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A Participatory Assessment for Climate-Induced WASH Vulnerabilities in Bangladesh

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Introduction

Climate change is a major concern for the sanitation sector. In a context where more than two billion people still do not have access to basic sanitation facilities, climate change adds complexity that deepens existing inequalities and vulnerabilities in terms of sanitation access and usage. Notably, the effects of climate change have a disproportionate impact on disadvantaged and marginalised groups.

The effects of climate change on sanitation and hygiene can be seen in links between climate hazards and systemic changes in service delivery, changes in behaviour, social norms that dictate who respond to impacts, and many other aspects. However, these links are weakly documented. Further, the voices of vulnerable individuals, households and communities who feel the effects of climate change on sanitation are largely missing from current discussions. Practical examples to address potential impacts of climate change on programming are also needed to build momentum around climate change in rural sanitation. Effective integration of climate thinking in rural sanitation and hygiene practices at the local level can contribute the global evidence base on practical tools that are easy to implement with minimum resources.

To this effect, this project has sought to:

- 1. Build evidence on the direct and indirect impacts of climate hazards on rural sanitation and hygiene practices.
- **2.** Use participatory research methods to understand local realities and experiences.

3. Explore the feasibility of integrating climatesensitive thinking into rural sanitation and hygiene programming through testing and trialling climateresponsive sanitation interventions.

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 Facilitate learning and sharing with partners within and across case study regions to think through evidence-based recommendations for programming.

This research was conducted in three different countries. The focus in each country was decided collaboratively with a national implementing partner (see below). Together, they addressed the research objectives listed above, although not every country focused on every objective.

Case study 1 Burkina Faso (lyer and Pare Toe 2022) focussed on examining direct and indirect impacts of climate change on sanitation practices in the East Region, and the implications for programming in the region and the country more broadly with UNICEF Burkina Faso.

Case study 2 Lao PDR (Kumar, Kohlitz and Willetts 2022) focussed on piloting adapted Community-Led Total Sanitation (CLTS) tools that integrated consideration of climate risk into rural sanitation programming with SNV Lao PDR.

Case study 3 Bangladesh focussed on using a participatory vulnerability analysis approach to better understand and respond to sanitation-related vulnerabilities during climate shocks and stresses with WaterAid Bangladesh.

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This Learning Brief presents work undertaken by WaterAid Bangladesh and Rupantar in collaboration with the Sanitation Learning Hub (SLH), at the Institute of Development Studies, and the University of Technology Sydney - Institute for Sustainable Futures (UTS-ISF).

A sanitation-focused climate lens was added to existing ward vulnerability assessment tools due to the increasing WASH-related climate impacts in the study site. The aim was to understand climate induced impacts on WASH and feed this into programmatic guidance through the preparation of locally-led comprehensive ward development plans.

This Learning Brief is intended to provide inspiration to practitioners and WASH experts on how to adapt existing vulnerability assessment tools to integrate climate considerations. This study engaged several stakeholders including climate vulnerable populations, development practitioners, researchers, and local government across Krishnanagar Union under Sathkhira subdistrict, to create evidencebased approaches to address climate induced WASH vulnerabilities in coastal Southwest Bangladesh.

This research sought to answer the following questions:

- **1.** What is the current status of WASH facilities in nine wards across in rural southwest Bangladesh?
- **2.** How are climatic conditions impacting water, sanitation and hygiene practices?
- **3.** What actions can be undertaken by various stakeholders to address climate induced WASH problems?

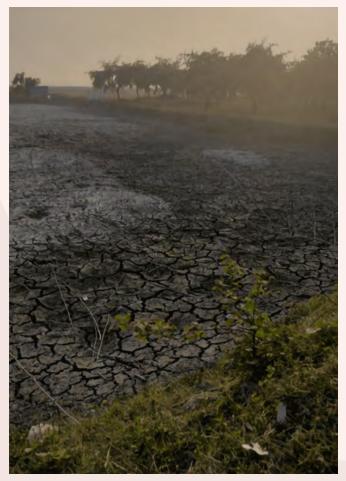
Setting the scene

The Global Climate Risk Index (CRI) ranks Bangladesh as the seventh most affected country by climate change events because of its vulnerability towards a wide variety of climate hazards (including salinity, drought, rainfall variability, riverine flooding, tropical cyclone, riverbank erosion, heatwave, cold wave etc.) persisting throughout the year (GermanWatch 2021; MoEFCC 2022). The types of climate crisis across the riverine country vary across different locations.

A number of policy documents on climate change adaptation and WASH already exist in the country. For instance, the Bangladesh Delta Plan 2100 (General Economics Division (GED), Bangladesh Planning Commission, 2018) outlines investable actions that key sectors can take to reduce climate risks and environmental loss.

Another recently published key planning document, the National Adaptation Plan (Ministry of Environment, Forest and Climate Change 2022), identifies persisting climate risks and vulnerabilities along with adaptation strategies and an implementation plan to adopt appropriate actions.

Also, other policy documents linked with gender and WASH, i. e. Gender Action Plan (Ministry of Environment and Forest 2013), National Strategy for Water Supply and Sanitation (Ministry of Local Government, Rural Development and Co-operatives 2021) etc., have instructions on climate-specific contextualisation of interventions.



Landscape heavily affected by salinity (WaterAid/Samiha Nuzhat)

In Bangladesh, 68.3 million people (nearly half the total population) do not have access to safe drinking water options, and 103 million Bangladeshi people (nearly two-thirds of the total population) do not have access to safely managed sanitation facilities (UNICEF 2021). Within this context, climate change is an increasingly urgent concern challenging the progress and sustainability of WASH practices and coverage.

The research was carried out in the southwestern coastal belt of Bangladesh at Krishnanagar Union, in Kaliganj Upazila of Satkhira district. The study was conducted across all 9 wards in the Union. The area is close to the Bay of Bengal and Sundarbans (the largest mangrove forest of the world). It is directly facing the consequences of global warming and sea level rise and is located in one of the most climatevulnerable zones of the country.

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Household materials are very light in most cases and not climate-resilient (WaterAid/Samiha Nuzhat)

What we did: Participatory Ward Vulnerability Assessment

This participatory assessment of WASH vulnerabilities included a climate lens.

The Participatory Ward Vulnerability Assessment (PWVA) is an assessment tool for analysing locallevel vulnerability in climate-stressed areas originally developed by WaterAid Bangladesh in 2013. The tool collects information at 'ward' level (which is below the lowest tier of administration in Bangladesh) to understand the vulnerability of WASH infrastructure, WASH behaviour and practices in a given area to advocate for change at both local and national level.



Community consultation process for qualitative data collection (Rupantar/Shahin)

In 2022, the PWVA process was further developed, adding sanitation related Joint Monitoring Programme and SDG considerations and a climate lens to assess community vulnerability at Krishnanagar Union in Kaliganj Upazila under Satkhira district. This mixedmethod process involved collecting quantitative data through household surveys as well as qualitative data through community consultation events.

The survey collected information from all 4,853 households of the Union, with a focus on the existing status of WASH facilities, while the community consultations were aimed at understanding the persisting problems associated with WASH and climate hazards in the Union. Household heads were the primary respondents of the quantitative survey and

if they were unavailable, their partners or other senior members responded. Simultaneously, qualitative tools were deployed for the data collection of this study.



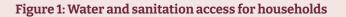
Data validation at Ward-level (Rupantar/Sadia)

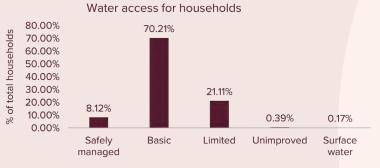
The qualitative aspect involved a two-day consultation in each ward. The first day was dedicated towards the identification of persisting WASH problems in the wards along with the preparation of a social map and an institutional map. The second day of consultation started with consolidation of a seasonal calendar of the problems identified on the first day. It ended with the preparation of a comprehensive planning document which suggested potential solutions to seasonal climate induced impacts on WASH practices and services. A total of 30-40 participants (with a nearly equal number of male and female participants) joined in the consultation process on each day. Special attempts were made to ensure representation of people from different social, ethnic and economic groups to ensure diverse participation.

Additionally, 3 focus group discussions (FGDs) were conducted (with 8–10 women per FGD). These FGDs offered a safe space for women to share their experiences and realities around WASH and climate hazards. These FGDs were conducted in areas in the Union that reported climate-induced vulnerabilities during community consultation process. Finally, data validation workshops were convened at three different tiers – Ward, Union and Sub-district (Upazila), for data quality assurance. The ethical approval for this study was awarded by IDS. The research process was undertaken from August to November 2022.

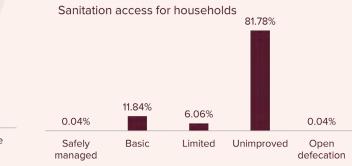
What we learnt

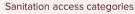
Understanding the demographics of WASH





Water access categories





In Krishnanagar Union, the total population consisted of 20,901 people (Male 10,532 and Female 10,369). The household surveys revealed nearly half of the total population (~47%) categorised themselves as poor or very poor considering their wealth and earnings, since they have a monthly income as low as 40 USD or less resulting in frequent loans, no savings and food insecurity. Most residents depend on daily or seasonal income as day labourers or farmers. This limits their ability to make large one-time investments for robust or durable WASH infrastructure.

The household survey revealed that very few households have safely managed access to water and sanitation facilities as per the JMP ladder's categorisations; ~8% and 0.04% of the total households have access to safely managed water and sanitation

Figure 2: Gender-related WASH access and responsibilities

provisions respectively. Inadequate initiatives for safe emptying and disposal of faecal waste contribute to the low share of households with safely managed sanitation provisions. It was found that sharing water facilities with other households is more common than sharing sanitation facilities, since around 98% of the households share their water source while only 8% households use shared sanitation facilities with other households. As per our findings, with the acute crisis around safe drinking water availability, many households do not have safe water sources within household premises, instead, households spend 23.7 minutes/day for water collection on an average and nearly a quarter of the total households spend over 30 minutes to collect drinking water every day, including time for traveling and queuing for water collection.

٢	Maximum share (83%) has basic sanitation access while the next share constitutes 12% for unimproved access	Maximum share (82%) has basic sanitation access while 12% have unimproved access.	Access
Sanitation	Over 99% households have men responsible for toilet pit/tank emptying. Men lead repairing sanitation facilities in 98% of households.	Only 0.66% households have women responsible for toilet pit/tank emptying. Women lead repairing sanitation facilities in 2% of households.	Roles
ſ	Maximum share (70%) has basic water access while 21% have limited access.	Same as men and there is no major variation between men and women in terms of water access.	Access
Water	19.15% of households have men responsible for water collection and transportation. Men lead reparing water sources in 94% of households.	81% of households have women responsible for water collection and transportation. Women lead repairing water sources in 6% of households.	Roles

Male

Female

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The figure above demonstrates the variation in men and women's access to sanitation and water facilities along with their corresponding roles and responsibilities for household-level water and sanitation service management.

As illustrated, for 80% households, water collection is the sole responsibility of women and girls while the responsibilities of technical and heavy labouroriented tasks, such as repairing of WASH facilities and emptying of faecal matters are mostly undertaken by men.

Also, gender distribution across different sanitation facility types as per the JMP ladder displays no statistically significant variation in the type of sanitation facilities used by men and women.

However, many women expressed their reluctance to use a sanitation facility because of poor privacy resulting in challenges for menstrual hygiene management. Thus, they are more vulnerable to diseases as a result of poor accessibility to improved sanitation.



Unimproved WASH facilities at Krishnagar Union, Kaliganj, Satkhira (WaterAid/Md Zarif Oeishik)

Impacts of climate change on communities and local livelihoods

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Climate patterns are changing and people experience these changes routinely. Water scarcity is experienced severely from winter to the summer (December to June), as the surface water sources dry out and salinity intensifies during non-monsoon period. People are at risk of flooding between the monsoon months (June to August) and winter (December to February). Elderly participants expressed concerns over visible changes such as increasing temperatures and frequency of flooding than they have witnessed in the last 30 years. Participants shared from their experience of residing in the area for past few years that the temperature is exponentially increasing over the years. Intense and frequent tropical cyclones and floods are common in the study area.

People in all wards expressed their struggle with increased intrusion of saline water and reduced availability of clean water.

In the dry season, water scarcity becomes even more acute as the ponds dry out. Rainwater is also unavailable during summer and water technologies (e.g. pond sand filter, desalination plant etc.) often remain dysfunctional, worsening access to safe water.

One elderly man said "My family has been involved in crop cultivation for generations. But my sons cannot stick to this profession due to increased salinity. This is how the environmental concerns are forcing us to deviate from continuing our family's traditions."

A middle-aged woman said "Because of frequent hazards and increased salinity, the roadway network has become too bad to even transport any patient to the hospitals."

Another middle-aged woman said "We see rainfall during unusual period. It doesn't help us at all. It only causes sufferings." She added "Salinity causes reduced durability of infrastructures."

Human activities in the region combine with ongoing climate hazards to make people more vulnerable to shocks and stresses. With the intrusion of saline water, shrimp farming has become very common across the Union replacing former cropping pattern.

However, these activities also increase salinity within ground water across several wards in the Union resulting in a vicious cycle. In many cases, people are unable to afford to adopt improved and modern irrigation technologies resulting in the consumption of huge amounts of ground water and surface water.

People have experienced more erosion of riverbanks in recent years as an outcome of ongoing changes in local ecology. This causes frequent waterlogging and inundation and flash floods.



Because of increasing salinity, lands became infertile and forced farmers to harness acres of lands for shrimp farming. As a result, such anthropogenic activities are adding more intrusion of saltwater on top of climate change-led salinity (WaterAid/Samiha Nuzhat)

As rivers are not dredged, this is leading to a gradual reduction of canal and river width. People share that the width of many rivers and canals have shrunk over the past decade; as a result, water levels increase and submerge the surrounding areas during heavy rain and high tide.

An elderly man said, "We changed our livelihood from paddy cultivation to shrimp farming when salinity started intruding the area. Now, the level of salinity is so high that we cannot even grow good-quality shrimps. I cannot predict what's coming next."

A third respondent said "The waterbodies are not only being polluted but also drying out in recent years. No initiative is undertaken to protect the canal and rivers. We are harnessing the natural resources but we are never giving back anything to nature."

Impacts of climate change on WASH

There are direct climate impacts on sanitation and hygiene facilities and practices in Krishnanagar area which combine with ongoing WASH-related challenges.

Participants from all the wards report that many dwellers are unaware of the various benefits of sanitation and hygiene practices and have not prioritised investment in sanitation facilities.

Cyclones and floods also destroy infrastructure, particularly houses built with light materials. Flood/ cyclonic storm and river erosion inundate sanitation facilities, weaken the latrine infrastructure, and sometimes, even break or submerge latrines. Sanitation facilities are often fragile because they have not been repaired since the last cyclone. People often continue using these poor sanitation facilities for months, as fixing facilities several times a year is not affordable for them. In some cases where households have well-constructed brick-made latrines, faecal matter from dysfunctional toilets accumulates around their households during and after flooding.

When latrines are not accessible, open defecation increases. As a result, waterborne diseases and skin conditions are commonly reported.

Although there is some interest and awareness around hygienic latrine usage, people continue to experience the problem of latrine affordability. Several others continue to use unsafely managed toilets despite their insecurities.

Several participants shared that there are increased number of diarrheal cases during monsoon when many toilets remain inaccessible.

One elderly man commented "Open defecation was very common in the area one decade ago. Now, the affluent people have made their own improved toilet. The poorer ones are suffering since they can neither defecate in open space due to hesitation nor make a good quality latrine. In my opinion, defecating in a poorly constructed latrine is much more dangerous than defecating in an open space."

Another elderly man adds "One of my relative's four-year-old child recently died of diarrhoea right after the last flood." "Because of the poor roadway network, the doctors cannot often provide healthcare facilities nearby our households," another man added. Waterlogging, flooding and inundation also lead to problems with grey water management and overflowing drainage. Human waste gets washed away by flood water and into farming and agricultural sites frequently.

An elderly man said "The amount of loss our ward's economy faced due to climate change is immense. Most of our earning sources have been devastated due to climate change. Now we can only construct poorly maintained latrines with locally available light materials. This is a matter of huge discomfort for women since such latrines are not good enough to maintain privacy and female hygiene. This type of poorly constructed toilets make the total household surroundings unhygienic and there is always bad smell. Frequent occurrence of water borne diseases result in affect people's earnings."

One middle-aged woman adds "We have so many priorities that spending for latrines is rarely possible for many of us. To add much to our sufferings, there are all the flooding, cyclone and increasing temperature.... It has never been this hot few years back."

A young man said "Most of the households, especially the sanitation facilities either break down or get inundated or remain inaccessible during flood and waterlogging. Embankment failure is also common at least once in a year and no regulative authority takes any immediate initiatives to fix those embankments."

Many residents experience interrupted access to their toilets and water collection facilities because of waterlogging. Most of the Union is situated very remotely, with distant access to transportation facilities and local markets.

This makes it challenging to access sanitation resources and hygiene materials, adding to the ongoing challenge of affordability. This worsens during disasters like cyclone or flood, since roads and communication channels like mobile networks break down.

It also emerged that women and girls experience the impacts of climate change more acutely. Household responsibilities, poor WASH conditions, along with more direct impacts on their menstrual hygiene practices, all collectively are experienced. A young woman said "Women in the area are very shy and do not want to speak up about their problems. As a result, they are not availing the existing healthcare and WASH facilities offered by different agencies. Men are also unaware of this situation."

Women face discomfort with toilet access during floods where toilets are too flooded or dark to use comfortably or safely. Many face increasing time pressures in the dry and hot season, walking two-three hours every day for water collection.

This is now becoming more common with the saline water intrusion in drinking water sources, which also occurs with waterlogging.

Reverse Osmosis (RO) plant-produced water is often expensive for many and the number of these facilities is very limited. Those who cannot afford the RO plants or do not have time to collect water, are often forced to drink and use saline surface water.

Young children are also facing increasing burdens on water collection which detracts from school attendance. Since most of the areas in the Union are situated remotely, it is difficult to access hygiene materials when they are needed.

One farmer said "Sometimes I help my wife to collect water. But there is always a long queue at the Pond Sand Filter (PSF). Thus, I lose at least 2 hours in a day for water collection. For farmers like us time is very valuable and so despite my interest to support my wife, I have no way but imposing the responsibility of water collection upon my wife."

An elderly woman said "Safe drinking water is a rare asset that we do not see commonly around our households. We walk for hours to collect drinking water which is barely enough for two days. The rich can hire a van to bring water from the RO plant. But what will the poor do?"

As a short-term coping mechanism, many move to cyclone shelters during disasters. In this context, women and girls often forget to carry materials for menstrual hygiene management.

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Existing shops selling hygiene materials remain closed during disasters, so some girls using sanitary napkins feel compelled to shift to cotton cloths. Many women also shared that they struggled with having enough space to change, clean and dry their menstrual hygiene management products, particularly during flood and cyclonic events.

Their struggles multiply when women move to the cyclone shelters with very limited to no sanitation and hygiene arrangements. Since many women and girls are forced to use saline water for menstrual hygiene management, several report problems and discomfort with rashes, burns, frequent urinary tract infections and blisters.

Women also expressed their discomfort with discussing these issues openly, sharing that they often keep their struggles silent and to themselves.

A young woman said, "We do not know where to claim the solution of all the WASH borne problems. Girls and women suffer the most due to the situation, since they are taught to accept any problem and remain silent."

An old woman said "Cotton cloths are the most common MHM product used by the women during menstruation. When it is washed with saline water, it results in a lot of health problems and huge discomfort."

There are also indirect impacts that affect sanitation prioritisation. Salinity is reducing land fertility, and consequently reducing household income from agriculture. The variety of crop production has reduced, stemming from increasing saline water encroachment.

Climate-borne hazards frequently inundate water bodies where fishes are bred and while only useful for those undertaking shrimp farming, saltwater intrusion often affects the reproduction of fishes.

Reduction of income from livelihood options (by destroyed cropland/fisheries) leads to reduced prioritisation towards constructing sanitation facilities right after cyclones and floods.

Thus, household investment on WASH is affected. As a result, the destroyed sanitation facilities remain risky to use for months.

Frequent inundation and depleted groundwater levels also increases household expenditure to install more robust water and sanitation infrastructure. A young man said, "How many times can lowincome people like us fix our toilets devastated by flood? Last year, our household fixed it twice. Still it got damaged during the next flood."

Two young men mentioned "The suitable timeline for cultivation cannot be estimated nowadays, since the rainfall pattern is very uncertain and it affects our income from agriculture.... The saline water also reduced land fertility. We need training on how to cope up our agricultural practices with the changing climate."

Coping mechanisms

Amidst these challenges posed by climatic and associated factors that result in an acute WASH crisis, people continue to adapt and cope with these newer climate realities.

Communities often tend to build toilets with concrete and brick for improved salinity tolerance and durability when they can afford to.

There has also been a switch to using ceramic/porcelain tiles around concrete infrastructure, as they do not get damaged by salinity and can be more durable, although they do increase the price of latrines.

Raising the height of toilet plinths or platforms of water sources (handpump, pond sand filters) ensures that infrastructures do not inundate by waterlogging.

These also assure functionality of the facilities during floods and cyclones.

Appropriate site selection for the construction of sanitation and water facilities has become another mechanism to ensure durability of latrines during storm surges.

Additionally, investments through private, NGO and public initiatives, especially for the installation of RO plants, PSFs and rainwater harvesting system, have increased, alleviating some drinking water challenges.



Recommendations

The following recommendations emerged over the course of the PWVA process that included two validation workshops convened at Union and Upazila level and two workshops with the broader research team within Rupantar, WaterAid and the Sanitation Learning Hub.

The recommendations include:

1. Effective participation to strengthen locally led decision making.

Concerted efforts to capture and learn from the experiences of different people and ensuring their meaningful participation can lead to more grounded and relevant Ward development plans.

This has potential for improved decision making at the local level. Processes like PWVA can support identification of varied needs for better service delivery.

An elderly man from an ethnic minority community said, "We haven't ever joined any such meeting to express the problem we face with our climatic conditions. This is the first time for many of us to speak up in a platform like this."

Despite the national priorities on locally-led actions, locally initiated approaches in WASH programming are not widespread.

Several participants expressed the need to reinforce safe sanitation practices for contextualised climatestressed environments.

This provides an opportunity for locally-led approaches that integrate ways to adapt and cope with various contexts within households, which can be useful.

Some guidance already exists on trialling methods integrating climate-relevant questions within WASH programming which can be extended further to formulate appropriate strategies.

One leader said, "Initiatives to improve water and sanitation situation should start at the household level, since government initiatives are mostly focusing on greater-scale development of the area with a very limited budget." In this regard, several participants expressed the need to consider ward level experiences in decisionmaking around WASH-focused investment to better understand specific ward governance challenges and barriers, as WASH decisions are currently made at national and Union level.

2. Prioritise gender, equity and social inclusion in programming

The WASH sector has made strong strides with gender, equity and social inclusion indicating the need for focused programming strategies. This good practice should continue when it comes to climate resilience interventions.

Inclusive programming can go a long way to address social norms, and issues with equity and marginalisation that create vulnerability to climate change.

3. Financial support mechanisms

Affordability is one of the most crucial limiting factors - consider the applicability of WASH-focused financial support mechanisms through existing allowances and subsidies.

Also consider ideas and narratives around 'costeffective' sanitation facilities that can potentially withstand pressures around storms and floods instead of 'low-cost' facilities that may tend to get damaged.

A middle-aged woman said, "The number of sanitation facilities offered by Union Parishad (Local Government Institution) is too small while compared with the total population. UP should increase the budget allocation for WASH issues and this budget should primarily be invested for the improvement of the poorer households. However, sometimes corruption and mismanagement lead to disproportionate distribution of facilities ignoring the people in dire need."

4. Identify and build on good practices

Many participants already expressed ways of coping and adapting to existing challenges with reference to multiple existing practices.

These successful models should be improved with external support and replicated to think through routes to more long-term resilience with useful, practical and ecologically-sound contextualised modifications.

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5. Increased cross-sectoral coordination

Climate impacts are often cross-cutting involving health, WASH, livelihoods and more.

An integrated ward-level development plan, comprising the actors of multiple sectors, is necessary to identify institutional roles for a cross-sectoral interventions.

A middle-aged UP member opined that "Most of the problems exist because of not having any well-coordinated consolidated plan prepared by relevant stakeholders."

Discussion and conclusion

The findings highlight that climate impacts affect people and households in dynamic ways, and that these experiences depend on various intersecting factors like gender, location, age, type of toilet, livelihood options and more.

Anthropogenic activities multiply these impacts, evidenced by the rise in salinity because of shrimp farming and vice-versa. Local activities also accelerate climate-induced riverbank erosion lowering the depth of riverbeds, ultimately leading to frequent flooding.

Climate hazards therefore intersect with these varied ecological and social vulnerabilities to have multiple impacts on WASH accessibility, availability and quality of facilities, as observed in the context of Bangladesh's southwest coast.

Climate impacts in the Union deepen and reinforce gendered burdens and norms around WASH, making problems more acute for women and girls. There are consequent increasing burdens to their household responsibilities, more pressure on their time, compromises to their health and their comfort and safety when using WASH resources and facilities is negatively affected.

Within all of this, women are silent in voicing their concerns due to existing gendered norms, and their burdens and discomfort are magnified.

At the Union level, the sustainability of coverage is being challenged and reversed by climate events. Even those with 'improved' toilets are adversely affected, and safe WASH behaviours are lost or reset and the risk of disease increases.

With frequent episodes of floods and storms, financial burdens increase. Sanitation prioritisation both by

households and local government needs to be a continued priority for the Union and the WASH sector in the country more broadly.

While inequalities, inaccessible funding and lack of climate integration in WASH programming are challenges, Bangladesh's substantial policy framework provides a meaningful opportunity to address climate and sanitation problems.

As the fully-fledged adoption of policy-based actions into practices is an ongoing process (ICCCAD and WaterAid Bangladesh 2021), there is significant scope to integrate national-level policy and programming with findings and learnings from more locally-needed and recognised approaches such as the Participatory Ward Vulnerability Analysis.

This process was able to accurately capture realities and experiences and build evidence linking climate and sanitation. It can therefore make policy and programme operationalisation within both climate and sanitation sectors more relevant and context-driven. There is also potential to build on the national priorities around climate to build an enabling environment that guides local government's activities to undertake locally-relevant actions.

PWVA is a useful and systematic way forward to address a multitude of challenges outlined above, to highlight local demands, issues and experiences, and feed those into planning and programming cohesively.

With Bangladesh's increased vulnerability to climate impacts, creative solutions such as the PWVA can address these complex issues for more sustained and equitable access to WASH services in the future.

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