



MAY 2023 | ISSUE 14

SLH Learning Paper

# Immersive research for safer sanitation in Bihar and Maharashtra, India



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## About the SLH:

For over ten years, IDS's Sanitation Learning Hub (SLH, previously the CLTS Knowledge Hub) has been supporting learning and sharing across the international sanitation and hygiene (S&H) sector. The SLH uses innovative participatory approaches to engage with both practitioners, policy-makers and the communities they wish to serve.

We believe that achieving safely managed sanitation and hygiene for all by 2030 requires timely, relevant and actionable learning. The speed of implementation and change needed means that rapidly learning about what is needed, what works and what does not, filling gaps in knowledge, and finding answers that provide practical ideas for policy and practice can have exceptionally widespread impact.

Our mission is to enable the S&H sector to innovate, adapt and collaborate in a rapidly evolving landscape, feeding learning into policies and practice. Our vision is that everyone is able to realise their right to safely managed sanitation and hygiene, making sure no one is left behind in the drive to end open defecation for good.

## About the series:

SLH Learning Papers explore and aim to answer questions on emerging issues, approaches and gaps and blind spots in the sanitation and hygiene sector. The topics of these papers and scoping studies are generated in discussion with stakeholders and either conducted by the SLH or partners, or developed collectively in workshops and writeshops. The aim is to generate understanding and awareness as well as providing practical guidance for both policy-makers and practitioners. These are often accompanied by a concise SLH Learning Brief on the issue. These publications are peer reviewed by sector experts from both academia and practice, and often academic experts in other sectors.

All issues are available here: <https://sanitationlearninghub.org/series/slh-learning-papers/>

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## Front cover image:

Caption text: A makeshift bridge over a river between two green fields in Maharashtra. A man cycles away from the camera on the bridge towards a building in the distance. All photos in this paper should be credited to Shweta Rajput, Santwana Sneha, Abhishek Chaudhary and Akanksha Borkar, and are used with their permission. All figures and tables are original (authors' own).

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## Acknowledgements

FINISH Society is grateful to the team from Institute of Development Studies (IDS), Sussex, for their continuous support and guidance to conduct this immersive research in Maharashtra and Bihar. We would also like to thank all researchers for participating and contributing in this study. We are also grateful to the FINISH team in Nandurbar and Bihar for their support in planning and organising this research.

We would like to thank the local administration for their consent and support throughout the immersion. A special thanks to the families and community members from Nandurbar and Darbhanga for hosting the team of researchers and participating with great enthusiasm. Their time, trust, and affection made this immersion fruitful and are deeply appreciated.



## Background

The human right to water and sanitation (SDG6), and the other related Sustainable Development Goals (SDGs), call for the inclusion of all, equal rights for women, and the elimination of discrimination between people based on their caste, age, gender, disability, race, ethnicity, origin, religion, or economic or other status. Equality in participation, rights, access, and opportunities is critical to achieve the intended outcome of providing access to safe water and improved sanitation and hygiene for everyone.

India has made significant progress under the Swachh Bharat Mission-Gramin (SBM-G) programme over the last few years to improve coverage of toilets in villages across the country. It has been praised for high-level and persistent commitment that filtered down to all administrative levels (Curtis 2019; Sarker and Bharat 2021; Mehrotra 2021), disrupting the political system (Curtis 2019), and matching political commitments with financial investments (Sarker and Bharat 2019) and human resources (Mehrotra 2021). There have been claims of reductions in acute diarrheal disease outbreaks in 2018 and 2019 (Dandabathula et al. 2019) and in undernutrition in children under five (Singh et al. 2021). However, official figures have also been disputed, and the credibility of data and claims of open-defecation free (ODF) status questioned (Exum et al. 2020; Mehrotra 2021). Challenges to the access to and use of toilets include the absence of water (Kumar 2017; Exum et al. 2020). It has been also reported that SBM-G was rushed and that, despite the purported behaviour change focus, in some places it remained no more than a subsidised construction programme (Mehrotra 2021).

In addition, there are the continuing challenges of extreme poverty, entrenched attitudes and beliefs, tough physical environments, and extreme climate events, all of which hinder progress towards universal access to sanitation and hygiene in India. These challenges are not unique to India. A 2021 report published by the Sanitation Learning Hub, UNICEF, and WaterAid outlines five broad contexts where rural sanitation programming was particularly challenging. These were areas with: (i) extreme poverty and social mobilisation, (ii) entrenched social norms and beliefs, (iii) tough physical environments, (iv) lifestyles and livelihoods and (v) fragile contexts (Tillet and Jones, 2021).

FINISH Mondial is a programme aiming to substantially scale up the access and use of safely managed sanitation systems in six countries from Africa and Asia, including India. The programme is supported by the Netherlands government and implemented by a consortium of NGOs from the Netherlands WASTE, Amref Flying Doctors, and Aqua for All, with local partnerships in each country.

In India, FINISH Mondial is implemented through TOP Trust and FINISH Society across 12 states, with the aim to improve participation from excluded communities and to increase equitable access. It is therefore critical to understand the underlying perceptions and barriers that exist in accessing sanitation and hygiene services for marginalised communities, especially under different challenging contexts.

In order to understand ground realities and lived experiences, FINISH Society, in collaboration with the Sanitation Learning Hub (SLH), conducted immersive research in the districts of Nandurbar, Maharashtra and Darbhanga, Bihar.

## Objectives

The core objectives of this immersion research were to:

- **Identify challenges and barriers towards access to and use of sanitation and hygiene services within challenging contexts.**

- Capture community voices and find contextually rooted ways to identify enablers towards safe and equitable access to and use of sanitation and hygiene services in these areas.
- Inform FINISH programme design and support the development of human-centric strategies for improving access to sanitation hygiene services for marginalised and left-out communities, while strengthening gender equality and social inclusion (GESI).

## Methodology

An immersive research approach was adopted for this study. This approach was initially inspired by the [‘reality check’ approach](#) and the Village Immersion Programme used by the Indian Institute of Management. It has now been used by the Sanitation Learning Hub, WaterAid India, Praxis, the University of Delhi, and UNOPs (previously WSSCC) three times, to explore the progress of the SBM-G over the past five years and to ensure the programme has considered varied daily WASH realities.

The immersive research approach involves researchers living with families in communities. Whilst immersed, researchers do not use a predesigned questionnaire but instead learn from their lived experiences, open-ended conversations, observations, and participatory research methods. Efforts are made to learn both from the host family and the community more broadly. Along with interactions with host families, researchers have conversations with other households – including in marginalised communities – opinion leaders, and front-line workers, and visit local institutions. Before leaving villages, feedback sessions are held where results are presented back to participants for further discussion and analysis.

## Site selection

The research was undertaken in two locations. Firstly, in Nandurbar, Maharashtra, in May 2022 and then in Darbhanga, Bihar in June 2022. These districts were selected because they represented different challenges with respect to sanitation and hygiene. FINISH Society also has an existing presence in each location, so findings could feed into future programme design.

The planning phase included consultation with the state programme teams and field teams to identify villages and approach local officials for their consent. Further, the teams contacted potential host families to explain the purpose of the research and explore their willingness to host the researchers.

In total, eight villages – four in Nandurbar and four in Darbhanga – were selected for the study. Host families were selected in consultation with communities, with deliberate efforts made to avoid powerful and affluent families. A total of 18 families, 10 from Maharashtra and eight from Bihar, were selected as hosts. The research objectives were explained with to the households and consent gained. Each village had a minimum of two researchers staying with host families.

**Table 1: Summary of the selected villages with households and population**

	NANDURBAR, MAHARASHTRA				DARBHANGA, BIHAR			
Village	V1	V2	V3	V4	V1	V2	V3	V4
HHs	350	335	244	265	804	1100	2500	400
Population	1800	795	1191	1892	4090	11500	12000	1600
Host Families	2	3	2	3	1	3	2	3

## Behaviour and ethics

Prior to undertaking the field work, ethical approval was sought from the Institute of Development Studies. All researchers undertook immersive training, including a module on research ethics, as well as sessions on behaviours and attitudes. All researchers agreed upon code of conduct that included concerns around safeguarding, appropriate behaviour, transparency, informed consent, and anonymity.

The following list describes some behavioural and ethical guidelines for the immersion process:

- Prior to the immersion, meet with key officials and host families to gain consent.
- Introduce yourself, build rapport with the families and communities.
- Always be polite to the community and listen actively.
- Be conscious of the limited means and resources of the host family.
- Help with the daily household chores and participate in their daily activities.
- Respect the local culture and customs, considering Do No Harm principles at all times.
- Conduct activities that are suitable to the community members/participants.
- Be open and talk to anyone who wants to speak.
- Do not engage in conflicts, or political or other arguments.
- Make extra efforts to reach out to minorities and excluded community members.
- Gain consent for each interaction; begin by explaining to individuals the purpose of the research and that they do not have to engage if they do not want to.
- Do not take notes during the conversation.
- Photographs should be taken only after recording the subject's consent.
- Do not focus on just asking about toilets; be open of other issues faced by the villagers.
- Do not engage with children in the absence of their parents or guardians.
- Balance between outdoor activities and spending time with the host families.
- Present findings back to the community before leaving.

## The process

The process was simple, starting with a workshop, moving towards field immersion, and finally a debrief of the findings from the various villages. The following figure presents the steps undertaken. These three steps took place in both districts.

Figure 2: Immersion process



## Immersion training workshop

A workshop for all researchers was conducted by the SLH, to brief the team about the research methodology and equip them with required skills for executing the study. Sessions during the workshop focused on:

- Immersive research
- Participatory research tools and their application
- A strict code of conduct and research ethics
- Behaviours and attitudes
- Identification of thrust areas (see below)
- Planning in village teams

The research team identified thrust areas, not as sole objectives but areas of interest. Researchers were encouraged to look beyond these issues and also to explore underlying challenges, issues, and surprises. The thrust areas were revisited in the debriefing workshop. The thrust areas identified for the study were:

- Access to WASH services
- Knowledge and awareness on WASH
- Practise of hygiene behaviour
- Institutional WASH facilities
- Menstrual hygiene management
- Equity and inclusion
- Access to credit
- Operations and maintenance
- Sustainability of WASH services
- Solid and liquid waste management
- Markets for WASH services

## The immersion

The village research team comprised 11 female and 13 male participants, from FINISH Society and the SLH, with mixed gender teams in each village. The participants formed a mixed group of field workers, researchers, and programme teams. Interpreters accompanied the researchers wherever required. Researchers were immersed for three to four days.

The following key activities were undertaken during the immersion process:

- Meeting and introduction with the host families, village sarpanch, gram sevak etc.
- Rapport building and open conversation with the host families.

- Conversations and discussions with anyone who wanted to talk.
- Transect walks by researchers to familiarise with the village location, areas, habitats, and the process of interacting with locals.
- Timeline charts allowing locals to identify various socio-economic changes in the village over last few years, including changes in toilet access and use.
- Seasonality charts to identify the changes and effects of various seasons on the lives of the villagers.
- Participatory mapping of the villages to identify key resources, communities, and overall profile.
- Group discussions with major stake holders to identify and gather information on common local issues.
- Conversation with Anganwadi workers, ASHA workers, MFI members, school staff, and others to understand the status of children- and women-related developmental issues in the area.
- Direct observations by the researchers during transect walks, focus group discussions, and household visits.
- Maintaining a daily diary and debrief with other researchers in the village.
- Sharing summary of key findings before leaving the village with the host families and communities, and inviting feedback.
- Identifying actions with communities moving forwards.

The following tools were used by different teams, as a complement to several open-ended conversations with families and individuals.

- Transect walks
- Resource mapping
- Trend analysis
- Timeline
- Focus group discussions
- Direction observations

### **Debriefing workshop**

After returning from the village, researchers conducted a two-day participatory debrief workshop to share reflections, document learnings, prepare village reports, and support cross analysis between villages within the district.

Teams initially worked on village reports, which were presented back to the wider research team. To enable cross-analysis, the field researchers listed thrust areas on flip charts and added anonymised village-level details. The wider research team then analysed the data and identified district-level key findings and recommendations.



**Figure 3: Key steps during the immersion**



## Advantages and limitations

Below is a comparison of the advantages and limitations of immersion research.

**Table 2: The advantages and limitations of immersion research**

ADVANTAGES	LIMITATIONS
<ul style="list-style-type: none"> <li>• Provides deep, insightful, and contextual findings.</li> <li>• Is an intense personal and enriching experience for field teams.</li> <li>• Enables research teams to seek out different castes, genders, age groups, etc.</li> <li>• Goes further than extracting data and obtains analysis from the participants and respondents.</li> <li>• Triangulates findings through conversations, group discussions, and observations.</li> <li>• Rapid analysis and feedback to both communities and wider stakeholders.</li> <li>• Allows for informal conversations at participants' convenience.</li> </ul>	<ul style="list-style-type: none"> <li>• Intensive, time-consuming, and sometimes uncomfortable effort needed to collect data.</li> <li>• Intensive for researchers, host families, and communities.</li> <li>• Difficult to extrapolate findings for a wider application.</li> <li>• Time required for training to ensure no harm is done and that GESI considerations remain at the forefront.</li> <li>• Poses a potential risk if undertaken by researchers without an in-depth understanding of equity and inclusion.</li> </ul>

## Location profile

### Darbhanga, Bihar

The NFHS round five data shows that despite being declared open defecation free, nearly two-fifths (39%) of all households do not use any sanitation facility. Open defecation is more common among rural households (44%) than urban households.

The rural belt of Bihar is relatively more impoverished than its urban counterpart and among other states and regions of India. According to 2011 census data, nearly 88 per cent of Bihar's population reside in rural areas. In Darbhanga, the majority of the population is employed in agricultural and allied activities such as day-labouring.

Darbhanga district is surrounded by rivers from all sides and receives water from Nepal. The overarching common problem for all the four villages in Bihar is the annual flood that affects the lives of all the villagers with varying intensities. The major river Bagmati and its tributaries cut through the area and each year the villages face heavy losses of resources due to flooding. Darbhanga also faces problems with making livelihoods, poor infrastructure, and social inequality.

In 2006, the Ministry of Panchayati Raj named Darbhanga one of the country's 250 most backward districts. It is also one of the 36 districts in Bihar currently receiving funds from the Backward Regions Grant Fund Programme.

The objective of studying the villages in Darbhanga was to understand the gaps and challenges facing universal access to sanitation in the context of these challenges, as summarised in Figure 4.

**Figure 4: Challenges identified in Darbhanga**



## Nandurbar, Maharashtra

The immersion programme was planned in the Nandurbar block of Nandurbar district in Maharashtra State. Nandurbar is one of the 115 districts (across the country, as identified by [Neeti Aayog](#)) with the poorest poverty, health, education, and infrastructure status.

Nandurbar is predominantly a rural district, with 84 per cent of the population living in rural areas. According to the Ministry of Rural Development, Nandurbar is one of the 250 most backward districts in the country.

Literacy rates within the district stand at 64.38 per cent, with male literacy at 72.17 per cent and female literacy at only 56.47 per cent. All the gram panchayats of Nandurbar have been declared ODF, but the majority of the villages still practise open defecation.

Nandurbar also faces the brunt of climate change events impacting its most common means of livelihood, which is agriculture. Nandurbar was found to be the most vulnerable to cyclones, floods, droughts, changing rainfall patterns, and extreme temperatures affecting its crop production in 2021 (Adhav et al. 2021).<sup>3</sup>

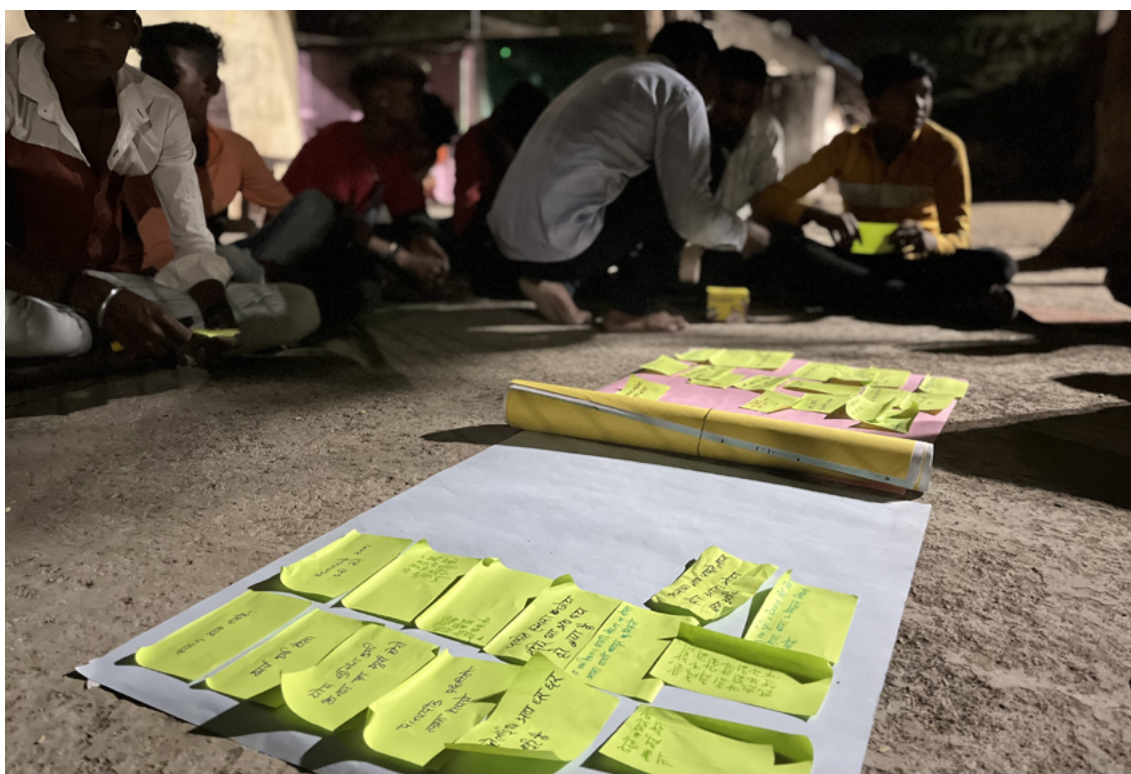
FINISH Society is currently working in Nandurbar to achieve ODF-sustainability and is supported by the National Stock Exchange Foundation's CSR initiative.

The research team selected four villages to further understanding of the challenges of accessing improved WASH services, as previously described.

1 Adhav, Chaitanya Ashok and R, Sendhil and Chandel, Balwant S and Bhandari, Gunjan and Ponnusamy, K and Ram, Hardev, Socio-economic vulnerability to climate change – Index development and mapping for districts in Maharashtra, India (May 27, 2021).

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Figure 5: Participatory activity with youth in Nandurbar



## Key findings from Bihar

### Access and use of toilets

It was found that access to and usage of safe water, sanitation, and hygiene were poor across the villages studied. Flooding is an overwhelming problem for all the villages studied in Darbhanga, Bihar. Floods affect almost all aspects of inhabitants' daily lives, including WASH behaviours and access. Use of toilets, already poor, is further reduced due to flooding of toilet facilities. The spots available for open defecation also become constricted and the relatively high-lying roads and areas are then used for open defecation. Many households reported that their toilets get flooded or clogged because of the floods, which risks water contamination.

Toilets and homes of the families residing on the periphery of the villages get filled with floodwater. Once the water recedes, the pits are cleaned by private tank emptiers and disposed of in the village ponds in the open (Village 2).

Use of toilets was found to be higher among women and girls than men. According to the respondents in two villages (Village 4), women particularly face difficulties with privacy while defecating in the open on the raised areas or main roads during floods.

A few economically well-off households in the villages who have toilets in their home, use them on a regular basis also during floods. Those with access to functional toilets were happy to be able to use them during floods.

### Awareness on WASH behaviour and hygiene practices

In some cases, where open defecation was practised, it was prompted by habit. A majority of the participants felt that the risks of open defecation related to the dignity of women rather than a health hazard. Open defecation for children and babies was considered usual.

Awareness on handwashing with soap at critical times was low in some sections of the villages. Improved hygiene practices like handwashing after handling child faeces were not in use.

Direct observations and other participatory activities revealed that children in schools or anganwadis do not wash hands with soap at critical times. Soap was largely unavailable in institutions or households near the handwashing facility.

### **Institutional, public or community toilets**

Only one of the four villages had a community toilet; however, it was closed and not being used. Two of the villages (Village 1 & 4) had a significant number of marginalised inhabitants and expressed the need for a community toilet. Neither the bus station nor the only halt railway station in one of the villages (Village 2) had any public toilets.

One of the village schools had structures built for toilets but was visibly not in use and abandoned. The nearby areas showed signs of being used as toilet. Most of the schools and institutions did not have adequate and functional handwashing facilities. The anganwadi centres did not have toilet facilities, though in some cases the adjoining house of the AWC was said to be used by the children when needed.

### **Market and resources related to WASH**

Most of the villagers reported that water and sanitation goods and services were procured from the main district or the block market. Though the villages had many general stores, none specialised in WASH.

Sanitation-related masonry services are adequately available locally in the villages, but are not in much demand. Soaps are adequately available in the general stores. Sanitisers and masks are also easily available from the medical stores in the villages.

In one of the villages (Village 2), two sanitation entrepreneurs were found who manufacture the concrete rings and pit covers required for the construction of pit toilets.

### **Menstrual hygiene management**

Women and adolescents reported that the use of sanitary pads has increased over the last few years. However, women from poorer sections of the villages said they use cloth during periods to avoid spending on pads.

Asha workers (Village 1 & 4) reported that the government used to distribute free napkins to 'deprived' girls and women, but no longer do so. None of the women or girls claimed to have received these, and the ASHA workers confirmed that the process was discontinued in 2020.

*'Management of pads during floods is very difficult; we have to throw pads anywhere around'; Woman from OBC community, from village 1 in Bihar.*

### **Equity and inclusion**

Inequality in terms of both economic and social status disproportionately affects access to basic services, including water, sanitation, and hygiene. For instance, the geographic division of the castes in one of the villages (Village 4) places the relatively 'higher' caste on higher land and thus subject to fewer difficulties, compared to the 'lower' castes occupying the low-lying areas of the village and subjected to maximum damages during the flood.

Caste discrimination is widely accepted and 'normalised' among village populations. In many cases the socially marginalised sections of the villages are even deprived of the government schemes and grants. It was also noted that the socially backward communities are also most often economically poor, and this acts as a double burden on these segments of the villages. Some SC women in Village 3 reported that they are not given the benefits of low-cost rations or other government schemes because of their caste.

The purdah system is still in practice, even if not widespread amongst the women. Women from 'higher' caste households are generally barred from full-time employment, beyond household chores. However, a large section of women from the socially marginalised populations within the villages are working to earn.

The MFI loans intended to empower women and encourage them to generate livelihoods are, in most cases, used as contingency funds for times of financial emergency and when the income of the male counterpart is not enough to support the family. However, women from two villages expressed a desire to set up their own business and join the workforce and generate income.

*'Everything looks right, but whenever there is any development work in the village, only the upper caste people get that benefit', man from the SC community, Village 2 in Bihar.*

*'These people are lazy, they don't want to work hard', man from the upper-caste community referring to SC people from Village 1 in Bihar.*

*'No officials come during the floods, no one cares even if we die,' woman from SC community, Village 3 Bihar.*

## Sources of financing for WASH

Many toilets built by households during the initial sanitation drives are currently non-functional. And the few households who have toilets available said that they have spent their own money to build one. Only a handful of families reported using the SBM funding to build a toilet. Lack of awareness and weak institutional monitoring seem to have prevented mass usage of the scheme's benefits. During some conversations, villagers reported that the benefits of the SBM scheme have been misused, with households showing officials someone else's toilet facilities in order to receive the subsidy. There are loans available from Jeevika to build toilets, but the amount is not sufficient, according to a self-help group member from Village 3.

## Water supply

The most common sources of water are handpumps and the village populations deemed the quantity and quality of these to be satisfactory. Other sources of water such as wells or ponds were sparse. One community (Village 1) reported that the government scheme to supply piped water into dwellings (Har Ghar Nal /Jal Jeevan Mission) was not fully functioning and in many villages the work was incomplete.

None of the villages were found to have common water purification systems and household purifiers were also non-existent. During monsoons, households in the low-lying area experience a great deal of difficulty obtaining water from the common handpumps.

## Solid and liquid waste management

None of the villages had a system to collect waste from households and dispose of it in designated areas. The villagers confirmed that they disposed of household solid waste near their houses, either in open fields or drains.

In one of the villages (DV1), wealthy families with land had dug a pit to collect grey water, which they later emptied into a nearby pond. The drains in the villages were open and were in many places clogged due to disposal of waste. In Village 4 the drain was overflowing all year round, restricting passage and travel on the main road of the village. The drains, as observed in more than one village, were often used as defecation spots for children, and occasionally by elderly men.

## Other intersecting and emerging issues

The ecosystem of a village consists of various dynamic aspects that affect the identified thrust areas while addressing barriers to sanitation. Some critical issues are briefly discussed below.

- **Corruption**

Corruption, unequivocally, came up in all the villages as one of the main deterrents to developmental interventions. One of the PRI members in a village acknowledged the problem of corruption and the delays it was causing in relation to a project to repair the river banks and prevent flooding. Corruption also, in many cases, prevents the disbursement of aid meant to help the needy.

*'There is no one for the poor, everyone listens to the rich. Without money you cannot even access government schemes', woman from SC community, Village 1 in Bihar.*

- **Livelihood and lifestyle**

The rural belt of Bihar faces more challenges in terms of livelihood opportunities compared to its urban counterpart. A substantial chunk of the village workforce migrates to the block towns or capital city in search of work. Agricultural activities are the main occupation in the rural areas, but people face several challenges. For instance, one of the problems identified was fragmentation of the land and resources experienced by poor farmers, who practise only subsistence farming.

Mangoes from these villages are very famous and also a major source of income. However, in one village (Village 2), farmers reported that due to year-round waterlogging, mangoes are being harvested before they are ripe, leading to a much lower income.

There are no opportunities in the private sector for the youth in these villages. In spite of the state ban on alcohol, elaborate and well-organised networks of illegal local and foreign liquor are well known.

*'From past three years we are not able to grow rice in our fields even farming is risky due to floods. There are limited employment options here, therefore young boys of the village migrate to other states in search of work', man for SC community, village 2 Bihar.*

- **Healthcare services**

Provision of adequate healthcare services was another problem common to all the villages. None of the villages have a working primary healthcare centre (PHC) within or in the vicinity of the village. The villagers reported that they have to go to the PHC in the block town or to the district hospital for any kind of treatment. The treatment they can access relies upon medical stores and pharmacists, which are abundant and commonly available in all the villages.

This lack of proper health care facilities is aggravated during flooding and adverse weather situations. Moreover, respondents from more than one village reported widespread occurrences of liver-related disease, cancer, paralysis, and kidney stones, as well as regular child health problems such as diarrhoea.

## Key findings from Maharashtra

### Toilet access and functionality

Access to functional toilets was found to be poor, particularly for tribal communities in all the villages studied. Most of the toilets built during the last few years are incomplete and dysfunctional. Many toilets were found to have a poor superstructure without any connection to leach pits for containment of faecal sludge, and as such were not fit to use. During discussions, it was observed that communities expect the local government to build toilets for them – but a genuine demand for toilets was not felt. In most of the villages there are geological challenges in many places, including rocks below the ground, which make leach pits unsuitable.

The majority of toilets in the villages had single leach pits, and only a few had double leach pits. The leach pits were either very shallow or very deep. In one of the villages, many toilets had very shallow pits that were not connected to the toilet through the junction chamber. One of the villagers (Village 1) said that his family fears this toilet will get filled very soon and therefore they do not use it. A woman from the same village showed a pre-cast toilet building in a dismantled condition, left by the vendor without any pits.

Masons and some PRI members were unaware of leach pits and their long-term sustainability. Many households who have used their toilets for a few years have a large septic or holding tank attached to the toilet, sometimes just below the toilet structure. Some PRI members and front-line workers have been trained on generating demand for toilets and on the required technology, but training still remains a need.

**Figure 6: Dysfunctional toilet with outlet not connected to a pit**



## Toilet usage

Preference for using the toilet over open defecation was observed to be low in some families with toilets, especially amongst old people and in certain tribal households. Several tribal women said that they feel toilets are dirty and should not be installed near homes; they use the toilets built under the government scheme as bathrooms for washing and personal hygiene. A lack of involvement from the communities during construction of the toilets was also found to be a reason for low usage.

Running water inside toilets is not available in most cases. In Villages 3 and 4, water is supplied only during limited hours, so households store it for their use. According to an elderly woman from Village 4, this impacts on toilet use as families feel that open defecation requires less water than using toilets.

Where families have been able to afford to build a toilet with their own investment (partly or fully), it is mostly used by all members. Toilet usage was also found to be impacted by youth, who are exposed to urban lifestyles due to their work and insist on using toilets once they come back to the villages. In some cases, people have developed disabilities that make practising open defecation difficult. One woman (Village 4) said she would prefer to defecate in the open but uses toilets due to her mobility challenges. A similar situation was observed in another family, where an old man with physical challenges and his grandson use toilets, whereas the rest of the family practise open defecation.

In Village 3 in Nandurbar, it was observed that despite having good access of household toilets, around 50 per cent of the population practises open defecation. Non-usage was most commonly attributed to personal preference, followed by non-availability of toilets.

Use of toilets is also impacted by local concepts of purity. Tribal members feel that toilets should not be near their homes where they cook, eat, and live. Several elders were observed practicing open defecation. Lotas (small water containers) used for open defecation could be seen hanging in front of many houses.

**Figure 7: Containers used for OD kept outside a house**





## Hygiene behaviour

Regular handwashing with soap was not observed amongst people returning from open defecation. Most households use water stored in a container as a handwashing facility, and a few households also have a tap connection. Washbasins were observed in a very few families, who are relatively wealthier. Handwashing with soap amongst children was found to be negligible. Handwashing facilities in institutions such as schools and AWCs were found to be non-functional in most of the villages.

Most women use cloth during menstruation and refrain from some daily activities while menstruating, such as cooking, worshipping, eating together, going out, and so on. Very few women used sanitary napkins as they are expensive. A young lady from Village 1 shared that they use cloth at home but carry pads if they are traveling or going out, despite the expense. Many girls and women also mentioned that the same piece of cloth is washed, dried (not in the sun), and used again.

*'Used sanitary pad cannot be thrown away, it is a sin, so we do not use it at all', 13-year-old tribal girl from Village 3 in Maharashtra.*

*'We are five women in the house, pads are very expensive for us', tribal woman from Village 3 in Maharashtra.*

## Access to water

Tap water connections have been made available as a result of the Jal Jeevan Mission, but the functionality of these taps was found to be poor. In general, water scarcity is a challenge, especially during summers with a changing climate and low rainfall in Nandurbar. In Village 1, there was severe water scarcity a few years back, which was resolved with new water supply schemes by the local administration. In Village 2, there used to be a perennial river providing water supply; now it dries up by end of the year. Tribal families mostly have common water supply points but no household tap connection in some cases. In Village 1, the tribal communities were fetching water from common sources but were recently provided with water connections near their habitation.

Private borewells and dug wells have increased significantly during the last decade and, coupled with changing agricultural practices, water levels in these villages have dropped significantly – except in Village 1, where due to construction of a dam the ground-water table has gone up. In Village 3, most of the old wells had dried up.

*'Our ancestors got water from the rivers, our parents from well and handpumps, we are getting water from taps, our children are getting water in bottles and our next generation might get water in their tears', woman from Village 1 Maharashtra.*

No treatment of drinking water took place, except in Village 3 (where a community-level RO plant is located). Some people complained of water contamination during and after the rainy season. Some perennial rivers have now become dry during summers, as reported by the elders during community discussions. Rivers and other water bodies in the villages have been contaminated over the last few years due to increases in waste water and solid waste dumping, which was also observed during transect walks.

## Livelihood

Farming is the main source of income in all the villages studied. In some villages (Villages 1 & 3), youth with industrial training degrees were employed in nearby windmills. Migration for labour was also observed due to lack of opportunities in the villages. There has also been a shift in farming practices towards cash crops or less labour-intensive crops, such as sugarcane or cotton, which has altered the water resources of the villages.

The cost of labour has gone up, adding to the cost of farming, while revenue has not increased in proportion. Poverty and livelihoods came up in discussion as one of the biggest challenges intersecting with other issues, including WASH.

*'When there is no work here, we go to other states to work, we live there for about 5-6 months', tribal man from Village 3 in Maharashtra.*

## Solid and liquid waste management

In many villages, no formal solid waste management system provided by the gram panchayat was observed. Most people throw their garbage in their backyard or on open spaces and later burn it, except in one village, where a large dumping area was designated on the outskirts of the village. Organic waste is often fed to the animals or thrown in the cow dung pits, later used for compost in agriculture fields. Many villages expressed the need for better solid waste management arrangements, especially a daily waste collection system run by the panchayat.

Plastic waste has significantly increased in all villages studied, and is commonly burnt. Kabadiwalas (scrap dealers) frequently visit the villages to buy valuable inorganic waste such as unused plastic containers, metals, and so on. In Village 1, one family was found to store inorganic waste of this nature in order to sell it to local waste traders.

**Figure 8: Family stores inorganic waste for selling it to recycler, Nandurbar**



Wastewater often flows through the common areas of the villages, but villagers did not express much concern about this issue. While an underground drainage system was found to exist in some parts of the villages, the wastewater (both grey and black) gets mixed into the drainage system and in surface water bodies without treatment. In Village 1, no drainage was observed for the ST communities and wastewater flows into the open. In one village, one household member had constructed a channel to divert the grey water into a soak pit.

## Equity and inclusion

The tribal communities in these villages have poor resources when compared to the general caste communities. The tribal families do not own much land and work for other farmers as labours.

While there are no major disputes between different communities, they do not come together in common meetings.

The benefits of government schemes and programmes reach the tribal communities late in most cases. Disparity in outcomes for different genders was found to exist in terms of education and economic opportunities, but on the positive side, inclusive active participation was felt in general decision-making.

The social divide also impacted access to WASH services, with several defunct toilets found in the tribal community (Village 1), as well as limited water supply, no drainage system for tribal households (Village 1), and poorer access to functional household tap water. Conversations from Village 4 also revealed that developmental efforts are directed more towards households where sarpanch and upper-caste families live, compared to tribal hamlets.

*'Many of us didn't get a house from PMAY but they say everyone is getting benefitted from government schemes, it's not true', girl from the tribal community, Village 3 in Maharashtra.*

## Other emerging issues

### Operations and maintenance (O&M)

Emptying faecal sludge did not come up as a maintenance need in all villages. The old toilets have very large containment structures and are not yet full. Retrofitting of toilets came up as a major need as many toilets were defunct. However, the repair needs are perceived as being the government's responsibility. O&M is also a huge challenge for key institutions, as observed and established during conversations with teachers and anganwadi workers.

The availability of skilled masons remains a gap on the service side of the sanitation value chain. Some of the villages have public toilets and urinals, but due to absence of an O&M mechanism, they have become defunct.

**Figure 9: Defunct public urinals, Nandurbar**



## Key lessons learnt

### Availability, access and use of sanitation and hygiene services

- Coverage of toilets has gone up during the last few years after the launch of SBM. However, universal access to and use of toilets has not yet been achieved. People affected by poverty and social marginalisation are disproportionately affected and remain excluded.
- Those that previously used toilets have reverted to open defecation during floods and heavy rains because of damage to toilets and pits. In certain instances, this is especially challenging for women and girls as they resort to defecating on roadsides, where they feel vulnerable to onlookers.
- Floods also pose serious risks of water contamination because of open defecation and collapsed pits.
- Toilet use was found to be more prevalent among women and girls in Bihar, reflecting the concerns about safety and privacy. In Maharashtra, this was not as strong a concern, and toilet use was reported equally across genders.
- Retrofitting and maintenance services is needed in order to increase toilet usage, as many toilets have become defunct. Retrofitting interventions must consider flood, drought, and appropriate technology suitable for flood-prone areas or rocky terrains.
- Most schools and anganwadi centres did not have adequate and functional handwashing facilities with soap.
- Community toilets are either not available or defunct due to the lack of an operations and maintenance system.
- In the majority of the villages, it was not easy to find workers involved in toilet construction – vendors, masons, hardware suppliers, and so on.

### Attitudes, beliefs, and practices

- WASH behaviour is dictated by deep-rooted attitudes, beliefs, and social norms. Having a toilet indoors within the home is considered ‘impure’ within certain tribal communities in Maharashtra, and they resort to open defecation. Although these communities agree that open defecation is a problem, they see it as a threat to dignity rather than a risk because of adverse health hazards.
- Exposure from living in cities and economic progress are enablers for investment into WASH facilities and their use.
- Changing behaviour takes time. Families without access to a toilet expect the local government to build and repair toilets for them.
- Users in many cases have not been made aware about the basic functioning of different toilet designs, such as leach pits or septic tanks. Anxiety about the pit filling and the anticipated cost of emptying the toilet inhibits family members from using it.
- Awareness on handwashing with soap at critical times was lacking, especially among the poorer households.
- Direct observations and other participatory activities revealed that children in schools or anganwadis do not wash their hands with soap at critical times. Soap remained unavailable.

- Child faeces is not considered to be dirty or hazardous.
- While the use of sanitary pads has increased over the last few years, women from poorer households reported using cloths to avoid spending on pads. Some women also spoke about beliefs associated with managing menstruation, for example that menstrual absorbents should not be seen by outsiders.

### Household water supply

- Private handpumps or borewells are the most preferred source of water supply, as household tap connections provided under the JJM do not yet have a reliable water source in many places.
- During floods, households in the low-lying area experience a great deal of difficulty obtaining water from common handpumps.
- Communities have not been made aware about water quality monitoring or parameters. In general, water quality is not a concern for communities except during floods or monsoons.
- Private borewells have increased significantly during the last decade and, coupled with changing agricultural practices, have led to significantly reduced ground water levels in the villages of Maharashtra.

### Equity and inclusion

- Caste-based inequality is prevalent and widely visible. In one village the 'lower' caste households live in low-lying lands, where they struggle with walkways and their homes flooding annually.
- 'Lower' caste families are also deprived of government schemes and aid or receive them late.
- The tribal communities have poor resources compared to the general caste communities in Maharashtra.

### Solid and liquid waste management

- The current status of waste management and awareness on this issue was found to be dismal across all the villages. None of the villages had any system to collect waste from households and dispose of it in designated areas.
- Wastewater often mixes with black water, flows into the open or common drains, and contaminates the local water resources.

Corruption, gender norms, and poor livelihood opportunities leading to extreme poverty, migration, and so on, are other factors impacting the access to and distribution of WASH services and resources.

Many of these issues have been highlighted in other studies and continue to disproportionately affect marginalised segments of society. It is important that current policies and ongoing programmes are strengthened, to ensure that communities constrained by challenging circumstances are able to access and improve sanitation and hygiene services.

## Way forward

In this section we synthesise the findings from the thrust areas and suggest recommendations to address the problems surrounding universal access to WASH services in challenging contexts.

### Social and behaviour change

- Bringing about change in behaviour and social norms is crucial to address and transform inequities in caste and gender norms, attitudes, beliefs, and lifestyles. Reinventing social and behaviour change communications is an area of immediate and urgent need. For instance, as health and economic benefits from toilet use take time to materialise, motivation to build and use a toilet could be linked with immediate gains such as convenience, cleanliness, upward social mobility, and so on.
- Contextual and local challenges such as socio-economic divides and prevalent attitudes and beliefs should be factored in the communication and sensitisation campaign. Recognising the diversity of social norms and cultures, contextualised messaging voiced by local leaders should be designed with a human-centric approach at micro levels. It is important to address these barriers while recognising intersecting issues beyond sanitation and hygiene.
- Awareness raising and behaviour change activities should make a deliberate attempt to include marginalised and left-out communities. Instead of village-level campaigns, discussions with women's groups, youths, adolescents, farmer, and so on should be held at habitation level to establish rapport and trust.
- Social media platforms offer a strong medium to connect with youth and, through them, to push the WASH agenda. Led by local champions and youth, messaging can target not only issues about sanitation and hygiene but other emerging issues like climate, environment gender equality, and so on.
- Strengthening WASH services in institutions such as schools, anganwadis, and health care facilities is critical to complement sustainable behaviour change among households, and especially for children and adolescents. This could create pathways to change the behaviour of adults and elders.

### Access, usage and sustainability of WASH facilities and services

- Toilets are still perceived as an expensive investment for construction and maintenance. Promoting low-cost improved sanitation with the use of local materials will improve the upkeep of toilets for poorer households. Such services should be provided by village-level entrepreneurs, with after-sales operations and maintenance services and easy financing options.
- Simplifying toilet technology, with a focus on the substructure (below the ground), for both users and masons is important to promote sustainable toilets and to ensure safe management of human waste.
- Appropriate technologies that are flood resilient, suitable for rocky terrains, and all-weather accessible can be promoted through a market-based approach.
- Local entrepreneurs should be identified, trained, and supported to enable strong, market-based WASH services, including toilet construction and repair, hygiene services, water supply, operations and maintenance, and waste management.

## Equity and inclusion

- Easy access to credit from nationalised banks, grassroot financial organisation, or microfinance will help bridge the credit need for investing in WASH services. Financial support from the government or CSR grants to support the poorest of the poor might still be needed.
- WASH programming should also integrate gender equality interventions with a focus on adolescent boys and gender roles and norms. For example, menstrual hygiene management interventions should include boys and young men in the conversation.
- Non-availability or poor functionality of public/community toilets excludes a large section of economically and socially disadvantaged households from accessing and using toilet facilities. This can be enhanced with improved community participation and building a business model around O&M of shared WASH facilities.

## Solid and liquid waste management

- Solid and liquid waste management services should be addressed with low-cost solutions, designed in a participative manner with the community.
- Solid waste management services should be delivered by local entrepreneurs, which will enable a circular ecosystem while creating livelihoods. This will become more critical with the increasing impact of climate change.
- Learnings from existing examples of successful rural solid and liquid waste management can be adapted to meet local contexts.

## Institutional set up and governance

- Water is inherently linked with sanitation and hygiene, both in terms of availability and quality. JJM provides an opportunity to strengthen these linkages. While a household tap water supply can improve water availability and hence toilet use, safe technology options should be marketed for their impact on groundwater quality during floods or in tough terrain. Village Water and Sanitation Committees or Water User Committees provide an opportunity to not only support JJM interventions but also work towards sustainability of sanitation and hygiene supported by NGOs and the government.
- While the government has developed comprehensive guidelines, they must be supported by clear rules, with participatory implementation and monitoring by local communities. Adherence and non-compliance must be rewarded and sanctioned respectively.
- ASHA and AWC workers should be leveraged to create awareness about safe menstrual hygiene management and menstrual waste disposal options.
- PRI members should be trained on how to leverage other schemes and funds for WASH and ODF-sustainability.

## Annex: List of researchers

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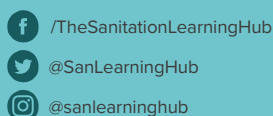


## SLH Learning Paper

# Immersive research for safer sanitation in Bihar and Maharashtra, India

In 2022, FINISH Mondial and the Sanitation Learning Hub conducted a participatory and immersive research study to understand ground realities and lived experiences of sanitation and hygiene access in Nandurbar district, Maharashtra and Darbhanga district, Bihar in India. The main objectives for the immersion were to identify challenges and barriers towards access to and use of sanitation and hygiene services within challenging contexts, capture community voices and find contextually rooted ways to identify enablers towards safe and equitable access to and use of sanitation and hygiene services in these areas; and inform FINISH programme design and support the development of human-centric strategies for improving access to sanitation hygiene services for marginalised and left-out communities, while strengthening gender equality and social inclusion (GESI).

Key lessons learnt from the study included universal access to and use of toilets has not yet been achieved, and people affected by poverty and marginalisation remain excluded; existing toilets need retrofitting and maintenance to become usable; we need to consider context specific adaptations for programming for tough physical conditions such as flooding and drought; and caste-based inequality is prevalent with major implications for access to sanitation and hygiene services; and behaviour change programming remains relevant for these contexts.



Citation: Sneha, S. and Sen, S. (2023) 'Immersive research for safer sanitation in Bihar and Maharashtra, India', SLH Learning Paper 14, The Sanitation Learning Hub, Brighton: IDS DOI: [10.19088/SLH.2023.009](https://doi.org/10.19088/SLH.2023.009)

First published in 2023  
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ISBN 978-1-80470-115-7

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