critical element of global action on climate.

The [Paris Agreement](#) on climate aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty. Article 2 of the Agreement calls specifically for ‘increasing the ability to adapt to the adverse impacts of climate change, foster climate resilience and low greenhouse gas emissions development’. It also states the need for ‘making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development’. Such climate-resilience relies on ensuring sustainable, long-term access to water, including for the most basic of human needs such as drinking water, sanitation and hygiene.

This briefing note starts by exploring how climate change impacts WASH services. It goes on to highlight WASH sector contributions at the global and country level

to climate adaptation, climate mitigation, and climate financing. The note concludes by highlighting actions that policy makers, planners and other experts in both the WASH and climate sectors should take, in order to realise the huge potential of the WASH sector towards meaningful action on climate change.

The “[Race to resilience](#)”, and the adaptation agenda, by enhancing capacity, strengthening community resilience, reducing vulnerability, and contributing to peace and stability.

The “[Race to Zero](#)” and the mitigation agenda, by contributing to lower carbon emissions, including by making use of renewable energy, increasing water and energy efficiency, providing the right sanitation options and recovering energy from waste.

Make a compelling investment case, and raise the ambition needed to mobilise US\$ 100 billion per year, and to achieve a balance between adaptation and mitigation, by highlighting and addressing the costs of building the resilience of infrastructure assets and basic social services such as water supply, sanitation and hygiene in low- and middle-income countries.

# THE IMPACTS OF CLIMATE CHANGE ON WASH SERVICES LIMITING SOCIO-ECONOMIC DEVELOPMENT

Water is the primary medium through which we feel the effects of climate change. Climate change directly impacts communities through water in many different ways. Droughts mean less water is available, floods lead to water contamination, and heavy rainfall favours vector-borne diseases. Increased rates of glacial melting impact many millions of people that rely on it as a source of drinking water. Sea-level rise leads to the salinisation of aquifers in coastal areas used for drinking by a large proportion of the global population. In addition, climate shocks mean repairs and upgrades to infrastructure, service disruptions, and increasing reliance on emergency operations, all of which cause huge economic costs to affected countries.

This intimate relationship between climate change and water means that investing in climate-resilient WASH services is a vital part of solving the global climate crisis.

To consider the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty, as the Paris Agreement suggests, a much closer collaboration between the climate and the water, sanitation and hygiene sectors is urgently needed. The synergies and common grounds between the Sustainable Development Goal (SDG) 6 target to achieve 'universal access to water and sanitation', and SDG 13 targets on 'climate action' can provide a useful framework to help policy makers from both sectors identify adaptation and mitigation priorities. Below is a summary of the key impacts of climate change on water, sanitation and hygiene.

## ■ Droughts mean less water is available.

Reductions in water available for both domestic purposes and livelihoods creates huge stresses on communities – especially the most vulnerable. Less water means children eat less nutritious foods. It also means children and women often have to walk further distances to collect water, reducing time for schooling and other productive activities. A lack of access to adequate water can even force families to migrate, which can lead to conflict over resources with other communities.



## SUDAN

The competition for resources (including water) between agriculturalist and pastoralist groups in Darfur (Sudan) is one of the underlying causes of a protracted conflict that began in 2003, and as of 2021, had resulted in an estimated 1.9 million internally displaced people (IDPs) and 340,000 refugees in Chad.



## BANGLADESH

In Bangladesh, climate hazards have already displaced an estimated 6 million people<sup>1</sup> from 24 of its 64 districts, which is projected to increase to 13.3 million by 2050.<sup>2</sup>

## HOA/NILE/EUPHRATES-TIGRIS

Water conflicts are increasing across large geographical areas linked to transboundary water sources, such as the Horn of Africa, the Nile basin, the Euphrates-Tigris basin, and the Sahel.

- **Lack of water inhibits good sanitation and hygiene practices.** As water supplies diminish, they are often rationed to meet a family's immediate survival needs (such as drinking and food preparation), significantly affecting practices such as hand washing and toilet cleaning.
- **Floods lead to water contamination.** Flooding and increased precipitation can be deadly in areas with unsafe water and sanitation services, or where open defecation is practiced. Floods can destroy or damage infrastructure such as water distribution points and toilets. When latrines and toilets are flooded, they can contaminate water supplies, making drinking water potentially deadly. Recurring floods can cause communities to abandon safe sanitation and hygiene practices and return to open defecation.
- **Heavier rainfall favours vector-borne diseases.** Peaks in diarrhoeal mortality and morbidity are commonly associated with seasonal rains, flooding and extreme weather. Cholera, for example, spreads through contaminated water and can kill children within hours of first showing symptoms, if left untreated. The risk of other vector-borne

diseases for children also rises with heavy rainfall and flooding. This is particularly true where a lack of drainage systems generates stagnant water, creating favourable breeding conditions for the mosquitoes that transmit diseases such as malaria, dengue or Zika. Vector-borne diseases account for more than 17 per cent of all infectious diseases, causing more than 1 million deaths annually.<sup>3</sup>

■ **Increased ice melt is causing water sources to become unsustainable for many millions.**

According to the Intergovernmental Panel on Climate Change, ice and snow cover is decreasing significantly in most regions. Melting snow, glaciers and sea ice pose a huge threat to water sources. As ice melts at a faster rate than it is created, it not only contributes to rising sea levels, but also depletes freshwater sources that currently serve millions of people. Bolivia's glaciers, for example, have shrunk by more than 40 per cent in the past few decades.<sup>4</sup> The capital La Paz and neighbouring city El Alto both depend on these glaciers for close to a third of their water needs during the dry season, and together these cities are home to more than 2 million people.

■ **Sea-level rise leads to freshwater salinisation in coastal areas.** Rising sea levels can lead to saltwater infiltrating freshwater sources, rendering the water undrinkable. Rising sea levels are already having a major impact, particularly in low-lying coastal areas and Small Island Developing States, which are home to at least 25 per cent of the world's population.<sup>5</sup> These regions have less than 10 per cent of the global renewable water supply, leaving populations dependent on groundwater sources – which are highly vulnerable to the impacts of salinisation.<sup>6</sup>

■ **Infrastructure and service disruptions cause huge economic costs.** The impacts of climate change on water and sanitation services cause massive economic costs every year for a large number of countries – particularly those countries that unprepared for the many and varied impacts of climate change. Extreme weather events often disrupt water and sanitation services to the point that they can often no longer function safely, with repairs and the restoration of services costing billions of dollars annually.

Emergency funds are required to respond to such climate shocks. When the population have their water and sanitation services disrupted, urgent, significant funding is required to provide emergency solutions to

bridge the gap in services costs. Although the cost of repairing infrastructure affected by natural disasters tends to be higher in developed countries, in terms of a proportion of GDP, the economic impact to developing countries is twice as high (approximately 0.22 per cent of GDP each year), which has a direct impact to the most vulnerable populations.



### THAILAND

According to the World Bank, the 2011 Thailand floods caused damage worth US\$ 50 billion, a large proportion of which was to water services infrastructure.<sup>7</sup>



### ETHIOPIA

The humanitarian WASH response simply to address the immediate needs of the impact of *El Nino* drought 2015-2016 in Ethiopia exceeded US\$ 100 million<sup>8</sup>. This amount excludes the cost of building more climate-resilient infrastructures in the country, which was estimated to account for 38 per cent of the country's US\$ 6.5 billion 'ONEWASH' national programme).<sup>9</sup>



### MOZAMBIQUE, ZIMBABWE AND MALAWI

In 2019, Cyclone Idai affected Mozambique, Zimbabwe and Malawi, with damages estimated as US\$ 1 billion, according to UNECA.<sup>10</sup>



# REASONS TO INVEST IN CLIMATE-RESILIENT WATER, SANITATION AND HYGIENE SERVICES

In the *Race to Resilience* and *Race to Zero* the businesses, cities, regions, investors and civil society are acting fast to transform the prospects of billions of people. Beyond the finish lines a safer, healthier, more sustainable and cleaner world awaits.

UNICEF is supporting a sector transformation so that water, sanitation and hygiene programming become climate-resilient and contribute to lower carbon emissions. A contribution to a world where we have worked together to both mitigate and adapt to the threats posed by climate change. A resilient world, with zero carbon and zero vulnerability, where natural resources – and therefore every one of us – thrives. We need to run these races together, at the same time – and win them both.

The WASH sector is willing to take part and is up to provide solutions to this double challenge.

## CLIMATE ADAPTATION AND THE WASH SECTOR

Article 7 of the Paris Agreement establishes a global goal of ‘enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development’. This goal is well-aligned with the first target of the SDG 13: to ‘Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries’.

These aligned goals for adaptation in the face of climate change inspired the United Nations-backed *Race To Resilience* campaign, launched in 2021 ahead of the COP26 summit in Glasgow. The campaign aims specifically to mobilise non-state actors (such as organizations, businesses, investors, cities and civil society) to strengthen the resilience of 4 billion people in vulnerable communities by 2030.

Adapting the WASH sector across the world to withstand the impacts of climate change must be seen as critical elements of the *Race to Resilience*, as well as governments’ broader efforts on climate adaptation, for several reasons:

- **Adaptation makes sense from a financial point of view, both for governments and users:** In the medium- and longer-term, water and sanitation services that are adapted and resilient to climate change cost less to countries and users. They provide services for over a longer time, reducing the cost per capita invested over a given period. This is particularly important in developing countries, where governments lack the resources to invest – and from a user perspective this means services become more affordable.

According to the 2019 World Bank study *Lifelines: The Resilient Infrastructure Opportunity*, the cost of building the resilience of infrastructure assets in low- and middle-income countries is small compared with total infrastructure needs. The additional costs of protecting new exposed water and sanitation assets would be between US\$ 0.9 billion and US\$ 2.3 billion a year. While not negligible, these investments represent around 1 per cent of global baseline infrastructure investment needs and would reduce the risk of damage to new infrastructure by 50 per cent. Making infrastructure more climate-resilient would therefore not greatly affect the affordability of new infrastructure. It is estimated that water and sanitation infrastructure investments of between US\$ 1100 and US\$ 2200 billion will be required to achieve the SDGs between 2020 and 2030. The potential benefits of the relatively small extra costs of making this infrastructure climate-resilient are enormous.<sup>11</sup>



### ETHIOPIA

A life-cycle analysis of rural water supply technologies in Ethiopia, conducted by UNICEF, concluded that a climate-resilient water system was 35 times cheaper over a period of 10 years, compared to a non-resilient technology which forced switching to expensive water trucking for an average of 60 months during that 10-year period, due to dried-up water sources.<sup>11</sup>

- **Adaptation fosters community resilience by reducing human, social, environmental and physical vulnerability:** Climate-resilient water and sanitation services are essential to reduce vulnerability, particularly for communities exposed to climate change hazards.

Multiple use of water systems (MUS), for example, provide low-cost, climate-resilient, equitable water supply systems for communities. Importantly, they are for both domestic needs and small-scale, high-value agricultural production, including rearing livestock. The schemes make water supplies less vulnerable to climate impacts and shocks, making the communities they serve more resilient. Several countries are already implementing this approach.



#### MADAGASCAR

In Madagascar, the use of remote sensing to identify resilient water sources, and the provision of multiple-use water schemes to several communities, has contributed to alleviate the effects of drought that periodically affects the south of the

island – presenting huge potential opportunities for scale-up in similar contexts.

- **Adaptation can help avoid or reduce conflict in areas affected by water scarcity:** Conflicts caused by water scarcity are increasing. There have been clashes between farmers and herders in the Horn of Africa, disputes over large dam projects in Central Asia and the Nile River Basin, and violence in the Lake Chad region – and in Iraq and Iran which have been exacerbated by water scarcity. UN chief Antonio Guterres has warned that reliance on shrinking resources could increase tensions around the world, and that at least 30 million people were displaced by climate-related disasters in 2020.<sup>12</sup> Such stresses on communities around water and climate impacts can trigger or exacerbate conflict, acting as a ‘threat multiplier’. Ensuring that water and sanitation services are climate-resilient can therefore contribute significantly to reducing conflict in areas affected by water scarcity.



#### JORDAN

In Jordan, the development of climate-resilient infrastructures has helped to increase social cohesion and reduce conflict levels between refugees and host communities.



#### LEBANON

In Lebanon, Tripoli’s WASH infrastructure and services were essentially destroyed as a result of conflict and prolonged neglect. Local groups, including NGO Lebanese Relief Council, intervened by bringing Tripoli communities together to address gaps in water services, instigate behaviour change, and build social cohesion. This included a better understanding of water scarcity drivers and climate risks. The changes built social cohesion and trust, while making water services more resilient.

- **Adaptation provides an opportunity for policy makers and service providers to rethink access to basic services:** Adaptation can offer a chance to rethink and reframe approaches to the provision of services – supporting efforts towards a circular economy and prioritising environmentally friendly growth. The extraordinary global disruption caused by the COVID-19 crisis has led to an increased sense of the world’s shared vulnerabilities and shown how a common threat can provide the stimulus and focus to rethink the provision of basic services. Such efforts are already building deeper and more integrated policy approaches. When developed with a focus on climate adaptation, and founded on effective engagement with stakeholders such as civil society and end-users themselves, responses to COVID-19 can provide a powerful accelerator for progress towards SDGs 6, 13, and the goals of the Paris Agreement.<sup>13</sup>



#### IRAQ

In 2018 in the city of Basra in Iraq, poor water quality resulting from low river levels, water pollution and poor wastewater management caused the hospitalisation of 118,000 people.<sup>13</sup> COVID-19 recovery plans and investment have to improve the management of water resources, in order to avoid similar outbreaks in Basra and other water-scarce areas.



#### VENEZUELA

Improving the reliability of the services has an important impact in the users’ satisfaction, fee collection and, ultimately, the financial sustainability of the service providers. In Venezuela, the irregular availability of electricity and fuel is moving a shift in the sector towards photovoltaic energy, to guarantee reliable service provision.



## CLIMATE MITIGATION AND THE WASH SECTOR

The Intergovernmental Panel on Climate Change has stated that ‘the relationship between climate change mitigation measures and water is a reciprocal one’.<sup>14</sup> Measures introduced to reduce greenhouse gas emissions have direct implications for water resource use and management – and by the same token, the WASH sector can contribute significantly to reducing those emissions.

The water sector alone is currently estimated to contribute up to 5 per cent of global emissions. With demand for water set to increase by 55 per cent in the next 30 years, action must be taken to avoid increasing the sector’s impact on the climate.<sup>15</sup>

Mitigation efforts for non-state actors are set out in the *Race to Zero* campaign, which complements the climate adaptation goals of the *Race to Resilience* campaign. The *Race to Zero* campaign aims to ‘build momentum around the shift to a decarbonized economy ahead of COP26, where governments must strengthen their contributions to the Paris Agreement’.

The WASH sector can contribute significantly to the *Race to Zero*, as well as to governments’ broader international commitments to reduce emissions. The sector can contribute in a number of ways:

### ■ Mitigation through improving water and energy efficiency, and promoting low-carbon processes:

Introducing water saving technologies, such as water meters and water-efficient house appliances, and promoting rainwater harvesting and greywater reuse has a significant impact on water demand and carbon emissions related to water provision. Reducing leaks on water networks increases efficiency and requires less pumping, with less energy consumed. In addition, improving the energy efficiency of water and sanitation treatment processes can substantially reduce energy use and emissions.



#### VIETNAM

In Vietnam, a Water Operators’ Partnership contributed to reducing the proportion of non-revenue water<sup>22</sup> from 39 per cent in 2007 to 15 per cent in 2017 in the city of Danang. As well as the energy efficiencies this generated, the reduction in water losses helped make the operator profitable for the first time, allowing the utility to invest the benefits in expanding the network to peri-urban areas.



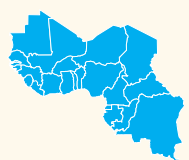
#### UNITED KINGDOM

In the United Kingdom, fitting one million smart water meters each year for the next 15 years could save one billion litres of water a day by the mid-2030s, and could reduce the UK’s current greenhouse gas emissions by up to 0.5 per cent.<sup>17</sup>



- **Mitigation through ensuring, wherever possible, the use of renewable energy (such as solar and wind energy) for water and sanitation operations.** Switching to zero or low-carbon alternatives to power WASH sector operations reduces the climate impact of the sector, with the additional benefit of growing the 'green economy', which could create millions of job opportunities in the WASH sector.

In the United Kingdom, the water industry used almost 7,900 GWh of energy for its operations in 2006-2007, with CO<sup>2</sup> emissions of over five million tons.<sup>18</sup> Of this, 56 per cent were from wastewater, 39 per cent from water supply, and 5 per cent from administration and transport. In countries with more reliance on carbon sources (such as diesel generators) and less efficient pumps and technologies, the emissions per cubic meter are estimated to be much higher.



#### WEST AND CENTRAL AFRICA

In West and Central Africa, the development of a 'Solar Hub' to promote the transition from carbon to renewable energy sources in the WASH sector is currently creating income-generating opportunities for the youth and local entrepreneurs.



#### YEMEN

In Yemen, UNICEF has helped deliver the country's biggest solar-powered water pumping system. Instead of relying on small quantities of non-potable water being delivered by trucks, the system now ensures access to safe drinking water for populations living in areas at high-risk of cholera or with a large population of internally displaced people.

- **Mitigation through limiting the release of greenhouse gases (e.g., methane, nitrous oxide) from wastewater and excreta into the atmosphere:**

This is particularly essential in urban contexts and includes methane capture and the production of energy from waste (solid and liquid). By choosing the most appropriate type of sanitation and treatment processes, energy-efficient management (the transport and treatment) of solid and liquid waste helps create benefits such as emissions 'sinks' and a potential low-carbon energy source, as well as a cleaner environment.

Approximately 4.5 billion people lack access to safely managed sanitation globally, and 1 billion live in slums, often relying on anaerobic waste containment

in pit latrines. Providing access to safely managed sanitation will significantly reduce greenhouse gas emissions from these sources. Indeed, recent estimates suggest that if scaled to global slum populations, composting could mitigate up to 44 per cent of sanitation sector methane emissions.<sup>19</sup>



#### JORDAN

In Jordan, located in a desert area a few kilometres from the capital city Amman, the new As Samra plant treats the wastewater of 2.2 million inhabitants and meets the needs of the region's agricultural and industrial users. The sludge treatment process generates renewable energy which provides 80 per cent of the plant's power requirements, saving 300,000 tons of CO<sub>2</sub> each year.<sup>20</sup>

### THE WASH SECTOR CAN HELP MOBILISE CLIMATE FINANCE

As part of the Paris Agreement, advanced economies formally agreed to jointly mobilise US\$ 100 billion per year by 2020, to address the pressing mitigation and adaptation needs of developing countries. However, all available data to date suggests this figure has not been achieved<sup>21</sup>.

As implementation of the Paris Agreement moves into its first five-year cycle, the focus must be to understand and address this failure. A major collective boost of climate finance is required to support strong and green recovery packages and deliver the enhanced ambitions of Nationally Determined Contributions (NDCs).

Developed nations must far surpass the US\$ 100 billion per year target in 2021 and beyond, and this finance must be targeted and mobilised effectively, in order to accelerate the drive to net zero carbon and climate-resilient growth.

The WASH sector is in a strong position to support the mobilisation of climate finance. The sector can help by:

- **Making investments in climate-resilient water, sanitation and hygiene attractive:** The WASH sector is working with a broad range of stakeholders to assess the risks that climate change poses at national and sub-national levels. Identifying the most effective areas for adaptation and opportunities for mitigation in the provision of WASH services will strengthen the development of strong proposals for accessing climate finance.



## BOLIVIA

In Bolivia, a national taskforce has been formed to consider links between the WASH sector and climate. The taskforce includes government stakeholders, development organizations and academia, with are 14 organisations represented offering their expertise in WASH, environmental protection, disaster reduction, water quality and meteorology. The taskforce is assessing the climate risks to WASH services, how WASH is currently included in national climate policy, and identifying specific areas for intervention, investment, and inclusion in national planning for both sectors.



## SYRIA

In Syria, WASH systems are vulnerable to climate shocks leading to reductions in water quantity and quality, and the interruption of services.

UNICEF has supported the development of a proposal to the Green Climate Fund to consider climate change impacts on WASH services and identify how governance and coordination mechanisms can be improved. The proposal includes the development of an array of projects for investment in climate-resilient WASH and the reduction of WASH sector emissions.

## ■ Exploring and deepening relationships with financiers towards climate-focused funding:

WASH sector organisations are already partnering with International Financial Institutions (IFIs) to protect the most vulnerable communities. The WASH sector has extensive experience working with IFIs, which already provide assistance, funding and expertise in both fragile and non-fragile contexts. By providing governments at the national and municipal levels with sectoral technical advice, the WASH sector can work with IFIs to shift investments further towards climate-resilient WASH services.

UNICEF is also working with Development Banks which have private sector climate finance facilities, using a pioneering 'green bank' model. The model shifts and reduces financial risks to make climate-focused investments in the WASH sector more attractive, and build business cases specifically to attract private sector investment. If successful, the model will show that similar financial models can be used more widely, to support developing countries to address the impacts of climate change in their WASH sectors.

# REFERENCES

- 1 Displacement solutions. 'Climate displacement in Bangladesh. The need for urgent housing, land and property (HLP) solutions. 2012. Available [here](#). Accessed 22 October 2021
- 2 Clement V. et al., 'Groundswell Part 2 : Acting on Internal Climate Migration' 2021. World Bank. Available [here](#). Accessed 22 October 2021
- 3 World Health Organization [website]. 'Vector-borne diseases'. Available [here](#). Accessed 28 September 2021.
- 4 Cook, S. J., et al. 'Glacier change and glacial lake outburst flood risk in the Bolivian Andes', in *The Cryosphere* (10, 2399–2413) 26 October 2016. Available [here](#).
- 5 IPCC. *Climate Change 2007 – Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, 2007, p.414.
- 6 Ibid. p.179
- 7 World Bank. *Thai Flood 2011: Rapid Assessment for Resilient Recovery and Reconstruction Planning*. 2012. Available [here](#).
- 8 Ethiopia WASH Cluster presentation (unpublished), 2019.
- 9 Government of Ethiopia, National WASH Coordination Office (NWC). 'One WASH National Programme. A Multi-Sectoral SWAp PHASE II Programme Document'. 2018. Available [here](#). Accessed 22 October 2021.
- 10 United Nations Economic Commission for Africa [website]. 'Building back better: planning workshop for climate-resilient investment in reconstruction and development in cyclone affected regions of Malawi, Mozambique and Zimbabwe'. Available [here](#). Accessed 20 October 2021.
- 11 Godfrey, S. & Hailemichael, G. 'Life cycle cost analysis of water supply infrastructure affected by low rainfall in Ethiopia'. In *Journal of Water, Sanitation and Hygiene for Development*. 7 (4): 601–610. 1 December 2017. Available [here](#).
- 12 'UN chief: Window to avert devastating climate impacts 'rapidly closing'', UN News, 23 September 2021. Available [here](#).
- 13 Human Rights Watch. *Basra is Thirsty: Iraq's Failure to Manage the Water Crisis*, 2019. Available [here](#).
- 14 IPCC. *Climate Change and Water (IPCC Technical Paper IV)*, IPCC, Geneva, 2008. p.210. Available [here](#).
- 15 International Climate Initiative [website]. 'Water companies on the way to CO2 neutrality'. Available [here](#). Accessed 28 September 2021.
- 16 Non-revenue water (NRW) is water that has been produced and is 'lost' before it reaches the customer. Losses can be real losses (through leaks, sometimes also referred to as physical losses) or apparent losses (for example through theft or metering inaccuracies).
- 17 These figures are from a joint analysis from Arqiva, a U.K. communications infrastructure and media services provider, and Waterwise, a not-for-profit U.K. NGO focused on reducing water consumption in the U.K. Web page available [here](#). Accessed 28 September 2021.
- 18 0.291 tons of CO2 per 1 million liters of drinking water, and 0.476 tons of CO2 per 1 million liters of sewerage
- 19 McNicol, G., et al. 'Climate change mitigation potential in sanitation via off-site composting of human waste'. In *Nature Climate Change*. 10, 545–549. 1 June 2020. Available [here](#).
- 20 Suez Group [website]. 'Nearly energy self-sufficient treatment and recycling of wastewater in the region of Amman, Jordan'. Available [here](#). Accessed 25 September 2021.
- 21 Bhattacharya A., et al. 'Delivering on the \$100 billion climate finance commitment and transforming climate finance. Independent expert group on climate finance'. 2020. Available [here](#). Accessed 22 October 2021

# A CALL TO ACTION

## WHAT CAN SECTOR PLANNERS, POLICY MAKERS AND EXPERTS DO?

The potential contributions that the WASH sector can make to reduce climate impacts is enormous. In order to realise them, and to accelerate the climate adaptation and mitigation of global WASH services, planners and policy makers in both sectors can focus their efforts on several key areas for action:



**Alignment between sectors:** The WASH sector should be included and considered as a priority within climate policies, strategies, plans and budgets, and WASH line ministries should ensure that WASH policies, strategies and plans always adequately address climate resilience.



**Engagement between sectors:** Dialogue and engagement across sectors should be increased. The WASH sector is already implementing programmes that contribute to climate mitigation and adaptation, and many could go to scale and create far greater impact with additional, climate-focused funding. The WASH sector can also offer extensive advice on how to ensure community involvement and the use of appropriate technologies. Increased collaboration between climate and WASH experts can strengthen programming in both sectors, and ensure more efficient use of the resources available.



**Financing:** Alongside continued investment in the broader water sector, there should be a significant increase in global climate finance targeting basic (and climate-resilient) water supply and sanitation, which at the moment accounts for just 0.3 per cent of global climate finance investment. Low-income countries must be supported to access the finance needed for climate change adaptation. For example, grants should be better allocated to low-income countries, to offer strategic

support that develops local capacities and experiences, and instruments that facilitate access to loans (for example, de-risking) should be supported. The use of blended finance instruments in the WASH sector should be explored and increased, combining loans, grants and other means to finance climate-focused WASH investments. For example, national WASH programmes can be complemented with climate financing to cover specific, additional elements that address climate change adaptation and mitigation.



**Focusing on the most vulnerable:** Technical and financial support should be increased for adaptation in low-income countries; particularly in fragile contexts. Vulnerable communities are often hit hardest by the effects of climate change, and are therefore in critical need of increasing capacity for adaptation. Despite this, only 5 per cent of global climate finance is currently allocated for adapting to climate change.



**Researching and innovating:** Research and innovation on the links between climate change and water, sanitation and hygiene should be prioritised. For example, to improve our understanding the sanitation sector's contribution to greenhouse gas emissions (and how they can be minimised), or to develop better monitoring mechanisms for the sustainability of aquifers in developing countries, in the context of increased groundwater extraction.

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