

Equity, climate change and rural WASH



Proceedings of an SNV WASH hybrid learning event

Kenya, Mozambique, Bhutan, Lao PDR, Nepal and Uganda
21-24 June 2021



About SNV Netherlands Development Organisation

SNV is a not-for-profit international development organisation that makes a lasting difference in the lives of people living in poverty by helping them raise incomes and access basic services. We focus on only three sectors – agriculture, energy, and water, sanitation and hygiene (WASH) – and have a long-term, local presence in around 24 countries in Asia, Africa, and Latin America. Our team of 1,297 staff is the backbone of SNV. We apply our know-how to deliver results at scale. Driven by the Sustainable Development Goals, we are dedicated to a society in which all people are free to pursue their own sustainable development, and no one is left behind. This commitment to equity directs us to focus on gender and youth. By connecting our global expertise with our extensive and longstanding in-country experiences, we help realise locally-owned solutions. Our services include advice, brokering and stakeholder engagement, advocacy, fund management, results-based financing, and delegated management.

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Cover image winner of the photo competition

When the climate is angry and the rain is heavy WASH Advisors like me are threatened to reach the communities.
Raj Kumar Bhattra, WASH Adviser SNV Bhutan

About this report

This report documents the activities from the *learning event* organised by SNV Netherlands Development Organisation in collaboration with ISF-UTS and government partners online from 21-24th June 2021. It was facilitated as part of the Knowledge and Learning component of SNV's rural WASH programmes with support from the Australian Government's Water for Women Fund, the United States Agency for International Development (USAID), and the Dutch Government's Ministry of Foreign Affairs and Trade (DGIS). The event was attended by 58 participants (22 female, 36 male) including SNV program country team members, government and local partners from Bhutan, Lao PDR, Nepal, Kenya, Mozambique and Uganda.

The report has been prepared by Sarah Clarke with input from Gabrielle Halcrow (SNV) and Antoinette Kome, SNV. Findings, observations, comments, interpretations and conclusions contained in this report are those of the author's and may not necessarily reflect the views of SNV.

Disclaimer

The following text is the unedited proceedings of the June learning event titled, Equity, Climate Change and Rural WASH. For more information, contact Gabrielle Halcrow, Multi-country programme manager of the DFAT-supported Beyond the Finish Line programme, ghalcrow@snv.org.

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Background

Introduction

The Learning Event was conducted through SNV's Rural WASH programmes, as a collaboration between SNV and ISF-UTS, national governments, line agencies and knowledge partners. A core component of all of SNV's WASH programmes is knowledge and learning, which includes a focus on learning from practice, promoting exchange between countries, analysis and dissemination. This Learning Event is part of this.

Learning activities

Learning activities are not a one-off event: they are a process. This learning activity includes the following events:

- Preparatory EGroup Discussion. These discussions took place from the 20 May to 10 June 2021; a summary of these discussions is available in Annex 1.
- Learning Event Workshop, 21-24 June 2021. This was held remotely, with participants joining from six country teams in Asia and Africa. This report articulates the proceedings and outcomes of this event.
- In country follow up (depending on country priorities).

Learning event attendees

The 58 (22 female, 36 male) participants for this Learning Event included SNV program country team members, government and local partners from Bhutan, Lao PDR, Nepal, Kenya, Mozambique and Uganda, participants from the SNV Global Team, and resource partners from University of Bristol and the Institute for Sustainable Futures – University of Technology, Sydney, as well as other WASH partners, including WaterAid West Africa.

Preparatory Egroup discussions

An email discussion was held on SNV's Rural Water, Sanitation and Hygiene (WASH) Egroup platform from 20 May 2021 to 10 June 2021 on the topic of "Equity, Climate Change and Rural WASH".

The 49 contributions from participants in 16 countries, including the Africa, Asia and Latin American regions were used to inform the learning event on the topic held online from the 21-24 June 2021 with teams, government representatives and partners, and subsequent follow-up activities. The event was facilitated by Ms Antoinette Kome, SNV's Global Head of WASH.

The discussion aimed to bring together government partners, practitioners, and researchers to exchange ideas and deepen our understanding of the challenges and potential strategies to realizing rights to WASH in the context of climate change. This includes our understanding of climate change in the national and sub-national contexts, exploring resilience, trade-offs, and the role of local governments.

The discussion covered the following three topics:

1. Climate resilience of WASH Services;
2. Climate change in your country; and
3. Role of local governments in climate resilient WASH services.

A summary of each Egroup discussion is presented in Annex 1.

Event opening

Opening remarks

Presented by of Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands

Ms Kome welcomed everyone to the Learning Event. She introduced the theme of Equity, Climate Change and Rural WASH, around which the event was organised. She thanked all participants for their engagement in the EGroup discussions. Noting the challenges of conducting the event in a remote format, Ms Kome also thanked participants in advance for their patience as they all negotiated the new technologies that supported the remote event.

Ms Kome then invited Ms Megan Ritchie, Managing Director of WASH, SNV to officially open the event.

Opening address

Presented by Megan Ritchie, Managing Director of WASH, SNV.

Ms Ritchie welcomed all participants to the workshop, noting that if she had been asked 18 months ago to envisage an online, on camera, virtual learning event across so many countries and time zones, she would never have thought it possible. However, the emergence of the pandemic has forced everyone to show more creativity, determination, perseverance and perhaps more resilience than many of us have needed previously in our lifetimes.

She noted that the concept of “resilience” ties back to the theme of the Learning Event: equity, climate change and WASH. These are three complex topics individually, and even more so when the interactions between the three are being explored. Climate change is already impacting lives in each of the countries in which the participants live and work. Going forward, the myriad ways that climate change will impact WASH will continue to increase. These impacts will not be felt equally, and the burden of climate change is not and will not be shared uniformly. In many instances, those who stand to be hit hardest, to lose most, are not those most responsible for the change, and are those least empowered to be able to absorb the shock.

Ms Ritchie expressed the importance of this event – of a group of committed professionals gathering to exchange ideas and to deepen collective understandings of the challenges – and possible strategies – for realising the rights to WASH in the context of climate change, while noting the multiple and complex challenges that beset this endeavour. Sustainable rural water supply services – with infrastructure that stays functional, sustainable sanitation access in rural areas, and good hygiene practices each have their own set of dynamics, vulnerabilities, and risks of failure: some at the household level, some at the communal systems level, some at the individual level.

Frequently, WASH practitioners aim for ‘sustainability’ of services. However, this comes with the risk of an expectation that sustainability is a destination; a place that once reached, our work will be done. In a universe where nothing changes and where gains made are never lost, that may be possible. Sadly, that is not our universe. We are living in a world where so many gains are yet to be realised, and even if such strides are made, then climate change will make sure that there is no status quo. Sustainability can never be a destination. The work will never be ‘done’. It will always be a journey. It is our resilience – how well we bounce back, how well we absorb future shocks, how well we avoid potholes – that will determine how successful we are on that journey.

We know that the journey to realising the human right to WASH services is already challenging. Climate change will bring increased levels of difficulty to that challenge. Who will bear the additional costs of climate change adaptation? Who will see the benefits? Who will be prepared? These are the questions that face all of us now, and the same questions that local governments find themselves grappling with as a matter of urgent priority. It is easy to sit and list off the challenges – it is significantly harder to identify solutions and strategies that work.

Circling back to the Learning Event, Ms Ritchie expressed her profound hope that the coming days together will bring all participants greater understanding of the task at hand, greater clarity on what might yet be possible, and even some practical, tangible examples that will start defining a clearer way forward. She noted that our learning will need to continue and to evolve and reminded all of their responsibility to ensure that that knowledge is utilised and put to practical use.

In closing, Ms Ritchie wished all participants every success in the event and noted that she looked forward to hearing about insights gleaned and the actions that participants intend to take from the event and enact in their field. She then signed off by noting that we all have a responsibility to be as ready as possible to meet the coming changes, and that the time for readiness and the time for responsibility is now.

Expectations of participants by country

Prior to commencing Block I, participants from each country were invited to introduce themselves and each country team was asked to share two of their expectations for the event. These expectations are summarized in Table 1, below.

Table 1: Expectations of the Learning Event, by participating Country Team

Country	Expectations
Bhutan	<ul style="list-style-type: none"> • Proper understanding of the implication of Climate Change to WASH. • Learning from other countries on adaptation and mitigation • Networking and relationship building.
Lao PDR	<ul style="list-style-type: none"> • Practical experiences tools and approaches to support Government and to mainstream climate change into rural sanitation. • Lessons learned from other countries about climate change in WASH. • To learn about climate change, especially as a component of SNV WASH projects. • Learn how to integrate the topic of climate with WASH in community. • E-Meeting of more WASH colleagues.
Nepal	<ul style="list-style-type: none"> • Climate change impact and its indicator-based measurement techniques (climate change monitoring framework). • Experience of other countries. • Climate change incorporation in policy: how can these be rolled out at the local level? • How to ensure participation of people with disability in climate change? How to improve the capacity of all at local level – govt, etc – to participate in responding to climate change and adapting WASH?
Kenya	<ul style="list-style-type: none"> • To understand how to embed climate resilience strategies in our WASH implementation projects.
Mozambique	<ul style="list-style-type: none"> • Learn from other countries how they are affected and what adaptations they are making. • Understand how CC impacts WASH interventions. How can this be mitigated? • Understand what the climate change sector is doing and how they view the WASH sector. • What opportunities can the WASH sector access for climate change mitigation/adaptation. Funding, technical input etc. • Better connect with SNV programmes in other regions and be able to share experiences more effectively.
Uganda	<ul style="list-style-type: none"> • Learn more about issues of climate change in relation to WASH. • Learn from other countries how they have integrated climate change and how communities have reacted to climate change adaptations and how these are financed.

Country	Expectations
	<ul style="list-style-type: none"> • What are the new Rural WASH technologies on climate change. • Inspirational learning on WASH and climate change.
Global Team	<ul style="list-style-type: none"> • Connect and exchange ideas across teams • Clarity of priority actions to support resilience within WASH services. • Ideas on how to monitor our progress. • Learn from countries on what CC means for their WASH services, what is in place regarding policies and practices, and what their future programming will focus on. • Get to know the WASH team better. • Connecting and collaborate more on climate and water related issues. • Learn what types of climate impacts are being faced in both cities and country and what adaptations have been. • How are decisions being made at local level? What is the role of community in the decision making process. • What are the gaps, what are the priorities – what do the teams need to know to start/continue adaptations to climate change. • Some nice virtual coffee with cakes and also looking forward to the nice cultural event as well!

Introduction to the learning event

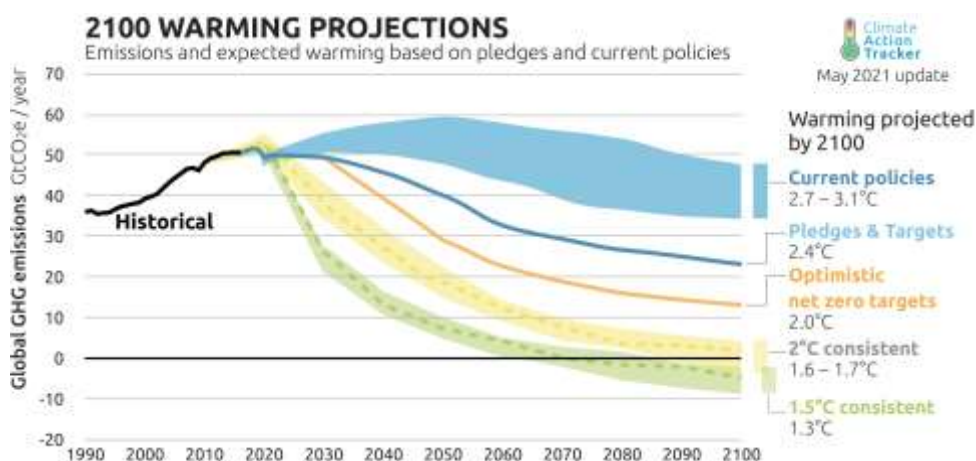
Introduction to the event

Presented by Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands.

Ms Kome began this presentation by explaining that the intention of this event was to explore the interactions between climate change and rural WASH, as well as how to ensure equity when seeking to mitigate the impact of these interactions. The following is a summary of her presentation.

Orienting the learning event

Climate change is a reality. We have already increased the baseline temperature of the planet by 1.2 degrees. Many countries have committed to seeking to keep this increase to below 2.4 degrees. However, commitments are not always fully implemented. Some scientists have predicted that by the end of this century, we can anticipate and increase of at least 2.9 degrees. While this may not affect us personally, it will affect our children. Climate change is already affecting people. Even in the Netherlands climate change is not a theoretical thing – most of the Netherlands is below sea level. For many countries, flooding is a regular reality. While this may not be due only to climate change, climate change will surely exacerbate it.



Water supply is designed for 15-20 years life span. Yet somehow, we think if we do it right today, it will stay static and supply water to the whole community for that period of 20 years. However, life is not static. Demographics are in flux due to changes in life expectancy, population growth, and displaced people. When we design water supply, we need to think about what the world will look like in 20 years' time. In the same way, we need to consider the life-span of toilets and the support we're giving to rural sanitation and hygiene behaviours.



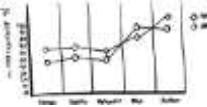

Ms Kome then explored the difference between **sustainability** and **resilience** of WASH, drawing from what we said during the Egroup discussions:

- Sustainable WASH service delivery is about continuous provision of services.
- Resilience is ensuring people can access and use quality WASH services in a changing context..
- Current context influences what types of service delivery models are appropriate and effective. However, we have evolving contexts, which means we need to adapt our service delivery models to fit the evolved context.

Ultimately, we need both sustainability and resilience. In WASH, we tend to give relatively more attention to extreme events when we talk about climate, so we tend to focus on disaster risk reduction and disaster preparedness. But we can also prepare for known gradual changes through transformation of service delivery systems. In addition, we need to develop adaptive capacity for slow onset and adaptive capacity and flexibility for abrupt onset. For example, Flood resistant toilets are not just about

lifting the toilet. Need to understand what type of flood it is; can these be mitigated by broader changes at subnational, national, or regional levels?

Figure 1: Climate hazards which may affect WASH services¹

	<p>Slow onset:</p> <p>Events that gradually emerge over extended periods of time such as droughts, sea-level rise, and salinisation.</p>
	<p>Shocks:</p> <p>Events that occur acutely within a short timeframe such as cyclones (but effect may be felt long after).</p>
	<p>Trends:</p> <p>Long-term (i.e. over decades) changes in climate variables such as increases in average temperatures or average annual rainfall.</p>
	<p>Variability and unpredictability:</p> <p>Increasing contrast between seasons (such as increasing contrast in rainfall patterns between wet and dry seasons) and increasing unpredictability of climate and weather.</p>

When we look at equity, we explore how the benefits and burdens of climate change are shared in the community. We must also think of unintended consequences. For example, if we strengthen infrastructure to withstand impacts of climate change, the funds may no longer be available for expanding services to communities with unmet need.

Learning event program

The difference in time zones meant that the program was somewhat staggered, with joint sessions online, as well as individual country sessions that had been intended to be held face to face. With many countries in lockdown, however, some teams were obliged to conduct their individual session online, as well.

The learning event was organised into four blocks:

- Block 1: National climate trends, plans and operationalization;
- Block 2: Is it possible to measure the resilience of WASH services;
- Block 3: From Plans to Practice;
- Block 4: Equity in the climate WASH discussion.

Previous learning events included a field trip in the host country. In the pandemic context, some country teams were able to conduct a field visit in their own country, while several others had to conduct a virtual fieldtrip.

¹ Kohlitz, J. and Iyer, R. (2021) 'Rural Sanitation and Climate Change: Putting Ideas into Practice' *Frontiers of Sanitation: Innovations and Insights* 17, Brighton IDS, DOI: 10.19088/SLH.2021.002.

Block 1: National climate trends, plans and operationalisation

Overview of Block 1

Why is this relevant?

It is necessary to understand where and how climate change and WASH responses are integrated in national and sub-national plans and policies. This understanding can facilitate identification of areas for opportunity, both for accessing funding and for synergised action. In addition, it helps identify gaps, weaknesses, and areas that may require more targeted intervention.

What are the objectives of this block in terms of knowledge and learning outcomes?

- To understand the effects of climate change and its differing impacts in each country.
- To review the current plans and policies in place in each country.
- To explore how these plans and policies are enacted on the ground.
- To learn from other countries' climate change response and adaptations.
- To use this knowledge to improve design and implementation in their own countries.

What was the process?

- An introductory presentation summarising the Egroup discussion.
- Country group work to prepare a poster or presentation that discussed:
 - Climate change trends in their country;
 - Climate change plans and commitments in their country; and
 - How these plans are operationalised and put into practice.
- Sharing and exchange of experiences: plenary discussion where each country presented their poster or slideshow.

Introduction to Block 1

Presented by of Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands

Ms Kome opened this session by highlighting the large number of climate plans and policies already in place around the world. She then reminded participants that it is important to know at what plans and policies are in place in their own countries. She pointed out that while not all plans include WASH, there may be more than expected and certainly more than 10 years ago.

However, creating a plan is not enough, we also need clarity about responsibility. Several countries have clear responsibilities lying with specific national and subnational entities, as well as local plans and legislation, especially in countries with decentralisation. But are these plans always driven by genuine desire to respond to climate change or by a desire to access funding.

Introduction to Block 2

During the EGroup discussion, participants mentioned a large range of plans. In some countries, such as Kenya, these plans are anchored in legislation. In others, the plans are less binding. Not all plans included WASH, but several countries do have dedicated plans or policies for adaptation in WASH. There are also national entities who are responsible for actioning the plans, such as the national council for environment and sustainable development in Niger and the National Environment Commission in Bhutan. There was some discussion of the motivation of local legislation and plans: are these a genuine response to the current climate, or stemming from a desire to access funding that is earmarked for climate change response?

National Determined Contributions (NDCs)

NDCs are voluntary commitments from countries that signed the Paris Agreement. Most countries have submitted commitments for water resource management and water supply, but only two countries in Sub-Saharan Africa - and no countries in South Asia or East Asia and the Pacific - have submitted plans for sanitation.

Operationalisation of plans

At the national level, operationalisation requires coordination, synergy and harmonisation. Climate change response needs to be embedded into sectoral plans. In Mali, there is national and sectoral monitoring. Ethiopia has a climate resilient water safety strategic framework and climate response is embedded in the ONEWASH Programme. There is a tendency to link climate change to development and it is not easy to untangle them, as they do need to go hand in hand. There is also a tension around the type of energy used for pumping – e.g., solar powered reverse osmosis for desalination. However, there is limited funding for adaptation.

At the local level, there is a tendency to focus on capacity development. In Kenya, these efforts are organised through the county- and ward-level Climate Change Planning Committee. In Bhutan, the focus is on vulnerability, water scarcity risk assessments, scaling of water safety planning and water quality surveillance, while Uganda is focused on source protection and Benin on integrated flood risk management. All countries are working on climate proofing and mainstreaming tools into projects.

Country posters

Prior to the Learning Event, each country group had been asked to prepare a poster or presentation that discussed:

- Climate change trends in their country;
- Climate change plans and commitments in their country; and
- How these plans are operationalised and put into practice.

Each country presentation is summarised, below.

Bhutan

Climate change response in Bhutan has support from the highest levels, with Her Majesty Queen Jetsun Pema Wangchuk supporting Bhutan to meet its international and domestic climate response obligations. The population of Bhutan is around 700,000 people, with most people living in rural mountainous areas..

Climate change trends and impacts

Between 2010 and 2039, the mean temperature in Bhutan is expected to increase by 1.1 degree Celsius, and by 2.4 degrees Celsius between 2040 and 2069. Increasing temperatures have an impact of WASH and health: for each degree of increase in mean temperature, there is an anticipated increase of 5.3 incidents of diarrhoeal illness per 1,000 people and a 14.9% increase in the incidence of malaria. The country is highly vulnerable to the effects of climate change. It is dependent on the monsoon rains and at risk of glacial lake outburst flooding (GLOF). Unpredictable rains have seen some 35% of water sources drying up.

Climate change plans and commitments

Climate response in Bhutan is embedded in a range of documents. The **Constitution of Bhutan** mandates that the country should “secure ecologically balanced sustainable development while promoting justifiable economic and social development”. This is interpreted as maintaining a minimum of 60% forest cover. **Environmental legislation** includes the Environment Assessment Act (2000) and the National Environmental Protection Act (2017). **National Plans** include the National Adaptation Programs of Action (NAPAs) starting from 2008, and the National Adaptation Plans (NAPs) introduced in 2019. Additionally, the Health National Adaptation Plan has been developed, covering the period 2018-2023. This plan focuses on WASH, among other priorities.

How are these plans operationalised?

Climate action is embedded as a National Key Results Area in the current Five-Year Plan (FYP) as NKRA 6: Ensure carbon neutrality, climate and disaster resilient development. The current FYP also includes several national flagship programs, including the Water Flagship Program.

Bhutan has identified nine priority areas for maintaining its carbon-neutral status, presented in Table 2, below:

Table 2: Bhutan’s nine priority areas for maintaining carbon-neutral status

1. Forest sink management	2. Low carbon transport	3. Sustainable waste management
4. Greening industry	5. Clean renewable energy (mechanisms)	6. Climate smart livestock farming
7. Climate smart agriculture	8. Demand side energy management	9. Green buildings and smart cities

As part of its international obligations, Bhutan has committed to making NDCs. There are 10 priority adaptations included in the first NDC, that have been identified as necessary to address the impact of climate change; there are presented in Table 3, on next page.

Table 3 : Bhutan’s 10 priority adaptations included in its first National Determined Contribution

1. Water security	2. Climate resilient agriculture	3. Ecosystem services (forest/biodiversity)	4. Resilience against climate hazards	5. Climate health risks
6. Climate proof transport infrastructure	7. Resilient livestock farming	8. Enhanced climate information services	9. Diversified energy production	10. Resilient urban and rural settlements

Lao PDR

Lao PDR is a landlocked country bordered by Cambodia, China, Myanmar, Thailand and Vietnam. It has a population of 7.33 million people, with an estimated growth rate of 1.51%. The country covers 230,800 square kilometres, with a population density of 32 people per square kilometre. There are regions with varying climates in Laos, including regions of tropical monsoon, tropical savannah, and temperate regions with dry winters and either warm or hot summers.

Climate change trends and impacts

Around the capital of Vientiane, the mean temperature is estimated to have increased by 1.03 degrees Celsius. The data suggests that warming has accelerated rapidly since the start of the 21st Century in all regions. Precipitation has intensified since the 1990s, with an increasing number of months experiencing rainfalls exceeding 600 ml.

Climate change plans and commitments

Since 2000, the Government of Lao PDR has developed many different laws and strategies, including the Climate Action Plan for Lao PDR, 2013-2020. Lao PDR’s key strategic priorities for adaptation and mitigation measures cover seven sectors: Agriculture and Food Security; Forestry and Land Use; Water Resources; Energy and Transport; Industry; Urban Development; and Public Health. The Public Health Adaptation Options include a focus on ensuring continued access to safe water and hygiene, as well as disease mitigation.

How are these plans operationalised?

Lao PDR has a decentralised government. Nonetheless, the plans and strategies tend to be developed in the Ministries at national level and then disseminated to the 17 Province Departments. The Province Departments guide implementation through 148 District Offices, which work with Village Authorities in 8,514 communities. Budget and other resources for climate response and disaster mitigation are allocated at the province level.

Nepal

The SDP for Nepal recognises climate change and WRM as a challenge. Nepal’s varied topography and socioeconomic circumstances make the country particularly vulnerable to climate variability and change. Based on the existing climate projections, Nepal’s water resources are particularly vulnerable.

Climate change trends and impacts

Current estimates suggest that Nepal will experience an increase of 1.3 to 3.8 degrees Celsius in mean temperature by 2060. Key climate impacts in Nepal include floods and landslides arising from heavy rainfall, snow and glacier-melt events, including GLOFs. An increase in freshwater flows is predicted in the shorter-term due to glacier-melt, with reduced flows projected in the longer-term. Droughts are increasing during winters, particularly in the western region. These result in reduced surface-water flows and depleted groundwater levels. In addition, Nepal is experiencing reduced water quality, resulting in waterborne disease outbreaks such as cholera and diarrhoeal diseases.

Climate change plans and commitments

The National Adaptation Plan (NAP) was launched in September 2015. The NAP has two main objectives:

1. Reduce vulnerability to climate change impacts by improving resilience and adaptive capacity.
2. Integrate climate change adaptation into new and current policies, programs, activities, and development strategies across all sectors and levels of government.

Seven sectors are covered by the NAP – Agriculture and Food Security; Water Resources and Energy; Public Health and WASH; Urban Settlements and Infrastructure; Forests and Biodiversity; Climate Induced Disasters; and Tourism, Natural and Cultural Heritage. Gender and social inclusion of marginalised groups, and livelihoods and governance crosscut each sector.

The NAP adaptation pathway for public health and WASH includes:

- Capacity building for professionals, government institutions and other stakeholders to support adaptation-related activities.
- Improvement of physical systems and infrastructure to withstand climate risks.
- Strengthening of services and institutions to manage climate-related health risks.
- Promoting research and development on climate change and health establishment, management and application of databases to track climate change impacts and adaptation in the health sector.
- Reaching the unreached and most vulnerable population and settlements with health services.
- Fostering collaboration among and across sectors to promote adaptation for health.

Nepal's NDC includes the following key policy priorities:

- By 2025, climate risk assessment mechanisms will be integrated into WASH programme cycles. The NAP will be updated every ten years.
- National level Vulnerability and Risk Assessment will be carried out every five years.
- By 2030, all 753 local governments will prepare and implement climate-resilient and gender-responsive adaptation plans.
- These will address climate change and disaster vulnerability and risks focusing on GESI and people residing in climate-vulnerable geographical areas.
- By 2021, GESI and Climate Change Strategy and Action Plan, and Climate Resilient Planning and Budgeting Guidelines will be formulated.
- By 2030, the population with access to the basic water supply will increase from 88% to 99%; and population with improved water supply will increase from 20% to 40%
- The cost of achieving Nepal's NDC conditional mitigation targets is estimated to be USD 25 billion.
- The cost of achieving unconditional targets outlined in the NDC is estimated to be USD 3.4 billion.
- This estimate only covers activity-based targets and does not include the cost of policies, measures and actions.

How are these plans operationalised?

The National Climate Change Policy, 2076 (NCCP) was issued in 2019. The NCCP aims to ensure that a healthy living environment will be created by reducing the adverse effects of climate-induced disasters on human health. Preparedness, forecasting and prevention mechanism will be developed to avoid the epidemic of vector borne and communicable diseases induced by climate change. Water sources will be protected alongside the development and expansion of rainwater harvesting. Improved storage and water efficient technologies will be developed to increase access to, and easy availability of, drinking water. Encouragement will be given to the proper management of harmful and hazardous waste and the use of biodegradable waste for energy production by segregating the waste generated by households, hotel business and hospitals at source. The local government, provincial government and federal government are working towards implementation of CC strategies, however, there is much to be done at local levels for capacity building on adaptation and resilience. Currently, a key focus is on DRR and management processes as heavy rainfall, floods and landslides are recurrent.

The Ministry of Water Supply has started to collect geo-enabled WASH data from more than 297 municipalities. Data related to water supply includes details from the source to the tap. The Ministry is

working on establishing a data update mechanism to update the inventory every year. These data could be very useful in analysing the impact of climate change on water supply.

Kenya

Climate change trends and impacts

Since the 1980s, Kenya has been experiencing low and unevenly distributed rainfall over much of the country with 82% of Kenya receiving less than 700 mm of rain per year. Rainfall is less predictable and the proportion of rainfall that occurs in heavy events is expected to increase. Mean temperature increases have been observed across all seasons, but particularly from March to May.

Climate change plans and commitments

Climate action is governed by the Kenya National Climate Change Action Plan, 2018-2022. Sanitation is included under Climate Change Priority 3: Health, Sanitation and Human Settlement. Three key areas of action under this priority, and the change expected against each area of action are presented in Table 4, below.

Table 4: Key areas of action from Kenya’s National Climate Change Action Plan, 2018-2022 with expected results

Area of Action	Results expected by 30 June 2023
Promote recycling to divert collected waste away from disposal sites.	Implement a circular economy solid waste management approach in Nairobi that diverts at least 90% of collected wastes
Climate proof landfill sites	Existing dumpsites in two major urban areas screened for vulnerability to climate change and adaptation plans developed
Control flooding in human settlements	Flood ways (manmade channels to divert flood water) constructed in select urban centres

How are these plans operationalised?

The Kenya NCCAP has an associated budget of USD 5,075,138. Responsibility for operationalising the plan lies with the Ministry responsible for water and sanitation, MDAs, County Governments, research institutions and academia, civil society and the private sector.

The overarching action is to mainstream climate adaptation in the water sector. Examples of ongoing initiatives and projects include:

- Implementation of the National Water Master Plan (2014);
- Kenya Water Security and Climate Resilience Project;
- Adaptation to Climate Change in Arid and Semi-Arid Lands (KACCAL); and
- Western Kenya Community Driven and Flood Mitigation Projects.

Key gaps include awareness, capacity building and financing. Sub-actions are organised into short-, medium- and long-term sub-actions. Short term sub-actions include:

- Enhance capacity of institutions and bodies responsible for water and sanitation on climate change impacts and the water sector.
- Mainstream disaster risk reduction measures in the water sector planning and service delivery, particularly in vulnerable, high risk regions.

Medium-term sub-actions include:

- Enhance collaboration of trans boundary water resource management.
- Strengthen water resource monitoring and assessment for early warning and planning.
- Promote technologies that enhance water resource efficiency.

The long-term sub-action is to implement the National Water Master Plan.

Mozambique

Climate change trends and impacts

Mozambique has a long coastline of over 3,000 kilometres facing the Indian Ocean. The country is frequently hit by cyclones and large floods. The cyclone season used to finish in March each year. In recent years, however, cyclones have been occurring as late as April and even May. The cyclones bring strong winds with lots of rain dropped in the mountainous areas. The mountains have large river systems that transport the water down to the plains, causing widespread flooding. Saline incursion has started and will accelerate, reducing availability of drinking water and arable land.

Climate change plans and commitments

Mozambique has a medium-term National Climate Plan (2020-2025) with a focus on renewable energy, water and resilient agriculture. The majority of climate funding in WASH is from the World Bank. This funding tends to focus on WASH infrastructure in Maputo, Beira and provincial urban centres, as well as disaster response and recovery.

How are these plans operationalised?

The National Climate Plan has a significant focus on renewable energy, including solar power for pumping. Toilets and sanitation infrastructure need to be resilient to flooding and high winds. Reverse osmosis technology has been introduced for saline intrusion to groundwater. Disposing of the reverse osmosis by products (brine), however, is challenging.

Uganda

Uganda is a landlocked country of 42 million people. It is the second most populous landlocked country, after Ethiopia.

Climate change trends and impacts

Uganda is experiencing significant impacts from climate change, including unpredictable weather patterns, increased water levels, and extreme events including flooding and drought. These impacts are compounding the existing WASH crises impacting the lives of Ugandans.

Droughts are on the rise in Uganda, compounding water insecurity. The Western, Northern and North Eastern regions are all experiencing longer and more frequent droughts. Extreme rainfall events lead to flooding and landslides. Many houses have unimproved latrines, which flood during heavy rainfall. These events have led to degraded water quality and increased transmission of water-borne diseases.

Climate change plans and commitments

Uganda was the first African country to develop and endorse its NDC Partnership Plan in June 2018. Uganda ranks high in its number of commitments regarding climate change mitigation and environmental protection. It launched the National Climate Change Policy in 2015, submitted its IDCs to the United Nations Framework Convention on Climate Change in 2018, has a Green Growth Strategy in place, and has signed up to meet the Bonn Challenge.

NCD commitments include:

- A 22% reduction in national greenhouse gas emissions by 2030.
- Reducing climate vulnerability of climate sensitive sectors since the economy is based on natural resources.
- Building the climate resilience of key sectors and managing disaster risks.
- Improving water efficiency by using off-grid solar systems to manage water supply in different sectors.
- Managing water resources systems, including wetlands that are threatened by urbanization.
- Improving early-warning systems for disease outbreak, including endemic cholera, Ebola and COVID-19.
- Making provision for a safe water chain and sanitation facilities to limit outbreaks of water borne diseases, noting that diarrhoeal illness kills 333 children in Uganda every day.

How are these plans operationalised?

Uganda's Intended Nationally Determined Contributions (INDC) policies are mainstreamed into the country's National Development Plan III (NDP III) and the Green Growth Development Strategy, as well as the Nationally Appropriate Mitigation Actions (NAMAs) and various sectoral policies and strategies. Despite having these policies in place, several challenges remain. These include effective implementation of the policies, which is affecting the WASH gains made to date. The Annual Water and Environment Sector Performance Report, 2020, indicates a decline of 8.5% of people who have access to an improved drinking water source, among those living in urban areas. Water and sanitation infrastructure have been damaged and destroyed by flooding.

Further challenges include a lack of appropriate technologies and limited capacity among implementing partners. In addition, Uganda's climate response is largely contingent on international funding. The National Climate Change Policy 2016 is costed at USD 3.9 billion over 15 years (USD 258 million per annum), with 30% of that cost funded through domestic revenues and 70% through international funding. Local governments frequently find themselves trying to prioritise competing demands, as WASH gains are eroded by the impact of climate change.

Summary of country poster presentations

Presented by Jeremy Kohlitz, Researcher at the Institute for Sustainable Futures, University of Technology Sydney, Australia

Mr Kohlitz recognised that it is not always easy to find the language on WASH in the various legislation, policies and guidelines and applauded the teams for identifying so much. He noted that WASH and especially sanitation tends to get buried amid many competing priorities. Climate change affects all sectors, which then compete for limited funding and attention. The question is how to raise the profile of WASH to ensure its visibility among other priorities. There is a need for synergy, coordination and harmonization. One approach can be to think about what the WASH sector may offer other sectors. Are there opportunities for sludge and recycled wastewater to improve resilient agriculture? What are the benefits from improved health and reduced morbidity and mortality? Funders, too, often look for synergy across sectors and demonstrating this can be a good way to attract increased funding for WASH.

In conclusion, Mr Kohlitz remarked that few of the National Adaptation Plans contained specific policies on WASH and that these could be strengthened through greater **depth** of sector-specific guidance as well as considering **breadth**, i.e., how the WASH sector can engage with other sectors.

Block 2: Field assignments

Overview of Block 2

Why is this relevant?

Measuring resilience is difficult, but will make it more tangible. Measurement will also help to facilitate a dialogue about necessary actions. For the measurement, we are relying on the tools that University of Bristol made for their "How Tough is WASH" research. During the field assignments – both virtual and in the field – these will be tested. The tool intends to measure the resilience of WASH structures and services in different settings. The Field Assignment allows the program teams to test the tool and to provide feedback on who the tool performs in the field.

What are the objectives of this block in terms of knowledge and learning outcomes?

- To pilot the How Tough is WASH monitoring tool in a variety of settings
- To provide feedback to the developers of the How Tough is WASH tool on what works well and how the tool may be strengthened
- To analyse the integration of climate change and WASH policies and the resilience of WASH services
- To provide recommendations on how to strengthen the resilience of WASH services

What was the process?

- The Bhutan, Kenya and Mozambique country teams were able to conduct actual field trips, travelling to program sites in their respective countries.
- All other country teams faced travel restrictions due to COVID outbreaks. As such, they conducted an assessment of their selected village or area through geospatial data accessed through Google Earth™ and data from the SNV household surveys
- All teams reported back to the plenary and provided recommendations to the representative from the University of Bristol's How Tough is WASH research team

Preparation for field assignments

Presented by of Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands

In the EGroup discussion some people mentioned that we can assess the resilience of services **retrospectively**, that is, did they survive a sudden or gradual change in context? This section seeks to understand whether we can assess if WASH services can be expected to be resilient as a **prospective** activity.

The three objectives of this exercise were to:

- Explore resilience metrics for WASH in each country context.
- Reflect what the information means, how it could be used, and what could be improved.
- Provide feedback and recommendations at two levels. Firstly, what recommendations can you make in the context of how the services could be made more resilient and secondly, how could the tools to measure the resilience of WASH be adapted?

Ms Kome introduced the **How Tough is WASH** tool, noting that one of the researchers that developed the tool, Ms Anisha Nijhawan, would deliver a presentation on the tool later in the Event, as well as hear the feedback developed by the country teams as part of this activity. The tool comprises seven indicator domains. For this exercise, the select from six of the seven domains for this activity.

Table 5: The How Tough is WASH indicator domains and proposed data collection methods

Indicator Domain	Method of data collection
National Policy	Policy review
Environment	Geospatial analysis using Google Earth TM Use of data from SNV's household survey
Infrastructure	Visual sanitary inspection
Management	Stakeholder interviews
Institutional support	Stakeholder interviews
Supply Chain	Stakeholder interviews
Community Governance	Not included

Virtual fieldtrip

The country teams who were unable to travel into the field were asked to prioritise two domains: environment and national policy. These domains were judged to be the most easily assessed using secondary information obtained through Google Maps and information from the SNV household surveys. Where possible, the other domains could be assessed using SNV household survey information.

Real-life fieldtrip

The teams were asked to describe the WASH services in the area, and to assess at least two of the domains and discuss the outcomes with local stakeholders.

All teams were asked to consider the following questions:

- How would you rate the resilience of WASH services in this area?
- What are the implications or recommendations for improving resilience from stakeholders?
- What is your feedback on the tools used in the assignment?

To allow for different styles of learning and communication, several outputs were requested:

- A photo-diary or video (on-line groups prepared this based on existing photos from the programme area)
- A testimony (where possible, on-line groups solicited a testimonial by phone)
- A PowerPoint presentation with findings and recommendations

Ms Kome then provided an example of the environmental indicator for sanitation (Table 6) and an explanation of how to score each domain (Figure 2). Each element of the indicator is given a score, and the score for the indicator as whole corresponds with the lowest element score.

Presentation of findings from field assignments

A summary of the presentations from each country team is presented from page 20.

Table 6: Example of a 'How Tough is WASH indicator with scoring rubric.' University of Bristol

Elements	1 Very low resilience	2 Low resilience	3 Medium resilience	4 Good resilience	5 High resilience
Location of on-site toilet	Toilet is outside of the house AND downhill of extensive, steeply sloping built-up land or bare soil	Toilet is outside of the house AND downhill of some steeply sloping built-up land/bare soil	Toilet is outside of the house AND downhill of moderately sloping managed or cultivated land	Toilet is inside of the house OR downhill of gently sloping managed or cultivated land	Toilet is inside of the house OR downhill of gently sloping, managed or cultivated land; downhill of gently sloping natural land
Flooding	Area frequently (annually) inundated with river or sea water, OR has no flood protection measures around the latrine	Area regularly (once every 3-5 years) inundated with river or sea water, AND has partial flood protection measures around the latrine	Area occasionally (once every 10 years) inundated with river or sea water, AND has flood protection measures around the latrine	Area rarely (once in 20 years or more) inundated with river or sea water, AND has flood protection measures around the latrine	Area never inundated with river or sea water, AND has flood protection measures around the latrine
Ground water table	In area with high ground water table	In area with high ground water table	Not in areas with high ground water table	Not in an area with high ground water table	Not in an area with high ground water table

Figure 2: Example of scoring

	1	2	3	4	5
Element 1	↓				
Element 2		↓			
Element 3			↓		
Element 4				↓	

Example 1: score is 1

	1	2	3	4	5
Element 1					
Element 2					
Element 3					
Element 4					

Example 2: score is 2

	1	2	3	4	5
Element 1					
Element 2					
Element 3					
Element 4					

Bhutan country team: Punakha



Punatsangchu (Punakha River). Image by Kencho Wangdi

Background

The Bhutan country team organised themselves into three groups to explore the domains of National Policy, Infrastructure and Institutional Support, and travelled to Punakha District to visit Samdingkha village in Toewang sub-district. Toewang sub-district covers an area of just under 416 square kilometres with an altitude ranging from 1250 to 3700 metres above sea level. It is home to 2,421 people in 454 households and has sanitation coverage of 95%.

Findings from stakeholder interviews

There is currently inadequate water supply: works on alternate water source have been initiated. The Gewog leaders feel deforestation in watershed area areas and poor solid waste management are contributing to the drying up of water sources. Four riverside communities are highly prone to flash floods; three early warning systems have been installed. Other climate change risks include landslides.

Mitigation response includes awareness raising among households and communities, and new house construction approval requires inclusion of a toilet in the designs. There is some discussion on climate change during community meetings.

Adaptation measures include recommended construction of soak pits for household septic tanks. There is a sound local system of processing, reporting and compensation of assets damaged by natural disasters (including sanitation structures). However, coordination between different stakeholders needs to be strengthened.

Testimonial

We constructed our toilet about a year back and it had made a big difference in the quality of our lives, both for convenience and health. In our village we no longer see faeces around the house and village, and less flies around. We also feel there has been decrease in incidences of diseases. We feel the improvement in sanitation have brought huge benefits to the community. All households in the village have improved/basic sanitation and have good understanding of the benefits. The Health workers and local government officials played a big role in promoting sanitation. When we are at work and when nature calls, we now come back home to do the business. There is no danger of landslides in our village. Although there is strong winds in winter, so far there has been no damage to our houses and toilets, and this can be contributed to our luck and strong construction of infrastructure.

- *Residents, Samdingkha Village, Punakha*

Feedback on the How Tough is WASH tool

The findings against the three selected How Tough is WASH domains are presented in Table 6, below. The Bhutan country team had the following observations on the use and application of the tool:

- General guidance notes/questions & sanitary inspection forms were useful in assessing the facility
- The scoring system provided an opportunity for good reflection within the team
- There was some confusion in scoring due to similar description for scoring criteria

Table 7: Bhutan country team’s findings using the How Tough is WASH assessment tool

Indicator domain	Elements	Sub-Domain	Score	Justification
National policy	WASH in climate plans and policies	Water supply	5	Climate change policies and adaptation plans identify the risks to drinking water. Water receives the highest priority from the government through the water flagship programme. (Nu. 5 billion/USD 71.4 million has been allocated) Climate Change policy prominently reflects water as important parameter for Climate Change adaptation and mitigation. Water for drinking and sanitation have been accorded the top priority in the Bhutan Water Policy 2007
		Sanitation	3	Sanitation is highlighted in the Climate change policy NAPA 3 has prioritized awareness and capacity building through education and training on subjects such as drinking water and sanitation technology. NAPA 3 has also identified climate-resilient micro watershed protection interventions and measures that are community-based water sanitation approaches. Policy actions are yet to be supported by dedicated budget allocation.
	Climate in WASH plans and policy	Water supply	4	Bhutan water policy has accorded highest priority for water use to drinking and sanitation Water flagship program has prioritized climate change adaptation activities such as watershed management, capacity building for water users, water safety activities through community approach with climate resilient infrastructures
		Sanitation	3	National Sanitation and Hygiene policy and implementation plan prioritizes the need to develop climate resilient sanitation technologies

Indicator domain	Elements	Sub-Domain	Score	Justification
Infrastructure	Flooding of pits	Sanitation	5	<p>The risk of flooding and landslides in Samdingkha village is low as it is situated at higher ground. There are also no records of flooding in the past in the village. The toilet infrastructure including the substructure are of good quality (concrete).</p> <p>The risk of contaminating the drinking water is low as the water supply is through gravity feed.</p> <p>However, there is high risk of flooding in four low lying communities under the subdistrict administration. And the risk of landslides is also high due to higher rate of rainfall.</p>
	Stability of superstructure	Sanitation	5	<p>The toilet infrastructure including the substructure are of good quality (concrete).</p> <p>Most of the toilets are either attached or within 10 m from the house</p>
	Water availability	Sanitation	3	<p>The village is experiencing water shortage in general.</p> <p>The villages experience drying up of the water sources.</p> <p>There is conflicting priorities between irrigation and drinking water supply.</p> <p>Water is stored in reservoir tanks.</p>
	Sanitary risk	Sanitation	4	<p>Hygienic use of facilities can be improved.</p>
Institutional support	Presence of risk management		3	<p>Few trainings provided on waste management, pollution caused by plastic, advocacy and preparedness (installation of detectors) - organised by Department of Disaster Management (DDM) and National Centre for Hydrology and Meteorology (NCHM)</p> <p>Awareness created on staying alert and also dissemination of information through media</p>
	Support and coordination		2	<p>Ad hoc supports are provided which includes relocation of HHs to a safer area when they fall under high risk areas, However there is no clear adaptive measures for sanitation and hygiene facilities, and limited or no coordination was observed among the other sectors</p>

Indicator domain	Elements	Sub-Domain	Score	Justification
	Response after an emergency		3	<p>No experiences shared on sanitation and hygiene facilities response, however for other emergency responses there is a procedure in place. The gewog will inform the disaster management at District who then does the inspection of the affected area along with engineers and geog official. The report will be shared at the central level who then provide aid as required (for example, following the collapse of the Siwala monastery wall)</p>

Lao PDR Country Team: Savannakhet Province



The Lao PDR Country Team conducting a field visit in less restricted times.

Background

Due to pandemic-related lockdown, the Lao PDR country team conducted a virtual field trip to Savannakhet Province in south-central Laos. SNV are implementing Sustainable Sanitation for All: Beyond the Finish Line in three municipalities of Savannakhet, under the DFAT-funded Water for Women program. The virtual field trip focused on the city of Champhone. Champhone is the largest of the three municipalities and is home to 115,915 people in 17,829 households. It is prone to seasonal flooding.

The team elected to assess the WASH services in Champhone against six domains of the How Tough is WASH tool: National Policy and Strategy; Environment; Infrastructure; Management; Institutional Support; and supply chain. The scoring for each domain is presented in Table 7, below, along with feedback on the assessment tool. Being unable to travel, the team conducted interviews with Government officials that were in Vientiane to participate in gender and social inclusion (GESI) training. The testimonial from a community leader at Ze villages, Champhone District is presented here:

Testimonial

Her village is always flooding every year in rainy season. It is often covered in water for 5 -7 days then everything is back to normal. The biggest damage is in the rice field where the crop is often wiped out. During rainy season, she normally stocks up basic supplies instant noodle, drinking water bottles, dry food, and keep livestock safe. Her family built a toilet that is at least 1-2 meters above the ground, because flooding is regularly around 1.5 meter high, and even higher some years. There is no need to empty the pit because after flooding, they can reuse it again without any trouble. Sometimes, it is difficult to contact with a pit emptier services as they are in the provincial level, and the road condition is not good for them to access.

Feedback on the How Tough is WASH Tool

The findings against the six selected How Tough is WASH domains are presented in Table 7, below. The Laos country team had the following observations on the use and application of the tool:

- National policy and strategy vs. Specific guidelines and resources for implementation in the field.
- Illogical combination of parameters (hilly or flat land, toilet location, flood prone vs. protection measures)
- Repeating the same parameters
- Subjective description (No or limited, or partial, or comprehensive protective measure)
- Pit emptying vs. safe management of pit content
- Questions asked vs. roles of informants
- Description of situation vs. checklist on requirements or actions to be taken (similar to sanitation inspection)

Table 8: Lao PDR country team’s findings using the How Tough is WASH assessment tool

Indicator domain	Elements	Score	Justification
National policy	WASH in climate plans and policies	5	The Strategy on Climate Change and the Climate Change Action Plan of Lao PDR (2013 - 2020) have included specific section related to WASH under public health sector. The updated "Intended Nationally Determined Contribution (2020) also specified mitigation and adaptation plan related to WASH
	Climate in WASH plans and policy	3	The new rural WASH Strategy (2020 - 2030) mentioned Climate Change but without recommendations on adaptation or specific implementation guidance.
Environmental	Location of onsite toilet	4	Toilet is outside of the house, mostly slightly downhill or at level with water source
	Flooding	3	Area is regularly flooded. Toilet pits are raised partly above the ground and sealed at the top. Toilet pit overflow or flooded is not a major issue
	Ground water table	2	The district has a relatively high water table.
Infrastructure	Flooding of pits	3	Toilet pits are raised and sealed from the top to prevent water getting in/out during flooding season
	Stability of super-structure	3	Toilet pits are raised and sealed from the top to prevent water getting in/out during flooding season
	Water availability	3	Water supply may not be sufficient for demand (during dry season)
	Sanitary risk	2	Risk of ground water source pollution and also OD during flood season

Indicator domain	Elements	Score	Justification
Management	Water availability	3	Water sources contaminated during the flooding. PHD provided onsite treatment of drinking water as emergency response
	Repair latrines	4	PHD provided guidance on latrine repairs after flood, but costs are fully covered by household. Very few are damaged or need repairs
	Maintenance flood protection	3	
	Emptying or replacing	3	Limited pit emptying services & HH dig a new pit when required
Institutional support	Response after an emergency	3	Slightly delay of data collection and allocate budget for technical support after emergency and having coordination across the sectors
	Support and coordination	3	
	Presence of risk management program	3	Local government has a disaster committee but limited management program & training; unaware of any climate change strategy or policy

Questions and Answers

There were no questions from the plenary to the Laos Country Team

Nepal country team: Sundarbazar municipality



Bio-engineering plantation to prevent landslides at Dungeshawor RM, Dailekh, Nepal. Image: Ram Singh

Background

Nepal has ambitious targets under the Sustainable Development Goals, and the 15th Five Year Plan. Currently, climate resilient water safety plans have already been rolled out as integral part of new and existing water supply systems, as an initiative to enhance water quality to meet national standards as well as enhance the functionality and sustainability of the water supply system over the long term. The WASH sector has initiated programmes on climate change and natural hazard insurance in a range of larger water supply schemes in order to make these systems and the communities depending on them more resilient. In addition, the Ministry of Water and Sanitation has also prioritised wastewater, faecal sludge and solid waste management (as integrated component of water supply and sanitation) within the 15th Five Year Plan period, and this will be continued through 16th Five Year Plan period.

The Nepal country team decided to review two domains: National Policy and Environmental. To assess the National Policy domain, the team looked at all available policies on both WASH and climate change. The assessment of the Environmental domain focused on the Kakuchi Kuwapani Water Supply Project, in Sundarbazar Municipality. Sundarbazar lies 163 kilometres west of Kathmandu and contains 159 water supply schemes. Some 92.5% of Sundarbazar's population is serviced by functional taps and the areas has been declared ODF. Lockdown restrictions meant that the assessment was carried out remotely. The assessment against the two selected How Tough is WASH domains are presented in Tables 8 and 9, pages 28-31.

Findings & Recommendations: Climate Change Adaptation

The Sector needs to increase adaptation through integration of climate risk assessment mechanisms into the WASH (especially sanitation) programme planning and implementation cycles. Presently, the sector does not monitor WASH from a climate perspective. Mainstreaming indicators related to climate change into WASH sector's planning and monitoring framework will institutionalize the collection of climate related data. There is data generation gap in the WASH sector to show outright evidence of climate issues and impacts. Enhancing data readiness of WASH sector with respect to climate change adaptation impacts will support the WASH sector in generating such data.

Findings & Recommendations: Climate Change Mitigation

Mitigation from a WASH perspective could be taken as co-benefit to address the climate issues. WASH sector brings about reduction of greenhouse gases if green sustainable sanitation management is practiced. There is a data gap in WASH sector as a result of which no outright evidence of climate issues

and impacts. Support local governments in data collection and interpretation may be needed to inform programming. Budget allocations for climate adaptation and mitigation need to be explicit in WASH programmes and planning. There is opportunity to strengthen the inter-government coordination mechanism, with regards to climate change as a cross-cutting governance issue.

Feedback on the How Tough is WASH tool

The Nepal country team had the following observations on the use and application of the tool:

- Easy to use;
- Indicators will have to be contextualized/modified to make them country specific; and
- Ranking may always be subjective (biased).

Questions and Answer

Q: There is quite a lot in policy pertaining to WASH and climate. More than most other countries. What do you think has been the driving force of this?

A: Nepal is very vulnerable to the impacts of climate change and there has been a lot of investment, especially from the UK. There is also a lot of leadership in Nepal. The sectors of Population and Health and Forestry, among others, are very active. Lots of resources invested and lots of interest and engagement. Nepal WASH sector has a lot of activities going on WASH has made big advances, with lots of people interested in continuing and expanding the response.

Q: Do the landslides affect the latrines? How would this influence your scoring?

A: Yes, depending on the quality of the toilets. In the ranking, if they are pit toilets we would mark down as they are more likely to be damaged in landslide.

Table 9: Findings by Nepal Country Team against the National Policy domain, using the How Tough is WASH assessment tool (Element focus: WASH in climate change plans and policies)

Policy	Sub-element	Score	Justification
Overall	n/a	3	Climate change policies and national adaptation plans exist
		4	They identify the WASH sector as climate-sensitive
WASH Sector Development Plan	Integration of climate in drinking water policies and plans	3	<p>The document views the sector from the adaptation and resilience perspective and emphasize that WASH sector is the sector with huge impact from climate change</p> <p>It recommends strategic actions to enhance the adaptation against climate change (source conservation, enhancing use of solar pumps, rainwater harvesting, etc.) and also emphasize the exploration of innovative ways to address it</p> <p>The documents highlights the investments from climate finance as one of the potential funding schemes for WASH sector</p> <p>It indicates the need of defining climate risk and addressing them in planning, implementation and monitoring of WASH programme Budget not explicit for climate change adaptation</p>
National Sanitation and Hygiene	Integration of climate in sanitation	3	It addresses the importance to promote water conserving sanitation technologies and awareness campaigns linked as an adaptation to climate change

Policy	Sub-element	Score	Justification
Master Plan 2011	policies and plans		<p>Highlights that the regular research and development activities will provide proper guidance for selection of mitigation/adaptation measures to cope with the climate change impacts in the sanitation and hygiene sector</p> <p>Not explicit about climate change budgetary component</p>
Total Sanitation Guideline 2017	Integration of climate in sanitation plans and policies	3	<p>Climate change has been mentioned as one of the cross-cutting elements in the document.</p> <p>It recommends the sector to plan the water and sanitation programmes from the perspective of climate change and also focuses on more research and development to establish clear linkages.</p> <p>It also recommends the sector to reform any existing policies if required to address from the aspects of climate change. Not explicit about climate change budgetary component</p>
WASH Bill (submitted to the cabinet)	Integration of climate in drinking water and sanitation policies and plans	4	Source conservation is prioritized in the document, and other climate related issues
Disaster Risk Management Guidelines (Draft)	Integration of WASH in climate plans & policies	4	Guiding document on WASH sector's resilience to disaster risk and climate change Explicit about climate change
	Integration climate in drinking water and sanitation policies and plans	4	Guiding document on WASH sector's resilience to disaster risk and climate change Explicit about climate change
National Climate Change Policy 2019	Integration of WASH in climate plans & policies	4	<p>Preparedness, forecasting and prevention mechanism will be developed to avoid the epidemic of vector-borne and communicable diseases induced by climate change.</p> <p>Water sources will be protected besides development and expansion of rainwater harvesting and storage and water efficient technologies will be developed to increase access to, and easy availability of, drinking water.</p> <p>Encouragement will be given to the proper management of harmful and hazardous waste and the use of biodegradable waste for energy production by segregating the waste generated by households, hotel business and hospitals at source.</p>

Policy	Sub-element	Score	Justification
National Determined Contribution	Integration of WASH in climate plans & policies	4	<p>By 2025, climate risk assessment mechanisms will be integrated into WASH programme cycles. The NAP will be updated every ten years.</p> <p>By 2021, GESI and Climate Change Strategy and Action Plan, and Climate Resilient Planning and Budgeting Guidelines will be formulated.</p> <p>By 2030, all 753 local governments will prepare and implement climate-resilient and gender-responsive adaptation plans.</p> <p>By 2030, the population with access to the basic water supply will increase from 88% to 99%; and population with improved water supply will increase from 20% to 40%</p>
National Adaptation Plan	Integration of WASH in climate plans & policies	3	<p>Aims to reduce vulnerability to climate change impacts by improving resilience and adaptive capacity</p> <p>Integrate climate change adaptation into new and current policies, programmes, activities, and development strategies across all sectors and levels of government</p> <p>Promoting research and development on climate change and health establishment, management and application of databases to track climate change impacts and adaptation in the health sector</p> <p>Not explicit about climate change budgetary component</p>

Table 10: Findings by Nepal Country Team against the Environmental domain, using the How Tough is WASH assessment tool in Sundarbazar

Sub-domain	Element	Score	Justification
Water supply	Rapid runoff or falling debris	1	Downhill of extensive, steep (>25%) sloping built up land or bare soil Slope calculated using contour map at 33%
	River or coastal flooding	5	Area never inundated with river or sea water AND source has flood protection measures No historical flooding events found; inundation is not possible
	Faecal Contamination	5	In an area with no open defecation AND pit latrines at no risk of inundation Municipality declared ODF and no risk of inundation in the settlement
	Competition over water	5	Other water users have negligible impact on water availability Mainly domestic use
Sanitation	Location of onsite toilet	2	Toilet is outside the house AND downhill of some steep (>25%) sloping built-up land/bare soil Slope calculated using contour map at 33%
	Flooding	5	Area never inundated with river or sea water AND has flood protection measures around the latrine No historical flooding events found; inundation is not possible
	Ground water table	5	Not in an area with high ground water table Area is hilly, with low ground water table

Kenya country team: Ahero



Household latrine in Agape community, Ahero

Ahero Catholic Water Project

Background

The Kenya country team was co-located in Nairobi and Kisumu. Team members in Kisumu were able to travel to Ahero, sub-county, approximately 35 kilometres from Kisumu. The team travelled to the Nyando Sub-County Water Office, where they held key informant interviews with the Sub-County officer and the County Water Officials. The discussion focused on institutional support to rural community water supply projects

The team visited the Ahero Catholic Water Supply Project to pilot the How Tough is WASH tool. The project was constructed in 1967 by the Catholic Church. Its water source is 95-metre-deep borehole with an established yield of 18 cubic metres per hour. It serves approximately 4,500 people including schools, hospitals and churches in Ahero township and its environs. It is operated by a small team responsible for the day-to-day operations under the supervision of the Ahero Catholic Church priest and the pastoral council. The team assessed the water supply against three how Tough is WASH domains: Infrastructure, Management, and Institutional Support. The findings of the assessment of the Ahero Catholic Church Water Supply are presented in Table 10.

Recommendations

- **Infrastructure:** Regular water testing to check on residual chlorine; ensure line patrollers actively check on the pipelines on a daily basis.
- **Management:** Enhance capacity of the management committee on risk assessments; Consider having increased women's representation.
- **Institutional Support:** County Government to be more proactive in terms of timely resource allocation; County Government to prioritize the development of a risk management programme.

The Kisumu-based team also visited the Agape Community water project located in Tura Village. The Tura water source is a 58-metre-deep borehole with a pump setting of 39 metres. The borehole serves a population of over 500 people but was non-functional at the time of the visit due to pipe leakage. The project is supported by GWAKO, with drilling and pump repair supported by UNICEF. The findings of the assessment of the Tura water source using the How Tough is WASH assessment tool are presented in Table 11.

Recommendations

- **Infrastructure:** Relocation of the latrine, Agape WASH Committee to facilitate the repair of the borehole; neighbouring households to construct latrines, Public Health Officer or Community Health Volunteer to sensitize the households on importance of having latrines.

Feedback on the How Tough is WASH tool

The Kenya country team had the following observations on the use and application of the tool:

- Straight forward and easy to administer;

- Relevant; and
- Applicable in the local setting.

Question and Answer

Q: I would like to understand how the Ahero Catholic Water is maintained as built in 1967 still shows a very good condition. Is it a community managed and kept based on the community contributions? Can you share your experience?

A: The Ahero Catholic Water Project is under the parish council and has received support from partners and well-wishers in terms of infrastructure support and rehabilitation. As much as there is a management committee, they are under the parish council which provides overall management role. This has contributed to the good operation and management as compared to those that are purely community owned. However, in the past they have had management issues which they managed to resolve with intervention of the county, partners and the church.

Table 11: Kenya country team’s findings using the How Tough is WASH assessment tool

Indicator domain	Element	Score	Justification
Ahero Catholic Church Water Supply			
Infrastructure	Overall	3	Protective measures are comprehensive, there is low sanitary risk at source, there are no raised tanks at risk from wind. However, there is medium sanitary risk within distribution system and minor damage and leaks in the distribution network
	Protection	5	Comprehensive protective measures against all risks of damage and inundation of supply in place
	Data yield trends	not scored	Data on yields is available-18m3/hr
	Sanitary risk at source	4	Low sanitary risk at source
	Sanitary risk in distribution system	3	Medium sanitary risk within distribution system
	Distribution network	3	Minor damage and leaks in the distribution network
	Tanks at risk of wind	4	No raised tanks at risk of wind
Management	Overall	2	Management is reasonably good, operators have basic training, there is limited participation in risk assessments and community engagement and support is moderate. However, understanding of climate change and adaptive management is basic and there is minimal representation of women
	Management capacity of the operator	3	Management is reasonably good, including financial with actions when problems arise although not necessarily in good time.
	Understanding of climate change	2	Basic understanding of Climate change and adaptive management

Indicator domain	Element	Score	Justification
	Participation in risk assessments	3	Limited participation in risk assessments
	Operator training and skills	3	Operators with basic training with moderate range of skills
	Community engagement	3	Moderate community engagement and support
	Participation and decision making by women	2	Minimal representation of women
Institutional support	Overall	1	Ad hoc support for water supply managers is provided to develop and undertake adaptive measures. There is some delay in procuring parts or technical support. There is no formal risk mgt in programme in place in local government
Tura			
Infrastructure	Tura borehole with handpump	3 out of 11 risks	No barrier around the water source, sanitation facility is at higher ground less than 30 m away and has an open field around that fills with water
	Tura dry toilet with single put	5 out of 13 risks	Toilet serves 3 households, drop hole is soiled with urine, no hand washing facility next to it, no drop hole cover and is located at higher ground from the drinking water source.

Mozambique country team: Manhica and Maimelene



Public toilet and biogas unit as a septic tank. Manhica.



Water source, equipped with hand pump. Vilanculos

Manhica

Due to travel restrictions, the Mozambique country team constructed two separate fieldtrips. The team based in Maputo conducted an assessment focused on Manhica municipality, which lies 70 kilometres south of Maputo and has a population of 77,191 people. They assessed the domains of National Policy, Environment, Institutional Support and Supply Chain. National Policy was assessed through review of relevant documents, Environment through geospatial analysis using Google Earth™, Institutional Support through an interview with a Municipality Officer, and Supply Chain through an analysis conducted at a public toilet facility. The results of the analysis are presented in Table 11.

Interview with the Municipality Officer in Manhica

Officials from Municipality have never received specific training in climate changes topics. The Municipality has its master plan that generally addresses aspects of climate change and the environment, including adaptive measures, such as land use planning. The central government supports when the Municipality's annual budget does not cover the needs, therefore local taxes are mainly the basis for collecting funds for public investment for risk management. The Municipality normally receives support from the National Institute for Natural Disaster Management (INGD) for repairs and maintenance. Municipality officers coordinate some of their actions with other sectors.

Maimelane-Vulanjane

The team based in Vilanculos visited Maimelane-Vulanjane community in Inhassaoro District. Inhassaoro is located in the northern part of Inhambane Province. And has a population of 60,506 people. Maimelane-Vulanjane is home to 615 households and a total population of 2,831 people. Agriculture is the main activity of the community. The team met with the Water Committee and visited a water source equipped with a hand pump. They noted that the water committee was well established and each of the 12 members had specific roles and responsibilities. The committee collects monthly operational fee from households (amounting in 25MZM) and uses the money to maintain and repair the water source (for instance, purchase of spare parts). The water source is protected by a fence. However, no one is trained to repair the pump so when it breaks, they must pay a mechanic to repair it. The Team assessed Environmental and Institutional domains. The results are presented in Table 11, below.

Interview with government representative in Maimelane-Vulanjane

There is an adaptive WASH strategy in place, that is being disseminated nationally. There are also established environment clubs in schools which support the dissemination of key messages. The government works with religious, community and local leaders to raise awareness of climate change and its impacts.

Recommendations for improving the resilience of WASH services

The **government** should:

- Develop and implement policies as well as monitor the implementation.
- Provide funding, technology (solar piped system, clean energy stoves), and technical support.

The **communities** should

- Through their leadership disseminate policies and support the government on the monitoring process.
- Set community rules to discourage harmful attitudes (such as burning/cutting trees).
- Encourage planting of trees (see for example, the project One Leader – One Forest).
- Avoid funding projects which may jeopardize environment (coal production).

Feedback on the How Tough is WASH Tools

- The tools are useful to collect relevant data at all levels (government/local/community/etc.)
- The tools allowed us to get informed on fundamentals around the issue
- It is inclusive in the sense that it tackles all areas (agriculture/WASH/etc.)

Questions and Answers

Q: Was it easy to use Google Earth™ and did you feel that the resolution was good enough to see some useful features in the catchment?

A: Yes, it was easy to operate Google Earth™, however the challenge was with the quality of internet. The presentation does not show good resolution only due the presentation scale – on the computer the resolution was very good. It is a very useful tool that helped to provide an overview of region.

Q: You mentioned in Vilanculos that past flooding affected water quality. Has this been verified? What is the policy on water quality?

A: The community think that is because of flooding, but recently the project did some water source mapping, which demonstrated that the conductivity is within the limit established by the WHO. However, there are different minerals that affect the water quality.

Table 12: Mozambique’s country team’s findings using the How Tough is WASH assessment tool

Indicator domain	Elements	Score	Justification
Manhica			
National policy	WASH in climate plans and policies	1	CC policies and adaptation plans do not identify sanitation as an impacted sector
	Climate in drinking water plans and policy	3	Sanitation policies include limited discussion on climate change without offering recommendations on adaptation
Environment	Location of onsite toilet	3	Toilet is outside of the house AND downhill of moderately (10% -25%) sloping managed or cultivated land
	Flooding	4	Area rarely (once in 20 years or more) inundated with river or sea water AND has flood protection measures around the latrine
	Ground water table	3	Not in an area with high ground water table
Institutional support	Presence of risk management program	3	Local government has a limited risk management programme AND provides limited risk management training to sanitation users/ managers

Indicator domain	Elements	Score	Justification
	Support and coordination	3	Does not provide support to implement adaptive measures and no coordination with other sectors
	Response after emergency	3	Slight delay in procuring parts or technical support after an emergency
Supply chain (sanitation)	Source of parts and service	3	Limited sources of toilet building materials AND emptying services
	Accessibility	4	Multiple routes exist between community and the market with low risk of damage to roads, bridges or mobile communication networks from natural hazards
	Stock	4	Products for simple repairs available in community.
Maimelane-Vulanjane			
Environment	Water source	4	
	Ground water table	4	
Institutional support	Maintenance	5	

Uganda Country Team: Amach Sub County, Lira district



Excavation of pit latrine. Image: Uganda Country Team



Complete pit latrine. Image: Uganda Country Team

Background

Due to travel restrictions, the Uganda country team conducted a virtual assessment. The investigated the domains of National Policy and Environment.

They identified seven key climate change policies, including the National Adaptation Plan. The adaptation plans were developed by each sector and amalgamated into on National Plan. WASH is implicitly considered a climate sensitive sector. Uganda ranks high in its number of commitments regarding climate change mitigation and environmental protection, including launching its National Climate Change Policy 2015, and submitting its Nationally Determined Contributions to the United Nations Framework Convention on Climate Change in 2018. A Green Growth Strategy in place, and Uganda has signed up to meet the Bonn Challenge. The Climate policy provides direction to all sectors that are affected by climate change to facilitate adaptation and mitigation and to strengthen coordination of efforts amongst all sectors to build an overarching national development process that is more resilient.

The Environment domain was assessed by analysing survey data from five villages in the Amach Sub-County of Lira District. The team assessed the sub-domains of Location, Flooding, and Ground Water. The results are presented in Table 12, below.

Recommendations to improve climate resilient WASH

- Find appropriate means of measuring ground water / water table depth in each village. This could be done by sharing the ground water Atlas with local stakeholders.
- Increase flood protection mechanism, for example, by raising the ground in relevant areas.
- Improve latrine technologies from pit latrines, for example: UDDT, water closet toilets, line pits.
- Continuous capacity building on resilience.
- Encourage climate smart agriculture to reduce environmental degradation.
- Encourage sanitation Marketing via appropriate WASH materials.
- Facilitate WASH improvement loans through PPP.
- Standardize WASH facilities.
- Establish climate resilient ambassadors, for example, five per village.

Feedback on the How Tough is WASH Tools

- Reduce the climate resilient steps from 1 -3.
- Integrate more simple GIS tools.

Questions and Answers

Q: Since there are no explicit policies to address environmental resilience, how have you been holding communication with the communities without the basic instrument?

A: The policies are there; what we said is that they are not very explicit on WASH

Table 13: Uganda country team’s findings using the How Tough is WASH assessment tool

Indicator domain	Elements	Score	Justification
Sanitation	Location of onsite toilet	1	49HHs of the 55HHs had their own toilet not shared, 5HHs shared a toilet while only 1HH did not have a toilet facility
		3	49 HHs had pit latrines which imply they are located outside the house. (limitation in the data set to identify gradient of latrines location i.e., downhill/uphill)
	Flooding	3	23HHs reported flooding/leakage/overflow of their toilets 7 of the 23 latrines have flood protection mechanism
	Ground water table	2	5HHs out of 49HHs reported high ground water table during the time of latrine construction.
3		16HHs reported that there was no water spill during latrine construction – Low water table 28HHs did not know about the water table of their latrines	

Block 3: From plans to practice

Overview of Block 3

Why is this relevant?

Block 3 provides an opportunity to explore the ways in which we can move climate adaptation in WASH from plans and policies into action on the ground.

What are the objectives of this block in terms of knowledge and learning outcomes?

- To be introduced to different strategic approaches to implementing climate adaptive WASH in different settings

What was the process?

- Presentations by the resource partners from WaterAid West Africa, University of Bristol and the Institute of Sustainable Futures, University of Technology Sydney
- All teams reported back to the plenary and provided recommendations to the representative from the University of Bristol's How Tough is WASH research team

Introduction

Presented by of Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands

Ms Kome commenced this block by noting that while many promises are made with regard to climate action, fewer are kept or implemented. She noted that there are many global and national plans and budgets but that budgets are largely conditional. Budgets signed off at national level do not always result in timely transfer. With many competing priorities for time and resources, local governments may decide that adaptation in WASH is not as pressing as other needs. In some cases, there is an incentive to include many different adaptations, due to the current interest resulting in increased funds available for this work. However, without feedback loops we don't know if we are going in the right direction.

The purpose of this block is to explore how to translate promises, plans and policies into implementation.

Presentation 1 – Climate Resilient WASH: The WaterAid Experience

Presented by Mr Lucien Damiba, WaterAid West Africa

WaterAid defines "climate resilient WASH" as *WASH services, Behaviours, and Systems that continue to function and deliver benefits despite extreme weather and other climate induced hazards.*

The Securing Water Resources Approach (SWRA) is a set of activities and relationships designed to improve local management of water resources, and so enhance resilience to threats like increasing demand, environmental degradation, and climate variability. It combines delivery of WASH services with actions that strengthen resilience to ongoing water related threats likely to impact on health and livelihoods. It includes five key steps:

1. **Vulnerability mapping.** This a participatory process that identifies key threats to water security in community or area
2. **Monitoring of threats.** Using simple tools, community members monitor rain fall, ground water level, deep water table in bore holes, and so on. Volunteers are nominated to monitor different things. Readings are recorded in logbooks, according to pre-agreed protocols.

3. **Interpretation of data.** Community volunteers in each village join workshops to discuss what the data might mean and the impact of the rainfall/water levels
4. **Decision making.** Community decision making process via workshops. All community members come together to listen to the community volunteers present their data and then discuss to come to a shared decision on how management of water resources or access may be best organised to help all
5. **Enhancing resilience.** Community members make decision on rationing water, allocation of water among humans, animals, and other needs, such as brick manufacturing or other industry

All decision-making processes include local govts and national agencies.

SWRA and resilience building

Infrastructure

SWRA focuses on the improvement of WASH services and water access. It also aims to improve the resilience of WASH infrastructure: robustness, continual operation, and innovative infrastructures.

Socioeconomic resilience

Socioeconomic resilience is developed through community empowerment and accountability. This includes gender empowerment through the engagement of women, including vulnerable and marginalised women, in projects such as market gardens to ameliorate poverty. Data gathered at the community level can be used for advocacy to call for assistance from government, NGOs or other agencies and organisations for improvement of WASH access.

WASH Sector resilience/strengthening

All data gathered at the community level is shared at district and province level. This contributes to improved knowledge of local climate and changes. For example, if, over 10 years, the water table is decreasing and rainfall also decreasing, these changes would be challenging to see without data collected at community level.

Environmental protection

Initiatives such as sand dams can increase filtration around catchment areas, while stone walls can help to improve moisture retention.

Questions and Answers

Q: Is the SWRA Approach applied in all WaterAid Countries (at scale) or being piloted in a specific country?

A: Originally piloted in 2010 in Burkina Faso, SWRA is now also implemented in several West African countries including Niger, Ghana and Mali.

Q: What incentives are provided for the communities to regularly generate the data?

A: We try to find different incentives. As the main designer of the approach, WaterAid tries to find partners through Learning Visits within and across countries. Community members who gather the data are invited to national and international conferences (before COVID!), where they can discuss their experiences and share learnings with the other attendees.

Q: What has been experience in community interpretation of data and decision making? Have they seen direct benefits from their decisions? Are there areas too complex for them? Who supports in this?

A: This was quite difficult at the beginning due to low literacy. The program helped community members to understand how the data can be interpret; what do the increases and decreases mean in real life and what is happening on the ground? We make sure we use local languages and have developed each module with pictorial instruction and so on. The direct benefits are described in case studies, and

communities can better understand when the gaps in rain will come. This helps them to know, for example, when to seed; they know not to do it just before the rain comes, and thus lose less seed. We have seen a reduction of conflict within communities, as they achieve a balance between water use for agriculture and livestock. Another benefit is that women are more empowered - government people and agencies come to them to get the data they are collecting, and they become proud of their role in the community.

Q: What actions have been undertaken to ensure the SWRA steps do not further existing inequalities, and mitigate the added burden and vulnerabilities of climate change impacts on women and other vulnerable groups, in addition to working with women's groups?

A: The main thing we are using is to know that women are in the front line of this approach. In each village/community one of the volunteers is addressing the burden e.g. water pump conflict. Empowering these women to better understand their role in addressing water issues and climate change. Women are involved at all stages of the process and their voices are heard in the community. Conflict around water burden is reduced etc.

Q: I am wondering where communities generate funds for operational costs. If its project funded are there any plans to ensure sustainability? I see a number of meetings and mitigation decisions, all of which bare some cost.

A: On the sustainability side, the community is embedded in local government allocate budget line for them to implement the meetings. In each village, when they have a ceremony, embed the assembly in these events so that people are there together already. Then don't need any or much money for this. This responsibility has been in the hands of communities for 10 years, and data still being collected even through the project is finished and they have no external funding. Communities can see that there is benefit for them to keep collecting. Logbooks are in local language, so communities don't need to wait for someone else to come and fill it in.

Presentation 2 – How tough is WASH? Applying a climate resilience assessment tool in Ethiopia and Nepal

Presented by Anisha Nijhawan, PhD Research Associate, University of Bristol

How Tough is WASH? is an indicator framework developed by the University of Bristol (UK) to measure the climate resilience of water and sanitation services. It measures resilience across multiple domains that affect how systems respond to climate variability:

- Environment;
- Infrastructure;
- Service management;
- Institutional support;
- Supply chain; and
- Community governance.

An additional indicator on *national policy* allows inter-country comparisons.

Each indicator is scored on a scale from 1 (very low resilience) to 5 (very high resilience). AN example of the rubric for assessing the Infrastructure indicator for point water sources is presented in Figure 3, on next page.

Figure 3: Infrastructure indicator for point water sources. How Tough is WASH Tool, University of Bristol

Score	Description
1	No protective measures against risk of damage and inundation in place, no data on trends in yield, very high sanitary risk.
2	Limited protective measures against risk of damage and/or inundation with numerous risks still present, high sanitary risk.
3	Partial protective measures against risks of damage and/or inundation in place, but several risks still present, medium sanitary risk.
4	Protective measures against risks of damage and inundation in place, but at least one risk still present, low sanitary risk.
5	Comprehensive protective measures against all risks of damage and inundation of supply in place, no evidence of reducing yield, very low sanitary risk.

An example of some results from a study conducted in sites in Ethiopia and Nepal are presented in Figure 4. Across the board, infrastructure, service management and institutional support were somewhat weak, resulting in overall system scores of “medium resilience”.

Figure 4: Example of results using the How Tough is WASH Tool. University of Bristol

Domain	Protected well with handpump	Protected spring	Borehole with mechanized pump 1	Gravity-fed scheme 1	Gravity-fed scheme 2	Borehole with mechanized pump 2
Environment	3	2	3	4	4	4
Infrastructure	2	3	3	3	3	4
Service management	2	2	2	2	2	4
Institutional support	3	1	2	3	1	4
Supply chain	3	2	4	3	1	4
Community governance	3	4	2	2	3	2
Total score (out of 30)	16	14	16	17	14	22
Resilience	Medium	Medium	Medium	Medium	Medium	High

Trends in resilience

The study conducted in Ethiopia and Nepal observed several trends in resilience, including:

- Several sources located in degraded catchments with bare soil and risk of landslides
- Medium to high sanitary risks found in most water supplies
- Slow repair times and lack of funds for major repairs
- No perception of climate change
- Lack of government support for major repairs after flooding
- No training on managing threats from drought or heavy rainfall
- Limited supply of disinfectant

A common thread was that it took a long time for repairs to be done. This usually stemmed from a lack of funding, requirements for technical support for major repairs and limited support from higher levels of government.

Evidence of low resilience

Signs of low resilience included decreasing or yield or inadequate water supply during the dry season. Some water sources were found to be non-functional due to lack of sufficient water or due to non-functioning infrastructure and long waits for repair times. Seasonal monitoring detected spikes in faecal contamination at some water sources.

Good practices in building resilience

Ms Nijhawan suggested some strategies to improve the resilience of WASH systems and services.

Suggestions to strengthen **services management** included:

- Elected water management committee, with strong links to central government
- Bank account for emergency use
- Awareness of flood protection measures
- Committees received training in Water Safety Plans, water treatment
- Rapid response team to address water supply problems
- Management committee has a basic understanding of climate change, developed action plan for water recharge and seasonal water quality testing

Suggestions to strengthen **institutional support** included:

- Local government has provided trainings on water treatment, sanitary protection measures
- Recommendations for conservation measures and developing alternative source
- Support for procuring parts for repair and addressing emergency issues

Good practices to strengthen the resilience of WASH **infrastructure** included:

- Building concrete structures around mechanised boreholes
- Building reservoirs at ground level or underground to reduce the risk of wind damage
- Ensuring no latrines are built uphill from water sources
- Developing roughing filters at spring water sources.

Key reflections

In closing, Ms Nijhawan reminded participants that resilience can be built through **improved operation and maintenance**; that it is not always a question of building new and more sophisticated infrastructure. Improved government support – both technical and financial – can further strengthen the resilience of WASH services, including support for improving operation and maintenance schedules.

Building the resilience of services at the community-level is likely to have greater advantages for water security and health than self-supply, such as rainwater harvesting, and household treatment.

As a final point, she noted that measuring resilience of sanitation more challenging than water supplies. Firstly, we have a better understanding of climate effects on water compared to sanitation. Secondly, there is a difference in scale. Generally, each community will have one set of infrastructure for water supply, compared to multiple latrines and waste collection and disposal services. Further work is being done to develop reliable, fit-for-purpose sanitation resilience and indicators.

Questions and Answers

Q: When assessing the indicators/domains, the lowest score is taken as the overall rating of resilience? If so, what is the rationale for this choice?

A: We expect field teams to look at all criteria and decide which apply best to their particular context. We don't necessarily want the lowest score to be the score. We hope that program teams will use their best judgment to determine a reasonable and appropriate score.

Presentation 3 – What can we do differently to achieve climate resilient WASH?

Presented by Dr Jeremy Kohlitz, Researcher at the Institute for Sustainable Futures, University of Technology, Sydney

Climate change is already having noticeable impacts in different parts of the world, and they will only get stronger. These intensifying climate hazards and more unpredictable and intense weather pose risks to rural WASH access and sustainability. These impacts will be felt most keenly among vulnerable groups. What can we do differently to address and manage these risks? What does climate adaptation look like in practice? Dr Kohlitz offered three possible approaches to these issues.

Climate Resilient Water Safety Planning

Climate resilient water safety planning (CR-WSP) integrates greater consideration of climate hazards into the standard water safety plan. The process for CR-WSP is as follows:

- Draw on available climate change projections to identify future impacts and hazards
- Assess whether climate change will increase the likelihood and severity of hazards
- Determine actions needed to control the biggest hazards, implement them, and monitor their effectiveness

Dr Kohlitz provided an example of this approach, implemented in Amhara, Ethiopia. The CR-WSP team assessed a community-managed water supply in South Achefer district. During the assessment, future flooding at the source was identified as the primary climate risk. In response, the community dug a ditch to divert floodwater away from source and planted vegetation around source for protection and recharge.

This approach does have some limitations:

- It relies on rural communities and local governments having access to relevant climate information and the skills to interpret it
- Climate projections are frequently imprecise at local levels
- This approach focuses on infrastructural and technological solutions

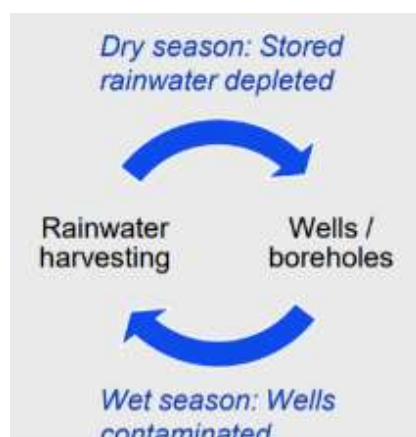
Adaptive management

A second approach is adaptive management. Adaptive management proposes the use of different water sources at different times of the year, through the following steps:

- Identify or install diverse sources of water, for example: groundwater, rainwater springs.
- Encourage service providers to maintain multiple water sources
- Support service providers and users to make informed decisions about which sources to utilise based on the season

Dr Kohlitz used an example from the Gilbert Islands, Kiribati, to illustrate this approach. During the wet season, wells and boreholes became contaminated due to run off from heavy rainfall. In the dry season, rainwater stores run dry. As such, communities are supported to use rainwater during the wet season and wells and boreholes during the dry season (Figure 5).

Figure 5: Example of adaptive management of water supply in Kiribati. Source: Presentation by Dr Kohlitz at the SNV Remote Learning Event, 2021.



Limitations to this approach include that it can be difficult to implement in resource-scarce setting, including those with limited safe water sources or persistent open defecation. In addition, the WASH sector has less experience with this approach.

Climate-sensitive development

Climate sensitive development is a continuation of “leave no one behind” and system strengthening work, with additional and deliberate consideration of climate risks and potential impacts. It can include a variety of activities and approaches. For example, extending community mapping to include flood-prone areas and water shortages; or investigating how workload and WASH responsibilities change for different cohorts under different climate extremes (for example, Gender WASH Monitoring).

Limitations of this approach include that it may feel like “business as usual” and may not be enough to address the impacts of climate change. In addition, it will likely encounter the same obstacles that the WASH sector already faces.

In closing, Dr Kohlitz reiterated that each of the approaches has different strengths and limitations. It is important to consider which approach makes the most sense in each context. In many cases, it may make sense to “mix and match” the approaches, using a blend of each. A key consideration is to think about who stands to benefit most from any intervention and who may be left behind.

Question and Answers

Q: How feasible are bio retention swales?

A: A bioretention swale is a technology that uses vegetation and piping to move surface water to recharge water tables. More used in urban areas to divert water into groundwater rather than into sewers or stormwater. They tend to use quite sophisticated designs that may be less suited to rural areas. In rural areas, a more appropriate response may be the planting of native grasses/short plants etc around water sources. Vegetation increases the looseness of topsoil when increases is absorptive capacity.

Q: The "business as usual" risk is a concern. Do you think there is enough "urgency" in the sector to address climate issues?

A: A sense of urgency is developing but has come pretty late especially when compared with other sectors, such as agriculture. Finally, we are at a place where we may be getting a critical mass for action in the WASH sector, however, thinking has not developed much yet. All the things we are doing now, we probably should have been done 10 years ago. The WASH sector needs to accelerate action, to engage with sectors that are maybe further ahead. We should be open to opportunities to leapfrog and to learn from other sectors.

The great debate

Conducting a debate between people scattered over so many locations was a bit of an experiment! Differences in time zones resulted in splitting the participants into regional teams, with Team Africa debating immediately following the presentations from the Resource Participants and Team Asia debating the following day.

Both teams were asked to debate the following statement:

Community level adaptation is sufficient to ensure resilient WASH services

Participants on each team were randomly assigned to create an argument either for or against the statement. They were reminded that they did not have to agree with the side to which they had been allocated. However, it is important to be able to understand the point of view of people with who you don't agree, and to be able to respond convincingly to their arguments.

Each team was given 10 minutes to prepare and then three minutes to present their initial arguments. This was followed by a one-minute rebuttal of the arguments of the opposing team before withdrawing for five minutes to prepare their closing arguments.

Two judges were selected and were instructed to judge the teams on the coherence of their arguments and their counterarguments to points made by the opposing team.

Team Africa

The arguments presented by Team Africa are presented in Table 13, below.

Table 14: Arguments for and against from Team Africa

Session	For	Against
Opening arguments	Agree with the statement. We understand that the communities are directly affected by the problems and are best placed to adapt to the measures. They, together with local leaders, can influence the government. Communities can assume the ownership of the interventions and scale up their knowledge to other communities.	Disagree that community level adaptation is enough. It is evident that the problem is happening at the community level. This means that they have failed to handle the problem. Climate change is hitting is now and in the future; community structures are not set up to manage these issues. The issue of climate change extends beyond the community level. Many communities around the globe do not have access to climate data and projections. For those that do, climate change may sound like rocket science.
Rebuttal	Communities have indigenous knowledge. They understand the problems and often develop solutions to some of the problems they face – problems that are often not created by the communities themselves. Communities need to participate and be involved; their ideas need to be considered. They have the knowledge, solutions, and leaders. They just need to scale up.	To scale up you need resources. Communities lack capacity, and they have no resources. We are discussing adaptation now. Communities need help, they cannot handle issues of planning and implementation.
Second round arguments	We recognise that communities have some limitations, but they still have important indigenous knowledge to overcome climate change challenges at local level. They have their own capacities, although they may need some support with finance.	There is an issue of lack of ownership of local development. There are instances of communities themselves vandalising and ruining projects that are put in. We see communities waiting for governments to provide both money and know how.

Session	For	Against
	<p>Nonetheless, they can lead the solutions at local level.</p> <p>Government should promote the exchange of ideas and solutions from other sites that they can use then in different locations.</p>	<p>Climate change has had different trends of late, and solutions require advance reach and knowledge. Communities still use the old ways. For example, communities do not have early warning systems for mudslides or landslide.</p>
Closing arguments	<p>For 2,000 years communities have been coping and being resilient to climate and other impacts. But the development agenda is set from outside the community. It would be better to listen to the community and let them set the agenda. Until we put community in the driving seat, nothing will change. We will never find sustainable solutions unless they come from the community.</p>	<p>Evidence is abandoned; communities have failed to adapt to the issues of climate change, that is why we have drought, landslides and so on. When we talk about community ownership, yes communities will accept funding and technologies, but they still need to be involved in decision making.</p>

Outcome

The judges deliberated for several minutes before presenting their observations. They felt that while both teams presented some good arguments, neither group defined the statement clearly. Defining their understanding of the statement could have sharpened the arguments from both sides.

Those on the affirmative side built a cohesive argument around how climate change affects communities, how they have been at the forefront of needing to find solutions to impacts that affect them most immediately, and how they can then take this experience to advocate for support from government and other partners to support community level adaptations. The affirmative team closed strongly, with a passionate call for recognition of the thousands of years of adaptation already demonstrated by communities around the world, as well as reaffirming the leading role of communities in finding sustainable solutions to the impacts of climate change. Nonetheless, they missed an opportunity to recognise the bureaucracy in climate change forums that can prevent solutions that are developed outside communities, reaching those communities on the ground.

The team arguing the negative appeared lay responsibility for climate-related impacts and issues with the communities themselves. They pointed out the lack of capacity and capability in many communities that leads them to need external assistance. They did not acknowledge any role that community might play in addressing the impact of climate change. In addition, they missed an opportunity to speak about the scale of the problem and how that it may be beyond the scope of the communities, or to explore the potential obligation of governments to support communities in responding to climate change and its impacts.

The judges ultimately named the **affirmative team** the winners due to their more tightly constructed and cohesive argument.

Team Asia

The arguments presented by Team Asia are presented in Table 14, below.

Table 15: Arguments for and against from Team Asia

Session	For	Against
Opening arguments	<p>Working and adapting at community level is the most important thing. Policies and strategies will hang in the air if they are not implemented on the ground.</p>	<p>Community alone is not enough to ensure resilience. They require technology, they require financing, they require an enabling environment</p> <p>Need to coordinate with government, development partners, researchers</p>

	<p>Communities will take ownership to adapt to cc- they know the risk, they know the local solutions</p> <p>They can build very resilient infrastructure, they will be able to adapt to changing circumstances</p> <p>Capacity building on the ground is essential. If you do not do things on the ground, there is no point in doing things in theory.</p> <p>When we go to the community – we see that good structures are already in place to ensure sustainability</p>	<p>Govt are duty bearers to ensure both quality and equality of solutions.</p> <p>Community people only know their own area</p> <p>Adaptation on a large scale requires a conductor to coordinate</p> <p>Team A talks about <i>if</i> they understand, <i>if</i> they have the resources, <i>if</i> they have the technologies – this is a lot of ifs. With the government coordinating, these ifs become “must”</p>
Rebuttal	<p>Team B talks about taking things down to the communities – you can take a horse to water, but you can’t make it drink. Communities need to own adaptations and realise that it is for them</p> <p>Communities live there forever, so government led initiatives may not be as sustainable as governments come and go</p> <p>Stress on capacity building so that communities can take ownership; regulations can be a hinderance</p>	<p>Glad that Team A recognises that government is needed.</p> <p>Govt can lead cross sectoral dialogue, improve quality of strategic planning, allocation of resources, integrated approach, find transboundary solutions.</p> <p>Communities don’t have the money and they may not have everyone’s welfare in mind.</p>
Second round arguments	<p>Thanks for Team B for agreeing with us that you need to come down to community level to work on adaptations to ensure that they are resilient. And also for reminding us all about COVID – it is the Government’s fault that COVID has entered a country; the community is the one that has to live with it.</p> <p>Should be careful about not undermining the capacity and traditional knowledge of the communities. They have been dealing with the different challenges for centuries</p> <p>Governments are not there all over the country – we need to rely on community expertise, coherence, resilience, capacity to come up with own adaptive technologies, and resilience</p> <p>As somebody from Team B mentioned, when things went wrong, this was because there were not enough adaptations already in place. Had adaptations already been in place, government would not have had to come to the rescue – they would already have resilience to come back.</p>	<p>Emphasise that adaptation in communities is not enough, need quality and some support to achieve resilience. Even if communities have, for example, a very good house, it cannot withstand earthquake, landslide, flood – government has to provide support</p> <p>Community has tried to save themselves from COVID but they cannot – government has to introduce good messaging and lockdowns. Communities cannot be trusted to</p> <p>Need private sector participation – but communities don’t get along</p>
Closing arguments	<p>We still feel that with all the government’s support and resources, adaptation relies on community knowledge, participation, ownership and cohesion within the</p>	<p>We don’t deny that community plays and important role but they are not enough. It is like a football team – the players do not work alone; you cannot clap with only one hand. You need the manager in a football team to</p>

	<p>community is essential for in terms of community adaptation. Governments would not exist without communities and we still think that community adaptation is enough.</p>	<p>set direction and coordinate, the referees to put things int the right place.</p> <p>If communities alone could do everything, we would not have governments anywhere. Clearly and indication that communities do not have capacity to guide themselves. Communities choose governments because they recognise that strategic guidance is important</p>
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Outcome

The judges enjoyed the dynamism and energy of the debate. It was on the fence for the first round, and hard to say who had the upper hand through most of the second round of arguments. They appreciated that both teams went back to the statement in the second round. They noted that coordinating arguments is key.

Team A had a harder position to argue and felt that they had more precise arguments in the first round however Team B sharpened their arguments in the second round. Team A lost an opportunity to provide compelling closing arguments. In contrast, Team B made strong arguments around coordination and resourcing that communities are simply unable to manage, but that government and other partners can provide. The judges ultimately named the **negative team** the winners due to their more tightly constructed and cohesive argument.

Block 4: Equity in the WASH – climate change discussion

Overview of Block 4

Why is this relevant?

WASH is intrinsically interlinked with the achievement of human rights and social justice. The impacts of climate change will be borne disproportionately, and it will often be the poorest and most vulnerable that will most greatly impacted.

What are the objectives of this block in terms of knowledge and learning outcomes?

- To understand different layers of equity
- To assess a subnational area in each country to understand if WASH adaptation to climate change demonstrate distributive and procedural justice

What was the process?

- An introductory presentation summarising the EGroup discussion
- Country group work to investigate the distributive and procedural justice evident in their selected area
- Sharing and exchange of experiences: plenary discussion where each country presented their poster or slideshow

Introduction

Presented by of Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands

Much of our work in WASH is about realising human rights. We think accessing water and sanitation for all is fair and promoting social justice underpins our work. Equity is also central to climate change conversations. There are different layers of equity:

- **Intergenerational equity** Will our children and our children's children need to bear the costs - environmental and economic – of the choices we, our parents and our grandparent made?
- **Equity between poor and rich countries** Rich countries have benefited from using a large carbon space but now the issues are most felt by those in climate sensitive areas, which tend to be found in "developing" countries
- **Equity between rich and poor families** Poor families may have a smaller footprint but are often the most greatly impacted. The impacts of climate change may be felt most keenly in rural areas but most investment goes to urban areas
- **Equity between people.** Who is getting the burden of having to go further for water? Who is most affected when everything is destroyed in a flood.
- **Balance between people and the ecological space.** Is it fair that as humans we take up so much space that some eco systems become extinct?

Thinking about equity can be complicated. It can be helpful to as questions about both **outcomes** and **process**.

Questions about fair outcomes may include:

- Whose interests are prioritised? For example, in Indonesia, Jakarta is always central to the discussion, with more remote areas somewhat overlooked
- Who is paying? For example, are general taxes funding initiatives that are focused on the areas of greatest need?
- Who is the duty bearer?

Questions about fair process may include:

- Who defines what is climate relevant?
- How are decisions about priorities made? Where are we going to invest? These decisions are usually very top-down, driven by a large bureaucracy
- At what scale are decision made? If made at a high level, hard for people at lower levels to influence or participate in the decision and their needs and priorities may not be considered

Figure 6: Plan for Block 4



Egroup discussions

In the Egroup discussions, participants recognised that decision made or *not* made affect the climate resilience of WASH. These decisions may be influenced by personal views: the acceptance – or non-acceptance - by elected leaders of the reality of climate change may impact their action/non-action on climate issues.

In some places, the impacts of climate change can be obvious. In others, the onset may be much slower, which makes it difficult to see the problem until it is almost too late. The unpredictability of events may also mean that we are not immediately aware of the impacts.

Solutions such as enacting legislation on land use can reduce impacts such as flooding. This approach, however, requires collaboration and coordination among different government stakeholders, which can be challenging and time consuming to achieve. Limited budgets can also be a challenge. In Ethiopia, for example, government funding for the WASH sector covers basic staff costs, with very little left for adaptation. Local government can create local by-laws but decision around WASH and other issues may be made at different levels, where local government has little political influence.

Group work: Trade-offs

In WASH, as in so many other sectors, we are frequently required to make trade-offs. We might need to choose sustainability over quality, selecting lower cost technologies that are not as climate resilient as more expensive technologies. We may need to choose between improving existing services to ensure they are more climate resilient or expanding services to reach more communities. Sometimes these choices are made for us. Governments may perceive WASH as relatively unimportant and prioritise economic benefits of industries that impact the quality and availability of water, for example, with no consideration of the downstream effects.

So how can we improve the climate resilience of WASH? There tends to be a strong focus on improving capacity. This is a good approach, but we also need to recognise that climate systems and government systems do not exist in isolation. They are all part of the same system. We need to work towards improved collaboration, with greater oversight through sectoral partnerships. There is a growing awareness of the relationship between climate and WASH, which provides an opportunity to work with other sectors that are sensitive to the impacts of climate change.

Ms Kome then asked each country group to select a typical local government jurisdiction – district, country, Dzongkag – and describe the climate plans and funding flows as they are currently. Teams were then instructed to think about a climate resilience challenge faced by WASH in that area and the technological solutions to that challenge, and to describe who is paying for the adaptation, any positive or negative side effects from the adaptation, and who is responsible for implementing the solution. Is the current system fair in terms of distributive and procedural justice? If not, what would be the ideal scenario?

Bhutan

The Bhutan country team looked again to Phunaka District. In this district, the team concluded that overall, the current practice is fair in both process and outcome. Planning is bottom up, with sublevels developing the plans and submitting them to district authorities. Individual households invest in their own adaptations while the central level government provides technical support. Their detailed findings are presented in Table 15, below.

Table 16: Distributive and procedural justice, Bhutan

Current situation	Ideal situation
Distributive Justice	
<p>Which sectors receive most climate funding? Agriculture, forestry and water (engineering) sector receives most climate funding</p> <p>For which type of activities? For irrigation, drinking water, biodiversity, watershed management activities are prioritised.</p> <p>Who is paying for adaptation in WASH? Funding is from the government and development partners. Households invest in sanitation facilities.</p> <p>Does this adaptation have any side-effects? <u>Positive impacts</u>: Mitigated risks of disasters. Reduced incidences of WASH related public health risks. <u>Negative impacts</u> are affordability issues on vulnerable groups. Relocation of households</p> <p>Who is assuming responsibility so it happens? Local government supported by central government</p>	<p>Whose interests should be prioritised? Communities and households within high risks areas Community interests should be prioritised, keeping the interests of the vulnerable groups and their needs. National interests</p> <p>Who should pay? Local government Individual households</p> <p>Who is the duty bearer? Local government Service providers</p>
Procedural justice	
<p>How much money or which % of climate funding goes to the district? Approximately 30%-40%</p> <p>Who defines what is climate relevant? Central/districts agencies in consultation with local governments</p>	<p>Who should define what is climate relevant? Local government with technical support from central</p> <p>Who should decide what should be prioritised?</p>

Current situation	Ideal situation
<p>How are decisions (about priorities) made?</p> <p>District assembly (Dzongkhag Tshogdu) with input from sub-district assembly (Gewog Tshogde) based on findings from risks assessment</p>	<p>District assembly (Dzongkhag Tshogdu) with input from sub-district assembly (Gewog Tshogde) based on findings from risks assessment</p>
<p>How is accountability organised?</p> <p>Disaster committees at district and sub-district levels</p> <p>Aligned with annual performance agreements, reviews and audits</p>	<p>How should accountability be organised?</p> <p>Disaster committees at district and sub-district levels</p> <p>Aligned with annual performance agreements, reviews and audits.</p>

Country presentations

Lao PDR

The Laos country team noted that of the seven sectors included in the Climate Change Action Plan, Health plays only a small role. In terms of planning, on paper, the system is decentralised but in reality most decisions still come from Ministry level and are passed down to province and district levels. The Ministry of Natural Resources defines what are impacts from climate change, in collaboration with different actors and partners, and the team felt this works well. In terms of accountability, the team felt that there was good planning at central level, but that this did not extend to the grassroots level. Communities are not aware of what policies exist and don't know that they are relevant to their wellbeing. Their detailed findings are presented in Table 16, below.

Table 17: Distributive and procedural justice, Lao PDR

Current situation	Ideal situation
Distributive justice	
<p>Which sectors receive most climate funding?</p> <p>Natural resources and environment, Forestry, Water resources management, Tourism, Agriculture, Urban planning and development, Energy, Transportation, Public health</p>	<p>Duty bearer</p> <p>Government</p>
<p>Who defines what is climate relevant?</p> <p>Based on joint research findings between Government and development partners</p>	<p>Who should be prioritised?</p> <p>Those who are most affected by the impacts of climate change risks, especially the most likely vulnerable groups</p>
<p>Climate change impacts</p> <p>Drought, Flood, heat wave</p>	<p>Who should pay?</p> <p>Polluters (Industry, corporation, etc.)</p> <p>Special tax and duties</p> <p>Government's budget</p> <p>Carbon credit</p>
<p>Causes</p> <p>Dam, deforestation, plastic, burning, old vehicles, industrial zones</p>	
<p>Impacts</p> <p>Loss of lives, health issues, loss of infrastructure, crops, livestock, etc.</p>	
Procedural Justice	

Current situation	Ideal situation
<p>How much money or which % of climate funding goes to the district?</p> <p>There are 18 Ministries in National level, based on the Climate Change Action Plan in Lao PDR focuses on 07 sectors. Health sectors plays only small role in that strategy related on climate change. The percentage of climate response that goes to the district is not known</p> <p>Who defines what is climate relevant?</p> <p>Ministry of Natural Resources (MoNR) is the main actor collaborated within 18 Ministries and other sectors defined the solutions and made the priorities</p> <p>How are decisions (about priorities) made?</p> <p>The national strategy on climate change is finalized and then signed & approved by the Prime Minister before dissemination to difference stakeholders</p> <p>How is accountability organised?</p> <p>The Ministry of Natural Resources was responsible for organising the workshop for discussion with different stakeholders before distributing the National Climate Strategy</p>	<p>Who should define what is climate relevant?</p> <p>The current arrangement of the Ministry of Natural Resources deciding in consultation with other stakeholders works well.</p> <p>Who should decide what should be prioritised?</p> <p>Communities should be more involved in deciding prioritisation, in consultation with technical and other experts</p> <p>How should accountability be organised?</p> <p>Accountability could be strengthened by ensuring that communities are aware of the existing policies and how they may impact their environment and wellbeing.</p>

Comments

Organiser: Appreciating the range of "who should pay".

Nepal

Team Nepal investigated climate equity in Sarlahu District. Climate resilience challenges evident in this area include floods, forest fires, heat waves, drought, and cold waves. The technical solution varies depending on the challenge. For example, check dams and contour bounds are put in place to control flooding, tree plantations and ponds are developed to help mitigate heatwaves, while rainwater harvesting and groundwater recharge are implemented to help during droughts.

The team determined that the process is not always fair or neutral – it lacks procedural justice - since these are often politically motivated. Nonetheless, the outcomes - such as rainwater harvesting - often result in distributive justice, leading to equality and contributing to the greater good. Detailed findings are presented in Table 17, below.

Table 18: Distributive and procedural justice, Nepal

Current situation	Ideal Situation
Distributive justice	
<p>Who is paying for this adaptation?</p> <p>Local government/RM</p> <p>Does this adaptation have any (negative/positive) side-effects on other people?</p> <p><u>Positive:</u> GW recharge for a wider area leading to food security, climate resilience</p> <p>Who is assuming responsibility so it happens?</p>	<p>Whose interests should be prioritised?</p> <p>Vulnerable communities</p> <p>Who should pay? Who is the duty bearer?</p> <p>Governments and communities</p>

Current situation	Ideal Situation
Local government/RM Communities	
Procedural Justice	
<p>How much money or which % of climate funding goes to the district? 5% of overall development budget (equal to 5,000,000 NPR/35,275 Euro)</p> <p>Which sectors receive most climate funding in a district? For which type of activities? WASH, and towards disaster relief – food/non-food items</p> <p>Who defines what is climate relevant? Rural municipalities in the district</p> <p>How are decisions (about priorities) made? Through the RM Executive Boards</p> <p>How is accountability organised? Ad hoc, political interest involved</p>	<p>Who should define what is climate relevant? Government and community</p> <p>How should be making decisions (about priorities) made? Co-designed by government and community</p> <p>How should accountability be organised? Monitoring frameworks setting accountability at all levels</p>

Questions and Answers

Q: Interesting to see the procedural justice was flawed, but still led to distributive justice

A: Yes, while there are anomalies in the distribution process, the outcome does still benefit most people (although some may certainly benefit more than others). For example when a dam is constructed to prevent the flood to an area, it will benefit the cluster.

Q: It is interesting that WASH receives the largest budget.

A: The Ram Ramnagar Rural municipality is located to Bagmati River and more often affected by flood and other hazards. Thus the rural municipality allocates this level of resource from the local government development budget.

Kenya

Team Kenya focused their enquiry on Kisumu County. The County set up a directorate to deal with climate change. Through this directorate, the county government set out an ambitious plan to transform Kisumu into a climate-resilient, low-carbon society that is sustainable, prosperous, and inclusive. Kisumu County established a county climate change act in 2020 to provide a regulatory framework for enhanced response to climate change, mechanisms and measures to achieve low carbon climate development, and a financial mechanism for implementation of climate change adaptation activities and connected purposes.

In Nyando Sub County, the key climate resilience challenges stem from the frequent flooding during the rainy season. Water quality is affected as majority rely on shallow wells as their main water sources, and toilets often collapse. Solutions to these challenges include the construction of Safi Latrines, ensuing latrines are located on higher ground at least 30 metres from water sources or on lower ground than the water source. In addition, household water treatment and storage has been promoted. Detailed findings are presented in Table 18, on next page.

Table 19: Distributive and procedural justice, Kenya

Current situation	Ideal situation
Distributive justice	
<p>Which sectors receive most climate funding?</p> <p>Funding for Climate change is mainstreamed in all sectors, with 2% of the sectoral allocation going to climate response activities</p> <p>Who is paying for adaptation in WASH?</p> <p>Partners with technical support from the County Governments</p> <p>Does this adaptation have any negative/positive side effects on other people</p> <p>It has positive side effects on the beneficiaries and the respective Governments</p>	<p>Whose interests should be prioritized?</p> <p>The interests of the vulnerable communities who are mostly affected by climate change stresses and shocks</p> <p>Who should pay?</p> <p>The government, who are the duty bearers</p> <p>Who is the duty bearer?</p> <p>The National and County Governments</p>
Procedural justice	
<p>How much money or which % of climate funding goes to the district?</p> <p>Climate change funding is integrated in other sectors</p> <p>Who decides what is climate relevant?</p> <p>The Climate Change Directorate</p> <p>How are decisions (about priorities) made?</p> <p>At County level, led by the directorate and the County Leadership team and respective sectors</p> <p>How is accountability organized?</p> <p>Through the County</p>	<p>Who should define what is climate relevant?</p> <p>This should be a participatory decision made by the community, Government and Stakeholders</p> <p>How should we be making decisions about priorities made?</p> <p>In a participatory manner involving all parties</p> <p>How should accountability be organized?</p> <p>At all stages from planning, implementation through to the end of the project/activity.</p>

Mozambique

The Mozambique country team investigated distributive and procedural justice in Insaharro District. The key challenge in this district is saline intrusion due to rising sea levels. The government has built dams to catch and keep fresh water and is operating desalination units. These initiatives are largely funded through World Bank support. The Government then distributes the funding. Team Mozambique felt that the current process is not fair and that greater consultation at district level, with funds allocated at that level. With all the decisions made at central level, it can take a long time for plans to be approved, funded and implemented.

This team did not present their “ideal situation”; detailed findings on the current situation are presented in Table 19, on next page.

Table 20: Distributive and procedural justice, Mozambique

Current situation
Distributive justice
<p>Who is paying for this adaptation?</p> <p>World Bank funds are distributed by the Government to the SDPI, the district infrastructure department (including WASH infrastructure)</p> <p>The SDPI is the sector receiving most funds and they then directed to WASH</p> <p>Does this adaptation have any (negative/positive) side-effects on other people?</p> <p><u>Positive</u>: Potable water through dams and desalination units</p> <p><u>Negative</u>: Dam construction has some ecological impact during construction and desalination units produce waste that needs effective management</p> <p>Who is assuming responsibility so it happens?</p> <p>The Government takes responsibility for these impacts because they are large scale</p>
Procedural Justice
<p>How much money or which % of climate funding goes to the district?</p> <p>The Government is still structuring the environmental sector and is not yet decentralised. It has only one focal point for the Environment Area allocated. However, in the case of an extreme event on Climate Change, the intervention is made by INGO</p> <p>Which sectors receive most climate funding in a district?</p> <p>Who defines what is climate relevant?</p> <p>Advisory Board, through subsectors such as environmental clubs</p> <p>How are decisions (about priorities) made?</p> <p>The community is involved through participatory approaches such as community consultations, planning and management, however the technical decisions are made by the Government.</p> <p>How is accountability organised?</p> <p>Accountability is also done through the Advisory Boards</p>

Uganda

For this activity, Team Uganda investigated the Lira District Local Government. In Lira District, the most common impact of climate change is that shallow wells and spring wells are drying up. Technical solutions for this issue that are being implemented include guidelines around the proper use of wetland and agricultural practices along the wetlands. In addition, improved technology is used in the identification of WASH facilities and policy has shifted away from shallow wells and spring well construction. The team felt that there was a lack of both distributive and procedural justice as the impacts of climate change are felt most keenly in poorer and rural areas, even though both rich and poor communities contribute to climate change.

This team did not present their "ideal situation"; detailed findings on the current situation are presented in Table 20, below.

Table 21: Distributive and procedural justice, Uganda

Current situation
Distributive justice
<p>Who is paying for this adaptation?</p> <p>Community, Government and Development Partners</p>

Does this adaptation have any (negative/positive) side-effects on other people?

Positive clearer demarcation of wetlands and people being refrained from settling in those areas

Negative Expensive technologies impact communities and most water sources are drying up

Who is assuming responsibility so it happens?

Community, Government and Development Partners

Procedural Justice

How much money or which % of climate funding goes to the district?

0.22% of funding in the district goes to climate change

Which sectors receive most climate funding in a district?

Water, Engineering, Agriculture, Environment and natural resources department

Who defines what is climate relevant?

District Environment Officer, Water officer, Forest Officer

How are decisions (about priorities) made?

Discussion are made from community, to District Technical Planning Committee, and through the sector committees and finally to the district Council

How is accountability organised?

Accountability is organised through monitoring and sharing reports, as well as through *Barrazas* - a community accountability forum

Questions and Answers

Q: It is interesting to know that communities are part of the solution in terms of paying for the adaptation measures, but how does the community raise the funds for that contribution?

A: The community contributes part of the cost and may also contribute in kind. Local government is funded through taxes. Communities must also contribute directly to construction of WASH infrastructure (hence the in-kind contributions).

Concluding remarks on the presentations

Presented by Dr Jeremy Kohlitz, Researcher at the Institute For Sustainable Futures, University of Technology, Sydney

These presentations point to how climate impacts and resilience to climate impacts are just as much socially constructed as they are environmental impacts. It is important to remember that these processes are not generated by the climate; they are coming from society. Climate change is a social problem, not just a physical problem.

The WASH sector can tend to have a scientific or technological approach to climate change, similar to the technological approach to WASH in the 1970s. This may represent a fall back into an old way of thinking. A lot of the human rights principles that we now follow in WASH, are still relevant and we still need to uphold them. They are just as effective in the climate space for increasing resilience.

General questions, answer and comments

Resource partner question: What's the best way to involve communities in deciding what is climate relevant when climate change is such a confusing topic?

Participant answer: I think we should use participatory and engaging approaches and enough time invested at local community levels.

Participant answer: I feel we should tap more into the indigenous knowledge and better understand the trends overtime in that specific area.

Participant answer: Going back to the basics of ensuring community members (in their diversity) are part of the discussions at community levels, at higher levels (through their well-informed representatives) and that their voices are listened to and heard by decision makers.

Participant answer: I think going back to what was shared yesterday by one of the Resource Partners, it is important to engage with the community and help them understand what is behind the issue they are facing, for example: the flooding. The proposed adaptation and mitigation interventions should be discussed and validated with the community. Since resources are limited the government may not be able to do everything at once. So deciding on where to start could mean that some aspects of the challenges will continue. The community should have a say on this.

Organiser question: What is the role of evidence in the decision making?

Participant answer: Evidence is key in terms of guiding in the best implementation strategies that have been tried, tested and worked in similar contexts.

Private sector discussion

While each country was presenting their analysis of distributive and procedural justice, a side discussion was taking place in the chat room, on the role of the private sector in addressing climate impacts. A transcript of this discussion is presented below, lightly edited for clarity and brevity.

Participant: Is there a role for the private sector? After all they have contributed to creating the climate related mess.

Participant: There is indeed a (more/better) role for the private sector, thus the mention of more involvement of service providers in WASH

Participant: I completely agree that private sectors can and do play a very important complementary role along with the government in providing quality products, ensuring materials/spare parts for repairs and services are made available and provided as needed.

Participant: Currently, private sector actors are more involved in cities and not in rural areas.

Organiser: On the private sector, the question is whether their contribution should come through regulation or special taxes (carbon tax, pollution tax) which are basically implemented by government. Or that we expect private sector to take initiative themselves, for example, integrating climate resilient technologies, by changing to solar pumps, use more durable material, and provide information about durability of different technologies.

World café

A very popular activity in previous Learning Events has been the World Café. During World Café each Country Team is asked to prepare a brief on priority issues in their country. One or two people from each Country Team are the country "client", while remaining participants form a pool of "consultants", who provide advice on the issues identified in the brief based on their own experience. Given the remote format of this event, the World Café needed to be adjusted slightly. A function of the remote conferencing platform allowed participants to be randomly assigned to groups of four for a limited time before being randomly assigned to a new group. It was intended that this would allow participants to discuss different topics and points of interest with other participants, the resource partners and the organisers.

Unfortunately, this function proved to be beyond the internet capabilities of several participants and did not work as seamlessly as hoped but did allow for networking conversations to be had between participants.

Closing session

Presented by of Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV Netherlands

Equity and climate change; there would have been space to go much deeper into the discussion and also more information on the specifics of inequity in a specific context and to reflect on the range of solutions that may be developed to address the specific issues.

As we go about our practice, we need to remember that “perfect is the enemy of the good”. If we try for perfect outcomes for everyone, the process can become very heavy. We need to think about who is being impacted, who is causing harm, who is benefitting from selecting a particular solution. When governments “pay,” they pay using tax dollars, so really the whole country pays.

There is indeed a social dynamic to both WASH and climate change but social scientists also need to understand the technologies. The social impacts are entwined with the technologies. For example, with source protection: who owns the land on which the source is located?

Ms Kome then invited each team to prepare their “shopping bags”: a list of things they would take away home with them from the event. She asked each team to also think about what they liked and what they disliked about the remote format. The outcomes of this exercise are presented in Table 22, below.

Table 22: Country team shopping bags

Country Team	Outputs
Bhutan	<p>Will take home</p> <p>Enhanced understanding of climate change and WASH equity in the climate change discussion</p> <p>The climate change resilience assessment tool</p> <p>Actions</p> <p>Learn more about climate change and WASH to build the capacity of the team</p> <p>Pilot the resilience assessment tool in more areas in the field</p> <p>Liked</p> <p>Networking; pragmatic approach, WHOVA platform was fun and interactive; field visit; good facilitation and moderation</p> <p>Didn't like</p> <p>Internet connection during the World Café!</p>
Lao PDR	<p>Will take home</p> <p>Presentation from different countries each with specific problematics</p> <p>Some adaptations in climate change from different countries</p> <p>Good relationship and network</p> <p>Guides and tools</p> <p>Deep understanding about climate change in WASH</p> <p>More understanding of the gaps in Laos related to climate change policy</p> <p>Won't take home</p> <p>Internet problems</p> <p>Liked</p> <p>Debate is very fun</p> <p>Interaction from colleagues from other countries and learning from their experience</p>

Country Team	Outputs
	<p>Didn't like</p> <p>Coffee alone</p> <p>Virtual field trip</p> <p>Time constraint for preparation and presentation</p> <p>Internet suffered during World Cafe</p>
Nepal	<p>Will take home</p> <p>Disasters are usually visible aspects of climate change, the trends are seemingly invisible</p> <p>Climate change related ownership (of consequences etc) need to be owned by both the national and local levels with accountabilities set at all levels</p> <p>Nepal needs to the effort to translate the national policies and plan at local level</p> <p>WASH sector adaptation practices/resilient approach to be scaled up at local level in line with local adaptation plan of Action</p> <p>Maybe countries need a climate change focal person in all development departments as opposed to a climate change department to ensure climate change is everyone's business</p> <p>Local government and WASH community to capacitated on climate resilient water safety plan</p> <p>The national climate change policies in Nepal need to be translated to local levels to ensure they are understood and acted upon. Otherwise disaster will remain the only climate change element for Nepal climate adaptation strategy</p> <p>Recognise that <i>"We live in a world where CC will substantiality remains a journey and never a destination"</i> and plan accordingly</p>
Kenya	<p>Will take home</p> <p>The assessment tools were useful and can be adapted in our contexts and we require to pilot it further</p> <p>Addressing climate change requires both social and engineering solutions for sustainability</p> <p>Experience in participating a virtual multi-country learning event</p> <p>Experiences from Laos on management of flooding, the construction of toilets above ground</p> <p>Action</p> <p>Adapting the SWRA approach in our context, especially for action planning → in Kenya, don't really have continuous collection of data at community level.. if we could bring this and start grounding it in data, can influence planning at higher levels</p> <p>Liked</p> <p>Memories of colleagues who we have not met for a long time – it was great meeting virtually</p> <p>Didn't like</p> <p>Not meeting all out Kenyan colleagues in one place; internet poor but this is the reality</p>
Mozambique	<p>Will take home</p> <p>The simple climate change resilience assessment</p> <p>This will be useful for project start ups</p>

Country Team	Outputs
	<p>Advocacy in equity for access to funds and resources for adaptation for rural and peri-urban areas</p> <p>Network and links made on WASH in climate change across the countries' keep sharing and conversation going</p> <p>National climate change policies need to be realised through creation of practical guidelines for local government</p> <p>Liked</p> <p>Connect with partners, generate shared understanding of climate change and climate adaptation</p> <p>Govt partners enjoyed being part of the event and will advocate for more funding for climate adaptation</p> <p>Didn't like</p> <p>Internet issues – this affected full participation</p>
Uganda	<p>Will take home</p> <p>Participatory approach in climate adaptation decision</p> <p>Combination technical and social assessment in climate change adaptation</p> <p>Increasing budget for allocation for climate change</p> <p>The WASH sector needs to put more effort in branding itself as one of the sectors most impacted by climate change to favourably compete with other sectors for financing</p> <p>Action</p> <p>Adopt online learning event process to facilitate, for example, virtual learning</p> <p>Internal capacity building and training for virtual leaning events</p> <p>Advocating for decentralisation of climate change adaptation funds to community level</p> <p>Capacity building of local governments to community level</p> <p>Use of the University of Bristol tool to measure resilience</p>
Global	<p>Review the University of Bristol Indicators</p> <p>Explore further equity presentations</p> <p>Interesting ideas from networking activity on how to productively engage private sector on climate resilience</p> <p>Take home message: many countries have developed plans and policies. Some recognition of water, little recognition of sanitation. Need to make sure WASH is at national discussions</p> <p>A lot of tacit knowledge about climate impacts. People seem to be on board with climate resilience in WASH, now we need to translate this into action</p> <p>Debate format was fun and like this as an idea for stimulating discussion and critical thinking between various partners</p> <p>Very impressive facilitation in this new format – lots for me to take to other colleagues on how to manage remote events</p> <p>While not a new concept, a good reminder to think about what “our” sector can offer another sector when looking for synergise – also makes us think about how to adapt in new ways</p> <p>Like the Whova platform</p> <p>What will motivate the government partner in WASH to demand climate action?</p>

Closing remarks

Presented by Ms Antoinette Kome, Head of Global WASH and Learning Event Facilitator, SNV in the Netherlands

In closing the event, Ms Kome noted that when this event was planned, they had anticipated that maybe one country would be in lockdown and that the other country teams would be at least in one room together, even if in individual countries. The unpredictability of the pandemic meant that several countries were in lockdown, with team members confirmed to their own homes or only able to gather in limited numbers.

Despite the challenges, everyone rose to the occasion. She thanked the resource partners for their support, SNV staff for their months of preparation, organisation and moderation throughout the event, and all participants for their incredible engagement and patience.

In lieu of the cultural dinner, a photo competition had been held over the course of the event. Participants had been asked to post photos that communicates why climate change matters to WASH services. Each participant could then vote for the photo (or photos) that they thought best met this brief. It was a close-run race and in the end two photos – both posted by member of Team Bhutan – tied for first place. These photos are presented in pages 65 and 66.



A woman flushing her toilet in Punakha district, Bhutan. Picture taken by Aidan Dockery for SNV. Posted by Tshering Choden, GESI Adviser, SNV Bhutan



When the climate is angry and the rain is heavy WASH Advisors like me are threatened to reach the communities. Raj Kumar Bhatrai, WASH Adviser SNV Bhutan

Annex 1: EGroup Summaries

TOPIC 1: Climate resilience of WASH Services

How do you see the difference between overall resilience of WASH services and climate resilience of WASH services?

Let's start this summary by the consensus. In reaction to the third question: "How do you see the difference between overall resilience of WASH services and climate resilience of WASH services?", [basically everybody agreed that climate resilient WASH is part of the overall resilience of WASH](#) that our sector should strive for.

Climate change is one of the external factors that puts stress on delivery of WASH services. Other factors can be related, as [Kakeeto Shafique](#) from Uganda says, to any aspect of PESTLE (P for Political, E for Economic, S for Social, T for Technological, L for Legal, and E for Environmental). [Patricia Solorzano](#) from Honduras provides examples: population growth, unsustainable agriculture, deforestation, river dams. [Kakeeto](#) himself shares an example of inflation affecting WASH, while [Kumbulani Ndlovu](#) from Uganda explains how during the Covid 19 pandemic some governments directed that water supply utilities not to suspend WASH services to defaulting clients. This had severe implications for the financial health of these utilities.

There are thus many external threats to the delivery of WASH services, and this includes climate change. [Ugyen Rinzin](#) from Bhutan mentioned that it will be hard to differentiate between overall resilience and climate resilience of WASH services. [Jeremy Kohlitz](#) from Australia agrees with that, and asks whether it's at all useful to try and differentiate. The only thing, [Anisha Nijhawan](#) from the UK adds, is that building climate resilience will require bringing in additional expertise into the WASH sector: knowledge of climate change patterns, local hydrology and water resources. This reminded me of how the COVID crisis obliged us to bring virologists into every aspect of life.

How do you define resilient WASH services?

So this brings us to the difficult questions: what is resilience and how do you know whether a WASH service is resilient? Let's first start with some definitions some of you said.

First of all [Befekadu Kassahun](#) from Ethiopia reminded us that "climate" is defined by the World Meteorological Organisation (WMO) as "the average weather over a period of 30 years".

We're talking about [WASH services](#), meaning people having access and use of WASH. This may be achieved, as [Getachew Belaineh](#) from Rwanda says, by having multiple water sources over the course of the year. Access to WASH is delivered through a "service delivery system", which includes all elements – infrastructure, finance, communication, organisation, regulation, behavioural change communication etc.- needed to ensure that people have access and use of WASH. And this service delivery system operates in a social, political, technical, economic and ecological [context](#). Below I've tried to put this into a figure.

Note I do not intend to give a definition of the building blocks of a WASH service delivery system, nor to create an award winning graphic here! I just want to illustrate that there are 3 levels that we're looking at in this discussion:

- The WASH services – namely access and use of water, sanitation and hygiene
- The WASH service delivery system, in the broadest sense, so including all functions and stakeholders.
- The context as a whole in which this service delivery operates.

As several of you said, [even without considering changes in the context](#), both WASH services as well as the service delivery systems are deficient:

- **WASH services** (in quantity, quality, accessibility and reliability) do not reach all: 2 billion people lack access to basic sanitation services and 785 million lack access to basic water supply.
- A significant number of **service delivery systems** which are not well organised (for example in terms of mandates, user engagement, supply chains, finance, technology) and therefore cannot maintain their function. You could say they are not sustainable.

As the context is **changing** in several ways and due to different factors, one of them being climate change, this creates additional pressure on an already deficient WASH service delivery system...

You had **broadly 5 types of responses** to the question of **defining resilient WASH services**, ranging from more focus on the quality of service to more focus on transformation of the service delivery system. See below, for each I've included some quotes:

Resilient WASH services are:

<i>With continuous services for all</i>	<i>Able to withstand threat and maintain function</i>	<i>Prepared for threats</i>	<i>Adapted to a new context</i>	<i>Transformed to a new context</i>
Capacity to use WASH after a disaster (Lassana Toure, Mali) Services throughout the year without interruptions (Sorsa Faltamo, Ethiopia) Services in quantity, quality, accessibility including when there is a change (Mouftaou Gado, Benin)	Able to withstand external threats and maintain their intended function (Anisha) Endure and possibly withstand and respond quickly to external shocks and factors (Tashi Dorji, Bhutan) Withstand external climatic and national disasters, provide continuous service (Sonam Pelzom, Bhutan)	With availability of support mechanisms and contingency plans for risks (Ugyen) Safe, sustainable, community owned, jointly developed to overcome shocks and stresses related to accessibility of WASH. (Roselyne Okwiri, Kenya) Reducing exposure to future difficulties, adapting to changing difficulties, and minimizing difficulties when they occur (Anduaem Anteneh, Ethiopia)	Ability to change and adapt (Jeremy) Capacity to absorb disturbances and re-organisation to continue service delivery (Getachew) Resilience capacities that reduce or mitigate the effects of shocks and stresses on the functioning of the WASH services (Jackson Wandera, Kenya)	Our ways of working need to transform and adjust to a climate changed world (Anna Gero, Australia)

Recognising how all these elements are important, [Michael Negash](#) from Ethiopia included all these elements (quality of service, maintaining function, preparedness, adaptation and transformation) in his response. [Ousmane Ibrahim](#) from Benin points out, however, that we are far from reaching the required quality of WASH services, and that building just the resilience of the current level of services is insufficient. We need: increase and improvement of services, more sustainable service delivery systems and greater resilience to cope in a changing context.

How do you know whether or not the services in your area are resilient?

If we know what to observe or measure to know whether services are resilient, we will be able to judge the need and also see whether our effort in improving resilience have effect.

I think that there were 4 types of answers to this question, see below. Please note that I've summarised some contributions:

Resilience of WASH services is measured by:

<i>No general aspects, locally specific, depending on definition and context</i>	<i>Retrospective: have the services been sustained in extreme events in the past?</i>	<i>Characteristics of the service delivery system (or part of it)</i>	<i>Preparedness of the service delivery system</i>
I don't think we can measure, monitor or evaluated something until we created a theory of change for it (Jeremy)	We know it is resilient when there is a "permanence of the service" (Apollinaire Hadonou, Benin)	Capacity of installations to withstand extreme temperatures, drought or flood (Bani Sacko, Mali)	If a climate risk assessment is done and a climate change risk mitigation response plan is budgeted and implemented (Le Huong, Laos)
It needs to be thought through from the beginning in each context, with clear steps in the planning process (Kees Vogt, Burkina)	Through observations and experiences locally (Jonathan Kunau, PNG) If the service continues to comply with WASH service standards (Yacouba Chaibou, Niger)	Choice of technology, capacity to construct/ build, siting siting/location of the facility, availability of materials and skills to maintain the system, among others (JR Okello, Uganda)	Having a national SOP for emergencies (Ugyen) Prioritizes innovation, flexibility and situation awareness, i.e. early warning (capabilities (Kakeeto)
	Failure to deliver design yield, downtime of service, failure to comply with WHO water quality standards, collapse of latrines, increased disease (Mahteme Tora, Ethiopia)	Proven technology, quality of infrastructure materials and services, clear plans and budgets, skills in government and private sector (Tashi)	
	Sustained service levels within the expected life span (Michael)	Technology, technical expertise, policies, guidelines (Jimmy Otim, Uganda)	

As you can see above, many people propose to measure the resilience of WASH services [retrospectively](#). That means, looking at [historical data](#) about service disruptions, yield, latrine collapse etc. Another group of people intends to predict [future resilience](#), either by referring to [characteristics of the service delivery](#) system or specifically to the [preparedness of the service delivery system for disasters](#). There are also people who state that all measurement is locally specific. There are pros and cons to all .

The [retrospective](#) approach is the most direct way of knowing whether or not the service was resilient. Moreover, a historical record can provide learning for the future [Roselyn Okwiri](#) from Kenya and [Ram Prakash](#) from Nepal suggest. Monitoring the direct access to services, including of different sections of the community as suggested by [Manita Rauta](#) from Nepal, potentially provides information on resilience in relation to equity. A counter argument is that while service continuity can indicate resilience of WASH service, service failure may indicate many things, including just bad management. A commonly mentioned limitation of the respective approach is that past performance may not be sufficient to predict performance under changing contexts in future. The people suggesting to measure resilience through [service delivery characteristics](#) mention a wide range of service aspects, though there is a tendency to put a lot of emphasis on robust infrastructure. The group focussing on preparedness may be too centred on disasters and shocks, whereas some changing in our context happen gradually over time.

Overall there is a consensus that [monitoring](#) of service levels and certain aspects of the service delivery system is useful [and acting](#) on this information will contribute to resilience of WASH services. Jackson calls this "[resilience capabilities](#)" and summarises it as follows:

- anticipation (ability to access and analyse information),
- absorption (ability to absorb impact of the shocks and stresses),
- adaptation (ability to flexibly learn and adjust to shocks and stresses through incremental changes),
- recovery (ability to continue during and after a shock)
- transformation (ability to change the structure or nature of the WASH services chain).

Flooded toilets

If there is one thing that is mentioned very often in relation to climate change & WASH, it's [flooding of toilets](#). Within this topic, more than a third of the people mentioned this in some way and it always makes me wonder whether this is indeed a new thing emerging due to climate change, or that these periodic floods have always been there which we simply have not given enough attention in the sector. [Hilda Muteshi](#) from South Sudan describes the sector's homework clearly: latrines are constantly washed away by floods, this calls for type of latrines that can survive the rain season. Some latrines are filled by ground water when water table rises in dry season, this calls for technology that prevents ground water sipping in. Many of you gave examples of how to address this, and there are technology options for [sanitation in challenging environments](#). There are also many other good suggestions for increasing resilience, for which I'm asking you to please go back to the messages.

TOPIC 2: Climate change in your country

Thank you for your contributions to the second topic of this Egroup discussion "Equity, climate change and rural WASH". We have received 10 contributions from 8 countries (Kenya, Uganda, Bhutan, Mali, Benin, Ethiopia, Niger and Mozambique).

This second topic has focused on "Climate change in your country" in which we sort to explore the **changing context in which WASH services operate**, both in terms of climate change effects, as well as in terms of institutional or financial changes as a result of national climate change measures and/or new standards (e.g. at the level of emissions). The questions were

1. What are the climate change trends in your country? How does this show (or not show) in your district?
2. How are the national climate change plans and commitments (NAPA, NDC's) operationalised? (focus on those relevant for wash, water or health)

3. How is this operationalized in your district?

Climate change trends nationally, and visible in your district, county or region

Summarizing the range of responses from a rural area of Australia still recovering from bushfires and then floods is quite sobering. Contributions covered the range of climate hazards predicted nationally and experienced locally and as variations within countries (e.g., areas getting wetter and drier). With the changes in rainfall patterns, the theme of flooding toilets from Week 1 has carried over. Below is a snapshot^[1] reflecting both the national trends and examples of what is being experienced locally in the different contexts across Africa and South Asia.

Snapshot

Climate Hazard	National Trends	Eg's visible locally
<p>Slow onset: Events that gradually emerge over extended periods of time such as droughts, sea-level rise, and salinisation.</p>	<p>Glaciers retreating and glacial lake formation – Bhutan</p> <p>Droughts and desertification – Niger, Ethiopia</p> <p>Sea level rises - Benin</p>	<p>Saline water intrusion in fresh drinking water– Mozambique, Niger</p> <p>Droughts impacting on water scarcity, quality, hygiene and womens labor – Ethiopia, Niger</p>
<p>Shocks: Events that occur acutely within a short timeframe such as cyclones (but effect may be felt long after).</p>	<p>Frequency of cyclones – Mozambique</p> <p>Flooding – Mozambique, Uganda, Niger, Ethiopia, Benin, Kenya</p> <p>Glacial lake outburst floods (GLOFs) – Bhutan</p>	<p>Two cyclones in 2019 included damage to WASH infrastructure– Mozambique</p> <p>Floods (and landslides) are more frequent and lasting longer and have impacted on WASH infrastructure, submerged boreholes and rebuilding patterns – Mozambique, Uganda, Ethiopia, Benin</p>
<p>Trends: Long-term (i.e. over decades) changes in climate variables such as increases in average temperatures or average annual rainfall.</p>	<p>Temperature rises – most</p> <p>Increasing rainfall – Mozambique, Uganda, Bhutan</p>	<p>Increasing malaria and infectious diseases in vulnerable areas – Bhutan, Ethiopia, Uganda</p> <p>Decreasing snowfall -Bhutan</p>
<p>Variability and unpredictability: Increasing contrast between seasons (such as increasing contrast in rainfall patterns between wet and dry seasons) and increasing unpredictability of climate and weather.</p>	<p>Extended dry seasons and heatwaves – Uganda</p> <p>Rainfall variability – Niger, Bhutan, Kenya</p> <p>Frequency and intensity of weather events – Ethiopia, Bhutan</p>	<p>Water scarcity/floods increases use of unsafe water sources and increasing outbreaks (Cholera, Typhoid)- Uganda</p> <p>Damage to critical urban infrastructure – Kenya</p>

WASH, Health and National climate change plans and commitments (NAPA, NDC's[2])

Contributors shared a range of plans, policies and measures already established at the national level which are defining priorities and processes, based on risk assessments considering water and health. In Kenya for example, [Fanuel Nyaboro](#) explained that climate change plans and commitments are guided by a Climate Change Act 2016, National Climate Change Council (NCCC) and the Climate Change Directorate at the Ministry of Environment and Forestry. Its National Adaptation Plan (NAP 2015-2030) which provides the broader strategies highlights capacity strengthening in the short term and implementation of the National Water Master Plan in the long term for the Water and Sanitation Sub Sector.

Several countries have **dedicated policies or national plans**. For example, [Alex Grumbley](#) shared that there is a medium-term national climate plan (2020-2025) with a focus on renewable energy, water and resilient agriculture in Mozambique. Whilst [Kakeeto Shafiq](#) shared that Uganda has had a climate change policy since 2015 with the Ministry of Water and Environment, which is also the focal point for the sector. There is also a National Policy on Climate Change in Mali which as [Bani Sacko](#) shared, is orientated around five operational pillars: shared vision, adaptation, mitigation, technology transfer, and financing.

In *operationalizing nationally*, contributors shared a range of examples,

Coordination, synergy and harmonization were themes led from the national level. In Bhutan, [Chador Wangdi](#) and [Sonam Pelzom](#), MoH explained that the National Environment Commission was the overall coordinating agency on climate change and its adaptation with water taken as priority for the onward National Adaptation Plan (NAP). MoH has also developed the Health National Adaptation Plan (HNAP) (2018-2023) as a part of NAP which focuses on WASH, food safety and Security, waste management and air quality.

In Niger, [Chaibou Yacouba](#) explained that the NAP is led by the National Council for the Environment for Sustainable Development (CNEDD) whose focus has been on using **approaches in synergy with existing national plans and programmes** (including for water, poverty). This was also reflected by [Kakeeto Shafiq](#), where in Uganda the policy seeks to ensure harmonized and coordinated approaches, taking a multisectoral approach towards climate change, making it everyone's business!

Kenya's Climate Change Act 2016 provides for the establishment of a Climate Change Fund at national level, the County Governments are then required to enact local level legislation to access these funds of which so far one third are estimated to have done. The county legislation provides for a county climate change board, county climate change planning committee that is multi-sectoral and ward climate change planning committees for grassroot planning and monitoring. [Fanuel](#) observed a limitation is that the enactment of the legislation is driven more by the desire to access national funding rather than the vision for addressing the climate vulnerabilities in the counties, resulting in projects that are not coherent or not sustainable. Capacity building is a key issue. A challenge also is in mainstreaming the activities across departments and ministries given that government resources are allocated based on sectors. There seems to be no strong incentive for this hence the impact in the Water Sector is limited given that resources are low.

[Bani Sacko](#) elaborated that Mali has three levels to **monitor and evaluate** the policy intervention – politically through the National Climate Change Committee created within the National Environment Council; sectorial with representatives from various sectoral departments within the National Climate Change Committee; and decentralized through the regional and local level committees. [Kencho Wangdi](#) shared a similar example of utilizing all three levels of government to operationalize and monitor progress in Bhutan.

In Bhutan, vulnerability and water scarcity risk assessments were planned along with scaling up of integration within water safety planning and water quality surveillance. Adding to this, [Kencho Wangdi](#) shared the example of integration within the National Key Results Areas in the 12th Five Year Plan, supported by fiscal and tax measures for energy efficiency and clean technologies in various sectors. Whilst in Kenya, the Act requires county governments to mainstream climate change into their five-year County Integrated Development Plans.

In Mali, [Bani Sacko](#) also explained the use of climate proofing and mainstreaming tools for development projects and planning. In Benin, [Ousmane Ibrahim](#) shared the example of a diagnostic benchmark that has made it possible to better orient activities and was used in the process of developing Benin's NAP at national and sectoral levels. [Michael Negash](#) explained that in Ethiopia the approach has been to design a strategic framework and embed in its development plans and program, including the Climate Resilient Water Safety Strategic Framework which outlines Ethiopia's water quality status and challenges, key enabling environment, and adoption of climate resilient water safety plans.

Operationalization at the district or sub-national levels

Examples of **technology adaptations and innovations** included the response to the focus on renewable energy in which the WASH sector in Mozambique is increasingly utilizing solar power for pumping water for both domestic use and irrigation in rural areas. [Alex Grumbley](#) also shared the example of cyclone resistant roof designs for institutional toilets as a small but important adaptation.

In districts where groundwater has been impacted by saline intrusion SNV Mozambique are in the process of learning from solar powered reverse-osmosis water treatment systems based on successful examples with a local private sector operator that has a medium-term contract to keep the systems operational.

[Kakeeto Shafiq](#), SNV Uganda discussed the example of a project promoting vegetation cover around rural point water sources to mitigate the severe impact from erosion which might expose the underneath parts of a borehole, calling for a costly full rehabilitation.

Also in Uganda, there is a call to change materials used by local communities for water source fencing/protection to move away from hardwood which is used 2-3 times a year. WASH players have introduced designs for more permanent wall fences for water source fencing and promoted the use of bamboo sticks which are relatively climate change-friendly options.

Examples of changes to the way WASH service delivery is organized,

In Ethiopia, [Mahteme Tora](#) gave the example of the One WASH National program (OWNP) Phase II which has mainstreamed climate resilience across all components of the programme and with one specific component setting up the foundations for more climate resilient solutions. 38% of the total US\$6.5 billion OWP budget is allocated for Climate resilient WASH across all districts/woredas. [Michael Negash](#) elaborated further its climate WASH resilient working group formed under the water sector working group is an important think-tank platform for dialogue and cross learning to address challenges in the WASH sector from the climate change perspective.

[Ousmane Ibrahim](#) shared the example of an urban project in Benin, supported by the World Bank that integrated flood risk management as a systemic and comprehensive approach to manage the exposure and vulnerability to flood risks of the sanitation networks within a municipality. By taking into account both the sanitation system and the individual basins, it is seen to combine the challenges of urban planning, water, environment and health.

Finally, challenges were also shared, including flooding toilets...

Funding implications. [Alex Grumbley](#) reflected that whilst there have been examples of significant funds in urban area, there has been limited climate linked funds made available to rural areas to date. In Uganda, [Kakeeto Shafiq](#) felt that comparatively little has been done for rural WASH and climate change.

Resilient sanitation continues to be a challenge, particularly as toilets are significantly impacted by flooding and high winds. Whilst local building techniques that make rural HH toilets more resistant are promoted, it is common for rural HHs in Mozambique for example to follow an annual cycle of house repair and rehabilitation after the rainy and harvest seasons, also true for the toilets they build.

TOPIC 3: Role of local governments in climate resilient WASH services

With thanks to the contributors, we have received 10 responses from 7 countries (Kenya, Uganda, Nepal, Benin, Ethiopia, Niger and Honduras).

This third and final topic has focused on the "role of local governments in climate resilient WASH services. The discussion questions were:

1. What are the main decisions at local government level that affect climate resilience of WASH?
2. Do you see any trade-offs in those decisions ? If yes, which?
3. Do you think that the current decision-making results in a fair distribution of burdens and benefits of (climate resilient) WASH services?
4. How can local government be better supported to make such decisions?

Decision making at the local level and its influence on climate resilient WASH

Decisions made, *or not* made by local government affect the climate resilience of WASH and this presents tensions and challenges particularly in decentralized contexts. Key decisions making - for example relating to water resource management, WASH service provision, disaster preparedness, flood control and water quality, involve the adoption of national commitments, budgetary allocations, human resourcing, anchoring within plans and regulations. These are influenced by political will, limited capacity, competing interests and community priorities.

At the local level, the main decisions are subject to the **degree of adoption and importance of WASH resilience for local governments**. In Honduras, Patricia Solorzano felt this was not a priority at the level of public and central policies. The decisions central governments make when developing budgets and decentralizing roles to the level of technical units of government determine resilient actions in WASH.

[Kakeeto Shafiq](#), SNV Uganda felt that whilst the local government is the implementing body of national projects guided by policies and the country's commitments and interests, these measures fail to align with competing local priorities and therefore are not given the same importance as sectors like education and agriculture by the various stakeholders. The decision of who are the democratically **elected leaders at local government** is actually the first key decisions made by everyone locally. Unfortunately, when elected leaders see climate change as a hoax this determines the fate of improved water efficiency, wetland protection, and the presence of early warning systems.

As [Ratan Budhathoki](#), SNV explained in the context of Nepal where the affects of climate change/disaster are experienced directly this motivates the local government to coordinate stakeholders. [Ousmane Ibrahim](#), Benin also reflected that as elected representatives of the community, they constantly experience the realities of the issues and as decision-makers, they are the first to face the constraints linked to the operationalization of strategies to reduce the adverse effects of climate change in the localities for which they are responsible.

Decisions through by-laws and ordinances. Several participants shared examples including [John Robert Okello](#) from Uganda. If a local government enacts an ordinance which changes land use, say by de-gazetting part of the forests to be used for cultivation, setting up industries or even establishment of an urban center this decision will lead to cutting down trees and increasing surface run off. [Yacouba Chaibou](#), Niger included decisions by local government on the development of legal texts to regulate and harmonise the actions to be carried out in the framework of climate resilience to cope with climate change in WASH.

Budget allocation decisions for service provision, particularly in decentralized context. In Uganda, at the local level, the budget process takes a bottom-up participatory approach. It is therefore greatly influenced by stakeholders in which activities to protect wetlands, build the capacity of extension workers in outbreaks for example may fail to compete for allocated budget lines according to [Kakeeto Shafiq](#).

In Kenya, [Faniel Nyabora](#) explained that water service provision is a devolved function while water resource management is not and for the later decisions on regulations, water storage and flood control are managed at the national level. WASH services provision on the other hand is a mandate of the county governments and financial resources are allocated for this through various processes. County governments face a tricky balance in allocating limited financial resources when the needs are enormous.

[Mahteme Tora](#), Ethiopia explained that it is the Ministry of Water and the regional Water bureaus who decides when it comes to resilient water supply system development mainly due to the high investment cost required. Local governments typically do not have sufficient capacity to take on this function. A Life Cycle Cost Analysis (Millennium Water alliance, 2019) in three districts for example found that only 1-2% of the district budget is allocated to the district Water Office; more than half of that budget is utilized to cover administrative and personnel staff salaries which weakens the local government decisions.

Trade-offs in decisions?

Short term solutions over sustainability

- Local governments push for construction of successive micro-dams along major seasonal rivers to store water. Because decisions are made based on little hydrologic data and other design parameters, in times of droughts, the dams downstream don't get enough water to sustain the water services– [Yemane Gebree'gziabher](#), Ethiopia
- Government are constrained by financial resources and limit themselves to build and manage point source water, the technologies often are not climate resilient. - [Mahteme Tora](#), Ethiopia
- Lack of financial resources means that compromises are made if decisions require large financial and human resources in relation to the resilience of WASH – [Ousmane Ibrahim](#), Benin

Expanding access to basic services over resilience

- The focus is largely on keeping systems running and expanding coverage wherever this is possible whilst little attention is paid to climate resilience for WASH. – [Faniel Nyabora](#), Kenya
- Although cheap to construct, we see hand dug wells are the most vulnerable water supply schemes when it comes to climate variabilities. Majority of them are now dry in our region- [Yemane](#), Ethiopia

Immediate local economic benefits over environmental services

- Decisions made locally for economic benefit can involve unregulated water abstraction, over utilization of groundwater, urbanization change of land use upstream, land degradation which has implications in the long run and can compromise WASH services – [Yemane](#), Ethiopia
- Construction of hydro power plants requires a massive clearance of trees and diversion of some sections of the river which can affect the environment. However, power generated would contribute to development of some sectors of economy, especially through establishment of industries which can also be a source of employment - [John Robert Okello](#), Uganda

Equity in the distribution of burdens and benefits of climate resilient WASH services

Many felt there was inequity in the burdens and benefits, but for different reasons.

In Ethiopia, for [Mahteme Tora](#), the current priority of the federal and regional governments is to break the vicious cycle of vulnerable infrastructure affected by recurrent droughts in drought-prone areas and create a virtuous circle of climate resilient water supply systems that provide safe and sustainable access to water. The fact that *resilient water systems are expensive and targets fewer areas, the distribution of burdens and benefits are not fair.*

In Honduras, [Patricia Solorzano](#) saw decisions being guided for political interest and short term gain. Much greater awareness and advocacy on the economic, social and political effects is required to visualize the negative impact that the inappropriate distribution of the burdens and benefits of climate-resilient WASH services will bring. It should be aimed at improved services, since the *economic-social cost of not doing so will have greater repercussions* in the medium and long term.

For [Yemane Gebree'gziabher](#), by only focusing on immediate economic benefit and WASH service provision to certain communities then it doesn't consider the serious and long-lasting consequences of

people up or downstream. The investments on WASH services focus on areas that can be reached easily with available technology options leaving the vast majority of people living in remote and dry areas without access. While the economic benefit of some of the decisions is evident, it is also seriously affecting the livelihood of others in the face of changing local or regional climates in Ethiopia.

Finally, [John Robert Okello](#) in Uganda felt that the government's commitment to sustainable access for all would ensure that every village has at least a safe water point. To prevent depletion of ground water resources through drilling many boreholes and also to reduce the walking distance to water points, motorized piped water supply schemes are being constructed, powered by solar energy.

Supporting better local government decision making

Firstly, capacity building efforts need to be increased

- First and foremost, local governments need to be supported in capacity building of their leaders, especially the newly elected political leaders on key WASH sector policies and regulative frameworks that drive the sector and the roles and responsibilities of stakeholders in ensuring that climate resilient interventions are provided. [John Robert Okello](#), Uganda
- The Water Supply Offices at local government level need to have increased financial and human resource capacity to adequately manage WASH resources and the local governments in turn to support the WASH Committees. [Mahteme Tora](#), Ethiopia
- Through strengthening their capacities in (1) planning sensitive to climate change, to gender & social inclusion, (2) in leadership/advocacy, (3) in resource mobilization (both internally and externally) and (3) adaptation to climate change. [Ousmane Ibrahim](#), Benin
- Nepal's WASH sector is working collaboratively and supporting the governments during disasters and regular development process, but still needs more effort to strengthen the system and capacity in this regard as new challenges occurs every year. [Ratan Budhathoki](#), Nepal
- Identify and capacitate existing or establish new sectoral offices with the role of regulating WASH services and gaps that prevent them from taking measures when wrong decisions are made - [Yemane](#), Ethiopia
- Further support at the local level for decision-making through capacity building sessions for local authorities in key areas, the provision of all communes with qualified personnel (specialised agents) in water, hygiene and sanitation, training and awareness raising for local populations, and support and accompaniment of communes by NGOs and projects in the specific area - [Yacouba Chaibou](#), Niger

Targeted advocacy efforts at different levels

- Evidence based advocacy among the key decision makers using data and evidence. This may require research or consolidation of existing data. Sensitivity to the political dynamics will also be key. Once there is buy-in among the top leadership, there will be need to build capacity of key technical people in the departments to drive the joint planning and priority setting processes supported with the relevant data that would enhance their decision making - [Faniel Nyabora](#), Kenya
- Effective campaigns to enlighten government at all levels to understand the immediate and long-lasting effects and benefits of decisions on WASH services vis-à-vis climate change. [Yemane](#) – Ethiopia
- Budget advocacy, there is need for the central government to increase funding to the local governments to enable them to implement their development plans. [John Robert Okello](#), Uganda
- Community level - when a community knows its water source can't survive a prolonged dry season it will continuously demand a solution. After realizing that a prolonged dry season is not a one-off, but an effect of climate change. In this way decisions in support of climate resilient WASH services will be made by the local government. [John Otim](#), Uganda