

C3. Sanitation

Containment, collection, transport, treatment, and disposal of human excreta is a top WASH priority, as an environment free of human waste is essential for people's dignity, safety, health, and well-being. All people should have access to appropriate, safe, clean, and reliable toilets. Containment of human excreta in a toilet/latrine creates an initial barrier to excreta-related disease by reducing direct and indirect routes of disease transmission. Containment should then be integrated with collection, transport, treatment, and safe disposal to fully address public health risks and minimise environmental impact. This chapter covers all of these steps as implemented in the OXSI WASH programme.

Although the focus is usually on excreta management, sanitation also encompasses controlling vectors of disease through solid waste management and surface water drainage. The latter is also included in this chapter, while the former is addressed fully in Chapter 6.

3.1 Latrine Design and Construction

Design considerations

For every two latrines, two pits collect sludge and liquid waste spills over to a connected soakaway pit, where it gets slowly absorbed into the surrounding soil. This design mimics a typical two-compartment septic tank.

Because the Sittwe area is prone to flooding during the rainy season, the latrine and latrine pits must be elevated, with steps required to access the latrines.

No-fines concrete is used to construct soak pits to increase infiltration on the sides of the pits.

Latrine pits are offset to ease desludging and maintenance.

Depending on the location, the latrine footings are sometimes further supported with a brick foundation, which keeps the latrine steadier in case of erosion.

The OXSI latrine design, validated and adopted by the Myanmar WASH Cluster, performed incredibly well in a strong storm in 2017 when over 2,500 latrines in Sittwe camps sustained major damage. Nonetheless, OXSI continued to strengthen resistance of latrines to storms and cyclones through small changes, highlighted on the next page.

The OXSI latrine design applies to single latrines, double latrines (pictured), or 4-door latrines. The different designs have unique benefits and drawbacks. The single latrines offer more privacy for users because they have no shared walls and are easier to hand over as sex-segregated latrines (see Section 3.2). However, single latrines require more materials per latrine door, take longer to build, and take up more space, a precious resource in the Sittwe camps. Due primarily to these Value for Money considerations, OXSI typically builds only double or 4-door latrines. Double latrines offer a compromise between cost and material use, while still making it feasible to hand them over as sex-segregated latrines, if communities prefer this option. The main advantage of the 4-door latrines is that they take less space per latrine door. The 4-door latrines use about the same amount of materials as two double latrines, because they require twice the number of pits as the double latrines.



Quick Facts

OXSI manages over **3,600** latrines. On average, each household latrine is used by 20 people. The cost of a new 2-door latrine block is **approximately 1,000 USD** (2020). ([3A 2-Door Latrine BOQ and Drawings](#))

OXSI Construction Tips for Latrines in Cyclone-Prone Areas:



1. Large footings increase resistance to overturning during storms. Cast each footing with a metallic anchor strap that will later be bolted to the hardwood of the superstructure.



2. Include horizontal and diagonal bracing when constructing wall framing with hardwood to prevent the structure from racking.



3. Join the roof rafters to the structure with hurricane straps to prevent uplifting. A roof angle of 3° (5%) is optimal to increase resistance to overturning. Reduce CGI sheet overhang and bend 90 degrees around the wooden roof beam to increase resistance to uplifting when wind hits the front of the latrine.



4. Attach concrete steps to the latrine structure using cast-in metal anchor rods, which increase resistance to overturning when wind hits the front of the latrine.



5. Include metal guy wire from the latrine pits to the back of the latrine structure to increase resistance to overturning when wind hits the back of the latrine.



6. Coat the hardwood with varnish to protect it from termites and rain.

3.2 Household Latrine Handovers

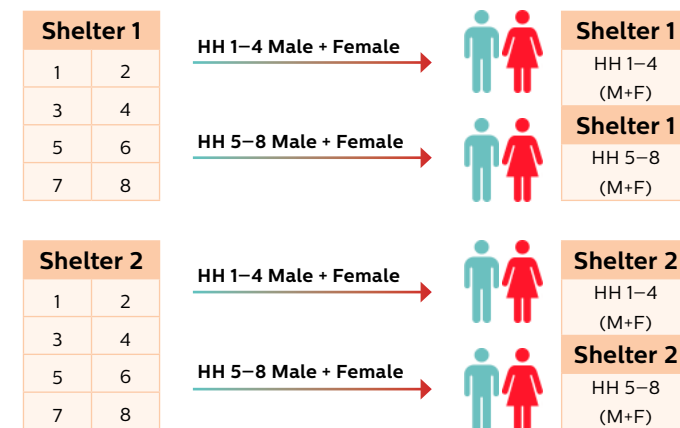
During an emergency, WASH agencies tend to construct public latrines, but as an emergency becomes prolonged, it may be possible to “hand over” latrines to households to monitor, clean, conduct minor repairs, and report major repair needs.

In the Sittwe restricted area, following consultations after the displacement, WASH agencies handed over latrines as “household latrines”, each one shared by men, women, and children from four households. Communities generally preferred the household shared model because it increased privacy, reinforced ownership, and reflected the practice of family-owned latrines in the communities of origin. In one small camp, the latrines were sex-segregated as well as shared by households.

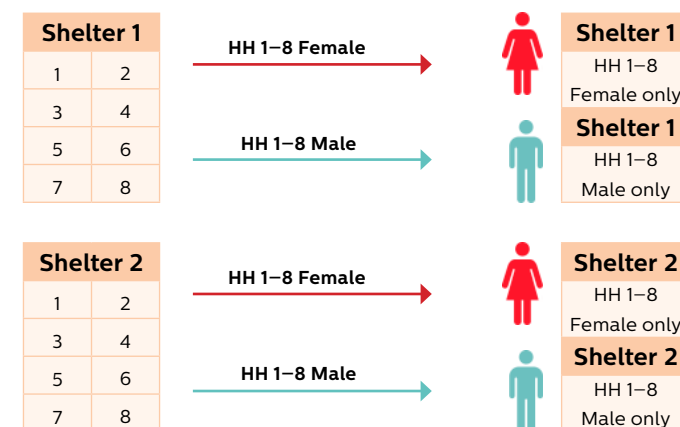
However, in some situations, women and girls reported not feeling comfortable sharing latrines with men from their families or neighbouring families. As part of OXSI’s goal to mainstream gender and protection in all WASH activities, the Community Mobilisation team piloted a new consultation process to let clusters of households decide how to separate their shared latrines. During this process, men and women from two shelters have separate discussions and look at different options of latrine sharing, decide their preferred scenario, then come together to make the final decision together. OXSI staff facilitate the process the first time, but encourage the two shelters to come together and decide if any changes are needed to the latrine sharing model at any time. For some groups of households, this process led to the decision to sex-segregate the family-owned latrines (Scenario 3), while other households preferred to stay with the current family-owned, non-sex-segregated scenario (Scenario 1). The decision is made entirely by the group of households sharing the latrines (3B Household Latrine Handover FGD).

Three scenarios for two shelters of eight households each to share two double latrines.

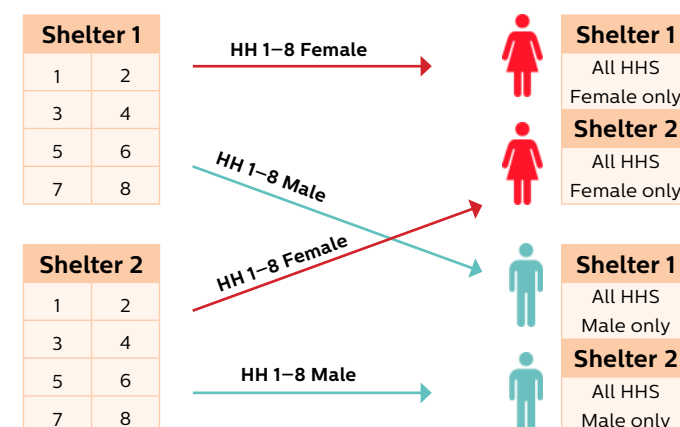
SCENARIO 1 (Non-segregated, one latrine block for one shelter)



SCENARIO 2 (Segregated, one latrine block for one shelter)



SCENARIO 3 (Segregated, two latrine blocks for two shelters)



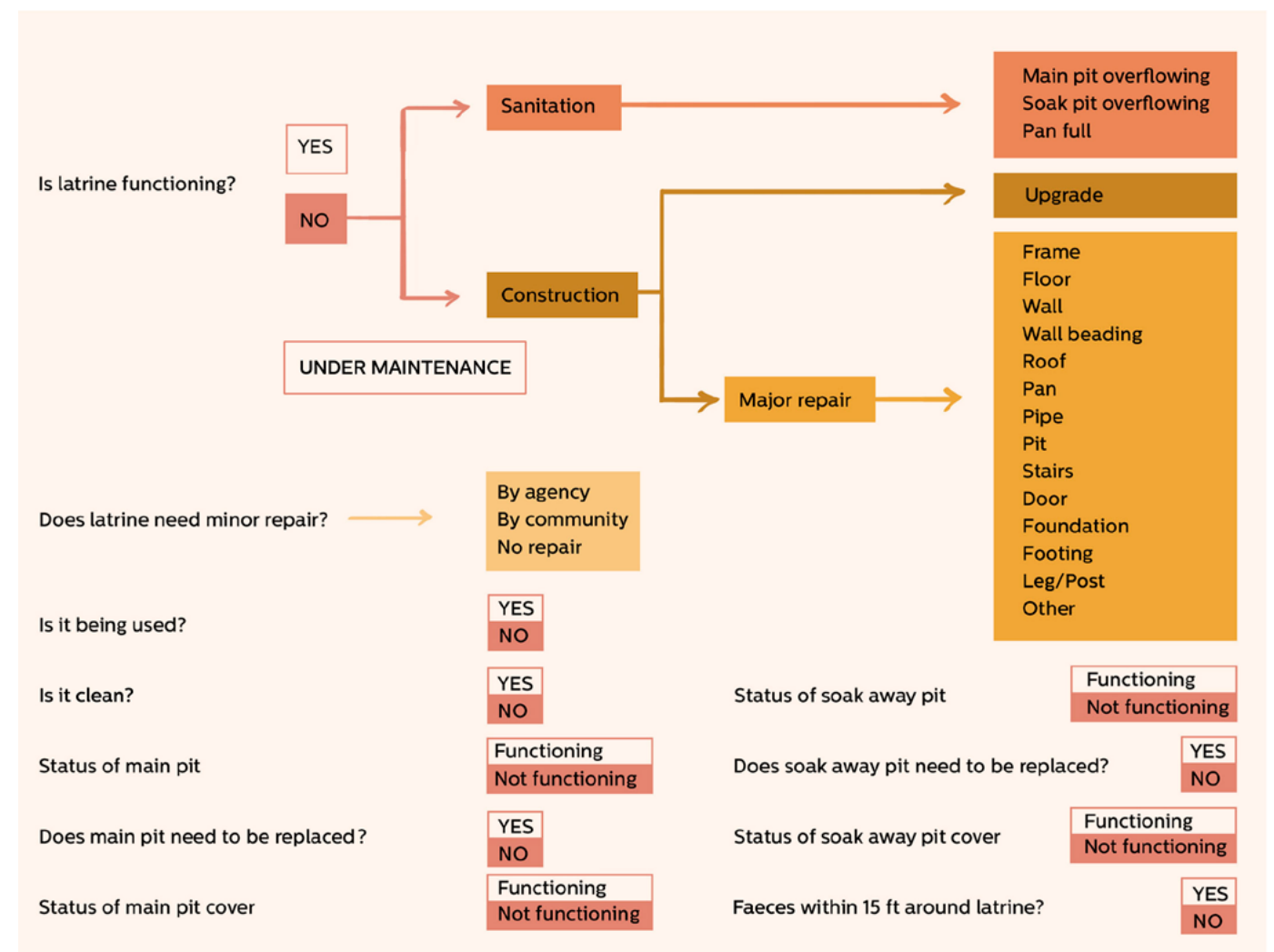
3.3 Household Latrine Monitoring and Maintenance

As with all infrastructure, WASH agencies must have a plan for monitoring and maintaining latrines, involving the community where feasible.

In addition to receiving service requests for infrastructure through the Complaints Response Mechanism, CRM (see Section 7.2), the OXSI MEAL team conducts a thorough monthly functionality check of all latrines managed by OXSI, and using the results, the construction team creates their workplan to repair the latrines. Because of this, the functionality check is quite detailed, which allows the construction team to know exactly which parts and tools are needed for repairs (3C Latrine Functionality Check).

Again, the functionality of infrastructure may be defined differently in different contexts. In Sittwe camps, OXSI defines a functional latrine as one that people are able to use, which means it provides privacy, protects from the elements, and the pipes and pits are in good condition. A latrine is considered non-functional if the pit is full or overflowing, or if the pipes, pits, or superstructure are broken to the point that users cannot safely and privately use the latrine.

OXSI's Monthly Functionality Check:



In densely-populated camp settings, and especially if WASH agencies must build semi-permanent infrastructure, latrines may need frequent repairs. OXSI conducts regular maintenance of latrines, using the results from monthly functionality checks and service requests received through the CRM to make construction workplans.

Pilot

OXSI piloted an additional maintenance system to reduce response time for service requests, contribute to the overall decentralisation of infrastructure management, and increase community ownership of latrines. Continuing to use the OXSI Complaints Response Mechanism, which collects service requests (see Section 7.2), OXSI trained Community Construction Leads to conduct common minor repairs in the sector of the camp where they live. The Community Construction Leads received a specific list, put together

by the SI construction team, of latrine repairs needed. They requested materials and tools from OXSI offices for the work. Rather than paying the Construction Leads as staff or daily workers, they were paid a fixed rate for each specific maintenance task completed. The OXSI construction team supervised or checked the final results to ensure high quality of work before payment, and then closed the cases in the CRM. ([3D Community Construction Leads](#)).

OXSI intended that as Community Construction Leads worked on more latrines, the community would receive their contact information to contact them directly in case of problems. This would allow a slow transition of communities handling minor latrine repairs directly, without OXSI's involvement. However, the Community Construction Leads still need to ensure that the requested repairs are entered into the CRM, for accountability purposes.

3.4 Public Latrines

In addition to household and school latrines, and especially if these are handed over to households to manage, camps may require public latrines in markets, community centres, and/or places of worship.

In the Sittwe WASH programme, because OXSI does not pay for latrine cleaners and hands over latrines to households to manage, it was vital to ensure that the communities would maintain public latrines. OXSI worked together with mosques to agree on a strategy to build latrines for mosque compounds – while OXSI provided materials, religious leaders gathered volunteers for the construction and agreed

to maintain the latrines after completion. OXSI's experience constructing public latrines in this way showed that linking active community groups around a common cause was effective to increase engagement and ownership. As with child-friendly latrines, (see Section 3.6) communities can submit a service request for major maintenance through the CRM, but OXSI does not regularly monitor or repair the public latrines.

OXSI Challenges

For the public latrines in mosques, OXSI did not distribute materials until religious leaders made a commitment that they had enough volunteers (and in some cases, money to pay technical workers) to build the latrines. This caused long delays in some situations.

OXSI Solutions

Community involvement in infrastructure construction undoubtedly takes more time, but it is worth it to increase ownership. WASH agencies need to build in extra time into the programme schedule and check in frequently with communities to see if they need further support.

3.5 Latrine Distributions for the Host Community

In certain situations, WASH agencies can distribute materials for people to build their own latrines, which strengthens skills and ownership and allows for more independence and decision-making. This is more common in development programmes than humanitarian.

In villages in the Sittwe restricted area, the host community faces similar challenges as people living in camps, such as lack of freedom of movement and access to income-generating activities and adequate health and education services. However, people living in villages have their own homes, often own land for growing food or raising livestock, and have private latrines and handpumps. Many of these households took in displaced friends or extended family, which placed additional burden on WASH infrastructure.

As years went on in a protracted emergency, infrastructure significantly deteriorated and many could not afford to replace latrines. After an assessment to look at the state of village latrines and discussions with village leaders, OXSI supported the families hosting displaced individuals by distributing materials for latrines, with the goal of no more than 20 people sharing one latrine. OXSI formally handed over the latrine materials ([3E Latrine Handover for Host Community](#)) and families made their own decisions about the

location of their latrines, while adhering to the OXSI design for safety reasons. OXSI lent any tools needed for the construction, and the technical team of SI provided daily supervision to ensure safe construction, but the families took responsibility for transporting the materials to their homes and providing labour to build the new latrines. The households also clean, maintain, and desludge their latrines, as OXSI does not carry out functionality checks or repairs in villages.

After distribution, the MEAL team conducts Post Distribution Monitoring (PDM) to determine if the families have completed latrine construction, and are using, maintaining, and cleaning the latrine. The PDM also analyses how people managed the construction of the latrine – for example, if they had to hire labour to help them, and if so, how they paid the labour. Based on the PDM data, the Community Engagement Team engages the community to resolve any issues.

OXSI Challenges

Some households did not feel confident enough to build infrastructure by themselves, and because they do not have disposable income, traded valuable materials to pay skilled workers, which meant compromising the design of the latrine.

Power dynamics between some households led to a single household primarily using the latrine built for a cluster of households.

OXSI Solutions

When materials are distributed directly for communities to construct infrastructure that requires technical expertise, WASH agencies should provide construction support to communities so that they can construct the infrastructure without the need to hire workers and give away part of the materials as payment.

WASH agencies must clearly communicate about shared infrastructure to ensure everyone is benefiting from it. For the village latrine distribution, OXSI asked each household to sign a Memorandum of Understanding (MoU) that they would ensure fair use and responsibility of the latrine.

3.6 Child–Friendly Latrines

Children, especially those under five years old, are more vulnerable to water and sanitation related diseases and may require adaptations in the design of WASH facilities to use them safely and comfortably.

WASH agencies must consult children of various ages as well as caretakers to understand children's needs and preferences. Although changing latrine use behaviours can rarely be accomplished with infrastructure alone and needs to be paired with a systematic behaviour change programme (see Section 4.8), removing barriers that children face in accessing facilities is an important first step to create an enabling environment for behaviour change.

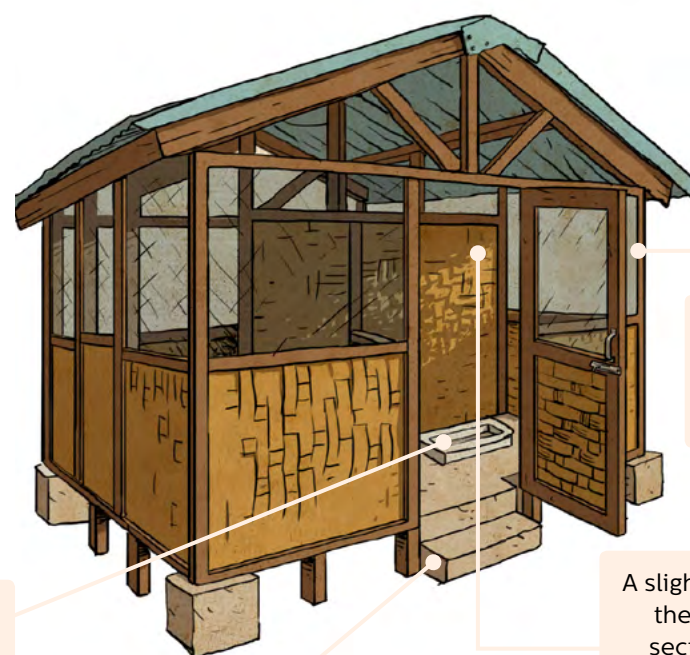
In the Sittwe WASH programme, OXSI learned that children under the age of five years old could not use the household latrines, and even children under 10 preferred to defecate outside. Through consultations with children, supervised by their parents, OXSI learned that children faced multiple barriers to using the latrines: tall stairs, dark latrine rooms, wide squat pans, and locked latrines. In addition, adults did not encourage children to use the latrines, and did not trust children with the keys.

Design considerations

Since young children consider using a latrine together a social activity, they wanted multiple children to be able to use it at once—the final design has four pans.

Children painted the latrines with bright colours during the handover ceremonies

The latrine pit is directly under the latrine pans. SATO pans, a patented plastic pan equipped with a flap door that closes up after each drop, ensured vector control.



Children preferred half walls for light and air to get into the latrine

A slightly taller wall separates the latrine into two, one section for boys and one section for girls

Just one small step up to the latrine (the latrine still had to be elevated to avoid flooding).

(3F CFL BOQ and Drawings)

Focus on equity – gender, protection, and inclusion

Adapting WASH facilities so children feel comfortable using them is a key child protection standard, and must be done carefully in consultation with children. Participation of children should always be transparent, voluntary, inclusive, and supported by adults from the community. Staff conducting activities with children should receive special training on child protection, which can usually be arranged by protection agencies.

Pilot 1 – Child friendly latrines

OXSI launched a process for designing child–friendly latrines (CFLs) for children under the age of 10 to increase child latrine use and curb open defecation. In two pilot camps, OXSI conducted a three–session participatory design process through games with children aged 6–10 (supervised by teachers or parents) that asked simple yes/no questions to help with the design process. The second part of the process involved the children creating drawings of latrines, voting, making modifications, and eventually deciding on a design for OXSI to pilot in two camps. The children also suggested locations where they would like to have the latrines installed, most of which were close to Temporary Learning Spaces (TLSs) and play areas. OXSI then verified the locations and sought approval from camp leaders and teachers.

The OXSI MEAL team monitored if the CFL pilots improved open defecation (OD), and found that there did not appear to be significant changes to OD prevalence in the immediate vicinity of the CFLs. Many children used the new latrines, but it remains unclear if these children typically defecated in the open or if they simply switched from using adult latrines to using the CFLs.

After another round of consultations with children in the pilot camps, OXSI made some minor changes to the CFL design, such as including a lock for CFLs to be locked at night, and scaled it up in the remaining camps. OXSI organised handover ceremonies for the child–friendly latrines, attended by teachers, children, camp leaders and other community members. The children painted the latrines in bright colours to finalise the handover process. OXSI also provided latrine cleaning kits to the nearby TLS or households who agreed to take care of the latrines, and facilitated games and skits with children to teach them how to use the latrines.

Pilot 2 – Potty Hubs

OXSI could not meaningfully consult children under the age of five, but observations and consultations with parents and caretakers indicated that young children frequently defecated in the open, because parents typically do not teach children to use latrines until they start school. After years of hygiene promotion sessions, children knew that defecating near

homes and water points was wrong, and OD was most often observed immediately around latrines, especially on top of latrine pits. It was also observed that children went to the latrines to defecate in groups, usually during playtime.

The WASH Cluster and UNICEF engaged a Behaviour Change Lab, 17 Triggers, to use human–centred design to tackle OD in OXSI camps. After observations and rapid field tests, one of the solutions 17 Triggers piloted was the Potty Hub – a solution based on the behaviour that children already practiced of defecating on top of latrine pits. The Potty Hub consists of two different pans (a squat pan and a potty) built onto a latrine pit, so that two children could use each Potty Hub at the same time (3G Potty Hub Drawings).



The Potty Hub consists of two pans, a squat pan and a potty, built directly onto a pit.

The pilot of three Potty Hubs in one OXSI camp proved successful, with high early adoption rates and a decrease of OD in the vicinity. However, OXSI environmental cleaners have to clean the Potty Hubs weekly; since they are public and used frequently, no one in the community wants to take responsibility for cleaning them.

In addition to Potty Hubs, to assist children in practicing safe defecation behaviour, OXSI distributed a child potty for each household. The Community Mobilisation team paired the potty distribution with messaging on proper disposal of potty contents into latrines. This initiative stemmed from the 17Triggers recommendations and formative research results of the RANAS approach, which both showed that OXSI could focus more on teaching parents to potty–train children to reduce OD, as described in Section 4.8.

3.7 Latrines in Schools

In a camp setting, the WASH facilities in schools, clinics, community centres, and other communal buildings may be managed by the agencies operating these buildings, or by WASH agencies.

If managed by WASH agencies, they must consider the specific WASH needs of building occupants. In schools, WASH infrastructure should be child-friendly and appropriate.

In the Sittwe restricted area, as part of its WASH in Schools approach, OXSI built child-accessible hand-washing stations and latrines, not only to provide essential WASH facilities but also to enable children to practice positive hygiene behaviours taught in peer-to-peer educational sessions (see Section 4.2).

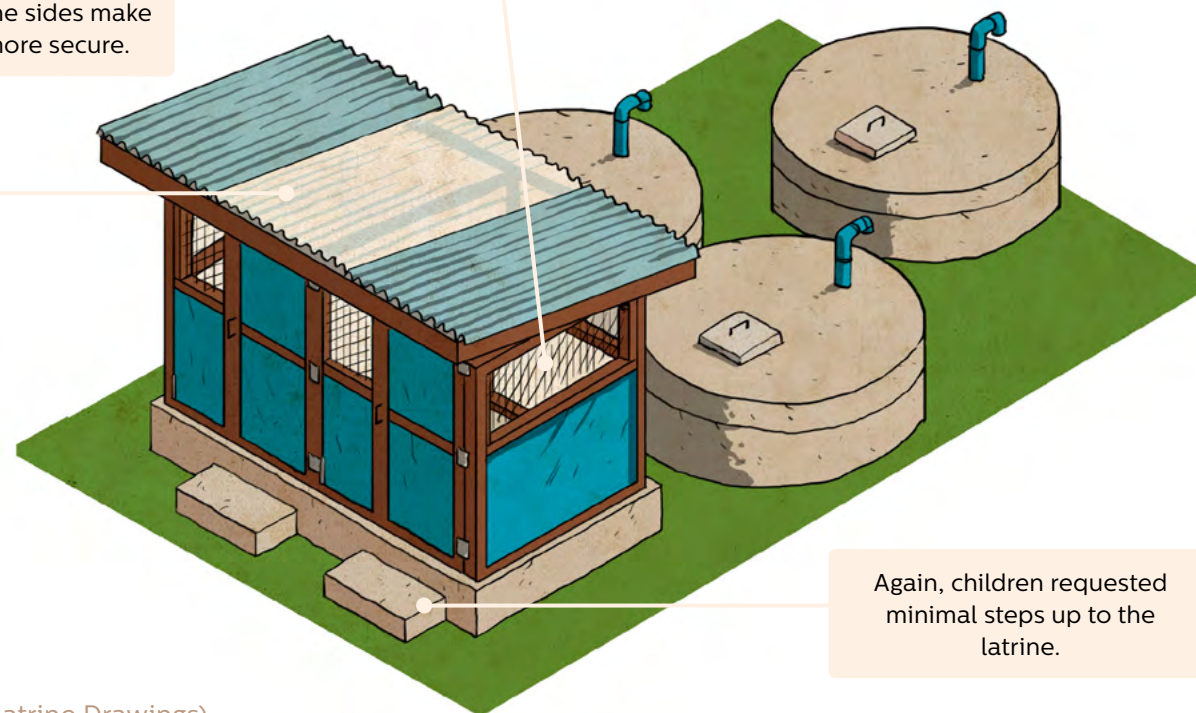
Children from grades 1–5 attend Temporary Learning Spaces (TLS), with each TLS focusing on one or two grades. This allowed OXSI to work with children in a narrow age range at each TLS to understand their specific needs and preferences for latrines. For kindergarten TLSs, OXSI installed the same child-friendly latrines described in Section 3.6. For older children, OXSI worked with children to come up with a more private child-friendly design. The design had small variations at each TLS, depending on what the children requested.

Design considerations

Clear corrugated roofing sheets on part of the roof allows more light into the latrine. CGI sheets on the sides make the roof more secure.

As with child-friendly latrines, some children still wanted the latrine to have a large portion of the wall meshed to allow light and air to get inside.

The school latrines have the same pit design as double household latrines – two pits connected to one soakaway pit.



Again, children requested minimal steps up to the latrine.

(3H School Latrine Drawings)

OXSI does not conduct functionality checks on school latrines, but notifies teachers, the education partner, and community leaders to submit any requests for desludging or repairs through the CRM, (see Section 7.2).

3.8 Inclusive Sanitation

Over one billion people live with some form of disability, and emergencies can result in even higher rates of disabilities due to conflict and lack of access to services.

In addition, almost half of older people (those over the age of 60) have disabilities. WASH infrastructure is designed to quickly and efficiently address the needs of the majority, leaving little space and time for tailored solutions. As a result, people living with disabilities and older people are at a disproportionately greater risk of not having adequate access to communal water and sanitation services in humanitarian settings.

Through previous consultations and listening exercises, OXSI learned that the elderly and people with disabilities struggled to use household latrines due primarily to the “one size fits all” design of latrines and the distance from their shelters to the latrines. OXSI’s approach was to involve people with disabilities in meaningful conversations about a tailored solution that would address their specific needs. Prior to engaging with people with disabilities, OXSI hired a consultant experienced in advising on disability rights and gender to conduct a training for OXSI field staff and to assist with the consultations. In an effort to reach people with disabilities, OXSI worked with CMAs, who had collected information in all camps using the Washington Group assessment. With the assistance of the consultant, OXSI organised Focus Group Discussions or households visits to consult all of the individuals who the CMAs identified as needing assistance or their caretakers. The discussions focused on sanitation access, and how participants used (or

did not use) household latrines. OXSI asked participants what would make it easier for them to access latrines or to have a dignified sanitation solution in their home. For these discussions, OXSI procured sample items, such as commodes, crutches, potties, and bedpans to show participants some options for assistive devices. Each participant chose an assistive device, which was then tailor-ordered based on their measurements and delivered to their household.

Pilot – Handles in latrines

As adults get older, they may experience difficulty in getting up and down from the squatting position when using a squat latrine. Another pilot conducted by 17 Triggers to help small children use latrines had the unintended positive effect of also helping the elderly. The pilot involved placing handles on the outside of latrine pans for children to hold on to while squatting. Children reported that the handles helped them feel more comfortable using adult latrines, and older adults also praised the handles. Able-bodied adults, however, complained that the handles reduced the total space in an already-small latrine. Although the handles were positively received by most, this suggested that these installations need to be agreed upon by all the users of the latrine, which may require more sensitisation efforts for able-bodied adults to realise the difficulties experienced by the elderly, children, and people with disabilities when using latrines.



Focus on equity – gender, protection, and inclusion

WASH agencies must take extra steps to find and consult people with disabilities, who may be quite isolated. When organising FGDs, OXSI reimbursed participants for their travel costs, since many were not able to walk to the office, and took steps to make the venue more accessible. For those who were not able to participate in FGDs, OXSI visited them in their homes.

3.9 Desludging

Unless camps have adequate space to relocate latrine superstructures over new pits when latrine pits fill up, WASH agencies need to plan to provide desludging services.

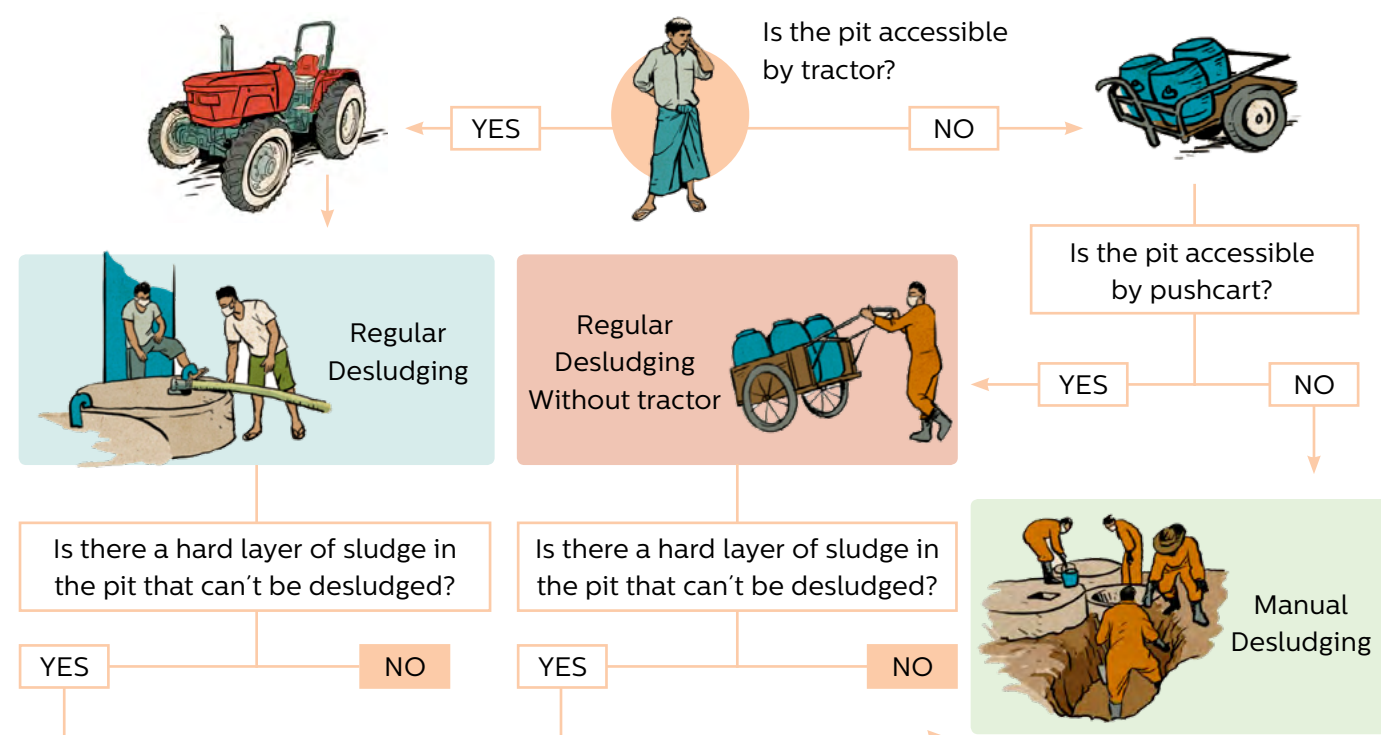
SI provides regular desludging services in all camps. Some of the factors that make desludging challenging and unpredictable in the camps include crowded living conditions, a long rainy season, and a high water table. In addition, WASH agencies over the years built latrine pits of different sizes and designs with different desludging rates. The desludging tractors cannot access all pits, requiring labourers to push carts by hand to access certain areas.

SI has developed solutions to these problems with a combination of desludging approaches. Sanitation workers use a tractor and a pump (“regular desludging”)

to desludge the majority of pits. When tractors cannot access certain pits, the workers use pushcarts with barrels and pump sludge into the barrels, a process referred to as “manual desludging with a pump”. And finally, when a pump is not able to remove a hard layer of sludge, the workers do “manual desludging” with shovels to remove and bury the hard sludge layer.

In villages inside the restricted area, because fewer people use each latrine and because there is space within private compounds, families cover their latrine pit when full and move their latrine superstructure over a new pit.

IS THE PIT ACCESSIBLE BY TRACTOR?



Quick Facts

OXSI desludges **approximately 500** latrine pits per month. [\(3I OXSI Desludging SOP\)](#)

3.10 Sludge Treatment

Many options exist for faecal sludge treatment and disposal depending on space, resources, and level of treatment needed.

In the onset of an emergency, it may not be required to reach high levels of treatment, but as an emergency becomes prolonged, the impact of improperly treating and disposing faecal sludge becomes higher in terms of environmental and public health concerns. In most of Myanmar, faecal sludge is dumped without treatment, creating significant contamination of soil and water, with consequent impacts on the environment and on the health of the population. In the Sittwe restricted area, OXSI not only desludges and transports sludge from over 3,600 latrines, but also operates the Sludge Treatment Site (STS) to treat sludge from all latrine pits.

The STS has been a site of technical research on Faecal Sludge Management (FSM) and an example of appropriate, low-cost, and low-maintenance FSM in a humanitarian setting. The STS design is based on the principles of the DEWATS (Decentralized Wastewater Treatments) method designed by BORDA, adapted to a centralised treatment site. OXSI staff transport sludge in tractors to the reception basins, but once dumped there, the entire treatment system operates by gravity. The STS consists of primary treatment by sedimentation and secondary treatment with biological processes, not requiring chemicals or electricity. The system requires minimal maintenance. However, some components rely heavily on human labour, such as the manual emptying of dried sludge from the drying beds.

STS Testing

At the end of 2018, OXSI set up a new laboratory at the STS to measure the performance of the different components of the system. The monitoring aimed to understand the performance of the STS in decreasing pathogens and to explore the possibility of using the final products (dry sludge and effluent) in agriculture.

Analysed parameters include Chemical Oxygen Demand, Total Solids, Total Suspended Solids, ammonium, nitrate, phosphorus, and E. coli. The inlet and outlet of most components is tested once per week or every two weeks and analysed in the laboratory onsite. Despite the high performance of the STS in pathogen reduction, results show the liquid effluent is not yet usable for agriculture.

The results of the monitoring led to the design of the STS upgrade in two phases: the first to increase the STS capacity through the extension of the solid line and the piloting of planted drying beds, and the second to review the liquid line to improve STS performance and increase the effluent quality to meet agricultural use standards.



Quick Facts

The construction of the STS was finished in March 2014 and cost approximately **270,000 USD**. The STS processes **35 m³** of sludge, on average, per day. [\(3J STS Operator Manual\)](#)

Dumping Station

Workers empty sludge into a reception tank which screens out large solids using a bar screen

Hopper Bottom tanks

In the Hopper bottom tanks, the sludge settles, creating separation between the liquid and solids, which take different routes for treatment

Drying beds

In the drying beds, water drains through the sand and gravel to the bottom of the bed, while evaporation helps to remove water at the surface of the drying beds

The liquid drained from the drying beds moves to a horizontal flow constructed wetland

Secondary constructed wetland

Like the other constructed wetland, this one further degrades the organics in the liquid leachate

Infiltration trenches

Finally, the liquid infiltrates into the ground through infiltration pipes settled into trenches filled with gravel

Incinerator

Finally, workers incinerate the dry sludge

Dry sludge storage

The dried sludge remaining on top of the drying beds is removed manually and stored in storage units to continue drying

Anaerobic baffled reactor

In the anaerobic baffled reactor, microorganisms contained in the settled sludge help to biodegrade organic material

Maturation ponds

The liquid sludge then moves into the maturation ponds, which allow light penetration to the bottom and aerobic conditions throughout the whole depth to further remove pathogens and nutrients

Infiltration basins

Finally, the liquid sludge infiltrates into the ground in infiltration basins

Constructed wetland

Liquid sludge then moves through horizontal flow constructed wetlands, which filter out particles and further degrade the organics

The sludge gets directed into two hopper bottom tanks that work in parallel

The liquid from the top of the hopper bottom tanks moves to an anaerobic baffled reactor

The thicker sludge that has settled into the hopper bottom tanks moves into the drying beds

3.11 Bathing Facilities

If household private bathing is not possible, WASH agencies should provide communal, separate facilities that ensure safety, privacy, and dignity, where culturally preferred and accepted.

The design and locations should be decided in consultation with communities, especially with women, girls, and people with disabilities. They must be accessible to all users, provide sufficient privacy and safety, have a convenient supply of water, and ensure the correct disposal of greywater.

In the Sittwe restricted area, another programme piloted communal bathing facilities, which were unused and quickly looted. Consultations showed that people overwhelmingly prefer to bathe in their homes. Most men and boys bathe outside next to the handpumps, but women and girls bathe inside often—cramped houses where multiple relatives, male and female, share one room. Bathing safely and privately is a particular challenge for women with disabilities, who often need assistance from a caretaker.

Another service provider has started piloting communal bathing facilities in some camps. With the knowledge that public bathing spaces would not work for people with disabilities, OXSI chose to focus on household-level bathing facilities for people with severe disabilities. After consultations with people with disabilities on the design of the facility, and because people all have different home set-ups and preferences for bathing in their homes, rather than build bathing facilities directly, OXSI distributed materials for households to build simple bathing facilities themselves. The bathing slab kit consisted of materials to build a small concrete slab with drainage, a rope, and tarpaulin that users could install for privacy and take down when the space was needed for other purposes.

OXSI held training sessions on how to build a concrete slab, and assisted those who asked for help with the construction and/or transporting the materials to their shelters. OXSI also followed up frequently over two weeks to ensure that the materials had been used to build the bathing facility.

The OXSI WASH team conducted Post Distribution Monitoring (PDM) to ask recipients about their experience with the distribution, construction, and use of the bathing facilities. Although everyone reported satisfaction with the bathing facilities, most still have challenges bathing in the small space inside their shelter and requested a sturdier wall made of bamboo or metal sheeting instead of the tarpaulin. Most recipients said that the whole family uses the bathing facility, and that the dedicated space also helps with washing clothes. Many recipients reported paying for help installing the slabs or buying materials to make the slabs bigger. OXSI will use the results from this activity to better plan any future bathing facilities.



Inside the household, a concrete slab with drainage can be used as a bathing facility with the set-up of a tarpaulin for privacy, while also being useful for other purposes, such as laundry or washing dishes.

3.12 Drainage Construction and Maintenance

Effective surface water drainage is vital in emergencies, especially where the risk of flooding is high.

Sources of surface water include rainfall, flood water, water spillage from tap stands or handpumps, leakage from piping systems, and greywater from sinks, showers, or laundry. The construction and maintenance of drainage channels reduces stagnant pools that serve as breeding grounds for vectors such as mosquitoes and/or harbour dangerous pathogens that cause a wide range of diseases. In addition, drainage systems prevent landslides and mudflows and ease access in camps for camp residents as well as vehicles.

Surface water drainage should be part of initial site development in combination with roads and buildings, but it is often difficult to prioritise at this early stage. Improper camp layout and initial drainage network design can adversely affect the management of surface water in the future. Drainage should be the collective responsibility of camp management agencies, WASH service providers, and the people living in camps.

In the Sittwe restricted areas, drainage is a continuous problem due to poor camp planning and space constraints. In some camps, excess surface water is designed to drain into farmlands to serve agricultural needs, but landowners and farmers blocked the outlets. In these camps, without an outlet, there is little use in re-constructing or repairing drainage channels, which just serve as extra storage for rainwater while the water slowly absorbs into the ground.

Minor drainage channels, those between shelters and on small streets that connect to larger drainage channels, are also often blocked by households who extend their shelters over the channels or fill in the channels to avoid stagnant water and foul odours. From the beginning of the programme, OXSI has advocated for communities to care for and maintain minor drainage channels by themselves.

At the beginning of the programme, OXSI conducted regular assessments of the state of the drainage, focusing especially on main drainage channels. After the construction team completed the planned major maintenance and construction, they maintain drainage channels based only on CRM complaints. Some service requests received through the CRM, however, cannot be carried out if the requested repair is too large or if there is no outlet for the drainage water. In addition, OXSI frequently repairs borehole drainage, which is part of the functionality check, and is constructed and repaired based on the functionality check as well as on CRM service requests.

Every year before the rainy season begins, OXSI partners with CMAs and communities to clear out the large drainage channels to allow rainwater to flow more easily and to have more rainwater storage in the drainage channels (see Section 6.6). The drainage cleaning campaigns make a big difference to reduce overflowing drainage channels and flooding during the rainy season.



Focus on equity – gender, protection, and inclusion

Wide drainage channels facilitate the movement of a large volume of rainwater, but may be difficult for children, the elderly, and people with mobility constraints to cross. Where common pathways cross large drainage channels, WASH and/or camp management agencies should provide drainage crossings, which can consist simply of reinforced concrete slabs. The locations of drainage covers should be decided with communities, including the elderly and people with disabilities.