Programme guidance for climate resilient WASH

October 2021

WaterAid

Contents

1 Introduction

The purpose of this document is to guide people working for WaterAid and WaterAid's partner organisations on how to urgently embed climate resilience across all of WaterAid's programme work and address the need for climate resilience. This is the first comprehensive programmatic guidance on climate resilience produced by WaterAid and it builds on practical experiences in many countries.

What this document covers:

- Provides an overview of the links between climate resilience and WASH (water, sanitation and hygiene).

- Outlines WaterAid's aims, objectives, principles, standards and minimum commitments for its climate resilient WASH work.

- Provides resources that can be used together with WaterAid's existing planning, monitoring, evaluation and reporting (PMER) core procedures to design a climate resilient WASH project.

- Provides examples of climate resilient WASH activities in different countries that can be used to inform project and programme design in similar contexts.

What this document does not cover:

- This document does not cover WaterAid's core process for project design. This is set out in WaterAid UK's PMER Core Procedures and supplementary PMER guidance and WaterAid Australia's guide to support planning, monitoring, evaluation and learning. Information in this document should be used together with these existing resources/standards.

It will be necessary for WaterAid to use systems thinking, apply system strengthening and maintain high standards in its core work areas to implement many of the actions in this guidance. Implementation of this guidance requires a strong knowledge of WASH, water resources and strategies linked to improvement of WASH sustainability such as participation, empowerment, behaviour change, advocacy, public and private sector strengthening, financing and service management models.

This guidance deals with the topic of climate resilient WASH. However, climate change is not acting alone. It often combines with existing hazards and vulnerabilities to impact on people's overall level of resilience. For example, social exclusion, inequalities, poor governance, rising demand for water, ecosystem destruction, poor urban planning, poverty and pollution all have detrimental impacts on people's WASH access and reduce society's ability to withstand the difficulties that climate change brings. Looking at climate risks alone, without focusing responses on addressing hazards and vulnerabilities that exacerbate climate risk, could lead to the development of irrelevant, low impact and even harmful solutions. Actions taken to strengthen WASH systems and improve the sustainability of WASH contribute towards increasing the extent to which WASH (and thereby people) are climate resilient. This guidance should be used alongside the set of other WaterAid frameworks and standards (see Annex A).

Many hazards and vulnerabilities lie outside the domain of WaterAid's expertise and mandate. It is therefore necessary to collaborate, coordinate and partner with actors from other sectors who are better placed to address them.

2 Links between climate change and WASH

This section explains how climate change impacts on WASH and how WASH builds resilience to climate change.

2.1 Climate change impacts on WASH

WaterAid's mission is to transform the lives of the poorest and most marginalised people by improving access to safe water, sanitation and hygiene. WaterAid's work is focused on sanitation, hygiene and water for basic needs in households, communities and institutions. Climate change leads to changes in the water cycle that can impact on WaterAid's mission.

The countries where WaterAid works already experience high levels of climate variability. Climate change amplifies existing variability, bringing greater uncertainty. Overall, climate change results in the following hazards:

1) Rising global temperatures

2) Increased frequency and intensity of extreme weather events such as floods and cyclones

3) Greater rainfall uncertainty and drought

4) Sea level rise

Hazards can be rapid onset events such as floods and cyclones or slow onset events such as prolonged drought, increased groundwater salinity and glacial melt. These hazards affect everyone in society but vulnerabilities affect the extent to which people are exposed to and impacted by climate change hazards.

Hazards impact differently on men and women and on groups facing marginalisation. For example, groups and individuals with less power (political, economic, social, household) are likely to experience climate impacts most severely, as existing inequalities, gendered roles and responsibilities, social and political discrimination or power imbalances will increase vulnerability.

▶ Fatimata Coulibaly, 29, a member of the Benkadi women's group who is in charge of water monitoring and management, Kakounouso, Samabogo, Circle of Bla, Segou Region, Mali, February 2019.

WaterAid/Basile Ouedraog

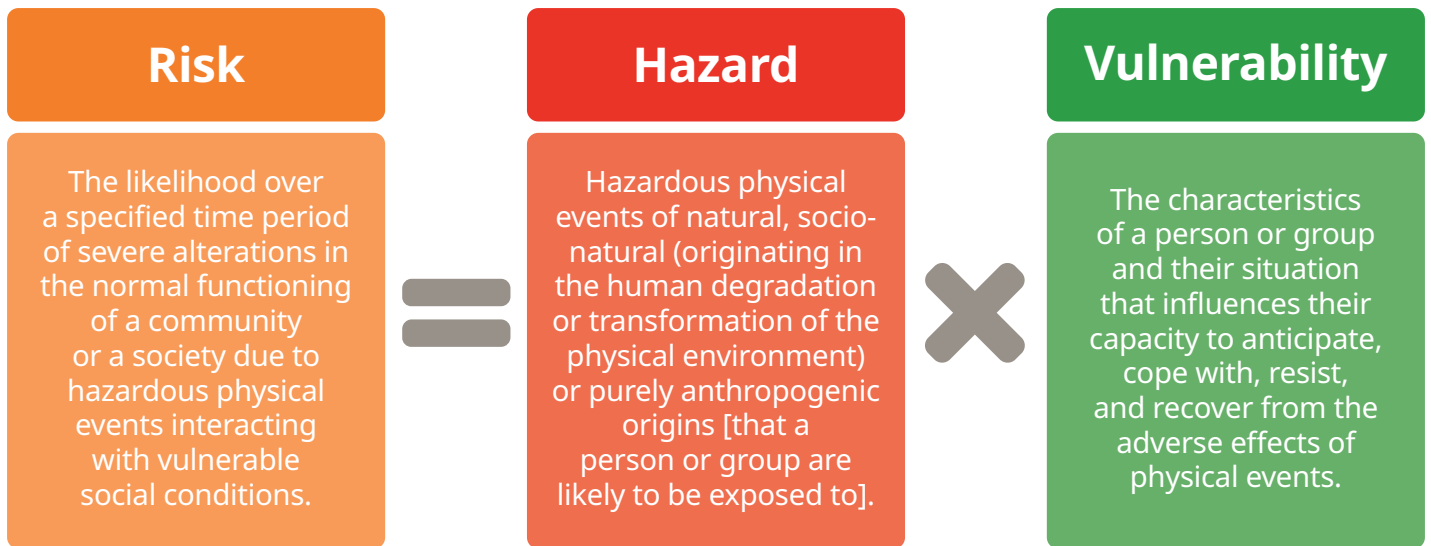**Climate risk is a function of identified hazards and how vulnerable people are to these hazards. As such:**

Risk		Hazard		Vulnerability
The likelihood over a specified time period of severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions.	=	Hazardous physical events of natural, socio-natural (originating in the human degradation or transformation of the physical environment) or purely anthropogenic origins [that a person or group are likely to be exposed to].	×	The characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of physical events.

Figure 1: Risk definition adapted from the Intergovernmental Panel on Climate Change (IPCC)[1]

Climate change is happening in an era of increased demand for water, environmental degradation, demographic change and pollution. It is therefore difficult to attribute and accurately predict the extent and nature of climate change-related hazards and associated impacts on water, sanitation and hygiene in different locations and for different people.
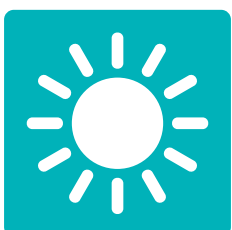
In general terms, the following changes and impacts are possible:

1 **Reduced water availability and increased concentration of contaminants** in shrinking surface and groundwater bodies. Drought can be a driver of migration and increase pressure on already poorly functioning services in cities, small towns and rural areas. Droughts affect hygiene behaviours and the functioning of sanitation systems as water is less available for handwashing and flushing.

2 **Increased rainfall, flooding and cyclones** damage water supply and sanitation infrastructure. Flooded sewerage systems contaminate water bodies and the environment (as flood waters flush pathogens and pollutants from sewers, latrine pits and places used for open defecation into water supplies, and overwhelm treatment facilities), posing a serious challenge to public health and placing greater pressure on healthcare systems.

3 **Climate change-induced sea level rise** contributes towards increasing salinity of coastal water resources, rendering groundwater and surface water unusable. Salinity can also destroy sanitation systems such as septic tanks and treatment plants.

2.2 WASH builds resilience to climate change

People who are most vulnerable to the impacts of climate change need access to climate resilient, inclusive, sustainable WASH. Water, sanitation and hygiene services and behaviours reduce the overall disease burden thus enabling people to better withstand the difficulties that climate change brings.

Safely managed sanitation and improved hygiene reduce the risk of water supply and environmental contamination in times of flooding and further mitigate risks of knock-on health crises thus reducing pressure on healthcare systems.

Water supply services increase the amount of clean water people have in times of scarcity. Increased water storage provides a critical buffer, delivering water when and where it is needed. WASH should therefore form a central part of any climate change adaptation strategy.

WaterAid/Michael Bailey

▲ Water storage tower with solar panels to power extraction pump, in Kafin Iya ward, Kirfi local government area, Bauchi state, Nigeria, September 2019.

WaterAid/Basile Ouedraogo

◀ A water monitor testing a new rain gauge in her village in the commune of Tenkodogo, in the Centre-East region, Burkina Faso, June 2019.

Definition, aims, objectives, principles, standards and minimum commitments

This section defines what we mean by climate resilient WASH and presents aims, objectives, principles, standards and minimum commitments guiding our work on climate change.

3.1 Definition of climate resilient WASH

WaterAid's working definition of climate resilient WASH is informed by our programmatic experiences. The definition is as follows:

> **Climate resilient WASH refers to WASH services and behaviours that continue to deliver benefits, or that are appropriately restored, within a changing climate context and despite climate induced hazards. Robust, sustainable WASH systems can improve resilience to climate change.**

WASH systems are made up of 'all the actors (people and institutions), factors (social, economic, political, environmental, technological) and the interactions between them that influence the achievement of inclusive, sustainable, universal access to WASH'.[2] One way to think about resilience is to ask the question "resilience of what, to what?" In terms of WaterAid's mission, we are talking about resilience of:

- People facing poverty and marginalisation
- WASH services and behaviours

to:

- Rapid onset climate-related hazards
- Slow onset, long-term climate-related hazards

▼ A hybrid powered water supply scheme in Buriya Kebele, Gololcha District, Ethiopia. August 2021.

WaterAid/Frehiwot Gabrewold

3.2 Aims

WaterAid aims to mainstream climate resilient WASH into all of its programmes by 2025.

We are not aiming for all WASH infrastructure to be climate invincible.

This is not realistic. Nor are we aiming to focus only on infrastructure and technological solutions. We are however aiming to strengthen the environment that enables WASH services and behaviours to be renewed appropriately after shock events or adapted to accommodate slow onset changes. This ensures ongoing assistance is available from local institutions to help people bounce back quickly and build resilience to slower onset hazards.

3.3 Objectives

WaterAid has three objectives for its work on climate resilient WASH.

1 To help improve the resilience of people facing poverty and marginalisation to climate change by enabling access to climate resilient WASH.

2 To ensure WASH services and behaviours are resilient to climate change.

WaterAid recognises that shifting to lower carbon options where feasible can help to mitigate climate change so we also have the following third objective:
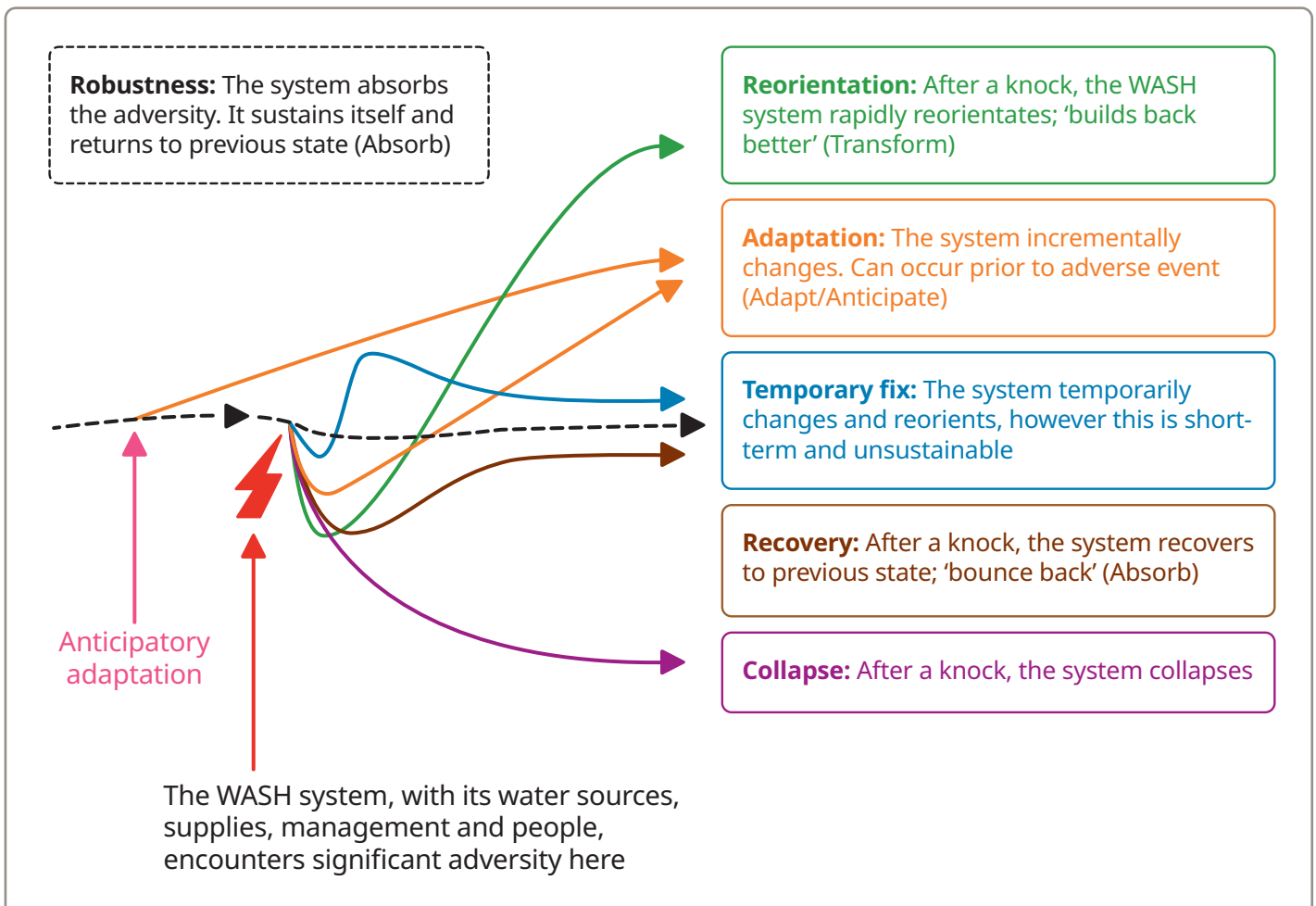
3 To move to low carbon/greenhouse gas (GHG) service options where feasible and without compromising public health outcomes.

In relation to Objectives 1 and 2, there are different ways in which WASH systems can respond to climate shocks and changes, shown in Figure 2.

Responses are influenced by the approaches communities, governments and development actors like WaterAid take before and after shocks and changes.

In most situations, WaterAid opts for pragmatic, relevant, no regrets 'adaptation', however there may be times when there are opportunities for 'reorientation' and when a temporary solution ('band aid') is necessary, such as during a humanitarian crisis.

Figure 2: Six responses to climate shocks and changes[3]

Robustness: The system absorbs the adversity. It sustains itself and returns to previous state (Absorb)

Reorientation: After a knock, the WASH system rapidly reorientates; 'builds back better' (Transform)

Adaptation: The system incrementally changes. Can occur prior to adverse event (Adapt/Anticipate)

Temporary fix: The system temporarily changes and reorients, however this is short-term and unsustainable

Recovery: After a knock, the system recovers to previous state; 'bounce back' (Absorb)

Collapse: After a knock, the system collapses

Anticipatory adaptation

The WASH system, with its water sources, supplies, management and people, encounters significant adversity here

3.4 Principles

WaterAid's work on climate resilience is guided by eight **principles for locally-led adaptation (LLA)** (in Annex B). The principles have been endorsed by a number of agencies including WaterAid.[4] They recognise that, given the wide variability of climate change impacts across different geographies and differences in WASH enabling environments, local stakeholders are best placed to understand the threats posed by climate change.

LLA therefore places emphasis on empowering local stakeholders to have a strong voice in the design of appropriate adaptation strategies. Relevant LLA principles are referenced at appropriate stages in this document.

Figure 3: Minimum commitments for climate resilient WASH programming
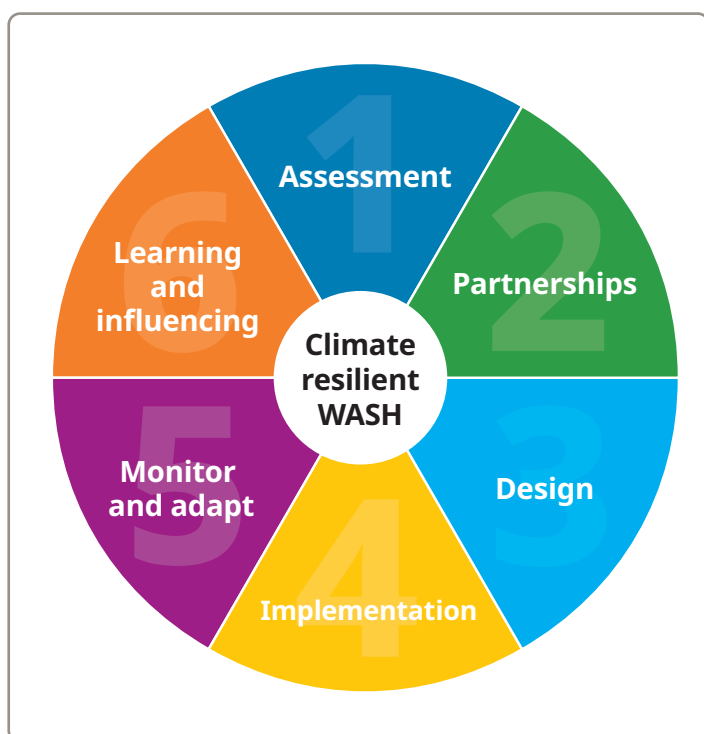
3.5 WaterAid Standards

Our work on climate resilient WASH is guided by our Quality Programme Standards (QPS).[5]

Depending on location, projects are designed and implemented using either:

- WaterAid UK's PMER core procedures.[6]

Or

- WaterAid Australia's *A guide to support planning, monitoring, evaluation and learning*.[7]

3.6 Minimum commitments

The following minimum commitments set a benchmark for our climate resilient WASH work.

1. **Assessment:** Our climate resilient WASH work will be informed by context-specific participatory assessments of hazards, vulnerabilities and barriers within WASH systems that impact on water security,[i] sanitation and hygiene.

2. **Partnerships:** We will collaborate with relevant partners to achieve climate resilient WASH. Where hazards and vulnerabilities exist outside the domain of WASH sector influence (for example, catchment degradation) we will partner with relevant actors who are well placed to address these issues. This avoids mission creep.

3. **Design:** WASH interventions will be centred around addressing inequalities in WASH access and barriers in WASH systems using evidence to improve water security and climate change resilience.

4. **Implementation:** We will implement climate resilient WASH interventions to the highest standard, ensuring sustainability, scale and equity.

5. **Monitor and adapt:** We will monitor the results of our work and adapt accordingly.

6. **Learning and influencing:** We will use learning from our work to inform thought leadership and influence change.

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i. WaterAid defines water security in the context of a WASH intervention as: Reliable access to water of sufficient quantity 'and quality for basic human needs, small-scale livelihoods and local ecosystem services', coupled 'with a well-managed risk of water-related disasters'.

4 Designing and implementing a climate resilient WASH project/programme

This section outlines activities that can be considered additional to standard WASH projects/programmes. These additional activities can be factored into WaterAid's existing guidance for project/programme design to build and implement a climate resilient WASH project/programme.

4.1 Factoring climate risk into situational analysis and existing projects

Relevant locally-led adaptation principle(s)

- Building a robust understanding of climate risk and uncertainty.

▼ Kahumuza Stewart and Baguma Robert, handpump mechanics, repairing the Rukondwa Primary School borehole, Masindi district, November 2020.

Integration of climate risk analysis into programmes or projects involves the following two steps:

1. Participatory assessment of hazards and vulnerabilities that impact on exposure to climate risk (see examples opposite).

2. Participatory assessment of the strength of the WASH system using WaterAid's system strengthening toolkit[8] and in particular, the WASH system building block tool which applies a climate lens.[9]

WaterAid and partners should integrate climate risk and climate change projections into hazard and vulnerability analysis. In some countries, research and hazard/vulnerability analyses have already been undertaken by other actors and using these studies can be a good starting point.

It is essential to explore elements of gender and social inclusion when undertaking these assessments. Climate change impacts differently on men and women and on marginalised groups. WaterAid should seek to understand and mitigate these different vulnerabilities and impacts through involving these groups in the assessments and action planning.

Examples of participatory assessment of hazards and vulnerabilities

Country teams engaged in the design of climate resilient WASH programmes have used a multi-sectoral approach to undertake hazard and vulnerability assessments, looking beyond WASH to impacts on other sectors. This ensures a better understanding of how climate hazards

and vulnerabilities impact on communities as a whole. The process also generates useful information that supports production of consolidated area-wide development plans and collective action efforts.

WaterAid Bangladesh have produced and used the following resources for participatory assessment of hazards and vulnerabilities:

- **Vulnerability mapping:** Identifies the most vulnerable communities in an area and where services that could improve resilience are currently allocated.
- **Household survey:** Collects demographic and socio-economic data.
- **Focus group discussions:** Used to understand community perceptions about climate hazards and risk; including the importance communities assign to different climate-related problems and solutions.
- **Seasonal calendar:** Identifies which climate events occur at different points in the year and their impacts on different sectors.
- **Institutional mapping:** Lists institutions and their accountabilities and explores how communities can engage with service providers and government for service improvements.

Country teams in West Africa have developed and used similar resources for assessment of hazards/threats and vulnerabilities which are all captured in WaterAid's water security toolkit.[10] It provides resources to help:

- Decide if communities will benefit from efforts aimed at strengthening water security.
- Achieve the support and engagement of national and local government officials.
- Support communities to identify and understand vulnerabilities to water-related threats.
- Support communities to monitor water-related threats.
- Support communities to develop resilience strategies that mitigate water-related threats.

WaterAid India uses similar assessments as part of implementing community level platforms called Jal Chaupal.[ii,11] The assessments include the following components:

- **Participatory risk assessment:** To understand how climate change and extreme weather events are impacting agricultural output and access to water, to identify and rank hazards, and to discuss potential mitigation action plans.
- **Gendered needs assessment:** To consider and address the varying needs of both men and women relating to water resources and to increase women's participation in water resource-related decision making.
- **Collective assessment of the water budget:** To estimate the availability of water from different water sources (groundwater, surface water and rainwater) and plan for its use in line with priorities identified by the community.
- **Development of people-centric water security plans:** To ensure reliable access to water of sufficient quantity and quality for basic human needs, small-scale livelihoods and local ecosystem services, coupled with well-managed risk of water-related disasters.

WaterAid Timor-Leste, together with the Institute for Sustainable Futures have developed guidance for a participatory process to assess how climate change affects water service, gender and inclusion outcomes.[12] This includes:

- **Community mapping:** To identify climate risks and the way they impact different on women and men.
- **WASH and gender assessment:** To understand the different ways women and men are involved in WASH decision-making (under different climate change scenarios).
- **Resource mapping:** To consider resources available in the community that can be used to address climate change impacts.
- **Action planning:** Participatory identification of actions the community can take to address climate impacts on WASH. These may include the addition of new community-level regulations for management and use of water.

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ii.   Jal Chaupals are a community level platform for water budgeting and groundwater assessment. Through the platform, communities, activists, government officials, researchers and civil society groups can collectively reach solutions to water problems. Read more here: washmatters.wateraid.org/blog/community-led-solutions-are-key-to-tackling-climate-change-in-india

The WASH sector is more accustomed to analysing risks related to water supply. For sanitation, consider aspects such as settlements on hazard prone land, wastewater treatment plants that are frequently flooded; coastal communities affected by storm surges; historical climate-related hazardous events, for example, overflowing pit latrines; people reverting to open defecation due to repeated storm damage to latrines; increased wastewater flow resulting from rural-urban migration, a phenomenon exacerbated by climate impacts in complex and poorly understood ways.[13]

Comprehensive guidance on conducting a vulnerability assessment is available in the *Strategic Framework on WASH Climate Resilient Development*[14] and the accompanying *Guidance Note on Risk Assessments for WASH*[15] published by UNICEF and the Global Water Partnership.

Further resources include:

- WHO (2019). *Discussion Paper: Climate, Sanitation and Health for guidance on how to build climate considerations into sanitation safety planning*.[16]

- WHO (2017). *Climate resilient water safety plans: Managing health risks associated with climate variability and change*.[17]

4.2 Strengthening WASH systems for climate resilience

Achievement of the Sustainable Development Goal 6 is dependent on there being a strong WASH system. WASH systems, made up of actors, factors and interactions between them, ultimately need to respond to the impacts of climate change. Weaknesses or barriers will undermine a system's ability to cope with climate change.

For example, if there are limited funds available for the major maintenance of water supply services, breakdowns result in long periods of downtime leaving people exposed to climate hazards such as drought. Strengthening the WASH system is therefore essential for WASH to be climate resilient.

Figure 4: Components of the WASH system
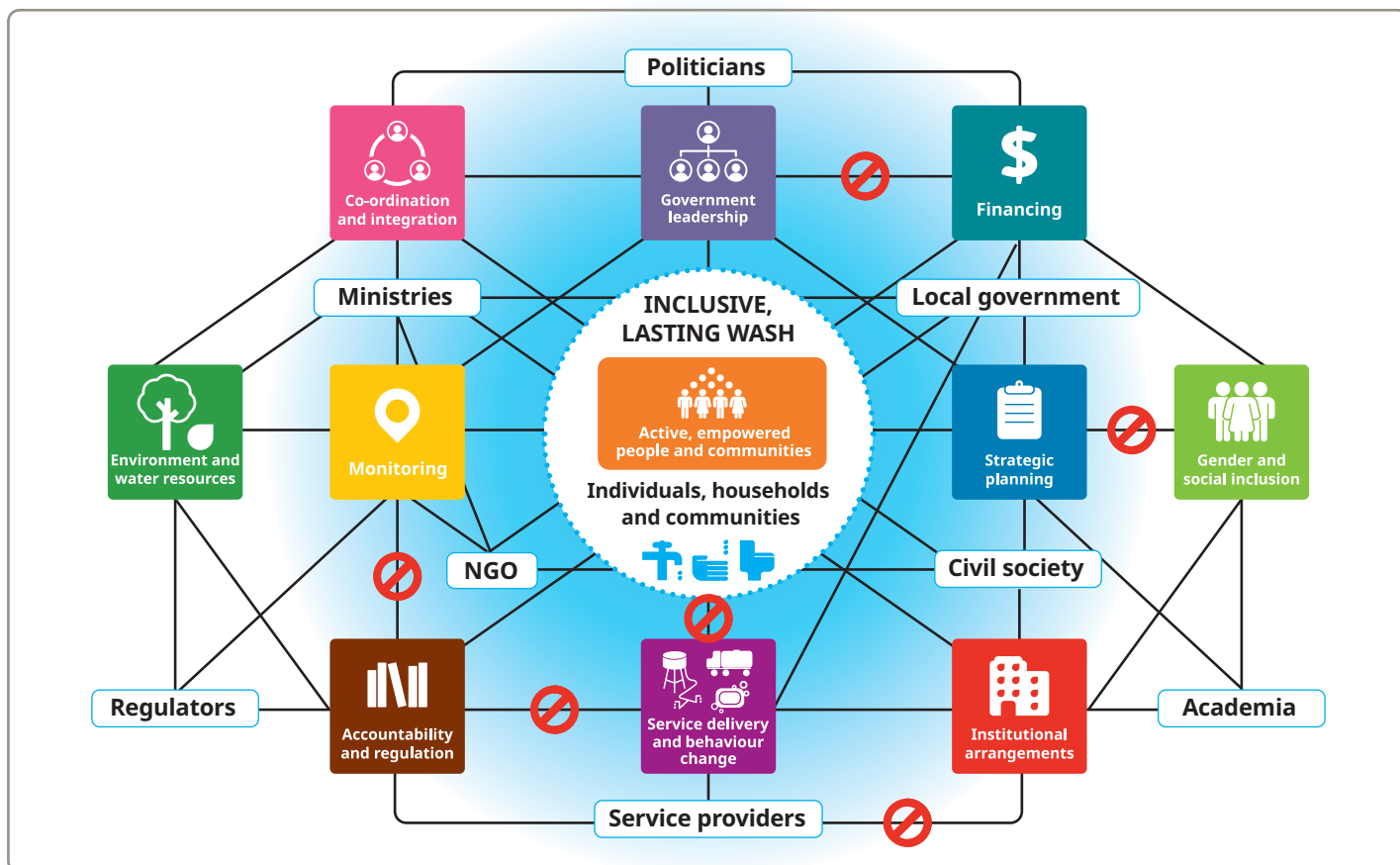
System strengthening is a process of analysis, implementation, adaptation and learning used to address the barriers to achievement of inclusive, sustainable, universal access to WASH.

Figure 4 represents the WaterAid's conceptualization of a WASH system. It is made up of all the actors (people and institutions), factors (social, economic, political, environmental, technological) and the interactions between them that influence the achievement of inclusive, sustainable, universal access to WASH.[2]

WASH system actors are presented in the diagram above in the white text boxes with blue border. WASH system factors are presented by the colourful icons and are sometimes referred to as 'building blocks'. Interactions are illustrated by the black lines between the actors and factors. Red no-entry signs illustrate some of the potential blockages within a WASH system. Actors, factors, interactions and system blockages will vary from context to context.

The following are examples of what WaterAid might do to strengthen the WASH system for climate resilience in a given context:

- Advocating for WASH plans and strategies to be informed by assessment of climate risk and vulnerability.
- Advocating for the integration of WASH into environmental and climate change-related policies and strategies e.g. National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs).
- Supporting local authorities and service providers to understand and budget for any additional costs associated with climate adaptation.
- Supporting national and sub-national government to collect, analyse, manage and use WASH and climate risk data in decision-making.
- Empowering underserved communities to call for improvements in their WASH access as a means of building resilience to climate change.

For a full list of different activities that might be relevant for analysing and strengthening WASH systems for climate resilience, please refer to the system strengthening and empowerment project design toolkit.[9]

4.3 Ensuring WASH services and behaviours are resilient to climate change

This section sets out some examples of how WaterAid can work to strengthen the climate resilience of WASH services.

Integration of WASH and Water Resource Management

- Improves household and community water security by combining WASH service delivery with principles and practices associated with Integrated Water Resources Management (IWRM).
- Water resource management is applied to address issues of competition and conflict between different water users and address issues of equity and inclusion.
- It also aims to strengthen the link between communities and government institutions and ensure support is available to resolve disputes and leverage investment in service improvements.
- The process takes account of threats posed by agricultural water use and climate change, promotes longitudinal monitoring of water resources and encourages dialogue between different water users.

More redundancy, contingency and durability can be built into service provision to increase service reliability:

- **More boreholes (back up supplies):** Groundwater is generally more resilient to climatic change than surface sources. More boreholes provide more water in times of scarcity (provided there is sufficient groundwater available).
- **More storage (reservoirs, tanks, rainwater harvesting):** Storage acts as a buffer providing water when and where it is needed. Greater storage can be factored into piped schemes and can be increased at household level.
- **Managed aquifer recharge:** Particularly in Asia. Activities that enhance groundwater recharge make use of the natural storage offered by aquifers. It is important to assess whether managed aquifer recharge will add value in different hydrological settings.

- **Contingency measures:** Local government and service providers need plans and finances in place to renew services and behaviours after shock events.
- **Safely managed sanitation:** Increased pit emptying and safe disposal of faecal waste, particularly before the rainy season, can mitigate the risk of water supply contamination during flood events. Increased capacity of wastewater treatment facilities can reduce risk of them becoming overwhelmed.

Increased oversight over the quality of implementation

- Involves ensuring adequate supervision of drillers and contractors engaged in service implementation.
- Especially important for ensuring boreholes are sited, drilled and installed in a way that can accommodate prevailing fluctuations in groundwater availability.
- Important for ensuring structures can withstand prevailing conditions.

4.4 Moving to low carbon WASH options where feasible and sustainable

The third objective of WaterAid's work on climate resilient WASH is to move to low carbon/GHG technologies where feasible and sustainable. This objective represents WaterAid's contribution to mitigation.

The emphasis of WaterAid's efforts is on adaptation, so projects should not focus solely on mitigation. However, where they are sustainable, appropriate and cost effective, low carbon and low GHG technologies will be used. Some examples include shifting from diesel pumping to solar pumping where feasible and sustainable, and deploying sanitation options that reduce the emission of greenhouse gases, again where feasible and sustainable. The primary objective of any programme that involves moving to low carbon options should still be to increase WASH access in a climate resilient way.

4.5 Partnership

Relevant LLA principles (Annex B)

- Investing in local capabilities to leave an institutional legacy.
- Collaborative action and investment.

Many hazards and vulnerabilities that impact on resilience to climate change lie outside the capacity of WASH sector actors to address. Partnership and collaboration with actors who can effect change in the domains of agriculture, sustainable livelihoods, environment and urban planning are necessary. This requires WaterAid to work as part of multi-disciplinary consortia with partners focused on these broader issues.

Relevant partnerships should be formed following an assessment of context and stakeholders.

This requires careful analysis of which partners to work with on climate resilient WASH to achieve your objectives, and should be informed by the assessment steps (outlined in section 3.6) and use the resources outlined in:

- Step 3 of WaterAid UK's PMER *How To Guide: Project Design Process*.[6]

Or

- Component 4 of WaterAid Australia's *A guide to support planning, monitoring, evaluation and learning*.[7]

In many instances, this mapping will rightly identify local government as the institution accountable for climate resilient WASH. It is important also to consider customary and community-based institutions which play vital roles as stewards of natural resources, and academic institutions who we can work with on research to fill knowledge gaps on climate change impacts and responses.

4.6 Ongoing monitoring of climate risk

Monitoring of rainfall, groundwater levels, surface flows, water abstraction, and water quality is important because it provides an indication of emerging threats to water resources. It helps to identify what might be driving water insecurity and can help to identify long-term trends. Without ongoing monitoring of these parameters, it is not possible to understand if water shortages or contamination will become a reality or if associated problems will arise.

Section 3 of the Water Security Toolkit[10] sets out how to initiate water resource monitoring at community level. Data can be fed up to local government and national levels, helping to build a national picture of climate risk.

4.7 The role of advocacy

Advocacy is a key component of our work to achieve climate resilient WASH and is being implemented through WaterAid's Global Water and Climate Campaign. The objective of the global campaign is to raise awareness among the public and decision-makers of the links between climate change and WASH. This will help us influence:

- National climate plans and acts (national decisions about what type of climate action to prioritise).
- Allocation of climate finance (decisions at national, regional and global levels about what climate finance should be spent on).

At the global level, we have produced the report *Turn the tide: The state of the world's water 2021*,[18] which includes advocacy asks for donors and national governments, calling for:

- Increased focus on adaptation and water risk
- Locally-led adaptation
- International climate finance

Other advocacy resources can be found on the Water and Climate SharePoint site.[iii]

4.8 Examples of climate resilient WASH programme work

WaterAid has a growing body of experience of implementing climate resilient WASH programming in various climate contexts, captured in Table 1. These examples:

a) Demonstrate the range of solutions that exist.

b) Demonstrate that context determines what is appropriate to do.

c) Highlight that WaterAid has a breadth of experience on these topics that can be drawn upon as new climate resilient projects/programmes are prepared.

d) Inform WaterAid staff which country teams to connect with for peer learning to inform future programming in different climate contexts.

▼ Shimla's family own a climate resilient toilet that has a high platform to avoid rising tide waters. Trimohoni, Dacop, Khulna, Bangladesh. August 2020.

WaterAid/DRIK/Habibul Haque

Table 1: Examples of WaterAid's climate resilient WASH programming

Context: Slow onset hazards (for example droughts, groundwater salinity)		
Minimum commitment	**WASH system building block**	**Examples of activities that WaterAid supports to increase climate resilience**
Assessment	Environment and water resources	Collective assessment of water demand (household and agriculture), seasonal water availability and threats to water security, incorporating gender aspects which highlight the role of women in water management. Assessments also involve understanding vulnerabilities which make people more exposed to identified threats. These assessments are carried out through the Jal Chaupal initiative which involves citizens, experts, practitioners and academics working on water issues. **India** Participatory assessment of threats to water security involving water users (households, women's groups, farmers, local artisans) and local government followed by steps to improve service levels and the rules governing water use in times of scarcity. **Burkina Faso** Large-scale hydrogeological assessment to identify areas where groundwater is under threat and where further development for climate resilience is possible. **India** Extensive hydrogeological investigation to ensure best use is made of groundwater by well-designed, well-constructed boreholes, for example in **Zambia**.
	Gender and social inclusion	Community-based vulnerability assessment emphasising issues of gender and social inclusion. **Ethiopia**
	Institutional arrangements and capacity	Assessment of institutional and governance arrangements to inform targeted advocacy aimed at safeguarding groundwater. **India**
Implementation	Policy, strategy and planning	Development of district wide plan. The plan sets out financial resources needed to extend WASH coverage for greater climate resilience. **Ghana** Working with federal and provincial stakeholders to strengthen legal frameworks for improved groundwater governance. **Pakistan**

Context: Slow onset hazards (for example droughts, groundwater salinity)		
Minimum commitment	**WASH system building block**	**Examples of activities that WaterAid supports to increase climate resilience**
Implementation *(continued)*	Service delivery and behavior change	Working in schools and communities to increase water availability through rainwater harvesting. **Mozambique**
		Piping water from non-saline areas to villages where groundwater is saline. Groundwater salinity is not driven by climate change in this instance but bringing non-saline water to villages improves water security. **Pakistan**
		Construction of elevated rainwater catchment ponds coupled with slow sand filtration provides a source of clean water in areas affected by groundwater salinity and flooding. **Bangladesh**
		Promotion of household rainwater harvesting in areas affected by groundwater salinity. **Bangladesh**
	Monitoring	Supporting national rural water supply management information systems to include indicators on reliability and yield. **Papua New Guinea, Myanmar**
		Supporting national government to pilot use of sensors for groundwater monitoring. **Eswatini, Mali**
		Strengthening local level monitoring of groundwater with communities, local government and regional government. Information is used to inform risk-based planning and acts as an early warning of pending water shortages. **West Africa**
		Supporting community monitoring of rainfall and groundwater levels feeding into risk-based planning. **Timor Leste**
Learning and influencing	Policy, strategy and planning	In collaboration with the Zambia Climate Change Network, provided input into the review of the National Adaptation Plan (NAP) and Climate Change Bill to ensure the inclusion of WASH. **Zambia**
		Unlocking the Potential of Groundwater for the Rural Poor (UPGro)[19] a multi-organisation, multi-disciplinary research programme informing sustainable development of groundwater. This research is used to advocate for improvements to water supply sustainability which ultimately build climate resilience. **Africa**
	Coordination and integration	Integration of WASH interventions with water resource management provides a structure for identifying and monitoring water-related threats, carrying out risk-based planning and threat mitigation. These efforts build stronger linkages between communities, local government and regional support authorities. **West Africa**

Context: Rapid onset hazards (for example floods, cyclones)		
Minimum commitment	**WASH system building block**	**Examples of activities that WaterAid supports to increase climate resilience**
Assessment	Environment and water resources Gender and social inclusion	Participatory vulnerability assessment with communities and local government. **Bangladesh**
Implementation	Policy, strategy and planning	Local risk management training and disaster preparedness planning – supporting utilities to prepare for once in five- to 500-year events (including droughts). **Bangladesh**
	Service delivery and behaviour change models	Investing in climate resilient, inclusive WASH facilities in schools. Schools are often used as shelters during disasters. **Bangladesh** Emptying latrine pits and tanks and clearing drains ahead of flood/cyclone season. **Bangladesh** Promoting climate resilient sanitation facilities at household and local government level. **Madagascar**
Learning and influencing	Service delivery and behavior change	Advocacy for adaptation of government subsidised sanitation facilities in flood-prone areas. This advocacy also encourages consideration of flood risk and seasonal water table fluctuations in siting of future government subsidised sanitation facilities. **India**

Building WaterAid's capacity on climate resilient WASH

The examples of WaterAid's climate resilient WASH programming used throughout this document illustrate the extent of WaterAid's experience and expertise in this area. WaterAid teams are encouraged to reach out to other teams for technical advice and peer support.

Specialist technical advice related to climate resilient WASH can also be accessed through:

● The WaterAid Regional Learning Centre for Water Resource Management (RLC-WRM) in West Africa.

● The Programme Support Unit in WaterAid UK and the Programme Effectiveness Team in WaterAid Australia.

● The Global Policy and Campaigns Department in WaterAid UK.

There is a growing pool of professionals with expertise and experience working on climate-related issues in other areas of human development. Given the inter-sectoral nature of many of the approaches to climate resilient WASH and the range of contexts within which WaterAid works, country teams are encouraged to:

● Bring in climate resilient WASH expertise as and when short and long-term positions open up. This is a proven way to quickly increase expertise on climate resilient WASH in WaterAid's teams.

● Establish new partnerships with organisations skilled in addressing climate change issues and join consortia for climate-related programmes (see 4.5 Partnership). Partnerships create two-way learning opportunities for us and others to learn from each other about how to strengthen people's resilience.

● For all existing partners, assess the level of expertise on climate resilient WASH and provide basic training on climate-resilient WASH as part of regular capacity building activities.

Throughout this document, references to further resources are provided for teams to build on their knowledge of how to strengthen climate resilient WASH.

◀ Moustapha (left) and his colleague Desire taking measurements of the water level in a well, in the village of Sablogo, Commune of Lalgaye, province of Koulpelogo, Region of Centre-East, Burkina Faso. January 2018.

WaterAid/Basile Ouedraogo

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Annex A: WaterAid frameworks and toolkits relevant to climate resilient WASH

Resource	Description
Water security framework	This document sets out a framework for domestic water security. It reflects WaterAid's focus on water for basic human needs in low income countries while acknowledging the importance of other water uses.
Embedding and integrating a human rights-based approach into WaterAid programmes	These guidelines are intended to guide WaterAid teams in understanding and applying the principles and aspirations of a human rights-based approach (HRBA) into WaterAid programmes.
Equality, inclusion and rights framework	This document sets out a framework for WaterAid's position, approach and programme standards for our work on equality, inclusion and human rights, seeking to tackle inequalities in access, resource distribution and decision-making in WASH.
Equality, non-discrimination and inclusion toolkit	The toolkit introduces the most important equality, non-discrimination and inclusion (ENDI) principles, and includes practical activities, development tools and checklists for WaterAid and partner organisations to apply to our work with partners and communities.
Partnership framework	Our partnership framework defines our position, approach and programme standards in relation to our work with partners. It points to accompanying guidelines, toolkits and resources to provide more detail on how to apply the framework in practice.
Political economy analysis toolkit	This toolkit provides a structured approach for analysing how change happens, from the national to the local level. It can help shape our country strategies, programmes and even everyday decisions.
Sanitation framework	This framework defines WaterAid's position, approach and programme standards in relation to our work on sanitation with the aim of transforming the sanitation sector to ensure universal access to sanitation services, with sustained use and operation for all.
Disasters framework	This document sets out WaterAid's approach to disasters. It is primarily intended to guide WaterAid country programmes, but also serves to communicate our approach and contribute to wider thinking on disasters.

Resource	Description
Urban framework	Our urban framework defines our position, approach and programme standards in relation to urban WASH. It points to accompanying guidelines, toolkits and resources to provide more detail on how to apply our framework in practice.
Quality programme standards	The quality programme standards bring together WaterAid standards and accepted good practice in the WASH sector. These standards can be used at every stage of the PMER cycle of a project, programme or strategy.
Guide to support planning, monitoring, evaluation and learning	Guide to support planning, monitoring, evaluation and learning. This guide outlines how you can use adaptive programming principles to plan and design learning-orientated initiatives; monitor progress (both for accountability and learning); and manage adaptivity in response to change, evidence and opportunity.
System strengthening project design toolkit	This document sets out a series of participatory exercises that can be used to design a WASH project that applies a system strengthening way of working for improved WASH sustainability, improved WASH scalability and more inclusive outcomes.

▶ Anita Das has a climate resilient hygienic toilet. Trimohoni, Dacop, Khulna, Bangladesh. August 2020.

WaterAid/DRIK/Habibul Haque

Annex B: Principles for locally-led adaptation (LLA)

Given the wide variability of climate change impacts across different geographies and differences in WASH enabling environments, local stakeholders are best placed to understand the threats posed by climate change and to design appropriate adaptation strategies. Empowering communities on the frontline of climate impacts to lead in adapting to climate change gives them a voice in decisions that directly affect their lives and livelihoods.

To ensure that WaterAid's work on climate resilient WASH is grounded in local realities, all WaterAid's work will be informed by the following eight principles for locally-led adaptation. These principles, which are based on principles developed collaboratively by governments and leading non-governmental organisations,[4] and endorsed by WaterAid, help ensure local communities are empowered to lead sustainable and effective adaptation to climate change at the local level.

1. Devolving decision making to the lowest appropriate level

Giving local institutions and communities more direct access to finance and decision making power over how adaptation actions are defined, prioritised, designed and implemented; how progress is monitored; and how success is evaluated. Promoting local solutions that are affordable and context specific.

2. Addressing structural inequalities faced by women, youth, children, disabled and displaced people, indigenous peoples and marginalised ethnic groups

Integrating gender-based, economic and political inequalities that are root causes of vulnerability into the core of adaptation action. And, working with those who are currently or likely to be vulnerable or marginalised by climatic events so that they can actively participate in and lead adaptation decisions.

Ensuring our work adequately addresses issues faced by the most marginalised groups by working alongside local gender experts, people who have expertise and thorough understanding of disability or age-related barriers, and people who are champions and representatives of indigenous, pastoralist or ethnic minority communities when designing interventions.

3. Providing patient and predictable funding that can be accessed more easily

Supporting long-term development of local governance processes, capacity and institutions through simpler access and longer-term and more predictable funding, to ensure that communities can effectively implement adaptation actions.

4. Investing in local capabilities to leave an institutional legacy

Improving the capabilities of local institutions to ensure they can understand climate risks and uncertainties, generate solutions and facilitate and manage adaptation initiatives over the long term without being dependent on project-based donor funding.

5. Building a robust understanding of climate risk and uncertainty

Informing adaptation decisions through a combination of experiential, indigenous and academic knowledge that can enable resilience under a range of future climate scenarios.

6. Flexible programming and learning

Enabling adaptive management to address the inherent uncertainty in climate adaptation, especially through robust monitoring and learning systems, flexible finance and flexible programming. Allow space for locally-led innovation.

7. Ensuring transparency and accountability

Making processes of financing, designing and delivering programmes more transparent and accountable to local stakeholders.

8. Collaborative action and investment

Collaboration across sectors, initiatives and levels to ensure that different initiatives and different sources of funding (humanitarian assistance, development, disaster risk reduction, green recovery funds and so on) support one another, and their activities avoid duplication, to enhance efficiencies and good practice.

◀ Priota at the community Pond Sand Filter plant. Golchera, Harintana, Dacope, Khulna, Bangladesh. September 2018.

Front cover top: Kabre Primary School now has climate resilient systems including toilet blocks and a gravity flow water system. Ghana, December 2019.

Front cover bottom: A group are collecting water from the Pond Sand Filter plant. WaterAid initiated this plant and it is funded by HSBC. Golchera, Dacope, Khulna. September 2018.

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

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