

Impact Of Climate Hazards On Rural Sanitation And Hygiene Practices In Burkina Faso



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A village in East Region in Burkina Faso. Credit: Dr Léa Pare Toe

1. Introduction

In a world where more than two billion people lack access to basic sanitation facilities, climate change adds complexity that deepens and highlights existing inequalities and vulnerabilities. The inter-connectivity between hygiene and sanitation access and use and the effects of climate change can be linked to systemic changes, changes in behaviour, social norms, and many other factors.

Despite climate change being a major concern for the sanitation sector, rural sanitation remains neglected in the wider discussions of climate impacts on WASH services. Also, the voices of vulnerable individuals, households, and communities who are experiencing the effects of climate change in relation to sanitation issues are missing. During previous research undertaken by the Sanitation Learning Hub (SLH), IDS, and the Institute for Sustainable Futures--University of Technology Sydney (ISF-UTS), many practitioners expressed the need to build an evidence base on the experience of people and communities grappling with these issues and develop programmatic guidance towards climate-resilient sanitation programming (Kohlitz and Iyer 2021).

In response, this research 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 climate thinking into rural sanitation and hygiene programming through testing and trialing relevant interventions to increase the climate resilience of sanitation.
4. 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: 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 Laos: focussed on piloting adapted Community-Led Total Sanitation (CLTS) tools that integrated consideration of climate risk into rural sanitation programming with SNV Laos.

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..

This case study outlines the findings from Burkina Faso. In this country, the research was led by the Institut de Recherche en Sciences de la Santé (IRSS) in collaboration with UNICEF Burkina Faso, the SLH, and the ISF-UTS.

2. Setting the scene

The West Africa and the Sahel is already observing a mix of increased river flooding, dry conditions, and agricultural and ecological droughts, with projected increases in heavy precipitation and pluvial flooding (IPCC 2021). Burkina Faso is a landlocked country in the West African region with a population of 18 million, 70 per cent of whom live in rural areas (World Bank 2017). It faces a myriad of ongoing and upcoming challenges with regard to both climate and sanitation. Burkina Faso has projected temperature increases of 3–4 per cent by 2080–99, much higher than global average of 1.7 per cent (World Bank n.d.)

Burkina Faso also faces a major challenge with regard to sanitation and hygiene practices. According to estimates from 2020, in rural areas, 54.72 per cent of people still practise open defecation and only 13.46 per cent have access to a basic facility (WHO and UNICEF 2020). Regarding hygiene, only 5.46 per cent of rural households had basic handwashing facilities (a handwashing station with soap)¹ (Ibid).

In 2006, the national government adopted a water and sanitation policy called the National Programme for Water Supply and Sanitation² formalised the decentralised management of rural WASH and enabled the communes (municipalities/districts) to take responsibility for WASH service provision.

The East Region was selected for this research as it experiences a mix of high temperatures, heavy rains, pockets of drought, and water scarcity (UNDP n.d.). Furthermore, UNICEF has an

ongoing sanitation and hygiene programme in the region, supporting sanitation access through CLTS, and maintains strong relationships with local government, non-government stakeholders, and communities.

The aim of the case study was to expand the evidence base on climate impacts on rural sanitation and hygiene practices and programmes in Burkina Faso and on practical adaptations to increase resilience and ensure communities are better able to maintain improved sanitation behaviours during and after times of climate stress. There was a focus on the social dimensions of impacts, exploring vulnerabilities and behavioural aspects of sanitation access and use. Additionally, the research identified the impacts climate change is already having on current programming efforts in rural settings. To this effect, this research explored the following questions:

1. How are climate hazards impacting rural sanitation practices within villages?
2. How are practitioners experiencing climate impacts on rural sanitation programming?
3. How could programming strengthen rural sanitation services and community resilience?

3. What we did: Participatory research and learning

Four villages in the province of Fada Gourma in the municipalities of Diabo and Tibga were selected where UNICEF was operating. Villages were at different stages towards becoming open-defecation free (ODF). Two villages had been triggered, one had been declared ODF, and in the final village there had been no intervention so far.

Across the villages, the research lead, IRSS, held 22 participatory group discussions with an average of ten people per discussion. The team used impact diagrams and climate hazard mapping in each discussion to understand climate impacts on individual, household, and community sanitation throughout the year. This also enabled an understanding of the differentiated effects across groups of people, the extent to which sanitation is prioritised during and after climate-related events, and current local mechanisms to cope and adapt.

- Impact diagrams (Kohlitz et al. 2020a) were used to capture the consequences of climate hazards on local features and various aspects of people's lives including health, household infrastructure, and livelihoods. This helped to ascertain and highlight linkages between climate risks and sanitation, leading to a discussion on where sanitation ranks within a list of priorities. This activity was undertaken separately with groups of men and women to understand differences across gendered roles and activities.
- Communities took part in climate hazard mapping, by drawing a map of where they live, identifying where climate hazards affect the community (e.g. where it floods, where landslides occur, etc.), and then discussing how these impacts affect sanitation access for different people in different ways (Kohlitz et al. 2020b).

1 Sustainable Development Goal indicators, Burkina Faso.

2 Burkina Faso Water Supply and Sanitation Program, World Bank. <https://projects.worldbank.org/en/projects-operations/project-detail/P164345>.



Exchanges with women in the village during the impact diagram activity. Credit: IRSS Research Team, Burkina Faso

These discussions captured tacit knowledge and experiences of climate impacts on sanitation and hygiene practices, helped unpack the complexity behind these experiences, and ensured community members were involved in the assessment of their sanitation and hygiene situation. The researchers then presented findings from both activities back to community groups to ensure transparency.



A participatory focus group discussion with men. Credit: IRSS research team, Burkina Faso

In addition to participatory group discussions, researchers conducted semi-structured interviews with community leaders and older people in the focus villages, in order to understand changes in climate over time and the communities' specific challenges and responses.

Semi-structured interviews were also conducted with staff from civil society organisations based in the region to understand specific impacts on sanitation and hygiene programming and their concerns with climate risk and sustaining sanitation outcomes.

Researchers carried out field work between July and September 2021. The Institute of Development Studies in the UK and IRSS in Burkina Faso both granted ethical approval. COVID-19 precautions were followed and all activities were carried out in line with government guidance.

Following completion of the field work, UNICEF Burkina Faso, UNICEF West and the Central Africa Regional Office, and researchers from IRSS, ISF-UTS, and SLH held two online workshops to discuss findings and collaboratively identify programmatic recommendations and responses in the East Region of Burkina Faso and implications for the wider West Africa Region.

4. What we learnt: Impact on sanitation and hygiene practices

In the four villages studied, residents experience two main climate hazards: heavy and unpredictable rainfall leading to floods, and the onset of desertification and dry conditions. These impacts are crosscutting and affect various parts of people's lives. Along with climate hazards, human activities in the region are worsening climate hazards, which consequently impacts sanitation and hygiene. These activities include deforestation and cutting down vegetation cover, and changes in agricultural practices that encourage the use of chemical-based pesticides and fertilisers that affect soil nutrient content and ground-water quality. In sum, the combination of climate hazards and human activities affect sanitation and hygiene practice and behaviour, with associated implications for programming. One interviewee stated

"Many trees have disappeared nowadays. We can say that seven years ago they still existed. There is a tree called 'TITORE' that we found a lot here but they have all disappeared. The scarcity of rains is the cause. We no longer have a forest and that is why the trees have disappeared. With the conflicts, people moved and cut down the trees in the forest to make fields. The rains are also rare."

The identified impacts are both direct and indirect. Direct impacts are those that have an immediate, follow-on effect on sanitation and hygiene practices or facilities. Indirect impacts are those that make it challenging for households and people to prioritise the practice of safe sanitation and hygiene behaviour. These could include loss of livelihood opportunities or food security that then lead to households redirecting priorities away from sanitation and hygiene investments.

4.1. Impacts of irregular and heavy rainfall

Direct impacts

All four villages have experienced damage to both household and latrine infrastructure. Most latrine superstructures made with wood, earth, and straw are unable to withstand heavy rains and are subject to rot and termite damage.

A quote from a group discussion with men from a triggered village states.

"We use local materials to build our latrines which are not resistant to heavy rains. They can't even resist since it's dry wood and terra cotta I'm talking about. The latrines collapse every rainy season to the extent that they cannot resist. We do them ourselves. We are doing our best. Unfortunately we lack the money to build them with cement."

Villagers also reported that pits overflow and collapse with excessive rains. Where latrines get partially damaged (i.e. the wooden slab remains in place but the earth has been washed away by water), people are worried about them collapsing altogether, so stop using them. Many people also expressed feeling mentally fatigued from having to invest time and money in rebuilding facilities frequently. They also reported reduced hygiene standards because flood water mixed with solid waste in the area, and led to standing water and mosquito breeding grounds. One interviewee from an ODF village stated

"There is an old woman next door. Her wooden latrine has collapsed twice. She got tired of it and gave up."

Indirect impacts

People reported a range of impacts from rains and floods that had subsequent impacts on sanitation and hygiene practices. Loss of livelihood opportunities through domestic animals falling ill because of lack of grazing land available or getting washed away were found to be debilitating. People also experienced decreased income and food availability due to crop failures and reduced land available for cultivation during rains and floods. Blocked or reduced access to roads and markets because of floods also led to further worries about access to resources and support in nearby cities. There was also an increased burden on women's time, with women having to travel further to find and collect water for domestic work due to contamination of nearby water sources from pit overflows. These impacts affected sanitation prioritisation in a number of ways – people had reduced access to roads and markets to fetch materials to fix latrines, they prioritised addressing damage to home structures over latrines during rebuilding efforts, and prioritised investments (time and financial resources) in food and crops over sanitation.

For instance, a woman in the ODF village stated:

"Periods of heavy rains [means] the backwaters are full and the crossing becomes difficult and more busy. To go and tie the goats, you have to go around the backwater and that takes enough time. By the time you get back you are already late for other activities and it is no longer possible to sweep the yard or clean the latrine."

4.2 Impacts of dry spells, droughts, and ongoing desertification

Direct impacts

People expressed concern about reduced water availability to clean and maintain latrines and wash their hands. This included both ground and surface water availability. Women in one ODF village stated *"during the dry season the lack of water is a real problem that makes us suffer. It is very complicated to clean the latrines and ensure their maintenance."*

This has also led to changing toilet habits and investments in using paper *"we must reduce the number of baths per person. People don't wash like they used to. We no longer use water when we enter the latrine, but we use paper. We really limit the waste of water"* reported a woman from an ODF village, while a woman from a triggered village stated: *"Other solutions are adopted in the dry seasons to overcome the water problem [lack] and people use paper or pieces of wood to go to the latrines."*

However, in one triggered village, they stated that the reduced bush and vegetation cover from desertification and dry conditions at open defecation sites has led to increased demand for toilets:

"There has been a decline in vegetation cover, which make the population aware of the need to build latrines and adopt positive behaviours because there are no longer any bushes nearby to hide in. This is something that has been a trigger for the population."

Indirect impacts

During dry spells, women again face an increased burden to manage domestic work like cooking, cleaning, and laundry with reduced water availability. This burden is heightened by a lack of water for kitchen gardens. Crops fail, with consequent implications for both food and livelihood security as farming is both for subsistence and a livelihood opportunity. This leads to reduced prioritisation of water for managing safe sanitation practices and choosing to invest time and resources into crop security over sanitation management.

Two people from an ODF and triggered village respectively state:

"When the rains are not sufficient there is too much damage. The corn you see took a hit because the rains had stopped. So far we continue to sow beans because the rains started late. By this time we should have finished with all the seedlings."

"Before there were areas that were not used for crops. Now, because of poor harvests and fear of low yield, this land once left for grazing is weeded and cultivated. Because all the land is cultivated, there is no longer any area to bring the animals to graze."

4.3 Ongoing coping mechanisms

Although these impacts have reportedly led to many people reverting to open defecation, some have also found other ways to cope. People who are able to invest in robust latrines now opt for cement as the main building material. People are also rebuilding latrines on higher ground with available material after each rainy season and relocating these facilities to better protect them. *"When my latrine fell, I rebuilt it, but in a different space than where the old one was"* commented an interviewee from a triggered village. However, not all can afford more robust materials.

In the village where triggering activities had taken place, households with deteriorated latrines either used neighbours' facilities or reverted to open defecation, with a combination of the two most commonly reported. *"When that happens [latrine fails], with the solidarity between neighbours, the latrines are shared so that these people do not resume with old habits"* commented an interviewee from a triggered village.

One interviewee from the same village reported that when latrines fall they either: *"[defecate openly] or go to the neighbour"*. They add, *"it gets complicated when the latrine of the immediate neighbour has also fallen. Then there is no more choice to make, we have to go and do it in the open air."*

In the ODF village, some people use toilets to wash so that the same water can be used to clean the toilets: *"Personally, because of the lack of water I often go to wash in the toilet so that my toilet water cleans the toilet at the same time."*

People also routinely dig new pits instead of emptying and reusing them, since households often do not have the money to pay for emptying services that have to get to them from the city. One of them from an ODF village states *"there is an emptier who often passes here to go to [the city]. But if we have to use these services to empty the full latrines, we lack the money for that. You will prefer to dig another hole and remove the old slab that went to cover there. This precise problem is foreseeable because the latrines are not yet full."*

In one of the ODF villages, when several households are affected they rally as a community to help households with affected toilets to rebuild after the rains. In the village that has been triggered, some households barricade their yard so it isn't inundated with stormwater leading to standing water or collapsing pits.

5. Impact on sanitation and hygiene programming

There are clear indications of how more frequent and extreme rains and floods as well as dry conditions are impacting sanitation and hygiene programming and practitioners in the region. Although there are no specific actions being undertaken to address climate impacts and risks, interviewees reported a number of concerns around WASH practices and needs.

Reduced water availability (both surface and ground water) for drinking and proper household hygiene is a major challenge. Increased droughts have led to reduced water availability within borewells and reduced ground-water availability. This increases the challenge of encouraging people and households to build latrines, as water is needed to build, use, and maintain a facility. This challenge is magnified in households and villages with no borewell.

Many households lack safely managed toilet facilities. Since emptying services are expensive, households resort to digging another pit when their first fills up. Full pits are often inundated with water during floods, creating a major public health hazard and adding to existing risks of facilities not being safely managed. This makes it challenging for programming to encourage people to consistently invest time and effort in their sanitation facilities.

"People do not have the means to make the latrines which meet the standards. It should be noted that it is risky because even to drain it is quite a problem. We have latrines but if they are not adapted there is a risk of returning to illnesses." (Interview with a practitioner in East Region)

Rains and floods lead to fatigue in behaviour change programming. The frequent breakdown of physical latrine infrastructure reduces motivation to rebuild. Households often give up because of reduced means to build a more robust facility and the need to prioritise their agricultural activities to make up for crop damage. Practitioners express that people are not as willing to rebuild their latrines when their livelihoods are a bigger priority.

Insufficient local government support has also impacted the worsening sanitation situations. The Regional Directorate for Water and Sanitation (DREA) receives financial resources from the Ministry of Water to support construction of toilet facilities. The DREA subsequently contracts a third party to build latrines in villages that are either close to ODF status or have already been declared ODF, and builds latrines for those identified as the most vulnerable. However, lack of sufficient funding

allocated to sanitation services has meant that the toilets built are makeshift and get easily damaged during rains, and the funding doesn't include retrofitting of damaged toilets.

Need to build on CLTS processes. While the CLTS process encourages everyone to get on the sanitation ladder, latrines built with locally available materials are not very durable in these conditions. Latrines collapse suddenly and frequently during floods, and the need to explore a revision of the CLTS strategy to consider climate risk and promote durable latrines has arisen. One mechanism towards this is encouraging households to invest time and finances into stabilising pits – while superstructures can still be rebuilt, collapsed pits are a bigger challenge to address. However, access to strong wood is increasingly limited due to reduced bush and vegetation cover from desertification and dry conditions. Furthermore, there are implications for rural faecal sludge management to having more permanent sub-structures.

Although some **households have adopted the coping mechanisms outlined above, many households have reverted to open defecation** in all four villages, irrespective of their status on their journey to becoming ODF. *"When it rains our latrines collapse. The number of falling latrines cannot be counted. We have a forest, if you want to relieve yourself you take your bike and go into the bush"*, said an interviewee from the village with no intervention, while an interviewee from a triggered village commented: *".. you want to eat, you also want to build a latrine; but it is when you have eaten that you go to the toilet"*.

Some households refuse to share their latrines with other neighbours and community members in certain cases. People face fatigue with constant rebuilding of latrines and women are burdened with increased domestic work during both wet and dry weather. People also prioritise food and livelihood security over investing in toilet repair.

Financial constraints often prevent people from building more robust latrine structures and ensuring timely pit emptying, which challenges practitioners wanting to promote more durable latrines. In cases where households can invest, **people also prioritise other factors** like buying a motorcycle or other appliances instead of reinvesting in building and maintaining toilets routinely.

6. Recommendations

Several recommendations emerged during workshops with practitioners from UNICEF Burkina Faso and regional staff and IRSS, ISF-UTS, and SLH researchers. They were identified based on various cross-sectoral programming in the area, exploring what had worked well with the ongoing programming and various options that would be feasible within the programme context in the East Region.

- **Reinforce sanitation as a priority at household and community level:** the study reveals that even when people have resources, funding and investment in sanitation is not prioritised. Reinforcing the importance of sanitation – particularly in the unhygienic conditions created in the wake of climate hazards – through encouraging people to think of their toilet as an extension of their home and connecting it with how it impacts daily life is crucial to ensure people prioritise latrine upkeep. This will help to motivate people when they are too fatigued to reinvest in broken facilities.

It will also ensure that those people with funds available choose to spend on toilet maintenance and continuous access to sanitation to protect against the impact of climate hazards.

- **Integrate climate risk factors and adaptations into ongoing sanitation interventions:** include questions in triggering, transect walks, and in various aspects of the sanitation chain, including initial latrine design, operation, and maintenance, which explore climate risk factors and potential adaptations. For example, prioritising the need to find strong wood to stabilise pits or choosing latrine sites that are less likely to flood (while remaining accessible). Build the capacity of facilitators to encourage climate-sensitive questions. Encourage construction of drainage systems around latrines to prevent collapse of pits and help people to get into the habit of setting aside time to inspect and strengthen latrines before the rainy season.
- **Prepare specific guidance at a commune (area-wide) level:** use area-wide programming principles to develop guidance containing key indicators/characteristics or typologies of communities that identify challenges and recommendations for climate-sensitive interventions. For example, how communities are impacted by climate hazards and what conditions can help with scaling up. Area-wide guidance could also assist with comparing performances at the commune level to identify the most effective interventions.
- **Facilitate intersectoral collaboration:** intersectoral collaboration across the ministries of water, sanitation, health, and environment will enable more holistic thinking and advocacy to identify the impact of climate hazards on sanitation and broader development needs. This will enable work towards addressing indirect impacts on sanitation at a national and sub-national levels.
- **Draw on existing community-level support networks to increase the durability of latrines:** previous programming for livelihood issues have worked with community financing to address problems. Similarly, consider engaging the Village Savings and Loan Association and other existing fund mobilisation systems for sanitation and hygiene. This could include enabling households and community groups to invest a slow transition to more robust latrine materials.
- **Build on the strengths of CLTS and community participation:** bringing people together, asking people to reflect, mobilising the community to build demand, and increasing people's understanding about the importance of sanitation can be an entry point to consider other community-level needs around climate and sanitation. Increased understanding of local realities and experiences will enable more targeted interventions.
- **Consider alternative methods where needed:** rather than using CLTS as a blanket method, first assess the climate-related challenges that need to be addressed and the best methods to do this. Ask why CLTS is appropriate – has the community never been triggered? Is behaviour change the main challenge or are there other existing – and forecasted – vulnerabilities? Consider whether financing or market-based

approaches could compliment CLTS to build demand for more robust latrines and ensure access to these facilities. Other non-market support such as training village masons to ensure the regular maintenance of toilets and construct drainage systems around latrines to prevent the collapse of pits, as well as other locally relevant support for sanitation infrastructure, could also be mobilised. This could also be extended to households to build capacity towards ensuring frequent and regular operation and maintenance for physical infrastructure.

7. Discussion and conclusions

Climate hazards have crosscutting impacts on the lives of people in the East Region in Burkina Faso. These impacts are exacerbated by human activities like the use of chemical-based fertilisers in agriculture, and over-extraction of groundwater through borewells. Within this context, damage to household infrastructure and latrine facilities and the loss of livelihood options magnify vulnerability and household stress. This often leads to competing needs where financial resources are less likely to be used towards the rebuilding and continued use of latrines. Consistent hazards cause fatigue and reduce motivation to rebuild facilities, leading to slippage and partial use of services.

Programming needs to consider climate-related risks to progress, thinking beyond access to improved sanitation. This includes not just more durable and robust latrines, but the continued prioritisation of safe sanitation access and use during and after climate shocks, and identifying ways of reducing lasting vulnerabilities

Context-specific solutions are needed to build climate-resilient ODF communities: building capacity to make facilities easily repairable, building behaviours for operation and maintenance, and prioritising budgeting and investments towards maintaining sanitation behaviours. This may need a combination of responses that complement existing interventions and can strengthen programming in these areas. Additionally, climate impacts challenge sustained sanitation outcomes, and recommendations currently emerging from sustainability related research remain pertinent with increases in climate hazards. Current programming can also draw on cross-sectoral ways of working, seeing as climate impacts are crosscutting and affect multiple dimensions of people's lives. Some sectors (livelihoods, agriculture) may be further ahead in their thinking than others.

All these challenges operate in a larger context of sanitation programming in Burkina Faso, where there is understaffing and a lack of continued budgetary allocation for sanitation services. Creative solutions and ways of working will be needed to overcome these barriers. One such approach may be through ongoing participatory engagement with communities, as well as different levels of government, to identify climate impacts and develop a deeper understanding of local realities on which to base solutions. Continued learning and sharing with partners within and across regions to share good practice and successful interventions and adaptations, documenting the learning, and building the evidence base can all help identify ways to adapt programming in an ever-changing climate.

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