

WASH Climate Resilient Development

Strategic Framework

2022 EDITION



Strategic Framework for WASH Climate Resilient Development

2022 Edition

About UNICEF

UNICEF works in more than 120 countries around the world to improve access to safe, resilient, sustainable and equitable water and sanitation services in households, schools, healthcare facilities and communities, and to promote safe and sustainable hygiene practices. UNICEF supports a wide range of activities and works with many partners, including families, communities, governments and like-minded organisations. In emergencies, we provide urgent support to children, communities and governments threatened by disruptions to water and sanitation services, working to ensure a stronger connection between emergencies, development and peace. UNICEF WASH programmes are designed to integrate climate resilience and contribute towards the Sustainable Development Goals (SDGs), including SDG 6 to “Ensure availability and sustainable management of water and sanitation for all”, while contributing to a range of other SDGs.

About GWP

The Global Water Partnership is an intergovernmental organisation of 13 Regional Water Partnerships, 77 accredited Country Water Partnerships and more than 3,000 Partner Organisations in over 180 countries. Its vision is a water secure world. Its mission is to advance governance and management of water resources for sustainable and equitable development through integrated water resources management (IWRM). IWRM is a process that promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner, without compromising the sustainability of vital ecosystems and the environment.

Prepared in cooperation with HR Wallingford in 2014, 2017 and 2022, and with the Overseas Development Institute (ODI) in 2014.

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Foreword by UNICEF

Climate change is already impacting the lives and futures of children, and this is projected to increase further, in terms of scale, geographical extent and intensity. A recent report by UNICEF¹ indicated that approximately one billion children live in countries which are classified as being at “extremely high-risk” of the impacts of climate change, and that almost every child on earth is currently exposed to at least one climate and environmental hazard, shock or stress, with almost 850 million exposed to four or more stresses. Such impacts are evident in terms of school attendance, safety, health and development outcomes.

Climate change and extreme events are damaging and destroying water, sanitation and hygiene (WASH) services in households, schools, healthcare facilities, communities, towns and cities, threatening decades of progress made towards the Sustainable Development Goals (SDGs) – not just for safe water and sanitation, but also for a range of other goals including those related to education, health, poverty, gender equality, energy and sustainable cities and communities. In recent years, the impact of climate change on conflict, migration and economic development has also become increasingly apparent.

Considering the rate and scale of developments in the WASH, Water Resources Management (WRM) and climate sectors over recent years, it was felt that the Strategic Framework for WASH Climate Resilient Development should be revised to highlight the importance of climate resilient WASH services and the interlinkages with sustainable water resources, but also the many positive developments in the WASH and climate sectors. Such developments include a greater understanding of the potential of climate finance for the WASH sector; the urgency to integrate WASH and WRM as

key national climate priorities; technical solutions to ensure the increased adaptive capacity of WASH and WRM; the potential for WASH to reduce emissions across the sector; and the potential to engage the private sector and international financing institutions to drive these developments. Engagement on climate issues has also highlighted the importance of youth engagement and the potential of new and emerging climate technologies to improve the efficiency and sustainability of WASH services, and the employment and skills potential of this sector, particularly among young people.

While progress has been made towards safely managed water and sanitation services, with 2 billion gaining access over the last 20 years², an estimated 10 percent of the world’s population still do not have access to at least one basic WASH service, and 22 percent do not have access to a basic sanitation service. While increasing the level of WASH service provision can reduce some of the vulnerabilities associated with lower levels of service, higher levels of service are not automatically climate resilient if they have not been designed with climate risks in mind. Climate considerations need to be integrated into all stages of WASH programming. This is no longer optional for the sector, to ensure the safety, affordability, sustainability and equality of WASH services.

The revision of the Framework highlights the many new opportunities to do this at scale, with new approaches and technologies, and different sources of financing and partnerships, and the time is now.



A handwritten signature in black ink, appearing to be 'Aidan Cronin'.

Aidan Cronin,
Director a.i. Water, Sanitation and
Hygiene Programme Group,
UNICEF

1 UNICEF (2021a)
2 UNICEF (2022)

Foreword by GWP

I am pleased to introduce this updated edition of the Strategic Framework for WASH Climate Resilient Development, which has been developed by the United Nations Children's Fund (UNICEF) in partnership with the Global Water Partnership (GWP).

Water plays a crucial role in our socio-economic development. However, water security for people, for nature and for development is under threat from climate change. In response, GWP has been working with several partners to integrate three streams – water security policy and plans, climate change policies and plans such as the Nationally Determined Contributions (NDCs) and the National Adaptation Plans (NAPs), and national development planning processes. In this context, GWP and UNICEF have, in consultation with their broad networks, updated the Strategic Framework for WASH Climate Resilient Development to ensure that it is fit for purpose in the developing world with WASH systems in a water-stressed context and a changing climate, primarily by enabling countries to:

- Build climate resilient WASH infrastructure and services
- Build community climate resilience via WASH services and behaviours
- Capitalise on the linkages between WASH and public health, to help governments identify opportunities to proactively reduce public health-related risks
- Build a low carbon WASH sector.

There are numerous opportunities for constructing climate resilient and resilience-building WASH systems in the world today, but they are not without challenges. Several new Technical Briefs were developed to accompany the updated Strategic Framework, including those on Climate Resilient Sanitation and on Climate Finance for WASH. Several more are being prepared to address specific topics that countries continue to find challenging. Take the case of the availability of climate finance in a diverse array of resources to fund WASH and climate resilience. An important criteria for now accessing major sources of public climate finance is the

articulation of a 'Climate Rationale' for the proposed intervention – i.e. how the intervention specifically responds to human-induced climate change impacts, as opposed to addressing development needs in a stationary climate. Addressing this need, an upcoming guidance note on the application of climate science in the design of resilient WASH services – the first of its kind to provide a knowledge base for establishing the Climate Rationale in WASH – will soon accompany the Strategic Framework. Technical briefs on Community Resilience and WASH are also under development. These Technical Briefs provide important practical information and guidance for WASH practitioners.

Furthermore, GWP has taken an important step to integrate gender equality and social inclusion into its climate resilience programming at all levels, with targeted impacts, outcomes and outputs. In this respect, I am happy to introduce to you our flagship programme in Africa called the Gender Transformative Water, Climate and Development Program (WACDEP-G), which is part of the Continental Africa Water Investment Program (AIP). The focus of AIP is to mobilise political leadership to narrow the huge water investment gap that exists in Africa. By ensuring that inequalities in institutional structures, in power relations and in women's agency are addressed, AIP WACDEP-G interventions seek to improve gender equality alongside strengthening climate resilient development.

I believe that this edition of the Strategic Framework will help us ensure that our investments in the WASH sector are climate resilient and sustainable. I also believe that the Strategic Framework will contribute to the implementation of the African Union Climate Change and Resilient Development Strategy and Action Plan (2022–2032) which recognises that building the resilience of water investments in Africa is a critical response to the projected severe and more frequent impacts of climate change. The Strategic Framework also promotes climate resilient water interventions to take account of gender inequalities in contexts where men and women respond differently to the impacts of climate change.



Dario Soto-Abril
Executive Secretary & CEO,
Global Water Partnership

Acknowledgements

The revision of the Strategic Framework for WASH Climate Resilient Development was led jointly by a Global Water Partnership (GWP) team (Alex Simalabwi, Andrew Takawira, Kidanemariam Jembere Tiruneh and Anjali Lohani) and the United Nations Children's Fund (UNICEF) team (Fiona Ward and Jose Gestí), in partnership with HR Wallingford (Jemima Kennedy and Nigel Walmsley).

A Technical Review Committee reviewed the revised Framework document with valuable input from UNICEF regional and country-based experts, including Jesus Trelles, Chander Badloe, Kannan Nadar, Marilu Corona, Nathaniel Paynter, Bisi Agberemi, Farai Tunhuma, Chris Cormency, Jorge Alvarez Sala, Ali Al-Khateeb, Tarik Hassan, Niall Boot and Aidan Cronin. The Framework document was also reviewed by the Technical Reference Group within GWP, led by Prof Torkil Jønych Clausen. Valuable contributions were made by Amy Sullivan, Belynda Petrie, Charafat Afaílal and Len Abrams.

Special acknowledgment to the Austria Development Agency(ADA), who funded the GWP technical inputs through the Africa Water Investment Programme initiative on Gender Transformative Water Climate and Development Program (AIP WACDEP-G).

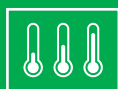
Monika Ericson at GWP managed the publication process of this revised Framework.

1. Introduction

1.1 Climate change and the impact on WASH services

Climate change directly impacts water resources and the availability and quality of water, sanitation and hygiene (WASH) services for all economic, social, development and environmental functions. The impacts of this extend across many sectors such as health, education, nutrition and child protection, and may compound migration, conflict, local tensions and existing inequities, including those relating to gender. Climate change also disrupts access to critical social services including schools and healthcare facilities and is impacting the health, development, safety, lives and futures of the most vulnerable populations, especially children.

Water-related climate risks arise from too much water, too little water or impacts on water quality. The global water cycle is affected by climate change, and there have already been impacts in terms of weather and climate extremes in every region around the world as a result, affecting the most vulnerable in particular. According to the Intergovernmental Panel on Climate Change (IPCC), with every incremental increase in global warming, these changes are projected to further increase in both frequency and intensity. With the world ill-prepared to respond to these risks, this can cause loss and damage, which affects the safe, sustainable and equitable access to water, sanitation and hygiene services.³



Box 1.1: Climate variability and change

- Projections indicate warming by the end of the 21st century of between 1 and 5.7°C.⁴
- There is high confidence that global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.⁵
- There is very high confidence that warming of 1.5°C in the near-term would cause an increase in multiple climate hazards and present multiple risks to humans and ecosystems.⁶
- With a 2°C global surface temperature rise, up to 10 million more people could be affected by coastal flooding each year. With a 4°C temperature rise, a 50 percent decrease in water availability could occur in East Africa and the Middle East.⁷
- In developing countries, the incidence of diarrhoea is expected to increase by around 5 percent for every 1°C increase in temperature.⁸
- Since the original Rio Earth Summit in 1992, floods, droughts and storms have affected 4.2 billion people (95 percent of all people affected by disasters).⁹
- Small, low-lying islands are particularly vulnerable in terms of sea level rise and saline intrusion.
- The impact on sanitation processes and hygiene behaviours has received less attention than other aspects to date. The functionality and efficacy of wastewater treatment systems (sewers as well as treatment processes) are vulnerable to changes in the volumes of flow (too little or too much) and air temperatures, which have an impact on treatment processes. Floods can destroy household sanitation facilities, threatening the progress made to mobilise communities to construct sanitation facilities and contributing to a regression to open defecation.

³ IPCC (2022)

⁴ IPCC (2021)

⁵ IPCC (2018)

⁶ IPCC (2022)

⁷ Stern (2007)

⁸ Campbell-Lendrum and Woodruff (2007)

⁹ UNISDR (2012)

A changing climate brings with it challenges that compound those that are already inherent in the WASH sector (such as access to, and sustainability of, services), especially in developing countries that are the most vulnerable to these negative impacts. Despite the increasing challenges that climate change and extreme events pose for WASH services, there are many opportunities to respond to the risks posed to ensure more sustainable and equitable services.¹⁰ Developing solutions to manage these escalating risks calls for new strategies, new partnerships, innovations, new financing mechanisms and stronger capacity to anticipate, mitigate and adapt to these changes. Of critical importance are solutions that recognise and address existing inequalities, including those based on gender, status and disability and other factors.

1.2 WASH climate resilient development

The WASH sector is already affected in many different ways by weather and climate events (such as variability, seasonality and extreme events, including hurricanes). This can translate into negative impacts on water resources and drinking water availability and quality, and can also damage and destroy sanitation and hygiene services and deter positive hygiene behaviours. Future climate change will put an additional stress on delivering and sustaining health and well-being related outcomes (see Table 1.1). As the risks posed by climate change relate to a number of factors including vulnerabilities and capacity, climate change has the potential to exacerbate existing inequalities, including those based on gender, disability, age and status. Ensuring that the most vulnerable groups are included and consulted on the impacts and the solutions found is critical.

These impacts are intrinsically connected to safety, public health and socio-economic impacts. For example, if there is a decline in the availability of water supplies (e.g. dry boreholes), people may be forced to drink contaminated water (e.g. untreated surface water) leading to an increase in waterborne diseases and much longer water collection times. This is because women and children may have to spend more time queuing or walk longer distances, which also exposes them to safety

risks and reduces the time and energy they have for other activities, including attending school. The lack of sanitation and hygiene services strongly impacts young girls, especially during their menstrual period, and hinders their education.

The flooding of sanitation facilities and the consequent contamination of water sources also increase the risk of infectious diseases and environmental pollution. In addition, a reduction in water availability makes hygiene practices more challenging and behavioural change campaigns might not be effective in areas where access to water is constrained by increasingly frequent extreme weather events due to the changing climate. A higher incidence of extreme events poses additional stress on the sustainability of both sanitation and hygiene practices. In addition, the destruction of household latrines in communities that have been 'triggered' (this is the process where households that previously practised open defecation are mobilised to construct and use a household sanitation facility) can threaten the progress made to reduce open defecation. All of these impacts can result in higher costs for delivering and maintaining climate resilient services.





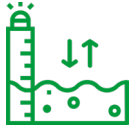
Resilience can be defined as the ability of people and systems to anticipate, adapt to and recover from the negative effects of shocks and stresses (including natural disasters and climate change) in a manner that reduces vulnerability, protects livelihoods, accelerates and sustains recovery, and supports economic and social development, while preserving cultural integrity.¹¹ Climate resilient development involves measures and activities that will deliver benefits under all potential future climate scenarios and can cope with uncertainties over future conditions. It is also important that national systems are also sufficiently strong to facilitate and sustain such developments.

It differs from business-as-usual development in actively considering and addressing potential existing and future climate risks.

¹⁰ IPCC (2022)

¹¹ Interpretations and definitions will vary across organisations, for example "The ability of children, households, communities and systems to anticipate, manage, and overcome shocks and cumulative stresses" (UNICEF) and "The ability of a social or ecological system to resist, absorb, accommodate and recover from the effects of a (climate) hazard in a timely and efficient manner while retaining the same basic structure and ways of functioning" (GWP)

Table 1.1: Examples of impacts of hazards on the WASH sector

Climate change impact	Hazard	Impact on WASH sector
Decrease in precipitation (and changes in onset timing and duration)	Drought 	Reduction in surface and groundwater resources, reduced aquifer recharge, increased water demand, less dilution/increased concentration of pollutants in water, reduced effectiveness of biological treatment processes, reduction in functionality of sanitation systems, blockages in sewer systems due to insufficient water for flushing, challenges to hygiene practices and risks to water safety and security.
Increase in precipitation and severe weather	Flooding 	Pollution of water resources/sources, inundation of water sources, inaccessibility of water points and pumping stations, flooding of toilets/septic tanks/pumping stations/wastewater treatment plants, damage to infrastructure, landslides around water sources, sedimentation and turbidity, potential reduction in recharge, disruption to service delivery, challenges to sustainability of sanitation and hygiene behaviours, faecal contamination of water sources, increased water pollution, changes in turbidity and water treatment requirements, waterborne diseases, increased energy consumption due to higher loads for water treatment (as a result of increased turbidity and poor quality) and increased pumping due to higher water volumes and flows.
Increase in temperatures	Heatwaves 	Increased evapotranspiration and water demand, damage to materials and biological processes used in water supply and sanitation processes, silting of sewers, increase in pathogens and algae in water leading to increased risk of disease.
	Melting and thawing of glaciers, snow, sea ice and frozen ground 	Seasonality of river flows affected leading to a reduction in water availability in summer.
Sea level rise	Flooding and saline intrusion into freshwater aquifers 	Damage to water and sanitation infrastructure, reduction in availability of drinking water, with significant impacts on quality.

Definitions of Mitigation and Adaptation from the IPCC¹²



Adaptation:

The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.



Mitigation:

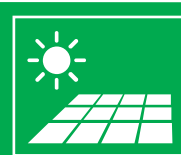
A human intervention to reduce the sources, or enhance the sinks, of greenhouse gases. The IPCC¹³ indicates that mitigation can be achieved by limiting or preventing greenhouse gas emissions and by enhancing activities that remove these gases from the atmosphere. Greenhouse gases can come from a range of sources and climate mitigation can be applied across all sectors and activities. These include energy, transport, construction, buildings, industry, waste management, agriculture, forestry, and other forms of land management.

Various **adaptation and mitigation** measures that respond to climate variability, and build upon existing land and water and sanitation and hygiene management practices, have the potential to strengthen the resilience of vulnerable communities and individuals to climate change and to improve water safety and security, and thus directly contribute to sustainable development. Indeed, the IPCC has concluded that “the most effective measures to reduce vulnerability in the near term are

programmes that implement and improve basic public health measures such as provision of clean water and sanitation”¹⁴

While much research has been undertaken on what constitutes a climate resilient WASH service, there is no sector-wide agreement on how to define this. To help UNICEF country programmes to be able to report on their achievements, the following definitions were developed:

Climate resilient water service:



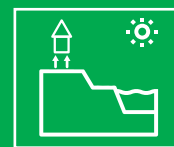
- A Risk analysis was undertaken to identify potential impacts of extreme weather events, and preventive measures are included (i.e. elevated infrastructures in flood-prone areas, additional storage capacities, climate resilient-water safety plans (CR-WSP), etc.).
- Water sources are reliable at all times, both during the year (i.e. during dry season) and during extreme weather events (i.e. during droughts/floods).
- Have considered the impact of the system in terms of greenhouse emissions (GHE) and (when feasible) use renewable energy sources such as solar to mitigate that impact. The use of diesel-powered generators is accepted if it is to be used as back up or in circumstances where other alternatives are not appropriate.
- Management/service delivery models that are sufficiently robust to cope with crisis and ensure longer-term sustainability of the infrastructures.

¹² <https://www.ipcc.ch/working-group/wg3/#:-:text=Climate%20change%20mitigation%20involves%20actions.these%20gases%20from%20the%20atmosphere>

¹³ <https://www.ipcc.ch/working-group/wg3/#:-:text=Climate%20change%20mitigation%20involves%20actions.these%20gases%20from%20the%20atmosphere>

¹⁴ IPCC (2014)

Climate resilient sanitation service:



- A risk analysis has been undertaken to identify potential impacts of climate and extreme weather events, and preventive measures have been included (e.g. elevated infrastructure in flood-prone areas, sanitation safety planning, etc.).
- Sanitation services are designed to be reliable at all times, resilient to both seasonal variability (i.e. during the dry season) and during extreme weather events (i.e. during droughts/floods).
- Management/service delivery models are sufficiently robust to cope with crisis and ensure longer-term sustainability of the infrastructure.

Based on this, and with respect to the WASH sector, climate resilience requires a focus on:

- Ensuring that WASH infrastructure and services are sustainable, safe and resilient to climate-related risks.
- Ensuring that resilient WASH systems contribute to helping build community resilience to the impacts of climate change, while reducing existing inequalities.
- Working towards a low-carbon WASH sector by improving water and energy efficiency, improving sanitation practices (safe containment and transportation of faecal sludge) and, where possible, using renewable energy for water and sanitation services.

The need for responses that are robust to climate uncertainties alongside other pressures on resources, systems and services (e.g. demographic change, economic transition or increasing competition over limited resources) is undeniable. Acting now to identify, manage and minimise climate risks will offer benefits to WASH programme performance by decreasing the sensitivity of the WASH sector to an uncertain climate future. Ensuring

the climate resilience of services has other positive impacts beyond enhancing community resilience, including reducing the potential of conflict and migration, as well as improving livelihood opportunities. Ensuring that services are safe, reliable, operational and equitable can reduce the amount of time spent collecting water or looking for a safe place to defecate, freeing up this time for other activities. Acting now provides an opportunity for policymakers and service providers to rethink access to basic services and contribute to a circular economy and green growth, thereby supporting job creation and the development of skills. This allows the simultaneous improvement of several pending aspects of service provision, especially considering that higher levels of WASH services are not automatically climate resilient.

While a rapid response to disasters is critical, there are enormous opportunities to integrate climate resilience into the design, siting, construction, delivery and monitoring of humanitarian interventions, as well as opportunities for mitigation. The increasing application of Environmental and Social Safeguard systems into programmes, many of which include standards relating to community health, resource efficiency and climate change, will also greatly help the periodic assessment of climate and water scarcity risks in humanitarian programming.

1.3 Mitigation in the WASH sector

The goal of the Paris Agreement, the legally binding international treaty on climate change, is to limit global warming to well below 2°C, preferably 1.5°C, above pre-industrial levels. It entered into force in 2016.¹⁵ At the 2021 United Nations Climate Change Conference known as COP26, countries committed to revisit plans in 2022 to try to keep the global 1.5°C target within reach.

There is immense potential for mitigation in the WASH sector. Globally, drinking water and wastewater management are responsible for around 4 percent of electricity use, with the amount of energy used expected to increase by 50 percent by 2030.¹⁶ Sanitation also contributes to the emission of greenhouse gases associated with the breakdown of organic matter, including through wastewater treatment and discharge as well as decentralised and in-situ sanitation (see Box 1.2).



Box 1.2: Understanding greenhouse gas emissions from sanitation^{17,18}

It is important to understand how the WASH sector contributes to greenhouse gas emissions. However, little attention has been paid to how sanitation systems contribute to mitigation. In particular, it is considered that the significance of greenhouse gas emissions from non-sewered sanitation systems (NSSS) is underestimated by current methods. In 2020, global methane emissions from NSSS were estimated to be comparable to the greenhouse gas emissions from wastewater treatment plants.

Given their prevalence in many countries, more evidence is needed on the drivers of emissions from NSSS. An assessment of emissions from other sanitation technologies is also needed. This evidence would facilitate the inclusion of sanitation in climate policy and financing and enable the implementation of mitigation measures to be much more effective. The use of carbon credits in the WASH sector may further incentivise efforts to reduce emissions.

There are many opportunities to work towards a low-carbon WASH sector. As well as improving efficiency in both water and energy use, there are also options to use renewable energy in the provision of both water and sanitation services. For example, measures could include using solar power for water services (and other community power needs), recovering biogas from wastewater and faecal sludge, and generating energy from waste. The reuse of wastewater using renewable energy is another important opportunity to reduce emissions, ensure adequate treatment of wastewater and reduce the demand for freshwater. Other measures in sanitation include improving the design of composting toilets, using nature-based solutions to manage wastewater, such as green infrastructure and ecological restoration, and changing the way wastewater treatment systems are operated.

1.4 The rationale for the Framework

In response to growing demands from governments and their WASH partners, this Strategic Framework advances sector thinking around inclusive WASH and climate change. The Framework is grounded in a core objective: to provide safe, sustainable and climate resilient WASH service delivery to exposed and vulnerable populations, both now and in the future. The emphasis is on climate resilient development, including strengthening the resilience of WASH systems and on investments to manage current climate variability, as well as long-term changes in climate, and to reduce the emissions associated with WASH services.

¹⁵ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

¹⁶ Capuano (2018)

¹⁷ Cheng et al. (2022)

¹⁸ Dickin et al. (2020)

This encompasses development, emergency preparedness and humanitarian programming with climate resilience addressed as a cross-cutting issue encompassing elements of disaster risk reduction (DRR) and climate change adaptation and mitigation.

The COVID-19 pandemic has highlighted the importance of ensuring that everyone has adequate access to safe water to prevent the spread of diseases. The need for countries to strengthen their water supply and sanitation systems, and to support hygiene practices, will continue after the COVID-19 crisis, and the Strategic Framework can help with this.

1.5 Aligning the Framework with planning processes and actions

The principles and practices outlined in the Framework aim to complement and strengthen ongoing national and sectoral adaptation and mitigation planning processes, and help achieve global actions and goals. The United Nations Framework Convention on Climate Change (UNFCCC) established the National Adaptation Plan (NAP) process as a way to facilitate adaptation planning across different sectors in least developed countries (LDCs) and other developing countries.

The NAP process was established under the Cancun Adaptation Framework. The UNFCCC¹⁹ indicates that the NAP process “enables Parties to formulate and implement national adaptation plans (NAPs) as a means of identifying medium- and long-term adaptation needs and developing and implementing strategies and programmes to address those needs. It is a continuous, progressive and iterative process which follows a country-driven, gender-sensitive, participatory and fully transparent approach”. The list of NAPs submitted per country is provided by the UNFCCC.²⁰

With regard to Nationally Determined Contributions (NDCs), the UNFCCC²¹ indicates that “NDCs embody efforts by each country to reduce national emissions

and adapt to the impacts of climate change. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve.

Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions”. The list of NDCs submitted per country is provided by the UNFCCC.²²

WASH sector needs are (or should be) a key component in the NAPs²³ process. Since the ratification of the Paris Agreement in 2016, countries are accelerating their mitigation and adaptation priorities, as outlined in their enhanced 2020/2021 NDCs.²⁴ At COP26, countries committed to revisit emission-cutting plans in 2022 to try to keep the global 1.5°C target within reach. The Framework can be used to help formulate contributions to both NDCs and NAPs (see Box 1.3) to ensure that the impact of climate change on WASH services is clearly conveyed as a national priority, and is an opportunity for WASH services to design and implement both mitigation and adaptation solutions.

The 17 Sustainable Development Goals (SDGs) were introduced in the 2030 Agenda for Sustainable Development, which was adopted by all United Nations Member States in 2015. The SDGs are based on many years of work carried out by countries and the United Nations, and represent an urgent call for action through a global partnership. SDG 6 is to “Ensure availability and sustainable management of water and sanitation for all”. There are eight targets with indicators to measure progress. Of particular relevance to the Framework are:

- SDG 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- SDG 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

19 <https://unfccc.int/topics/adaptation-and-resilience/workstreams/national-adaptation-plans>

20 <https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx>

21 [https://unfccc.int/ndc-information/nationally-determined-contributions-ndcs#:~:text=Nationally%20determined%20contributions%20\(NDCs\)%20are,the%20impacts%20of%20climate%20change](https://unfccc.int/ndc-information/nationally-determined-contributions-ndcs#:~:text=Nationally%20determined%20contributions%20(NDCs)%20are,the%20impacts%20of%20climate%20change)

22 <https://unfccc.int/NDCREG>

23 <https://unfccc.int/topics/adaptation-and-resilience/workstreams/national-adaptation-plans>

24 <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs>

The other targets, including 6.3 (pollution reduction, wastewater treatment), 6.4 (water-use efficiency), 6.5 (integrated water resources management), 6.6 (water-related ecosystems), 6.a (capacity building) and 6.b (local community participation) are also relevant.

The various targets under SDG 6 can act as a trigger to foster collaboration and partnerships, helping to bridge management of water resources and the services that depend on them, across different sectors.

The focus of SDG 13 is to take urgent action to combat climate change and its impacts. The targets for this goal include strengthening resilience and adaptive capacity to climate-related hazards and natural disasters in all countries, and integrating climate change measures into national policies, strategies and planning, both of which strongly align with the core objectives of this Framework.

Ensuring the availability of climate resilient services can have an impact upon a number of other aspects

addressed by the SDGs, including poverty, hunger, health, education, affordable and clean energy, gender equality, the reduction of inequalities, sustainable cities and communities, and peace.

Underpinning several of the SDGs, and central to sustainable development, is the water-food-energy nexus. The links between the three mean that an integrated approach is required to ensure the security of water and food, and the sustainable production and use of energy worldwide, while also securing ecosystem needs. This is especially important given that demand for water, food and energy is increasing.

The SDGs also link to recent developments in DRR, tracking progress on the implementation of national and local DRR strategies. This includes the Sendai Framework for Disaster Risk Reduction 2015–2030, which provides a set of actions for countries to ensure gains in development are protected from disaster risk.



Box 1.3: Use of the Strategic Framework during the formulation of National Adaptation Plans

To facilitate the formulation of NAPs, detailed guidance has been developed and is available on the UNFCCC website.²⁵

Historically, the WASH sector has had difficulties engaging with stakeholders that facilitate the formulation of NAPs, it should be noted that the Strategic Framework for WASH Climate Resilient Development is well aligned with the proposals made by the technical guidance for the formulation of NAPs under the “Preparatory Elements” heading, including:

- Analysing current climate and future climate change scenarios.
- Assessing climate vulnerabilities and identifying adaptation options at the sector sub-national, national and other appropriate levels.

- Reviewing and appraising adaptation options.
- Integrating climate change adaptation into national and sub-national development and sectoral planning.

These elements are all part of the Strategic Framework, and therefore stakeholders implementing the Framework in countries are called to engage with stakeholders formulating NAPs to ensure that the adaptation needs of the WASH sector, as well as the opportunities that climate resilient WASH interventions bring to adaptive capacity, are well reflected in the NAPs.

Alternatively, the Framework can be used to develop water/WASH sectoral NAPs in countries where cross-sectoral NAPs have already been formulated. Water and water-related activities have been increasingly included in other national climate strategies, such as in NDCs.²⁶

25 <https://unfccc.int/topics/adaptation-and-resilience/resources/guidelines-for-national-adaptation-plans-naps>

26 Hebart-Coleman (2021)

1.6 Updating the Framework

After its initial release in 2014, the Framework was then updated in 2017. Due to the scale and rate of changes in the WASH and climate sectors, the Framework is being updated again in 2022 to ensure that it continues to be fit for purpose, both today and in the future. The key areas that this update focuses on are:

- Aligning the Framework with major changes since the Framework was first published, including the SDGs, the ratification of the Paris Agreement in 2016, the Sendai Framework, and changes to climate financing structures and opportunities.
- Highlighting the link between sustainable, climate resilient WASH services and disease prevention and health promotion.

- Highlighting the enormous potential of the WASH sector for mitigation.
- Highlighting the potential of sanitation, urban WASH programming and humanitarian interventions for climate resilient services.

Another important development since the original Framework was released is the concept of the Climate Rationale (now also referred to as the Climate Impact Potential). The Climate Rationale refers to the development of a clear narrative to link the current and projected impacts of climate change with appropriate solutions. To the detriment of the WASH sector and financing opportunities, this link has not been systematically applied. This Framework, and the stepwise approach that it promotes, directly supports the identification of these risks and solutions to mitigate and adapt to the impacts of climate change and extreme events.



Box 1.4: The concepts of the Climate Rationale and Additionality

Why is the Climate Rationale important? The Climate Rationale outlines the logical connection between the current and/or anticipated climate change effects, their impacts on services, and the proposed solutions. This connection is very important as there must be a clear linkage between these different factors to ensure that the solutions proposed are appropriate and can be considered for climate financing. In many proposals developed for the WASH sector, such logic is not evident, and this underlines why there has been limited success in leveraging large-scale climate financing for the WASH sector to date.

What is Additionality? Additionality refers to the 'additional' costs attributable to adapting to the risks posed by climate change, such as the additional depths to be drilled or the infrastructure to be protected (or raised) to increase resilience to climate change. It is very important to understand the concept of Additionality prior to developing climate finance proposals as the major climate funds will contribute only to the 'additional' costs related to adapting to climate change, and not to increasing access to a service in a stationary climate, i.e. in the absence of climate change.

2. Introducing the Strategic Framework



Key points

- This Strategic Framework advances sector thinking around WASH and climate change. It focuses on investments to increase the resilience of the WASH sector to current climate variability as well as to long-term changes in climate.
- The Framework is a resource for the WASH sector as a whole and it aims to inform and reinforce existing planning processes, and is NOT a new process in itself.
- The Framework highlights 'Why' climate resilient development is important and catalyses selected elements of 'What to do' in terms of action that can be taken now to strengthen resilience.

2.1 Scope and target audience

The Framework serves to:

- Set out the rationale and concepts for WASH climate resilient development, including opportunities to contribute to the reduction of greenhouse gas emissions.
- Improve understanding of how to ensure that equitable and resilient WASH services are included as a national priority in climate plans and strategies, and vice versa, that climate resilience is considered in WASH policies, strategies, plans and approaches.

The Framework acknowledges the multi-level governance structures inherent in the WASH sector and recognises that each has a different part to play in WASH service delivery and that climate resilience needs to be addressed at all levels.

The Framework is a resource for the WASH sector as a whole but will also be of interest for the climate sector. The target audience includes government planners, decision makers and practitioners at national, sub-national and local levels responsible for WASH service provision, and their associated WASH development and humanitarian partners. While the SDGs support the attainment of safely managed water and sanitation services and it is recognised that services are progressively meeting these standards, lower (e.g. basic) levels of service should not be ignored and, where these services exist, should also be climate resilient, while progressing towards being 'safely managed'.

The Framework is particularly relevant to those working in areas exposed to and vulnerable to climate hazards and variability. It is also useful for others who are not directly involved in the WASH sector but are linked to it, for example in the health, development, water resources management and DRR sectors. The close linkages and interdependence between WASH and Water Resources Management (WRM) have highlighted the importance of cross-sectoral consultation and collaboration, bringing to light a range of different potential partnerships.

Presenting a credible Climate Rationale is key to successfully accessing targeted climate financing. To do this, multilateral climate funds, such as the Green Climate Fund (GCF), have proposed that the Framework, and specifically the Risk Assessments for WASH methodology, be used for the WASH sector.

The Framework is centred around four quadrants of activity (as given in Figure 2.1):

- Understand the problem: This covers the various elements that help to understand the risks climate change poses to the provision and sustainability of WASH services.
- Identify and appraise options: This covers the identification and appraisal of options to improve climate resilience.
- Deliver solutions: This covers the integration of options into existing strategies and plans, and the implementation of solutions.
- Monitor and move forward: This covers monitoring and the lessons learned from the implementation of climate resilient development activities.

Figure 2.1 Graphical representation of the Strategic Framework and the associated resources



2.2 Using the Framework

Users are encouraged to reflect on the principles and good practices outlined in the Framework and to embed these within their own particular contexts, roles and responsibilities. The Framework highlights 'Why' climate resilient development is important and catalyses selected elements of 'What to do' in terms of action that can be taken now and in the future to strengthen resilience and adaptation to climate change.

More detailed guidance on 'What to do' and support for the implementation of the approaches, methods and tools recommended is provided in a number of Technical Briefs and a Guidance Note developed to complement the Framework, which set out good practice. These are illustrated by 'Examples of how to ...' for different contexts, approaches and technologies. The inter-relationship between the documents is shown in Figure 2.2.

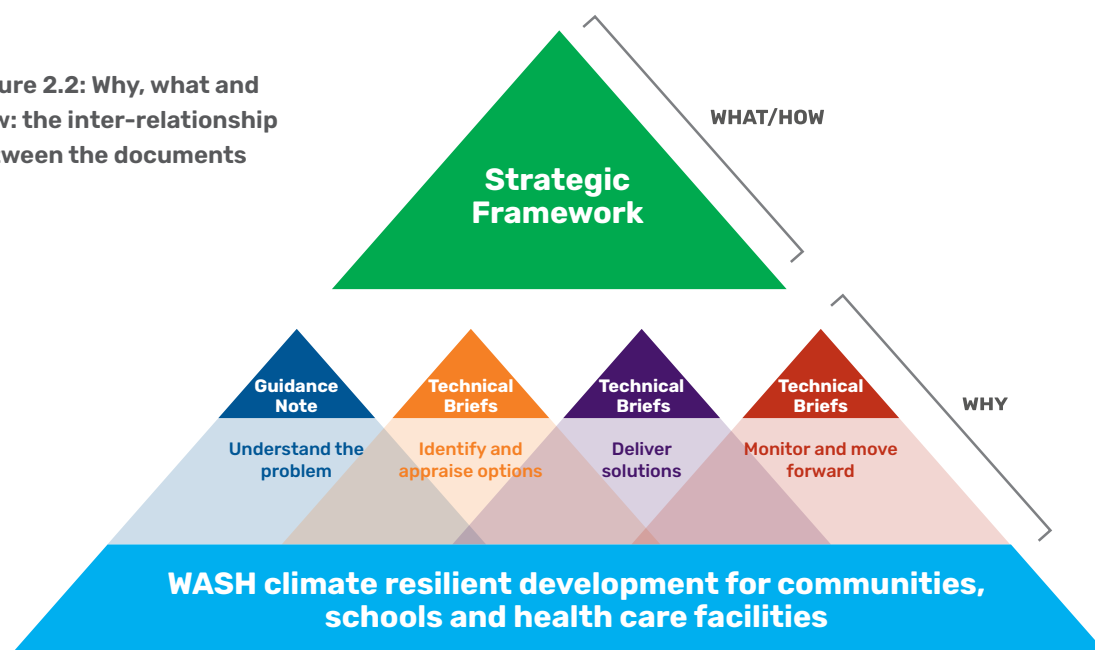
The Technical Briefs and Guidance Note include:

- Risk assessments for WASH (to be updated in 2022/2023) – [available here](#).
- Linking risk with response: options for climate resilient WASH (to be updated in 2022/2023) – [available here](#).
- The application of climate science to develop the Climate Rationale for WASH (to be developed in 2023).

- Appraising and prioritising options for climate resilient WASH – [available here](#).
- Climate resilient sanitation in practice – [available here](#).
- Integrating climate resilience into national WASH strategies and plans – [available here](#).
- Local participatory water supply and climate change risk assessment: modified water safety plans²⁷ – [available here](#).
- Climate financing for WASH (to be released in 2023).
- Community resilience and WASH (to be developed in 2023).
- Monitoring and evaluation for climate resilient WASH.
- Gender, climate change and WASH services (planned for 2023).

New guides are also being made available on how the Strategic Framework should be used in institutions (schools and healthcare facilities).

Figure 2.2: Why, what and how: the inter-relationship between the documents



²⁷ The Drinking Water Safety and Security approach is used in a number of countries and is based on the principles of water safety planning, while also integrating climate resilience

3. Understand the problem

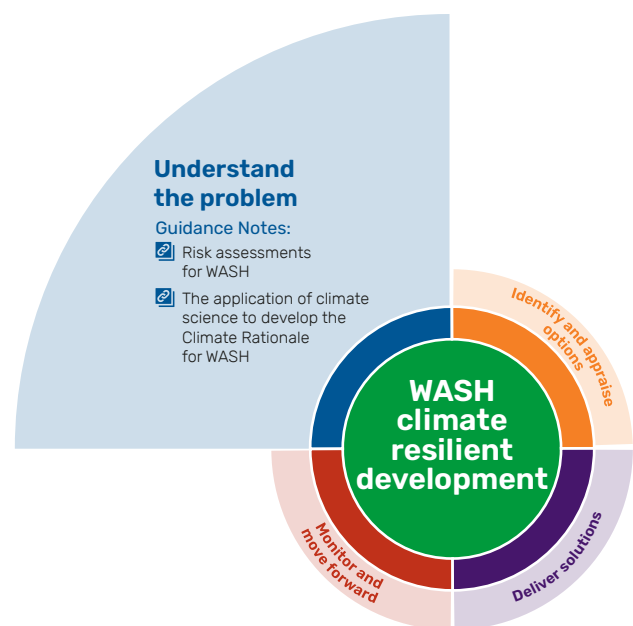


Key points

- An understanding of climate hazards, vulnerabilities and exposure is essential to determine how best to enhance climate resilience, build adaptive capacity and integrate it into strategic planning for WASH.
- It is important to understand the climate risks, as well as who has been or is expected to be impacted and how (this could include a gender analysis).
- A good place to start is to review existing national climate strategies, plans and studies to see how WASH risks are reflected, and to review key national WASH plans and strategies to see how climate risks are reflected.
- Stakeholder engagement can provide valuable input to strengthen the understanding of climate hazards, vulnerabilities and exposure, particularly at the local/community level.
- Ensuring that WASH is reflected as a priority in key national climate documents, strategies and plans is a prerequisite for large-scale climate financing.

This phase of the Framework covers the various elements that help to understand the enabling environment conducive to climate resilient WASH, as well as the risks climate change poses to WASH service delivery. The main tasks are:

- Review existing relevant climate and WASH strategies, plans and studies and approved climate financing proposals to understand the priorities they outline and the risks climate variability and change pose, and the evidence presented.
- Engage with stakeholders to better understand roles, responsibilities, risks, uncertainties and stakeholder needs.
- Identify and understand climate hazards, vulnerabilities and exposure, and existing capacities to respond to these.
- Conduct a climate financing analysis (this can also support a broader financial analysis of the WASH sector) to understand what has been funded by whom and the types of projects that have accessed climate financing, for an understanding of the potential to use climate finance as a co-financing option, and the gaps in the sector.



3.1 Existing strategies, plans and studies

It is necessary to identify existing relevant climate and WASH sector plans, strategies, policies and regulations to understand both the climate priorities outlined for adaptation and mitigation in the WASH sector, and whether WASH strategies are built on the basis of a good climate risk understanding. It also helps to identify opportunities to ensure that climate resilience is addressed using existing initiatives.

This informs the argument for new investment strategies needed to improve climate resilience and guides the scope for further analysis. In many countries, climate planning focuses on water resources and the productive use of water, with little attention paid to WASH services and the use of water for domestic purposes, and almost nothing on sanitation and hygiene. It is essential that all components of WASH are included in climate plans too.

The following provides a useful starting point to assess the inclusion of WASH in climate plans:

- National Adaptation Plans (NAPs): NAPs provide a process of identifying medium- and long-term adaptation needs, and developing and implementing programmes and strategies to address these needs.²⁸ This is intended as an iterative and participatory process. The importance of the NAP approach, in terms of the process and outcomes, was re-emphasised in the Paris Agreement, and the process and its outcomes can be used to update the adaptation elements of Nationally Determined Contributions (NDCs).²⁹ An important point to note about the NAPs is that to date (November 2022), NAPs have been submitted for 38 countries, including some that have revised their original NAP. Significantly, there are opportunities to develop sector-specific NAPs, including for the WASH sector. Specific climate finance windows (including GCF's Readiness – under Objective 3) can support the development of NAPs and the GCF country pages³⁰ can provide an indication as to the status of the NAP development, who is leading the process and an approximate timeframe. Consultation with the National Designated Authority (NDA) for each country (which is given on the GCF country pages) can provide information on the status of the NAP development and opportunities to support it.
- Nationally Determined Contributions (NDCs) are national climate plans that are central to the implementation of the Paris Agreement, many of which have mainstreamed gender. They highlight the planned climate actions (for both mitigation and adaptation) that governments aim to implement in response to climate change, including targets, policies and measures. NDCs are revised periodically and planned for five-year intervals to enhance ambition. However, in the NDCs developed/ revised to date, limited attention has been paid to sanitation. A recent analysis found that only 2 percent of NDCs address sanitation access, while 3 percent deal with wastewater management.³¹
- National Communications are produced for the UNFCCC and contain information on vulnerability and adaptation to climate change, and climate-related policies and measures.³²
- Other National/Sub-national/Climate Strategies and Plans: to get the best understanding of national and, where possible, local contexts, any other strategies, plans and studies of relevance to the country or sub-region of WASH interests should also be identified and their priorities understood.
- Some countries may have already developed WASH sector strategies and plans that identify climate risks and priorities to address these. Understanding the degree to which existing water, sanitation and hygiene strategies address climate risks is an important part of this phase of the Framework.

28 http://unfccc.int/adaptation/workstreams/national_adaptation_plans/items/6057.php

29 Approved NAPs are available at <https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx>

30 <https://www.greenclimate.fund/countries>

31 Dickin et al. (2020)

32 http://unfccc.int/national_reports/items/1408.php



Case study: National climate priorities related to WASH in Bolivia

A risk assessment on climate change and WASH was conducted in Bolivia in 2021 with support from 14 different organisations covering WASH, water resources management and climate expertise. The risk analysis followed the participatory approach suggested as part of this Strategic Framework and the Guidance Note on Risk Assessments for WASH. It was validated and finalised through a broad consultation workshop with the participation of representatives from different constituencies and geographical areas of the country.

A step prior to the risk analysis consisted of identifying the existing documentation on climate planning in the country in order to extract information related to climate risks and evaluate the integration of water, sanitation and hygiene issues as part of Bolivia's established national climate change priorities. The key documents identified and assessed included:

- Plurinational Climate Change Policy.
- Bolivia's Nationally Determined Contribution (under revision at that time).
- Ministry of Environment and Water's Institutional Strategic Plan 2016–2020.
- Patriotic Agenda 2025.
- Economic and Social Development Plan 2016–2020.

The results of the risk analysis were used to inform a WASH sector bottleneck (WASH BAT) analysis through the application of the WASH BAT process. The outcome was the identification of a set of national priorities to address both the climate and environmental risks identified and key WASH sector bottlenecks in Bolivia.

3.2 Stakeholder involvement

Stakeholder analysis can identify those who have an interest or influence over WASH and climate outcomes and strives to incorporate their needs and concerns. Many of the stakeholder analyses undertaken to date have highlighted a number of new key stakeholders that the WASH sector was not previously aware of, including who the key national climate focal points are (including who the National Designated Authority is and what its role is). Together with the risk analyses undertaken, this is an important step to enable the WASH sector to 'earn' a seat at the important, but often crowded, climate table.

Stakeholders can provide inputs into many different aspects of the process, for example, in providing inputs on hazard and vulnerability assessments, in identifying adaptation and mitigation options, in scanning climate financing opportunities, or in the dissemination of knowledge to local and national levels.

The types of stakeholders to involve will depend on the level at which the Framework is being applied and the institutional context. Stakeholders can be identified at various levels (regional, national, sub-national and local)

and across many institutions (government, private sector, non-governmental organisations, elected bodies (including municipalities), donors, academia, institutions, youth groups, etc.), as well as communities and private individuals, each with precise roles in climate resilient development. An institutional mapping exercise can be helpful to recognise which entities and organisations, both governmental and non-governmental, are involved and to identify where the gaps are.³³

Stakeholder consultation should be inclusive and representative of those who are and who may be impacted by climate change and should actively include the most vulnerable. Such stakeholder consultations have also highlighted which key climate processes are under way in the country and at what level, shining a light on potential engagement opportunities for the WASH sector in key national climate discussions, as well as financing opportunities.

Participatory settings could include an experts' consultation meeting at broader scales, or a community meeting at the local level. These approaches provide an important opportunity for stakeholders to discuss their concerns with others, for example on risks and

uncertainties that could impact the provision and sustainability of WASH services, as well as highlighting the impact of climate change to date on the provision of services and stakeholders' lives, and the potential of locally designed solutions. They also allow for a commitment to be agreed among stakeholders to work towards a shared goal.

Box 3.1 presents a methodology for stakeholder participation at the community level. By using these participatory approaches, local knowledge can be used to inform analyses.



Box 3.1: Stakeholder participation at the community level³⁴

The Climate Vulnerability and Capacity Analysis methodology is designed to build people's understanding about climate risks and adaptation strategies by prioritising local knowledge and combining it with scientific data. It provides a starting point for stakeholder engagement and can be used in any community that would like a greater understanding of their vulnerability to climate change. The emphasis on participatory

learning promotes dialogue among stakeholders to identify the most appropriate adaptation actions and can highlight opportunities for conflict-sensitive programming. Such an approach can ensure that the impact of climate change on a community, including on livelihoods, inequality and gender, is better understood and that solutions are designed to mitigate this impact and sustain positive outcomes.

3.3 Climate risk assessments

Climate change intensifies risks to WASH services, and risk-based planning and programming is essential. WASH services that are informed by climate risk assessments will be more resilient and are more likely to withstand shocks and stresses. It also enables disaster risk reduction and climate change adaptation agendas to be brought together more explicitly in tackling underlying issues and solutions commensurate with the concept of no/low regrets interventions.

Risk is a composite of hazard, vulnerability and exposure. Capacity also influences risk: high capacity reduces risk while low capacity does not. Climate risk analyses aim to show which communities and WASH services are most at risk from current climate variability and projected climate change in the medium to long term, providing valuable evidence in making the case for effective action by governments and their WASH sector partners. In many countries, such analyses have already been undertaken and, although some may not provide the required level of detail, or they might not have been conducted through a WASH lens, they can be a good starting point and should always be considered.

Hazards and hazardous events can be identified through site visits, stakeholder engagement (reinforcing the importance of broad and inclusive consultation with regard to gender, age, disability, migration status, economic status, etc.) and the review of historic information, depending on whether the approach is at a national or sub-national/local level. Some hazards will be easier to recognise than others and consideration should be given to factors that could introduce risks that are not immediately obvious or have not been experienced to date.³⁵ It is also important to remember that hazards may result from more than one cause and may have a number of impacts, and that different hazards can impact people in different ways depending on their gender, age, disability, migration status, economic status, etc.

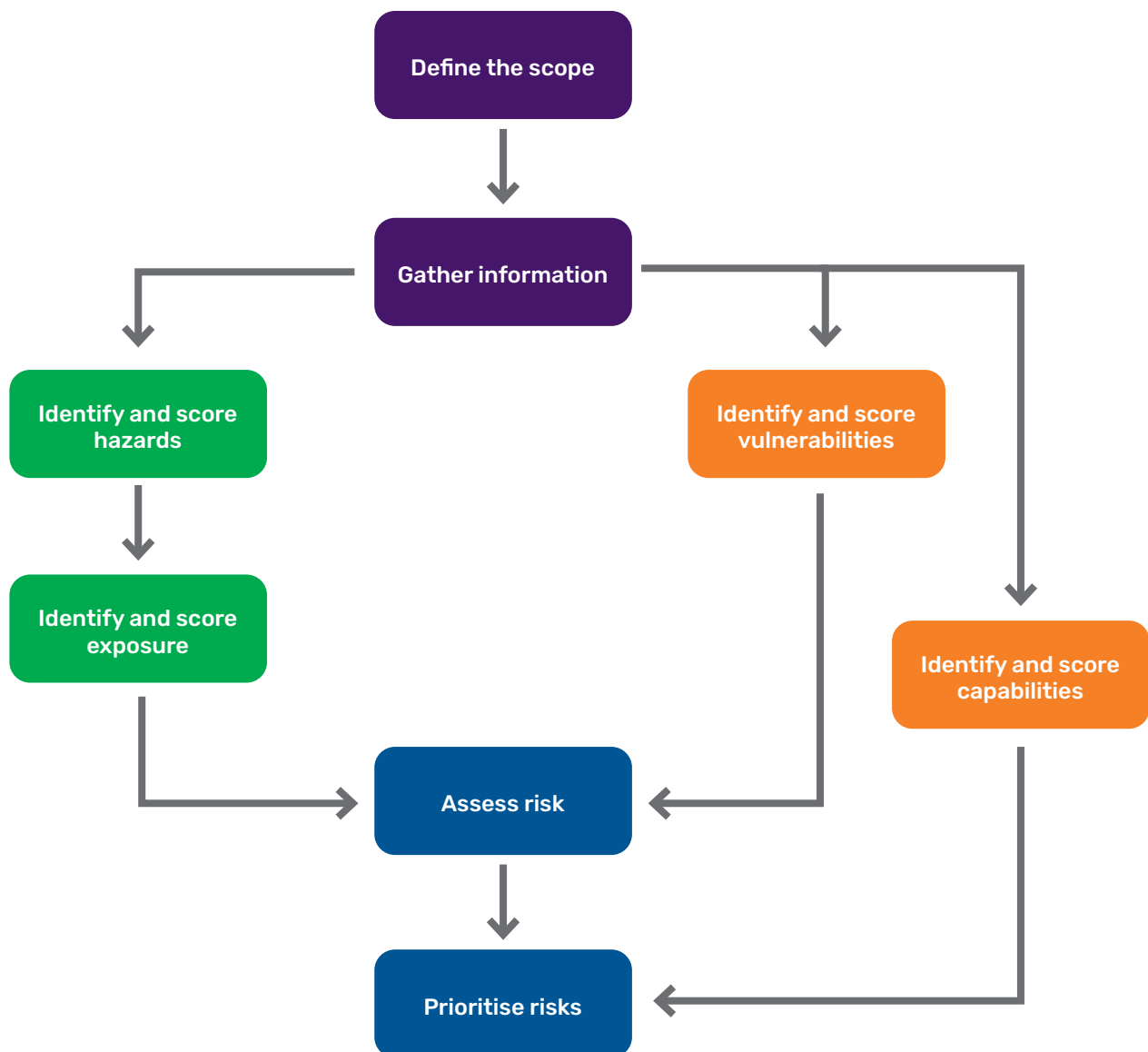
The character and severity of impacts from climate hazards and extremes depend not only on the hazards themselves but also on exposure and vulnerability, and these are also critical factors for understanding how to respond and to adapt. Reducing exposure and vulnerability, and enhancing the extent to which systems and communities can adapt,³⁶ will increase resilience to potential adverse impacts (see Figure 3.1).

³⁴ CARE International (2009)

³⁵ Bartram et al. (2009)

³⁶ Calow et al. (2011)

Figure 3.1: Assessment approach



Risks result from natural, physical, social and economic factors. For the WASH sector, factors can include:

- Natural, e.g. water resources, groundwater depth and recharge characteristics, and sustainability of water supply.
- Physical, e.g. water storage capacity, water and sanitation infrastructure resilience, water supply/access to water for sanitation and hygiene practices, access to water in schools and healthcare facilities, and sources of power.
- Social, e.g. gender equity, urbanisation trends, population growth trends, conflict stability, willingness to pay, and the location of children and older people in vulnerable areas.

While the risk is related to the hazard, vulnerability and exposure, capacity is also an important consideration. Issues impacting capacity in the WASH sector include:

- Staff understanding of climate resilience and the identification (and monitoring) of solutions, WASH coordination mechanisms at national and local levels, availability of support staff in emergencies, WASH sector-wide capacity, organisations' capacity to respond to extreme weather events, suitable skill set of WASH staff, emergency preparedness and emergency response.
- National capacity, e.g. environmental management, governance and regulation, public health, national priorities considering WASH sustainability, national commitment to environmental sustainability, emergency preparedness and response, and climate.

When the hazard, vulnerability and exposure have been identified, their significance can be evaluated to determine and prioritise risks. Scoring systems, for example as high, moderate or low, allows the criticality of response and priorities for action to be identified, while also considering existing capacity. Scoring may sometimes be challenging owing to a lack of data and knowledge in many locations, and in this case local wisdom and stakeholder knowledge are crucial. It is critical that the most vulnerable girls, boys, women and men are consulted to ensure that solutions do not make their situation worse.

Building on the existing spreadsheet tool, a new web tool has been developed to be used alongside the Guidance Note. This includes a number of updates to improve its usability and reflect the improvements made to the Risk Assessments for WASH Guidance Note.

3.4 Applying climate science to WASH

Designing a project for climate resilient WASH services and to increase community resilience through those services, requires good insight into the functioning of the WASH system, the socio-economic requirements

and impacts, and stakeholders' preferences. In most cases, WASH projects are not only meant to address existing access-related issues, but also to prevent future problems that may occur due to socio-economic development and/or climate change.

The use of climate scenarios helps to quantify the problem and determine the impacts of the proposed project in terms of reducing the climate change components of the problem.

The World Meteorological Organization and GCF have developed guidance on the application of climate science for climate action in the form of a four-step process.³⁷ The guideline supports a web-based Climate Information platform³⁸ that provides projections based on different scenarios for key climate indicators (including temperature, precipitation, aridity, soil moisture, water discharge and runoff) for different timeframes and can be used to inform climate WASH risk assessments. The platform also supports, through Climact, the analysis of historical data and the development of key climate indices.

3.5 Climate financing landscape

It is important to know what financing opportunities are available to significantly increase and sustain climate resilient service delivery. Domestic public finance and budgets alongside Overseas Development Assistance (ODA) have been, and will remain, key sources in the WASH sector, although the importance of each will differ from country to country, and over time. Financing is also available from NGO, philanthropic and private sector sources and international financing institutions.

The emergence of international climate finance entities brings additional potential funds, and maximising leverage from these funds will bring added benefits to the WASH sector.

37 https://library.wmo.int/index.php?lvl=notice_display&id=21974#.Y2wF7HbP23A

38 <https://ssr.climateinformation.org/>

To date, the WASH sector has not been particularly successful in leveraging large-scale climate finance for climate resilient WASH services. In 2020, it was estimated³⁹ that water programmes received less than 3 percent of global climate finance. This is due to a number of reasons, such as:

- WASH is often not cited as a national climate priority in key national climate plans and strategies (including NAPs and NDCs).
- The WASH sector has not embraced the concept of the Climate Rationale or Additionality.
- The WASH sector has not actively engaged with the climate sector and is still learning how to communicate and apply climate language to articulate the risks posed by climate change to WASH services and the communities that depend on them.
- The WASH sector has been slow to develop investment cases (outlining the cost of climate resilient WASH and the projected return on investment) or a pipeline of bankable projects.

Indeed, the structure of global climate funds can seem complex and daunting at first to the WASH sector, with many sector stakeholders having had little engagement with them. There are a range of funds, for example, the Adaptation Fund (AF), Green Climate Fund (GCF), Global Environment Facility (GEF), Least Developed Countries Fund (LDCF), Climate Investment Fund (CIF), Special Climate Change Fund (SCCF), Pilot Program for Climate Resilience (PPCR) and others, and all these funds support countries in their efforts to increase resilience to climate variability and change, and support mitigation efforts. Each fund has specific eligibility/investment criteria, which provide guidance as to the type of activity likely to be supported. Importantly, such funds have designated focal points (for GCF, these are called National Designated

Authorities or NDAs) which can help to coordinate, streamline and prioritise requests for climate finance. Additionally, national climate change funds have been established by a number of countries with the aim of coordinating and aligning the interests of multiple funding sources with their national priorities.



Box 3.2 Links to facilitate a climate financing landscape assessment

1. [Green Climate Fund country profiles with country contact details and projects](#)
2. [Global Environmental Facility country profiles with all projects financed](#)
3. [Adaptation Fund website with search function by country](#)
4. [Country projects financed by the European Union Global Climate Change Alliance Plus \(GCCA+\)](#)
5. [The Climate Investment Fund \(CIF\) project](#)
6. [Bilateral aid activities targeting Global Environmental Objectives by recipient country](#)

Financial tracking is used to understand sources of funding and where it is eventually used.⁴⁰ Tracking tools are available to help with this. For example, the Trackfin⁴¹ tool jointly developed by WHO and UN-Water aims to answer a number of questions about total expenditure in the sector, the distribution of funds, who pays for services, and what the main funding channels are. WASH Budget Briefs increase sector knowledge on budget issues, analysing and monitoring the size of budget allocations and the effectiveness and adequacy of past spending. Public Expenditure Reviews examine the level and composition of public spending and governance structures to analyse and track budget allocations, and determine what is being spent and whether it is well allocated and efficient.

39 Mason et al. (2020)

40 UNICEF (2020)

41 WHO and UN-Water (2017)

4. Identify and appraise options



Key points

- The emphasis should be on finding options that increase resilience to climate change and that offer a low carbon option.
- Work with different groups of stakeholders to identify alternative designs or management practices that may enable them to better cope with climate variability and change.
- Screening to rank and prioritise options for different groups is an important step to ensure the most appropriate ones are implemented and do not make the situation worse for any given group of people.

Identify and appraise options

Technical Briefs:

- Linking risk with response: options for climate resilient WASH
- Appraising and prioritising: options for climate resilient WASH
- Climate resilient sanitation in practice



This phase of the Framework covers the identification and appraisal of options to improve climate resilience and reduce the emissions associated with WASH services. The emphasis is on identifying measures that manage the existing impacts of climate change and extreme weather events but can also aid adaptation to future climatic change, while reducing emissions, therefore providing win-win or no/low regrets solutions. The main tasks are:

- Identify opportunities to strengthen the enabling environment and climate resilient water supply, sanitation and hygiene options that address existing inequalities.
- Appraise options, recognising the tools and techniques available for use.

4.1 Linking risk with response

Suitable options need to be identified that consider the different risks alongside other technical, social and financial considerations (e.g. acceptability, affordability, long-term sustainability, etc.). There are many opportunities in the WASH sector to implement no/low regrets actions. With the move towards a low-carbon WASH sector, these actions can cover both mitigation

and adaptation options. Figure 4.1 provides examples of typical interventions to achieve climate resilient development objectives, within a well-defined Simplified Results Framework. The suitability of these options should always be considered and adjusted according to the risks identified in the specific local context, while striving for balance between the probability of an event, cost (affordability) and life expectancy of the infrastructure, and the impact (including financially and socially) of an interruption to that service.

Further details on the Simplified Results Framework, together with other examples of best practice, are available in the Technical Brief “Linking risk with response: options for climate resilient WASH”.⁴²

The Technical Brief “Climate resilient sanitation”⁴³ takes this guidance further and aims to highlight the importance of climate resilience for the sanitation sector, providing technical examples of what this means in practice, including options for mitigation.

42 https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_linking_risk_with_response_brief.pdf

43 <https://www.unicef.org/documents/ensuring-access-climate-resilient-sanitation-services-36-billion-people-2030>

The Simplified Results Framework is divided into three different levels of action, as follows:



At the national level: the aim is to achieve an enabling environment conducive to climate resilient WASH services and communities, and it is advised that the five Sanitation and Water for All Building Blocks⁴⁴ be assessed to identify the right options across: Sector Policy Strategy; Institutional Arrangements; Sector Financing; Planning, Monitoring and Review; and Capacity Development.



At the sub-national or watershed/basin level: the aim is for water resources to be monitored and managed through integrated water resources management taking into consideration climate risks to WASH services and infrastructure.



At the local and project level: the aim is for solutions, including technical solutions, for climate resilient WASH to be identified so that access to climate resilient WASH infrastructure and services, as well as climate resilient behavioural change and governance, address the climate risks identified.



Case study: Wastewater reuse in Amman, Jordan⁴⁵




Jordan is one of the most water-stressed countries in the world. Responding to the levels of water scarcity facing the country, the Government of Jordan has developed policies on the sustainable and efficient management of water resources. For example, wastewater is recognised as a potential water source in the country's Water Substitution and Reuse Policy 2016, with strategies to promote the treatment and reuse of wastewater. As a result, Jordan now has one of the highest rates of wastewater reuse in the region.

To address water leakage, a range of projects are being implemented to promote water efficiency, including fixing or replacing leaking sections of the network. Support has also been provided to increase energy efficiency and the use of renewables. To aid policy and prioritisation, UNICEF has supported the Government in developing water and wastewater vulnerability maps, which identified the sub-districts where additional treatment infrastructure and capacity were most needed.

44 <https://www.sanitationandwaterforall.org/about/our-work/priority-areas/building-blocks>

45 UNICEF (2021b)

Table 4.1: Simplified Results Framework for WASH climate resilience

OUTCOME	Rural and urban WASH infrastructure and services are sustainable, safe and resilient to climate related risks; and WASH contributes to building community resilience to climate change			
	NATIONAL 	SUB-NATIONAL LEVEL/ WATERSHED LEVEL 	LOCAL AND PROJECT LEVEL 	
	1. An ENABLING ENVIRONMENT conducive to climate resilient WASH services and communities	2. Water resources are MONITORED and MANAGED through WRM considering climate risks to WASH services and infrastructure	3. ACCESS to climate resilient WASH infrastructure and services	
INTERMEDIATE OUTCOME	STRENGTHEN WASH SECTOR ENABLING ENVIRONMENT	BUILD WATER RESOURCE MONITORING AND MANAGEMENT CAPACITY	LOCAL AND PROJECT LEVEL SUPPORT CLIMATE SMART INFRASTRUCTURE AND TECHNOLOGIES	
	1.1 Knowledge of climate risks generated and shared 1.2 Climate risk informed policies, strategies, plans and programmes and WASH informed climate plans and strategies 1.3 Adequate budget and resources allocated 1.4 Gender-sensitive plans implemented and monitored 1.5 Inter-sectoral coordination strengthened with focus on health, food security and education sectors 1.6 Strengthened Early Warning Systems in place	2.1 Water resource status and pressures understood (e.g. Water Atlas or a National Water Resources Management Plan) 2.2 Long-term monitoring systems implemented and maintained 2.3 Guidelines developed prioritising gender-sensitive climate resilient WASH services and accounting for hydrological change 2.4 Agreed mechanisms implemented for resource development and adaptive management	3.1 Project design and implementation of WASH standards strengthened 3.2 Water storage enhanced and protected 3.3 Water supplies diversified (including multiple use schemes) where possible (and where resources permit) 3.4 Climate smart technologies (low and no-regrets options) for WASH investigated and implemented	4. Climate resilient BEHAVIOURAL CHANGE and GOVERNANCE at community and local level SUPPORT INSTITUTIONAL REFORM AND BEHAVIOUR CHANGE 4.1 Capacities and resources of local government and local private sector to implement and monitor gender-sensitive resilient WASH programming strengthened 4.2 Awareness and capacity of communities to respond to shocks and stresses is enhanced 4.3 Local markets and supply chains extended and deepened to increase availability of climate resilient WASH services and technologies 4.4 Early warning and response systems strengthened

ACTIVITY	STRENGTHEN WASH SECTOR ENABLING ENVIRONMENT	BUILD WATER RESOURCE MONITORING AND MANAGEMENT CAPACITY	LOCAL AND PROJECT LEVEL SUPPORT CLIMATE SMART INFRASTRUCTURE AND TECHNOLOGIES	SUPPORT INSTITUTIONAL REFORM AND BEHAVIOUR CHANGE
	<p>1.1.1 Improving understanding of climate risks (including the impact on equality, the most vulnerable groups, gender, etc.)</p> <p>1.1.2 Understanding resilience of technology types</p> <p>1.1.3 Understanding WASH contribution to building community climate resilience</p> <p>1.2.1 Reviewing and updating WASH and climate policies and strategies to account for climate risks</p> <p>1.2.2 Strengthening evidence-based policy advocacy</p> <p>1.2.3 Making budget allocations available to enhance resilience of existing WASH systems</p> <p>1.2.4 Understanding and assessing policies for allocation of water to other sectors (agriculture, industry, etc.)</p> <p>1.3.1 Making budget allocations available to prioritize climate resilient WASH interventions in identified risk areas</p> <p>1.3.2 Ensuring adequate emergency budget allocations for WASH sector</p> <p>1.4.1 Developing, implementing and monitoring plans</p> <p>1.4.2 Mainstreaming bottleneck analysis and planning</p>	<p>2.2.1 Assessing water resources – quantity and quality</p> <p>2.2.2 Assessing risks to water resources from climate change and other pressures</p> <p>2.2.3 Monitoring water availability and quality</p> <p>2.2.1 Monitoring patterns of use and climate-linked (and other) threats</p> <p>2.3.1 Developing agreed guidelines/mechanisms across water sector informed by climate risks</p> <p>2.3.2 Supporting basin planning initiatives that coordinate water-using and polluting sectors and that prioritise support for the most vulnerable areas</p> <p>2.4.1 Developing new water sources in a resilient and sustainable manner</p> <p>2.4.2 Prioritising WASH in the allocation of resources between sectors</p> <p>2.4.3 Assessing water demand management options (including non-revenue water)</p> <p>2.4.4 Increasing water efficiency using low carbon options</p>	<p>3.1.1 Ensuring conformity with climate-informed standards</p> <p>3.1.2 Supporting supervision and enforcement of standards</p> <p>3.2.1 Developing decentralised storage systems</p> <p>3.2.2 Strategically developing groundwater resources</p> <p>3.3.1 Spreading risk between different water sources and systems</p> <p>3.3.2 Targeting areas/communities affected by climate hazards and vulnerable sources by providing climate resilient WASH services</p> <p>3.4.1 Adapting technologies to account for climate risks</p> <p>3.4.2 Exploring innovative, climate smart technologies</p> <p>3.4.3 Exploring wastewater reuse/recycling, nutrient recovery and energy production from waste</p> <p>3.4.4 Improving sanitation and hygiene practices (e.g. ending open defecation) to reduce vulnerability</p> <p>3.4.5 Implementing measures to improve water efficiency</p> <p>3.4.6 Exploring nature-based solutions</p>	<p>4.1.1 Strengthening capacity of WASH professionals and practitioners</p> <p>4.1.2 Making sure sufficient resources are available for local WASH agencies in most vulnerable regions</p> <p>4.2.1 Education and training of community groups for climate-responsive WASH management</p> <p>4.2.2 Sharing knowledge on local WASH climate resilient options</p> <p>4.2.3 Providing education and sharing knowledge on water availability and efficiency</p> <p>4.3.1 Supporting local markets and supply chains for resilient WASH systems/technologies</p> <p>4.4.1 Assessing status and functionality of early warning and response systems in relation to WASH needs</p> <p>4.4.2 Contingency planning for WASH – especially droughts and floods</p> <p>4.4.3 Conducting Water Security, Water Safety and Sanitation Safety Planning</p> <p>4.4.4 Creating demand for climate resilient water services</p> <p>4.4.5 Conducting water conservation (value of water) campaigns</p>

4.2 Appraise options

There may be a number of options to choose from to mitigate and adapt to a climate hazard, so it is important to screen and prioritise these to ensure the most appropriate ones are implemented. Consideration must be given to the available financial and technical resources and capacity, the ability to respond, the ability to operate/sustain the service, the timeframe for implementation, and the national/local context. In appraising options, it is also essential to understand the impacts of applying the options across related sectors, such as public health, environment, agriculture and livestock, which are affected by developments in the WASH sector. Specific questions that can help guide the selection include:⁴⁶

- Is the option climate resilient and practical, given the timeframe and the resources available?
 - How many people will benefit from its implementation, and who are they (the most vulnerable)?
 - Will there be any unintended negative consequences (social, environmental, etc.) and who would be impacted?
 - How affordable and cost effective is it?
 - What is the anticipated lifespan?
 - Is the option compatible with local/national development objectives?
 - How will the implementation of the option impact risks in other sectors such as the environment and public health?
- Is the option socially acceptable at the local level?
 - Is there technical expertise available for support and management?
 - How easy is it to operate and sustain?
 - What is the potential for it to be scaled up if successful?
 - What are the potential financing opportunities and models?

Importantly, the focus for a solution is not just limited to the choice of technology, but also the siting, design, and operation/management of the option.

More sophisticated appraisal techniques are available and can be used to help in the selection of options. Examples include cost-benefit analysis, multi-criteria analysis and the robust decision-making approaches. Examples and detail on using a range of different techniques are given in the Technical Brief.

Once a list of prioritised options has been developed, it will be necessary to consider whether there are any other barriers and enablers to implementing these options besides those already considered during the initial appraisal process. Barriers delay, divert or temporarily block the adaptation process, while enablers support it. Any barrier can reduce the uptake of potentially effective options. When prioritising options, it will be necessary to consider which are the most significant barriers and why, as well as whether there are any enablers to exploit.

46 Venton (2010)

5. Deliver Solutions



Key points

- Integration of options into key climate and WASH strategies and plans is important to ensure that options to increase climate resilience in the WASH sector benefit from established mechanisms and allocations for implementation.
- Effective institutional coordination across multi-level WASH governance structures will be required, as will the coordination with other sectors which can influence or impact climate vulnerability and resilience.
- Carefully targeted programmes to strengthen the capacity of WASH sector professionals to address short-, medium- and long-term climate uncertainties will be required at all levels.
- It is important to develop sustainable financing and investment strategies.

This phase of the Framework covers the integration of climate resilient options into existing climate and WASH planning processes, and the implementation of the selected solutions. Overall integration of climate resilient WASH into climate plans, and climate resilience into WASH sector strategies and plans is a government-led process but will also require that implementation partners integrate climate resilience into their own strategies and plans. The main tasks are:

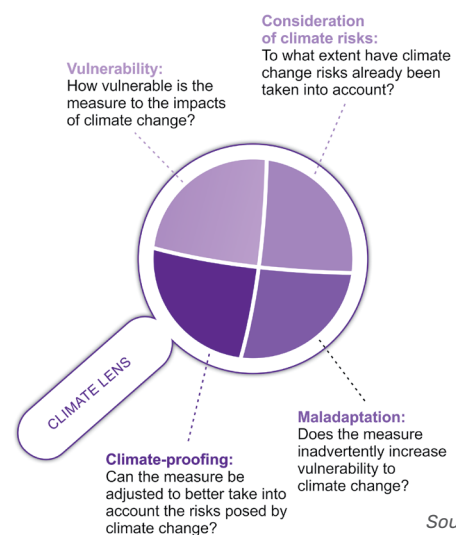
- Understand the entry points for early action on climate resilient WASH.
- Strengthen capacity to design, plan, manage, deliver and monitor climate resilient solutions.
- Investigate available and potential financing opportunities and plan the budget for demand creation and implementation.
- Implement low-carbon climate resilient interventions.



5.1 Integrating options into strategies and plans

The selected options to address the climate risks identified will need to be integrated into planning processes (both climate- and WASH-related) and implemented. Integration into strategies and plans (which can then translate into national budgetary allocations) is important to ensure that investments in the WASH sector are sustainable. It is a process which can occur at different levels, from local level/sub-national development plans to national planning systems. It is recommended that a “climate lens approach” is applied when formatting WASH sector strategies and policies, as illustrated in Figure 5.1.

Figure 5.1: Elements of a ‘climate lens’ approach



Source: Adapted from OECD (2009)

As WASH services are impacted by extreme events, it is also important that preparedness planning and emergency responses to restore/strengthen services apply a long-term vision. To ensure the sustainable and resilient provision of WASH services, through explicit consideration and internalisation of the risks and opportunities that climate change scenarios are likely to imply for their operation and maintenance.

Integration will involve preparation to determine how the options will be implemented and financed. It requires action across many sectors and planning levels because water resources used in the WASH sector are shared and impacted by other users, such as those

from the agriculture and industry sectors. This means that efficient and effective coordination and many new partnerships are needed across multi-level WASH governance structures, and with other sectors. Roles and responsibilities need to be adequately clarified, particularly the roles of WASH departments in various ministries and the role of other ministries (e.g. Ministries of Environment, Finance and Planning) and departments (e.g. Departments of Climate Change) in supporting climate resilient development outcomes. Approaches used should be flexible and make use of effective learning mechanisms to raise awareness, to share experiences and to identify best practices.



Case study: Integration of climate resilience into WASH strategies and plans

In December 2016, the Government of Rwanda took an important step towards protecting people from climate risks by approving a new National Water Supply Policy and associated Implementation Strategy. The policy provides clear guidance on how the country's climate resilience can be improved at the national, sub-national and community levels. It specifically calls for programmes that address the risks posed by climate change and aims to climate-proof new large-scale water supply programmes.

An entry point for resilient WASH service delivery is the prioritisation and implementation of cost-effective and environmentally sustainable options. These measures are more likely to be successful in the face of increased uncertainty due to climate change now and in the future. They help protect existing WASH systems against current climate variability and future change.

The policy also includes provisions for risk-informed planning, and prioritises conservation and protection and mandatory water safety planning.

Three core components have been defined for the integration of climate resilience into WASH and climate strategies:⁴⁷

- Finding entry points for integration: this sets the stage for integrating climate resilience into key strategies and policies. It requires an understanding that the relevant institutional contexts as entry points are very much context specific and are based on particular national/sectoral settings and circumstances.
- Integrating into policy processes: this makes use of available evidence to integrate issues into ongoing policy processes, including any ongoing important NAP/NDC development/revisions under way, by including priority climate resilient WASH interventions where necessary. It also looks at how to integrate across policies and legislative frameworks, e.g. a policy that aims to protect or enhance ecosystem services could be linked to climate resilient WASH services.
- Meeting challenges associated with implementation: this component aims to ensure that investments are integrated into sector financing, budgeting, implementation (including operating procedures for infrastructure) and monitoring. Particular attention needs to be paid to the implementation of WASH-related priorities included in climate plans (e.g. NDCs and NAPs) as these should also become WASH

47 UNDP-UNEP (2011); Butterworth and Guendel (2012); UNICEF (2014)

sector priorities, and their budgeting and implementation needs to be carried out in close collaboration with those leading on cross-sectoral climate planning (e.g. environment ministries).

Climate risk assessment is best addressed as an incremental step within existing planning assessments and processes. For example, climate resilience can be integrated into the Water Safety Plan (WSP) approach: the Technical Brief “Local participatory water supply and climate change risk assessment: Modified water safety plans”⁴⁸ provides further information on this.

5.2 Capacity development

The limited capacity to identify and address the risks posed by climate change to the WASH sector can be a limiting factor towards achieving climate resilience.⁴⁹ Climate change brings new challenges that require additional knowledge, skills, approaches and partnerships to supplement existing planning, decision-making, implementation and monitoring processes and systems.

In the context of climate change, carefully targeted capacity strengthening programmes should focus, for example, on extending risk assessments to include climate change-related aspects, decision-making

options under different climate change scenarios, and the identification and appraisal of options to manage potential risks and/or maximise opportunities climate change may bring.

Capacity development needs to be firmly grounded in existing institutional roles and responsibilities. Climate change is just one of many important and uncertain challenges faced by WASH professionals and practitioners and strengthening capacity should be seen as an evolution of existing skills and practices, rather than as a separate stream of activity.

Capacity development will be important at all levels because each has a different part to play in the planning, delivery and monitoring of climate resilient WASH services. This will include national and local government planners and decision makers, WASH implementation partners and local WASH coordination platforms, particularly as local governance is a key element for sustained action to build climate resilience (see Box 5.1). Capacity building initiatives at the national and sub-national levels for WASH personnel should also be extended to other sectors, including health, education, climate and agriculture, in the interests of stronger partnership building and enhanced cooperation, and these can be scaled up with support from the private sector and academia.



Box 5.1: Capacity development at the local level

The local level is very important for climate resilient development as climate change impacts are manifested locally, vulnerability and adaptive capacity are determined by local conditions, and adaptation activities need an understanding of local priorities and capacity needs. Adaptation strategies may require new or modified technologies and behaviours and these, in turn, require helping communities and local institutions (local government and other) to develop certain types of

new knowledge, abilities or skills. Capacity at local and decentralised levels needs to be strengthened accordingly and support activities could include:⁵⁰ presenting climate change information in a way that can be easily understood by non-specialists; organising and disseminating information so that it can be selectively used at different institutional levels; and strengthening local government WASH planning processes.

48 https://www.gwp.org/globalassets/global/about-gwp/publications/unicef-gwp/gwp_unicef_tech_a_web.pdf

49 Batchelor et al. (2009)

50 Batchelor et al. (2011)



Case studies: Capacity development

The Framework has been used to conduct training in UNICEF's West and Central Africa, South Asia, East Asia and Pacific regions, as well as global training via an online course.

In July 2019, the UNICEF Regional Office for South Asia⁵¹ held a training course in Kathmandu on the application of the Strategic Framework (with additional material on climate financing). There was great demand for this capacity building, and a number of steps were discussed and agreed by participating countries to be completed after the training.

A global online training course was developed and delivered in 2020 to more than 130 participants, comprised of government, partner and UNICEF representatives. The training offered participants an introduction to the main principles and concepts of climate resilient WASH development, providing guidance on how the Framework could be used to design and implement climate resilient WASH programming.⁵²

5.3 WASH and community resilience

An important aspect of water security, according to the UN-Water definition, is ensuring that "populations are resilient to climate related hazards". This introduces the concept of community resilience, inferring that communities cannot be climate resilient if they do not have access to resilient social services such as water and sanitation. In relation to this, the Sixth Assessment Report of the IPCC evaluated how patterns of risks and potential benefits are shifting due to climate change.⁵³ One major conclusion is that the most effective measures to reduce vulnerability in the near term are programmes that implement and improve basic public health measures, such as the provision of safe water and sanitation, and that alleviate poverty.

The provision of resilient WASH services reduces community vulnerability to climate change and is a critical component of adaptive capacity. Higher levels of service can increase the resilience of communities to the risks posed by climate change; however, this is only true in cases where services have been designed to be climate resilient. Having access to a water network is of limited benefit for resilience if there is an irregular and unpredictable supply of water in that network. Communities that depend on lower levels of service (e.g.

unprotected water sources or sanitation facilities) can be more vulnerable to the impacts of climate change. Ensuring access to climate resilient WASH services (not just any WASH services) is critical to building the resilience of vulnerable communities.

Resilient WASH services have positive economic impacts on household incomes in the short, medium and long term, help reduce the risk of migration and conflict, and create more resilient environments against the spread of global health pandemics. Efforts are therefore required to identify and prioritise areas where high exposure to climate hazards overlaps with low access to climate resilient WASH services, especially in LDCs and rural areas. It is important to remember that higher levels of WASH services are not automatically climate resilient, and vice versa.

A Technical Brief on community resilience and WASH is under development, which will include clear examples of how interventions and investments in climate resilient WASH, including support for youth engagement and water conservation opportunities, help to build water security in the face of climate change.

51 GWP and UNICEF (2019)

52 <https://cap-net.org/instructor-led-online-course-on-wash-climate-resilience/>

53 IPCC (2022)

5.4 Financing/funding strategies

Sound implementation of the Framework and the large-scale expansion of low-carbon climate resilient WASH services require a strategic and sustainable approach to financing. Adequate and effective financing is essential to enable countries to deliver and sustain resilient WASH services and make progress towards achieving the SDGs.

To date, discussions around financing for climate change activities have been largely centred on how much money is, or ought to be, available. While the quantity of financing is certainly important, especially in countries and regions that are particularly vulnerable to climate change, the robustness and technical adequacy/appropriateness of the projects funded is equally important. Well defined, designed and targeted financial strategies can help mobilise new pools of resources and signal to public and private sector audiences why WASH climate resilience is important, how it can be achieved, and the opportunities presented by these resources.

While the requirements for climate financing options vary across different funds and funding windows, there are key concepts that are consistent across all the options; these are:

- Demonstrated Climate Rationale (based on climate science).
- The concept of Additionality.
- Relevance to national climate priorities (reinforcing the importance of WASH sector engagement in key national climate prioritisation, e.g. NAP and NDC processes).
- The sustainability and scalability of interventions.



Box 5.2: Green Climate Fund (GCF)

The Green Climate Fund (GCF) is the world's largest multilateral climate fund, which became fully operational in 2015 and is an operating entity of the financial mechanism of the UNFCCC and serves the Paris Agreement. The GCF is a financing mechanism to support climate action (both mitigation and adaptation) in developing countries. A core principle of GCF is to follow a country-driven approach, which is underpinned by its Readiness Programme, to lay the foundations for scaling-up climate investments and to support capacity building.⁵⁴ This mechanism also provides grants and technical assistance with the aim of enhancing the capacity of national institutions and entities to efficiently engage with GCF and to be able to leverage large-scale climate finance in line with national priorities. This could enable increased investment for climate resilient WASH to be secured, which, to date, has been limited.

Multilateral climate agencies, like GCF, have clear investment criteria. GCF's investment criteria include: Impact potential; Paradigm shift potential; Sustainable development potential; Needs of the recipient;

Country ownership; and Efficiency and effectiveness. Importantly, such climate funds have a range of financial instruments (including grants, but also equity, guarantees and loans) and a range of funding windows.

A key component of the assessment of proposals for climate finance is the demonstration of a clear Climate Rationale and Additionality, and the development of Full Proposals requires significant technical, financial and time investments, requiring expert engagement. Furthermore, for agencies like GCF, funds for Full Proposals can only be disbursed to Accredited Entities. On a positive note, agencies that are not accredited can apply to become Delivery Partners (for Readiness) and these can be nominated by the National Designated Authority to support on Readiness projects. Although funding is limited (US\$1 million per country per year or US\$3 million for a NAP), these projects can really support the WASH sector to lay the foundations of climate analysis and capacity building for the benefit of the WASH sector more broadly.

54 <https://www.greenclimate.fund/readiness>

While the WASH sector has not been very successful in leveraging large-scale climate funds to date, there have been significantly more WASH projects supporting climate resilient water solutions than sanitation. It is important to note that this is not because of increased support for climate resilient water projects, but instead, due to a lack of well-thought-out climate resilient sanitation projects being presented for financing. One of the primary reasons that the WASH sector has not been successful to date is because of a failure/resistance to articulate the Climate Rationale/science of WASH interventions, preferring to opt for standard WASH projects with only light references to climate change and no clear links between the two.

Any project aiming for climate financing must have a clear and demonstrated climate basis. Indeed, the observed and projected impact of climate change must be articulated with the best available data and analysis, and the proposed interventions must have a clear and demonstrable link to the risks identified, outlining how greenhouse gas emissions will be cut (for mitigation projects) or how exposure and vulnerability will be reduced while supporting capacity building (for adaptation projects). While climate finance can be used to support the 'additional' costs associated with ensuring adaptation and mitigation, standard costs to increase access to basic WASH services are not eligible for climate grant financing. Co-financing can however be used to support this. On this basis, climate financing investments in climate resilient WASH can make a difference by:

- **Ensuring community resilience through the provision of WASH services at the intersection between insufficient access to water and sanitation services, and high exposure to climate risks.** Indeed, the provision of resilient WASH services reduces community vulnerability to climate change and is a critical component of adaptive capacity, where climate co-financing can be used for the 'additional' costs involved in integrating climate resilience.

- **Ensuring that progress towards the achievement of universal access to WASH poses no maladaptation risks and contributes to mitigating greenhouse gas emissions.** There are also huge and untapped opportunities for mitigation linked to new WASH services, particularly as there are increasing efforts to improve the level of WASH services.
- **Ensuring that existing WASH systems in areas highly exposed to climate risks are assessed, retrofitted and upgraded.** This includes ensuring uninterrupted WASH services for households and communities, and in health care facilities and schools.
- **Ensuring uninterrupted access to health care services by adapting or introducing measures to make WASH services resilient in vulnerable locations.** In practical terms, this means integrating opportunities for mitigation and adaptation to climate change risks into the design, operation, and management of the existing infrastructure and investigating options to use renewable energy.
- **Fostering water and energy conservation, efficiency and reuse throughout existing WASH systems.** As climate change is compounding global water scarcity, economising on water use is an important aspect of any effective climate response, and also supports more efficient use of energy.

To develop strong WASH climate financing proposals, climate financing schemes such as the Green Climate Fund are suggesting the use of this [Strategic Framework for WASH Climate Resilient Development](#).

Leveraging WASH finance to mobilise climate finance can be difficult. There is a significant gap in understanding concepts such as 'Additionality', and presenting proposals with strong Climate Rationales. Climate finance is unlikely to fund projects which are clearly 'business as usual' approaches. Sector financing is being boosted by:

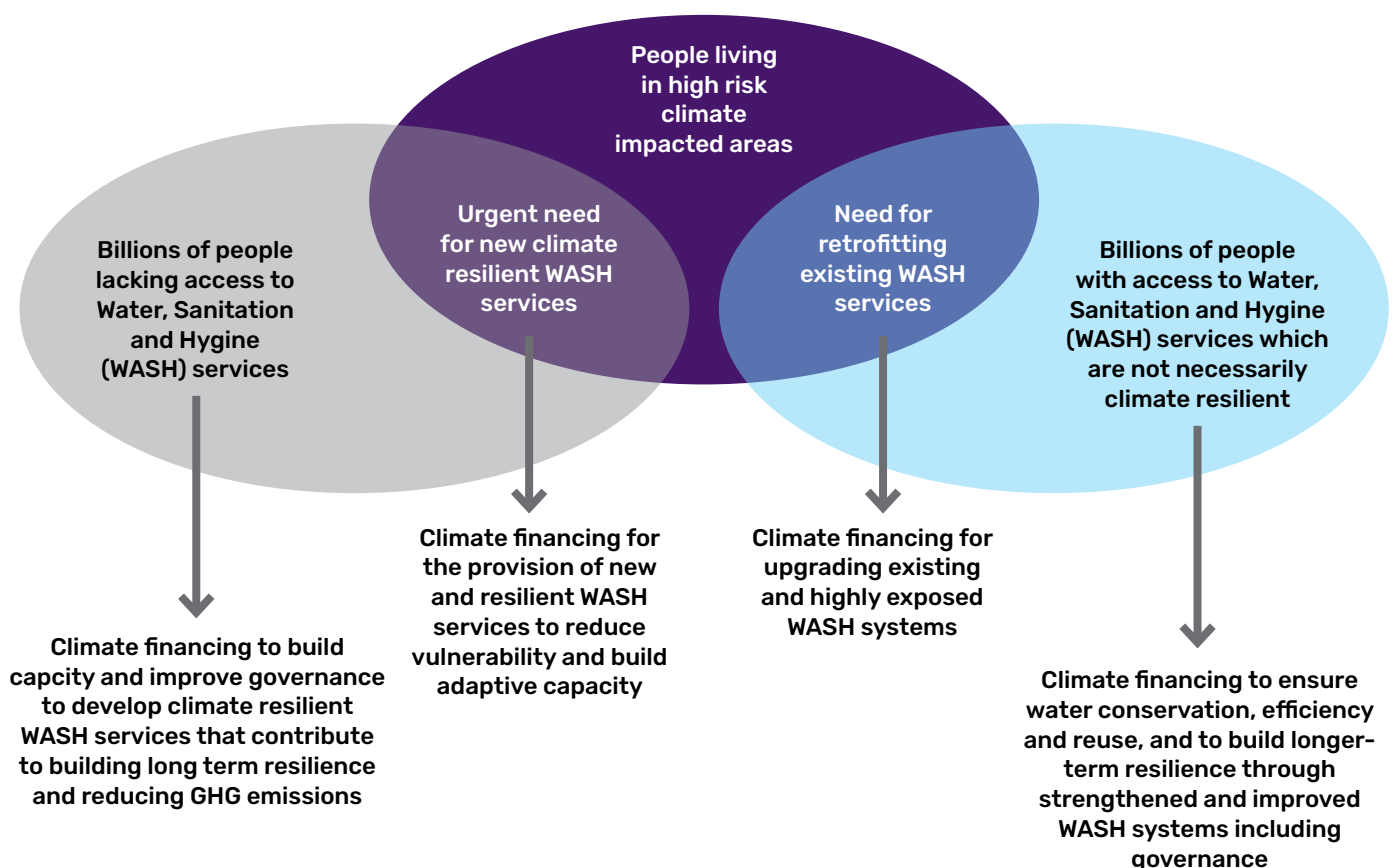
- Blended finance opportunities, where development funding is used to incentivise and co-finance increased private sector investment.
- Increasing awareness of the private sector and multilateral financing institutions on the potential markets for climate resilient services.
- Multilateral Climate Funds (see Box 5.2).
- SDG funds.

An overview of the different climate financing options for WASH projects/interventions is provided in the Technical Brief "Climate Financing for WASH", together with practical information on conditions and criteria, and where to find more information.

5.5 Implementation of programmes/projects

Table 5.1 provides some examples of programmes and projects that seek to increase climate resilience in the WASH sector in the respective countries. These illustrate ways in which funds can be invested and how climate resilience can draw on a broad spectrum of measures, from improvements to WASH infrastructure to measures that build capacity.

Figure 5.2: WASH sector contributions to water security through climate financing ⁵⁵



⁵⁵ This figure was adapted from the Sanitation and Water For All (SWA) partnership as a result of concerted efforts by WASH partners. More information on integrating adaptation and mitigation into WASH collaborative behaviours and building blocks is available in "[Adapting to climate change and fostering a low carbon water and sanitation sector](#)" (SWA 2019)

Table 5.1: Examples of programmes and projects that have increased WASH and community resilience

Location	Project	Funded by	Description
Ethiopia	Remote sensing in drought impacted areas	Government of Ethiopia and UNICEF	<p>In 2016, Ethiopia experienced one of its worst droughts in decades, which dried up thousands of boreholes and revealed the vulnerability of shallow aquifers in many areas across the country.⁵⁶ Remote sensing, which involves scanning the Earth’s surface using satellites, was coupled with hydrogeological and geophysical investigation techniques to identify potential freshwater resources underground.⁵⁷ The first phase of the project combined satellite data with additional sources of topographical data, geological data, and hydrogeological conceptual models in order to develop groundwater suitability maps for nine drought-prone districts to identify the locations of highest potential for detailed studies in a second phase. This phase included stakeholder consultation and geophysical surveying to pinpoint climate resilient borehole drilling sites. The results of this innovative technology in these hydrogeologically complex areas showed a 92 percent drilling success rate, compared with less than 50 percent when using conventional techniques. Comprehensive assessments on the sustainable yield were undertaken to ensure the sustainability of the systems. This success has contributed to the expansion of this technology to other parts of the country (2019) and to other countries in the East Africa region (2021/2022).</p>
Madagascar	Multiple water uses and use of remote sensing	Government of Madagascar, UNICEF, International Fund for Agricultural Development, Food and Agriculture Organization	<p>Multiple Use Water Schemes (MUS) are a potential way to show how low-cost, equitable water supply systems can increase resilience by providing communities with water for both domestic needs and small-scale high-value agricultural production, including livestock rearing.</p> <p>As in the case of Ethiopia, an important component of this approach has been the mapping of aquifers that have the potential to provide reliable amounts of water even during severe droughts, and the assessment of the sustainable yield of those boreholes.</p>

⁵⁶ UNICEF (2017)

⁵⁷ Godfrey and Hailemichael (2016)

Location	Project	Funded by	Description
Madagascar cont...	Multiple water uses and use of remote sensing	Government of Madagascar, UNICEF, International Fund for Agricultural Development, Food and Agriculture Organization	<p>The water points not only provide safe drinking water, but also offer communities better access to fruits and vegetables and some income-generating activities, which contribute to the financial sustainability of the services. The assumption is that communities are more likely to cover operation and maintenance costs and maintain infrastructure if they have multiple benefits. Assessing the sustainable yield of such systems, coupled with groundwater monitoring, is extremely important.</p> <p>The drought that affected the southern part of the island in 2021 showed that MUS systems installed years ago coped better than more conventional single-use infrastructure, validating this service delivery model. The scaling-up of this model was proposed as a plan to benefit the 1.14 million people who were severely water and food insecure as of July 2021.⁵⁸</p>
Pacific Islands	Climate Resilient Water Safety and Security Planning	Governments and UNICEF	<p>Given their small size, unique geography and fragile base of water resources, Pacific Island countries face particular challenges when attempting to provide access to safe and sustainable water and sanitation services. These underlying conditions are further challenged by population growth, urbanisation and changing land-use patterns, as well as increasing demand and competition for water. Climate change poses further risks by increasing the frequency and severity of hazards such as cyclones. Support has been provided to the governments of Fiji and Vanuatu to ensure sustainable access to safe water using a Drinking Water Safety Planning (DWSP) approach. This DWSP approach combines the concepts of water security with the Water Safety Plan (WSP) method developed by the World Health Organization.</p> <p>Based on the experience with the DWSP approach in Vanuatu, the Department of Water Resources, in partnership with external agencies, included this approach in a recently approved climate finance proposal.</p>

58 WFP (2021)

Location	Project	Funded by	Description
India	Hourly drought predictions in India	Government of Maharashtra and UNICEF	<p>In Maharashtra, groundwater is the main source of drinking water in nearly 85 percent of rural areas, with populations depending heavily on boreholes or wells to meet their domestic water needs. However, with more acute droughts and sharp seasonal reductions in water levels, hundreds of thousands of wells have run dry in the past two decades. To mitigate the impact of this, support has been provided to the Government of Maharashtra to improve the processes for predicting droughts and water availability. A model that could predict the probability of droughts occurring in a particular year based on the start date of a monsoon was developed and tested in the Chandrapur district.</p>
Iraq	Water conservation in areas affected by the climate change risk of saline intrusion	Water authority in Basra Governorate and UNICEF	<p>Basra Governorate in the south of Iraq is severely affected by water scarcity. The available freshwater quantities decline as result of saline intrusion of freshwater streams from the Arabian Gulf. A constructed 200km long freshwater canal has been used to transport water (with a flow rate of approximately 5 m³/second) to Basra to be used as an alternative to the Shatt al Arab river when saline intrusion occurs. This quantity of freshwater is insufficient to fulfil the water demands of Basra city due to significant loss as a result of leakage and outdated designs for water treatment facilities. It has been estimated that 45 percent of the water is classified as non-revenue water (10 percent due to leakage from water treatment plants and 35 percent due to leakage from the network). Support has been provided to the government of Basra to eliminate the wastage of freshwater in both water networks and water treatment plants. The new system has been piloted in the conventional water treatment plant in Basra (2,000 m³/hr) and has successfully saved the equivalent volume of water to serve 8,000 new households or improve the existing service. The project will help the community as it adapts to climate change, contribute to mitigation of climate change due to a significant reduction in energy consumption, compared to increasing project capacity by installing a new water treatment plant. It is very cost effective and has reduced capital costs by 40 percent and has lower operation and maintenance costs compared to new projects. The pilot is being extended to two more projects.</p>

6. Monitor and move forward



Key points

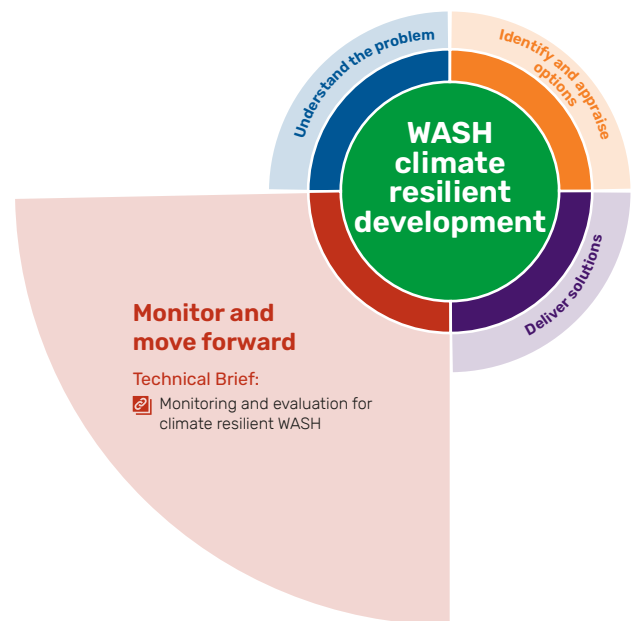
- In the context of scaling-up for climate change mitigation and adaptation and increased resources from climate funds, it is becoming increasingly important to provide evidence that implementation is contributing to an increase in climate resilience and reduced emissions.
- Monitoring in the context of WASH climate resilience requires SMART indicators to assess progress towards specific targets and objectives.
- Shared learning has the potential to speed up and scale-up reliable and affordable responses to address climate risks.

This phase of the Framework covers monitoring and the lessons learned from the implementation of activities to strengthen climate resilience. The main tasks are:

- Review and strengthen monitoring programmes and systems.
- Establish indicators to use in the monitoring process (including indicators specifically to measure the impact on the most vulnerable groups and on gender).
- Disseminate and share lessons on what works well, and what does not.

6.1 Monitoring programmes and systems

Careful monitoring and evaluation of the outcomes of policies, strategies and interventions are vital in all WASH activities to ensure that the prospective benefits of interventions are being realised and to help improve the design and effectiveness of future interventions. In the context of scaled-up financing for climate change adaptation and mitigation, and increased resources from climate funds, it is becoming increasingly important to ensure appropriate key indicators are incorporated into monitoring programmes and to provide evidence that implementation is contributing to an increase in climate



resilience. It is also important to ensure that monitoring on the impact of climate change on WASH services and the lives of the most vulnerable is also monitored and analysed.

Monitoring is an ongoing process and monitoring programmes should be continually reviewed and strengthened. Key questions to consider when reviewing monitoring programmes and systems that respond to WASH climate resilience could include:

- Does monitoring of WASH programme implementation give adequate attention to assessing whether opportunities to increase climate resilience provide tangible benefits?
- Are outcomes related to enhanced climate resilience included in the results-based reporting on WASH achievements?
- Is the monitoring sufficient to make a judgement about the effective use of resources and comparative advantages of climate resilient development?
- To what extent will it be possible to show the improved results and lessons to further influence national WASH and climate development frameworks?

It is important to also identify any challenges that may make it difficult to implement monitoring programmes. Monitoring climate resilience requires specific consideration of certain factors if it is to be effective

(Box 6.1). A number of tools and frameworks are available which can help to address these challenges. Further details on these are given in the [Technical Brief](#).



Box 6.1: Factors to consider in monitoring climate resilience⁵⁹

- Uncertainty about how and when changes in climate will occur and what effects there will be, particularly at a local level.
- Baselines shift and contexts change, meaning that comparison of data before and following the implementation of climate resilient development measures loses its validity.
- There is a lack of generic indicators that can be widely used in monitoring because resilience has to be grounded in the context, scale, sector and nature of the measure, all of which vary.
- Monitoring and evaluation normally look to demonstrate the attribution of changes to a specific measure. However, resilience and the implementation of measures is complex and often multi-sectoral, meaning that a modified approach to monitoring is required.
- Definitions of basic concepts may vary between agencies, while more specialised terms may only be well understood by one particular agency.

6.2 Monitoring indicators in the WASH sector

Indicators are key in monitoring and are used to help measure progress towards specific targets and objectives. Indicators can be either quantitative or qualitative. Unlike quantitative indicators, which give a numeric measure, qualitative indicators depict the status of elements that are less easily quantifiable – for example, the perceived change in the reliability of different springs during a drought event (extracted from the Technical Brief “Monitoring and evaluation for climate resilient WASH”). Indicators include:

- Process indicators, e.g. existence of risk assessments and resilience strategy/action plans based on the assessment results.

- Performance indicators, e.g. appraisal/evaluation for staff, and for implementation of work plans.
- Output/outcome indicators, e.g. risk assessment coverage, WASH coverage, disease prevalence, number of additional people provided with access to safe and climate resilient water and sanitation services given existing and projected climate, vulnerability and risk perception index.

Table 6.1 provides examples of the kind of aspects for which SMART indicators could be developed for different WASH planning and programming levels.

59 Bours et al. (2014)

Table 6.1 Examples of indicators which can be used for the monitoring and evaluation of WASH climate resilience

Level	Examples of indicators
National level	
	Has a stakeholder analysis been undertaken to identify key stakeholders for climate resilient WASH services?
	Have key national climate and WASH policies, strategies and plans (including NDCs and NAPs) been reviewed to identify the extent to which climate risks to WASH services and the most vulnerable have been included?
	Is the WASH sector actively engaged in key national climate discussions?
	Has a climate risk assessment for the WASH sector been undertaken and endorsed by the WASH sector?
	Based on the climate risks identified, have appropriate solutions been identified and prioritised?
	Has the Climate Rationale been developed and endorsed by the WASH sector?
	Are climate risk assessments used to inform policies, plans, strategies and targeting of programmes?
	Are climate risk assessments being used to inform WASH budgets?
	Has a climate finance scanning exercise been undertaken?
	Is there a climate financing strategy for WASH?
	Are there any indicators in national monitoring systems to capture the access to climate resilient services?
	Is there a functional Early Warning System for water resources?
	Are cross-sectoral influences and actions (e.g. WASH, water resources management and health promotion and disease prevention) identified and taken into consideration as a mechanism to increase climate resilience?
	What is the level of coordination between the WASH, climate, food security, agriculture, environment, education and health sectors on climate related discussions?
	Have capacity building materials been developed and implemented training on key aspects of climate resilience for key WASH stakeholders?
Sub-national level	
	Are climate-resilience standards in place for the construction/installation of latrines and other sanitation infrastructure?
	Are climate-resilience standards in place for the construction/installation of water points?
	Do water allocation plans take into account sanitation and hygiene needs?
	Has capacity building been delivered at sub-national level to key WASH stakeholders?

Local/project level

Percentage of population with access to a climate resilient water service

Percentage of population with access to a climate resilient sanitation service

Percentage of water systems that use renewable energy as their main source of water

Percentage of water services with contingency plans in place for climate-related WASH emergencies

Percentage of population whose water service has been impacted by climate change or an extreme event in the last 12 months

Percentage of population whose sanitation service has been impacted by climate change or an extreme event in the last 12 months

Percentage of schools whose water service has been impacted by climate change or an extreme event in the last 12 months

Percentage of healthcare facilities whose sanitation service has been impacted by climate change or an extreme event in the last 12 months

6.3 Review experiences and share lessons learned

Joint learning among all categories of stakeholders has the potential to speed up and scale-up reliable and affordable solutions and responses to climate risks.

Sharing lessons among relevant stakeholder groups and forming learning alliances facilitates progress in the implementation of measures.⁶⁰ This may include groups at the community and local level, or those at the regional, national, and international levels to share in-country experiences. Documenting these findings and producing and disseminating 'good practice' guidance will be useful for the WASH sector and beyond.

60 WHO and IWA (2010)

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UNICEF

3 United Nations Plaza
New York, NY
United States
www.unicef.org

Global Water Partnership

Global Secretariat
PO Box 24177, SE-104 51 Stockholm
Sweden
www.gwp.org, www.gwptoolbox.org