Water For Women

Building Climate Change Resilience and Adaptation in Inclusive WASH

Australian Aid

Integrating Risk and Resilience

for Climate-Resilient WASH Programming

In brief

Water for Women (WfW) is unique in its role as an implementation and research fund that contributes to local, regional and global understanding of best practice in climate-resilient inclusive development. During the 2023–24 extension period, drawing on learnings from the implementation of climate-resilient and inclusive water, sanitation and hygiene (WASH) projects and research across the Asia–Pacific region, WfW partners sought to explore a fundamental learning question: **What does climate-resilient inclusive WASH development look like?**

In exploring this question, three dedicated learning groups considered:

1. **How do WASH programs commonly understand climate risk and resilience? How can this be further developed to better inform the design of WASH interventions?**
2. How do WASH governance systems commonly integrate climate risk and resilience?
3. Why and how is gender equality, disability and social inclusion critical to climate-resilient WASH?

This brief shares key findings and insights from the first learning group (1) about **integrating risk and resilience considerations for climate-resilient WASH programming**.

- **Definitions of climate risk and resilience** and the application of the concepts **are diverse and still evolving**, including for the WASH sector.
- **'Climate risk' is commonly understood as the potential for an adverse outcome** influenced by the climate or a climate change event.
- **Social and environmental changes** can increase or reduce climate risks.
- **'Climate resilience' is like the concept of 'sustainability'** in lacking strong consensus on how to action definitions but with documented and replicable good practices that contribute to a resilient and sustainable future.
- **Climate change creates complexity and uncertainty** that governments, communities and practitioners need to be able to navigate to make decisions.

Contents

Featured projects

List of figures

Abbreviations

CSO	Civil Society Organisation
ESCOW	East Sepik Council of Women
FSM	Faecal Sludge Management
GEDSI	Gender Equality, Disability, and Social Inclusion
ICR	Inclusive Climate Resilient
IPCC	Intergovernmental Panel on Climate Change
IWM	Integrated Water Management
PNG	Papua New Guinea
RHO	Rights Holder Organisation
3Rs	Reduce, Re-Use, Recycle
UTS-ISF	University of Technology Sydney – Institute for Sustainable Futures
WASH	Water, Sanitation and Hygiene
WfW	Water for Women
WSP	Water Safety Planning

Introduction

Water for Women (WfW) is an implementation and research fund that is uniquely placed to contribute to local, regional and global understanding of best practice in climate-resilient, inclusive water, sanitation and hygiene (WASH) development. Under Water for Women's collaborative Learning Agenda 2023-24,[1] drawing on learnings from the implementation of climate-resilient and inclusive WASH projects and research in the Asia–Pacific region, WfW partners sought to explore a fundamental learning question: **What does climate-resilient inclusive WASH development look like?**

As WASH programs work to improve WASH service delivery in an era of climate change, the concepts of risk and resilience are commonly invoked. **But what do risk and resilience mean exactly, and how do they support better WASH programming?**

Water for Women sought to explore this through answering two more specific questions:

- **How do WASH programs commonly understand climate risk and resilience?**
- **How can this be further developed to better inform the design of WASH interventions?**

Recognising there is currently considerable effort globally to better define and operationalise climate-resilient WASH, this learning brief documents findings of the WfW Learning Agenda initiative on these questions. While global frameworks provide definitions of climate risk and resilience, turning a definition into a tangible response that can be understood and implemented at community and sub-national government level is another challenge. This brief has a particular focus on understanding and learning at the implementation level.

This learning brief begins with a discussion of the concept of risk. It describes how WfW partners commonly represent and identify risks, and lists examples. It then describes how risk is characterised outside the WASH sector, providing a more diverse and nuanced understanding of risk for consideration in WASH programming.

The second part of the learning brief focuses on providing practical examples of what WfW partners mean when using terms linked to resilience, such as risk-informed, adaptability, and transformation. In doing so, it provides a grounded and tangible sense of resilience for WASH programming. The brief concludes with thoughts on the future of climate-resilient programming for WASH.

Methods

To understand how current WASH programs understand climate risk and resilience, the learning group:

- reviewed the project design documents of WfW civil society organisation (CSO) partners
- interviewed WfW partner staff and government and rights holder organisation (RHO) staff with whom they work (April - May 2024)
- facilitated in-person discussions at a WfW learning exchange event (March 2024)
- reviewed influential frameworks on risk and resilience, including the Sendai Framework for Disaster Risk Reduction 2015–2030[2] and chapter 16 on the concept of risk in the Intergovernmental Panel on Climate Change Sixth Assessment Report[3]
- interviewed non-WASH experts who tackle climate change issues to consider how WASH programs can build on their current ideas of risk and resilience.

What is climate risk for WASH?

Risk is commonly understood to be the potential for an adverse outcome. A climate or climate change risk may be understood to be the potential for an adverse outcome that is influenced by the climate or climate change. If the adverse outcome occurs, it evolves from a risk to an impact.

A description of a risk is often accompanied by a description of one or more if its drivers or influencers; that is, the events, processes or trends that are worsening the risk. For example, one might say that reduced rainfall from climate change and increased water demand (the influencers) threaten to create water insecurity in an area (the potential adverse outcome).

Some common WASH risks, as recounted by WfW partners, are shared below (Box 1).

Box 1. Examples of climate risks for WASH

"During the flooding period, water is polluted, so people cannot use clean water and they don't have safe water to drink." Deputy Director, Department of Rural Water Supply, Ministry of Rural Development, Cambodia

"So, in the time of flooding the water wells are contaminated by human waste, animal waste and the rubbish and people are still using that for consumption." Environmental Health Officer, Western Provincial Health Authority, Papua New Guinea (PNG)

"Floods in some of our regions during the rainy season greatly affect people's [physical] access to sanitation." Secretary, Regional Planning, Research, and Development Agency of Sumbawa Regency, Indonesia

"Especially water sources that aren't protected... the biggest climate change risk is when there is a severe cyclone and the water source becomes contaminated and it becomes a risk for the communities that are accessing water, especially safe drinking water." Inclusive WASH Portfolio Manager, World Vision Vanuatu

An outcome that has already occurred is an impact. If there is potential for the outcome to happen again, it is a risk.

Climate adaptation in action: Following a workshop in Dailekh, Nepal, as part of SNV's WfW Climate Heroes research project, community members work together to create a wall from local materials to protect their water source
Credit: SNV / Heman Paneru

Non-climatic influencers of risk

Climate change is rarely the only factor influencing risks. Other environmental changes and social, economic and political changes can increase (or reduce) risks. As the WfW Project Manager at Yayasan Plan International Indonesia (Plan Indonesia) explained:

Flooding or sea level rise also has an impact on inundation of latrines or water tanks in the project area. In addition, this situation coupled with limited income, the community will be very [challenged] to be able to allocate a budget for both the process of facilitating the renovation of sanitation facilities and getting access to clean water. Then on the other hand, in addition to impacting low-income people, many people also face obstacles to the management of safe sanitation facilities, due to the unavailability of pit-emptying services or wastewater treatment.

In this example, the risk is the loss of access to a safe sanitation facility. Flooding and sea level rise heighten this risk, but so do other contextual factors like poverty and the absence of support services. During interviews, partners also mentioned deforestation, agricultural activities, and solid waste management activities as exacerbating climate risks. Hence, risks can be reduced by mitigating physical hazards like floods and sea level rise and by reducing exacerbating factors in the local context.

Gender equality, disability, and social inclusion (GEDSI) can be a powerful way to tackle the socio-economic influencers of risks. To learn how, refer to the learning brief: The Criticality of GEDSI for Climate-Resilient Inclusive WASH

Identification of risks

Climate change poses many risks for WASH. Identification of the most important risks should be done in an inclusive way, because people can provide diverse insights on risks and have diverging opinions about problems and solutions. Broadly, WfW partners reported two methods for identifying risks:

- Drawing on the opinions of and evidence produced by WASH, climate change, and other experts who are informed by scientific research and their professional experience.
- Consulting with diverse local key informants (such as community members, local government authorities) who are informed by their lived experiences and knowledge of local contexts.

These methods are complementary, and WASH programs should use both to identify important risks to be managed.[4]

Members of the Sumbawa inclusive Integrated Water Resource Management Forum (IWM) planted 1,200 mangrove seedlings on Karung Island to mitigate seawater encroachment on local aquaculture farms, as part of a coastal revitalisation program supported by Plan Indonesia through their Climate-Resilient and Inclusive WASH project
Credit: Plan Indonesia / Irwansyah

Assessment of risks

A risk assessment is a quantitative or qualitative estimation or judgement of risks. Risk assessments are useful for prioritising risks for management and for understanding how risks might affect diverse people and the environment.

A common way that WfW partners assess risks is through estimating the **likelihood** of the risk (how likely is it that the risk will actually occur), the **severity** of the risk (how bad will the consequences be if the risk occurs), and the **vulnerability** of the people or the system being affected and/or their **capacity,** including **adaptive capacity,** to handle the impact (commonly represented as a mathematical formula: likelihood X severity X vulnerability / capacity). However, as Table 1 shows, other dimensions of risk can be considered.

Table 1. Additional dimensions of risk beyond likelihood, severity, vulnerability and capacity

Risk dimension	Description
Geographical extent	The geographical area where the risk is present (e.g. a village, a water catchment, a whole country)
Temporal scale	The timeframe in which the risk is being considered (e.g. the present, near future, distant future)
Reversibility	The level of difficulty in mitigating the adverse outcome if it occurs (e.g. easily fixable, irreversible damage)
Detectability	The level of difficulty in gathering information about the risk (e.g. easy to monitor, difficult to monitor)
Proportionality	The proportion of the risk that is being driven by climate change versus other factors (e.g. is decreasing water availability due more to worsening drought conditions or increasing water demand?)
Confidence	The level of information and agreement on any of the other risk dimensions (e.g. people disagree about the level of risk, there is broad agreement)

Finally, women, men, people with disabilities, and other diverse people experience different levels of risk, even when they live in the same place.[5] The environment (including ecosystems and water resources) also faces risks. Risk assessments should be inclusive to understand how dimensions of risk vary across stakeholders.

This multi-dimensional and multi-stakeholder approach to assessing, prioritising and managing climate risks and impacts is critical for climate-resilient inclusive WASH, albeit challenging in its implementation. It is an area of ongoing learning as the sector grapples with this complexity. Examples of how risk management approaches are developing and applied in WfW and the broader WASH sector are further explored in the learning brief: Strengthening Governance for Climate-Resilient WASH Systems

The water resource management and WASH sectors must embrace the challenge and progressively address priority risks. This means systematically assessing and reviewing risks as more information becomes available and willingly making decisions with insufficient data, based on the tacit knowledge of experts and diverse people familiar with local contexts. This is an increasingly necessary skill as the pace of climate change accelerates.

What is climate change resilience for WASH?

Climate change resilience has many different meanings. When considered as an outcome, climate change resilience for WASH generally refers to everyone having their WASH needs met despite the effects of climate change. Building resilience goes beyond just managing risks (Box 2). But the traits and processes required to enable this outcome to be reached are much less clear.

The Intergovernmental Panel on Climate Change (IPCC) and the Sendai Framework for Disaster Risk Reduction each offer definitions of resilience.[6] However, the learning group agreed these definitions are largely visionary, and how they could be put into WASH practice is unclear.

Box 2. What is the difference between climate risk management and climate resilience building?

Climate risk management (or risk reduction) may be considered a subset of climate resilience building. Risk management usually involves identifying specific risks, assessing them, then implementing control measures to reduce them (climate-resilient Water Safety Planning (WSP) is a common example of a risk management process). Such processes normally build resilience but can also degrade resilience if the control measures do not consider certain people or even act to their detriment, such as siting a toilet or waterpoint away from flood-prone areas to reduce the risk of inundation, but in a location with poor physical access for people with disabilities. As mentioned in the previous section, effective climate risk management involves multiple perspectives and taking a Do No Harm approach.

Resilience building goes beyond management of risks. Supporting GEDSI, WASH systems strengthening, and other fundamentally good practices builds resilience in general without the need for identifying and assessing specific risks. Further, sometimes risks cannot be predicted because they are simply too numerous or their drivers are too complex. Designing and implementing WASH systems that are adaptive and work well despite uncertainty can build resilience. The WfW partner examples on the following pages demonstrate how.

The concept of resilience is a lot like sustainability. The WASH sector has spent decades discussing and analysing sustainability, without agreeing on the traits and processes required to make any WASH system sustainable. Many definitions, frameworks and theories of sustainability have been proposed and tested, often with positive results, but no template can ensure that a WASH service will be sustainable. This is and always will be equally true for resilience.

Resilience and sustainability are also alike in that good practices that contribute to a resilient and sustainable future have been documented and are replicable.[7] WfW partners have developed considerable experience in this regard to share with the broader WASH sector.

Promising practices

During interviews the partners described many concepts and practices for building resilience, including **strengthening partnerships and collaborations, educating and engaging with communities, developing and implementing policies**, and **innovating technology and infrastructure**. Ideas like this and more were also recorded during a WfW learning exchange event at which participants were asked 'what are the non-negotiable ingredients for climate-resilient WASH?' From the interviews and learning exchange event inputs, the learning group listed concepts that partners use in relation to resilience (Figure 1), and the top nine were interrogated further. Partners were then asked to give examples of the concepts being put into practice.

What are the non-negotiable ingedients for climate-resilient WASH?

Figure 1. 'Non-negotiable' ingredients for climate-resilient WASH

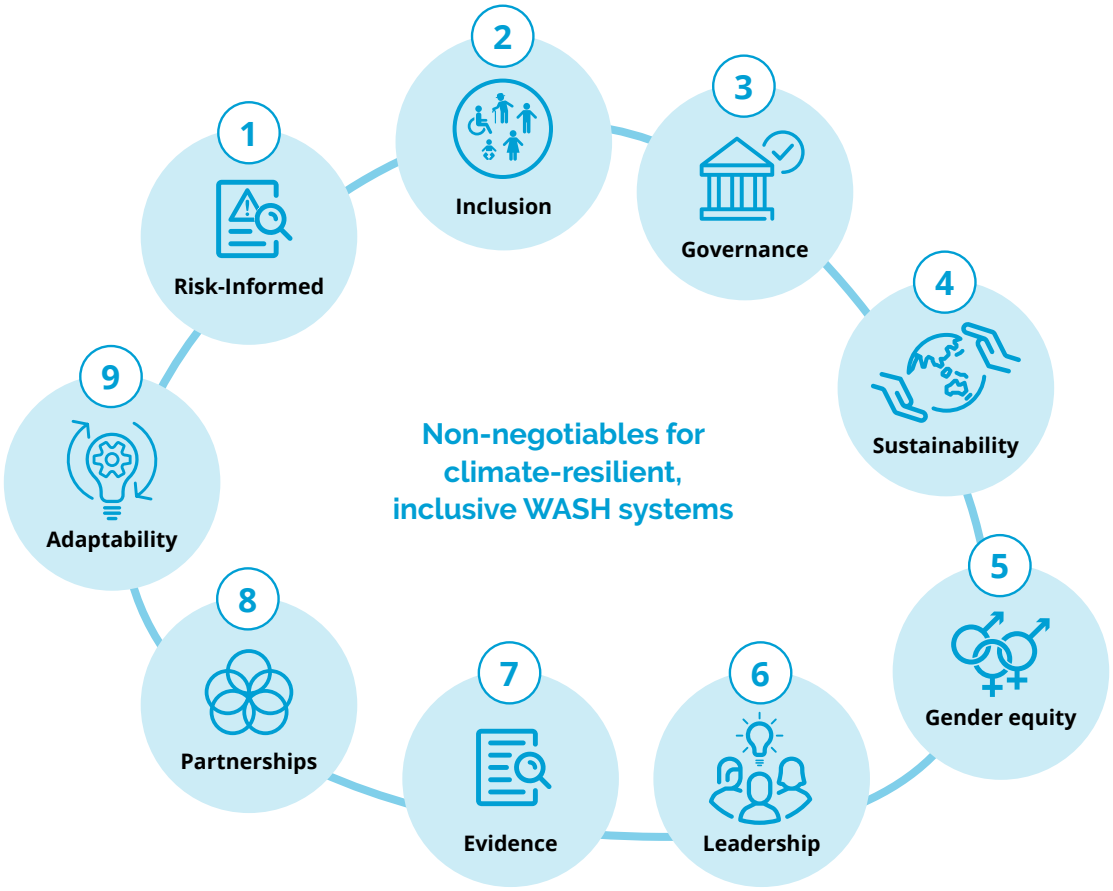

Figure 2. Top nine non-negotiables for climate-resilient, inclusive WASH systems

The promising practices and spotlights on the following pages illustrate what WfW partners mean when they speak of building climate change resilience for WASH, and are intended to inspire further action. More examples of climate change resilience concepts being put into practice are included in Annex A.

Promising practice 1: Integrating risk-informed processes throughout programming

Include climate risk assessments in the concept, design and monitoring, evaluation and learning phases of interventions.

Spotlight 1: Equipping flood-prone communities in PNG to mitigate and respond to risks

WfW partner: World Vision

Location: Western Province, PNG

To improve understanding of the risk and impacts of regular flooding in communities in Delta Fly District, Western Province, World Vision undertook a participatory assessment of areas prone to flooding under their WASH Voices for Empowerment (WAVE 2) WfW project. This included consultation with WASH management committees, ward development committees, and community focus group discussions. The assessment identified direct and indirect impacts, coping strategies, constraints and measures to reduce impacts.

Prior to the flood risk mapping, communities and government managed as best they could during and responding to flooding events. Following World Vision's intervention, government partners noted the increased capacity of communities in articulating needs in response to severe flooding.

Promising practice 2: Diverse representation and inclusive decison-making in community committees

Include diverse voices on community water committees, including women and people with disabilities, and enable their active participation to support inclusive decision-making and equitable and sustainable outcomes.

Spotlight 2: Strongim Mama Strongim Sista – empowering diverse voices in Vanuatu

WfW partner: World Vision

Locations: Sanma and Torba, Vanuatu

Through community training in Vanuatu undertaken as part of World Vision's WfW Inclusive Climate Resilient (ICR) WASH project, community and water committee members in Torba and Sanma provinces have gained greater understanding of how the impacts of climate change affect their water needs. They are now equipped with tools and processes to help them increase their resilience to climate change related impacts. As a result of the training, communities protect water sources from natural disasters, such as cyclones and flooding, that often result in contamination.

Prior to the ICR WASH project, women and people with disabilities were part of community water committees, but not actively participating in committee meetings. Through the ICR WASH Strongim Mama Strongim Sista empowerment training, women and people with disabilities on the community water committees are more confident to speak up to voice their WASH needs.

Participants from Namasary community, Gaua island, display their WASH Action Plan after completing baseline activities with support from World Vision's WfW ICR WASH project
Credit: World Vision Vanuatu / Ray Woodfield Mol

Promising practice 3: Governance system strengthening

Take GEDSI into account in whole of governance models; diverse representation strengthens governance systems.

Spotlight 3: Delivering diversity data for inclusive resilience in rural Nepal

WfW partners: SNV, International Water Management Institute (IWMI), CBM Australia and University of Technology Sydney - Institute for Sustainable Futures (UTS-ISF)

Location: Dailekh and Sarlahi, Nepal

Under the Towards Climate-Resilient Inclusive WASH Services in Rural Nepal project, SNV strengthened capacities of four rural municipalities (RMs) in two districts in using data to enhance GEDSI and resilience in WASH governance,[8] and ultimately in service delivery. RM WASH Coordination Committees (RM-WASH-CCs), which include elected leaders and government officials, representatives of Organisations of People with Disabilities, women and marginalised Dalit community members, were supported in using multiple data sources for evidence-based decision-making.

The data included barrier analysis by the local governments (LGs) for inclusion in WASH using the Gender Equality and Social Inclusion Self-Assessment Tool (GESI SAT). Researchers from IWMI applied models to develop climate projections for the RMs and supported the LGs in participatory risk assessments using the Climate, Environment and Disaster Risk Reduction Integration Guidance (CEDRIG) tool. The project supported the RMs to collect and analyse data on the status of inclusive and resilient WASH services in their area using the National WASH Management Information System platform. UTS-ISF and CBM Australia led seasonal studies on household coping mechanisms to hazards, focusing on women and people with disabilities.

The RM-WASH-CCs were supported in using this data to develop strategic WASH plans, which prioritise investments for improving water supply (WS) service levels considering inclusion (unreached areas, access for Dalit communities) and impacts on WS systems from climate change / disasters. They include actions for inclusive WASH decision-making, provide costs for improving resilience of WS systems, and guidance on behaviour change communication for safe water, including during climate hazards and for people with disabilities.

The LGs are using the WASH plans to inform their annual budget policies. For example, in Dailekh District, joint investment by the RM, community, and project has provided access to safely managed, resilient and accessible WS for 295 households. The LGs have also initiated systematic capacity building for all service providers in their area and are conducting behaviour change campaigns. In Sarlahi District, Parsa RM prioritised upgrading of a deep tubewell constructed during the recent drought to a piped network system, providing clean water on premises for 68 households under a community managed service delivery model — the first such system in the area.

Promising practice 4: Programming to sustain WASH outcomes for the long-term

Design and include sustainability strategies in WASH programs at the outset, including stakeholder engagement and locally owned operations and maintenance that will continue after the initial investment ends.

Spotlight 4: Sustaining WASH gains in Western Province, PNG

WfW partner: World Vision

Location: Western Province, PNG

Under the WAVE 2 project, World Vision has supported the district administrations and provincial administration in PNG to establish two District WASH Committees in Middle Fly and South Fly districts, Western Province. To ensure sustainability of the WASH services, the South Fly District WASH Committee was supported to develop plans, targets and budgets that are monitored and renewed annually. Further, South Fly District has developed and implemented an organigram that includes funded public service positions dedicated to WASH service delivery. Previously, WASH projects were implemented without strategic oversight or direction and supported only during development of project timelines. The implemented approach supports institutional capacity to increase sustainability.

Community WASH Committee members undertake community-based disaster risk management training in Daru, PNG
Credit: World Vision Australia / Nicole Joseland

Promising practice 5: Programming to Do No Harm

Resource and include GEDSI in WASH programming from the outset, with budget for local experts. Experts should include representatives of RHOs and disabled persons organisations who understand the complexities of social norms and barriers.

Spotlight 5: Engaging ESCOW experts to advance equitable and safe WASH access

WfW partner: WaterAid

Location: East Sepik Province, PNG

In PNG's East Sepik Province, WaterAid has supported the East Sepik Council of Women (ESCOW) to develop and test a community-based water resource management facilitation guide, as part of the Strongim WASH Kominiti Projek. The sessions sought to improve communities' understanding of the impacts of climate change on WASH access and how to manage water resources better, and the ESCOW facilitators integrated awareness activities on gender equality. Discussions about gender and family violence were facilitated safely, and information about gender and family violence services offered.

This model is unique in involving a women's rights organisation leading and facilitating climate change discussions with communities. It required strengthening ESCOW members' understanding of climate change and water resource management, and their facilitation skills.

Florence Parinjo, President of the Wewak District Council of Women, displays the 5-Year District WASH Plan 2019-2023 alongside the Council of Women's soap making training guide – both used to deliver training for women and supported by WaterAid
Credit: RedAnt Piksa

Promising practice 6: Leadership capacity building

Building leadership capacity for climate-resilient WASH requires breaking down silos to create a whole-of-system approach. This must include CSOs, RHOs, duty bearers, and local and district government to ensure understanding across the whole system.

Spotlight 6: ToT sustaining open defecation free in Cambodia

WfW partner: iDE

Location: Siem Reap, Cambodia

In Cambodia, iDE has developed a Training of Trainers (ToT) curriculum designed to sustain open defecation free status, as part of their WfW Climate-Resilient Water, Sanitation and Hygiene Scale-Up program (CR-WASH-SUP). It includes modules on climate-resilient inclusive WASH and access for all, safely managed sanitation, handwashing, child faeces management, and menstrual health and hygiene.

The ToT curriculum targets and is delivered to local community leaders such as female government representatives of Commune and District Committees of Women and Children, who then promote climate-resilient hygienic behaviour to the broader community using a visual tool.

While women community leaders have long strived to improve WASH in their communities, they lacked the knowledge and resources to increase climate resilience within the context of promoting hygienic behaviours. Now, with greater capacity and better tools, they can disseminate messages widely within their communities.

A resident and member of the Commune Council in Kampong Khleang delivers a ToT session designed by iDE Cambodia Credit: iDE Cambodia

Promising practice 7: Developing evidence to ensure investments reach at-risk populations

To ensure climate-resilient investment reaches communities in most need, supply climate-informed risk assessments with up-to-date population-specific evidence of those most at risk.

Spotlight 7: Embedding GEDSI in Cambodia's water safety guidelines

WfW partners: WaterAid and UTS-ISF

Locations: Kampong Chhnang and Pursat Provinces, Cambodia

In Cambodia, WaterAid supported the review of two new national government water safety guidelines from a GEDSI perspective. The guidelines were adapted and piloted as part of the UTS-ISF led WfW project, Strengthening Water Resources Management Planning Systems for Inclusive Climate-Resilient WASH Services in Cambodia.

The GEDSI review informed practical steps to reach and include people experiencing marginalisation in the implementation of climate-resilient water safety and water management planning. It led to a more inclusive response to environmental and climate risks through WSP.

Because WSPs in Cambodia increasingly have an explicit climate change focus, it is essential for actors to have the right GEDSI evidence to maximise inclusion. These steps ensure that women and people experiencing marginalisation will be included in climate-informed risk assessments.

Members of the UTS-ISF research project team, including representatives of five Cambodian and Australian organisations: UTS-ISF, Cambodia Development Resource Institute, Thrive Networks / East Meets West, WaterAid Cambodia, and Cambodian Water Supply Association
Credit: UTS-ISF

Promising practice 8: Partnering with new stakeholders effectively engaging with communities

Develop new partnerships between public and private stakeholders working with communities at the forefront of climate change to scale up climate-resilient development.

Spotlight 8: Cleaning up in Kupang City – creative collaboration on waste banks

WfW partner: Yayasan Plan International Indonesia (Plan Indonesia)

Location: Kupang City, Indonesia

Kupang City in Indonesia has insufficient waste disposal capacity to service its growing population and household consumption. Through the WfW Climate-Resilient Inclusive WASH in Indonesia project (CERIA), and in partnership with Kupang City government and youth organisations, Plan Indonesia supported the introduction of a low-cost youth-led waste management approach. Based on the national government's 3Rs program (reduce, re-use, recycle), the program also aimed to improve the local economy by recovering valuable recyclable materials from solid waste. The program promotes the 3Rs at the household level and the establishment of commercial recycling centres called 'waste banks'. Plan also engaged the private sector to invest in four waste banks so that more households can reduce their domestic waste production.

In the wake of Typhoon Seroja (2019), the Kupang City WASH working group had not resolved waste management issues until it conducted a climate risk analysis and identified that unmanaged solid waste increased the disaster vulnerability of the city and its dwellers. In early 2023, solid waste management was included in the Government of Indonesia's WASH working plan for the first time. As of June 2024, the four jointly established waste bank units in Kupang City had reduced waste accumulation at Kupang's landfill by 5,315.5 kg.

Project partners on site at Mutiara Timor Waste Bank, where processing capacity has increased six-fold with support through the CERIA project
Credit: Plan Indonesia / Anderias Wotan

Promising practice 9: Adapting designs for context-specific sustainable solutions

Support locally led innovation for climate-resilient inclusive infrastructure and systems to find context-appropriate technologies and opportunities to scale them for wider adaptation.

Spotlight 9: Safeguarding safe sanitation in seasonally flooded Cambodian communes

WfW partner: iDE

Location: Siem Reap, Cambodia

In Cambodia, iDE started installing its elevated Sky Latrine product for rural households in seasonally flooded environments in 2023. The Sky Latrine enables households to use the toilet year-round while preventing faecal sludge from contaminating water sources. Sky Latrines are installed by local sanitation entrepreneurs who iDE partners with as part of their CR-WASH-SUP project.

A small percentage of latrine owning households in flood-prone areas reported problems when flushing, with some resorting to unsafe coping mechanisms such as opening or piercing latrine pit structures and removing ventilation pipes. To guarantee functioning during the flood season, iDE's engineering team studied the problem, proposed solutions, tested and iterated prototype designs, and retrofitted and modified the Sky Latrine product to flush regardless of flood height, preventing seasonal malfunctions and unsafe coping mechanisms. iDE's engineering team develops context-specific solutions to guarantee safety and year-round latrine functionality for all households. The Sky Latrine is a relatively new product installed deliberately in seasonally flooded areas, so requires ongoing monitoring and adjustment of functionality to deliver the best results.

An elderly man from the seasonally flooded Lake Tonle Sap region of Cambodia stands, smiling, next to his first ever latrine - an elevated Sky Latrine purchased at a partial discount with a subsidy from iDE
Credit: iDE / Tyler Kozole

Insights from non-WASH sectors

The learning group interviewed experts in marine ecology, environmental engineering, public health, disaster risk reduction, environmental policy, and climate governance and finance, all of whom work on the impacts of climate change in non-WASH fields. The experts were asked to describe their own philosophies and beliefs about how climate change affects the people and environmental systems with which they work and what should be done. While there was much alignment with how WfW partners talk about resilience, some other key points emerged that WASH stakeholders could consider.

Protect the environment

WASH stakeholders often appreciate the need to protect the water resources on which the WASH service depends, but the connections between WASH and nature run deeper. Nature-based solutions for WASH could be expanded to strengthen local ecosystems that in turn build community resilience.

Undertake long-term planning for WASH systems

While there are many climate hazards to deal with now, climate change will worsen for decades to come. Long-term plans for financing and delivering WASH systems under future climate scenarios are needed.

Strengthen the workforce

Responding to climate impacts is exhausting work. The WASH workforce needs to be prepared and resourced to respond to repeated and compounding disasters.

Overcome silos to reduce compound risks

People experience the effects of climate change in a broader context of problems like economic uncertainty, civil unrest, and pandemics. WASH sector actors need to work more closely with non-WASH actors to reduce intersecting risks.

Question traditional development models

Certain WASH service delivery models (e.g. unsupported community management) that are already fraught may become increasingly untenable. Rather than trying to fix them, support for transformation to new models may be needed.

Managing climate risk and building climate resilience requires ongoing learning from within and beyond the WASH sector to find practical and effective solutions. The points above illustrate how working with non-WASH sector actors can both reinforce approaches already in play and also provide complementary perspectives. Climate change requires practitioners to think and learn differently with each other, consider risk and resilience through a more holistic lens and become comfortable making decisions and taking actions to strengthen resilience in the absence of data. Working collaboratively and learning from others will enable the WASH sector to continually progress its response to climate risks and identify practical ways to continue to build resilience.

Conclusion

Climate change is an especially insidious problem because of its potential to alter the fundamental social and environmental contexts in which WASH systems operate. While the extreme weather events that manifest from climate change grab most attention, loss of stability in the hydrological environment, and the inevitable changes in society in response, pose a larger threat to WASH services. WASH climate resilience programmers need to dig deeper into the root causes of problems in search of sustainable solutions.

Climate change is a risk multiplier that jeopardises traditional methods of delivering aid, development, and disaster response, especially with respect to vulnerable groups. Initiatives like WfW, which focus on marginalised communities such as women, girls, and sexual and gender minorities, require greater early-stage investment and flexibility to reduce complex risks. As climate events grow more frequent and severe, and existing infrastructure is destroyed and staff are redeployed for emergency responses, stakeholders must rethink their WASH approaches. The urgent need for coherence between disaster risk reduction, WASH, and climate resilience efforts, with a focus on inclusion and localised solutions, has become clear.

Water for Women has had GEDSI at its core since inception. Because of this, transformative change has been a guiding star for WfW partners – an aspirational idea for everyone involved to work towards to achieve greater social equality. Transformative changes – in institutional and social relationships, WASH service delivery, technology, mindsets, and how society relates to nature – are needed to counter the effects of climate change. The partner examples in this learning brief offer windows into a future in which WASH systems and actors adjust to new social and environmental settings. Securing safe WASH access for everyone despite the effects of climate change requires building on examples of good practice from within and beyond the WASH sector.

In Dailekh district, a father pours water for his son's handwashing ritual with soap
Credit: IWMI / Onion Films

Endnotes

[1] Water for Women, *Learning Agenda*, WfW, Melbourne, 2023. https://www.waterforwomenfund.org/en/learning-and-resources/learning-agenda.aspx

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[3] B O'Neill et al., (eds), Chapter 16: Key risks across sectors and regions, in H-O Pörtner et al. (eds), *IPCC sixth assessment report: impacts, adaptation and vulnerability*, Cambridge University Press, 2022, accessed 1 April 2024. https://www.ipcc.ch/assessment-report/ar6/

[4] J Kohlitz et al., *Climate-resilient WASH and climate projections*, DevPolicy [blog], 2021, accessed 1 May 2024. https://devpolicy.org/climate-resilient-wash-and-climate-projections-20210727/

[5] C Leahy et al., *Socially-inclusive responses to climate change impacts on WASH: case study in Asumanu, Liquiçá, Timor-Leste*, UTS-ISF, 2020, accessed 15 July 2024. https://waterforwomen.uts.edu.au/outputs/climate-outputs/ccriw-casestudy-timorleste/

[6] The IPCC Sixth Assessment Report defines resilience as 'The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure. Resilience is a positive attribute when it maintains capacity for adaptation, learning and/or transformation.' The Sendai Framework defines resilience as 'The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.'

[7] Water for Women and University of Technology Sydney - Institute for Sustainable Futures, *Making the critical connections between climate resilience and inclusive WASH: lessons from Water for Women*, WfW & UTS-ISF, 2021, accessed 15 July 2024. https://www.waterforwomenfund.org/en/news/making-the-critical-connections-between-climate-resilience-inclusive-wash.aspx

[8] The Towards Climate-Resilient Inclusive WASH Services in Rural Nepal project locations included the RMs of Dungeshwor and Mahabu in Dailekh, and Chandranagar and Parsa in Sarlahi.

Annex. Examples of climate change resilience concepts being put into practice across Water for Women

Resilience-related concept	How is it put into practice?	What were the outcomes?
Systems strengthening	In Timor-Leste, WaterAid supported participatory climate hazard mapping at the sub-national level with stakeholders working in WASH, environment and GEDSI. The mapping included training on basic concepts of how climate change affects WASH and its direct and indirect impacts on communities, especially those who experience marginalisation. Sub-national government used the hazard mapping to inform municipal WASH planning and revision of the municipal WASH strategies to prioritise responses to climate vulnerabilities. Results were shared using suco-level (village) scorecarding to encourage integration of climate resilience into annual planning.	Previous WASH systems efforts, such as municipal planning and suco feedback mechanisms, did not consider climate risks or resilience. Climate risk and resilience approaches are now mainstreamed across the objectives, outcomes and activities of sub-national government strategies and plans. In 2023, the input indicators for the community scorecard were updated in collaboration with national climate change authorities for the first time.
Transformations	iDE employs national sales agents to sell sanitation products to rural households in Siem Reap, Cambodia. Reay Sean, a mother of one, has worked as a sales agent in Siem Reap for two years. Sean is proud to share important sanitation and health messages with the most marginalised households. She believes that direct conversations with marginalised groups about sanitation, handwashing and menstrual hygiene are drivers of positive and healthy behaviour change, transforming the sanitation behaviours of households that may not have had their own toilet before.	iDE creates sanitation products for often marginalised rural households. They are attractive, affordable, aspirational and climate-resilient. Many rural households in Cambodia are on the frontline of large climate events but overlooked as customers and stakeholders. To meet these households' unmet need for climate-resilient sanitation, iDE has implemented a sales approach and products that prioritise customers located in flood prone and other hazardous environments.
Strengthening technologies and infrastructure	The village of Kurinti, located in South Fly District, Western Province, PNG, is reached by travelling 70 kilometres up the Pahoturi river. Due to the region's exposure to flooding and droughts, World Vision's WAVE 2 project installed three 10,000 litre rainwater tanks in Kurinti village. The program also installed boreholes and hand pumps to improve access to safe water regardless of climatic events.	The people of Kurunti once struggled to find clean water, relying on unsafe water collected five kilometres away from the Pahoturi river. Access to a market is via small canoes, meaning obtaining materials is expensive. Installation of these multiple water sources has helped address this need.
Nature-based solutions	With support from Plan International, a multi-stakeholder IWM Forum was established in Sumbawa and Manggarai districts in Indonesia. The forum allocated budget and programmed nature-based initiatives to improve water security amidst the increasing negative impacts of climate change. One such initiative is coastal and riverbank rehabilitation through mangrove and tree planting as part of greening and reforestation. This involves not only relevant government agencies but RHOs such as organisations for people with disabilities, women's organisations, and youth organisations.	Since the establishment of the IWM Forum, all relevant government agencies and other stakeholders have a common platform to discuss and tackle water security issues in the districts. They have developed joint actions, allocated budgets, and implemented various initiatives. The coastal rehabilitation initiative in Sumbawa and Manggarai includes the first-ever formalised mangrove planting in these districts, with nearly 160,000 saplings in Sumbawa alone. (A riverbank greening activity had been initiated a few years earlier, but lacked a robust monitoring system and clear responsibilities to ensure the sustainability of its outcomes).

Resilience-related concept	How is it put into practice?	What were the outcomes?
Community-led adaptation	Namasary village, located on Gaua Island in the remote Banks Islands group of Vanuatu, participated in World Vision's ICR WASH project. The project utilised participatory community development approaches, which had not been used in the area before, to collate, share and build upon existing knowledge and practice. Whilst, World Vision facilitated the development of the WASH Community Action Plan, the community is responsible for identifying and implementing actions.	Prior to the development of the Action Plan the community did not prepare or plan for climatic events, despite high vulnerability. To support implementation of the Action Plan, community members called for a Namasary Community Safe House, and organised fundraising events that enabled construction to begin.
Flexibility	iDE's research shows how climate vulnerability correlates with toilet dysfunction and abandonment, as well as unsafe household faecal sludge management (FSM) practices. iDE recently completed a trial of an on-site latrine pit emptying service for 15 rural households to expand access to safely managed sanitation. The trial utilised an iterative, adaptive and flexible approach, with lessons documented at the end of every sale and service delivery. The trial resulted in a standard process for safe onsite FSM. In developing this process, the team demonstrated the effectiveness of utilising context and learning-responsive (i.e. flexible) approaches to deliver climate-resilient, safely managed sanitation services.	Identifying effective on-site latrine pit emptying services in Cambodia, being a new climate-resilient sanitation service, is becoming increasingly critical. iDE has had initial success in understanding what constitutes a viable service, but this requires further trialling before being scaled up for vulnerable households throughout Siem Reap. iDE seeks to provide rural households in difficult environments with reliable safely managed sanitation. It aims to prevent water sources and home environments from contamination with faecal sludge during extreme weather events.
Reversing long-term trends	Most Kupang City dwellers in Indonesia depend on self-supplied clean water and government provided water tanks in the case of extreme drought emergencies. Less than 35% of households in the city are served by the water utility (PDAM), which has struggled to expand its service. PDAM staff were unfamiliar with the design and development of climate-resilient water supply systems. Through WSP, PDAM improved its understanding and capacity to provide a water supply system that can cope with future scenarios of climate change.	Recognising water supply provision challenges due to climate change impacts, Plan International facilitated a sustainable solution to assist PDAM to expand its water supply network. Through WSP, PDAM received capacity building, allowing the company to anticipate clean water needs in line with climate change scenarios. PDAM also received support relating to financing mechanisms for network expansion. Upon completion of the WSP process, PDAM will have a comprehensive plan to expand its water supply system to service a larger population in Kupang City.

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Water for Women supports improved health, gender equality and well-being in Asian and Pacific communities through climate-resilient and socially inclusive WASH projects and research. It is the Australian Government's flagship WASH program, investing AUD159.9 million over seven years. Water for Women partnered with civil society organisations, research organisations and local partners to deliver 40 projects in 16 countries from 2018 to 2024. Knowledge and learning are central to Water for Women, positioning the Fund as an important contributor to global knowledge development and sharing in climate-resilient, inclusive WASH. Water for Women's Learning Agenda promotes collaborative learning, knowledge development and sharing to support long-term transformative change to WASH policy and practice globally.

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