

WASH Handbook for Protracted Emergencies:

The OXSI Experience in Myanmar



HARP-F
Humanitarian Assistance and Resilience Programme Facility

 **CROWN AGENTS**
ACCELERATING SELF-SUFFICIENCY & PROSPERITY

Supported by



This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies

Acknowledgements

This handbook details the work of a large and diverse team of committed humanitarian staff from several corners of the globe.

Thank you to the Oxfam and Solidarites International teams for providing programme documents and inputs on the content of this handbook, and for continuously striving to improve conditions for forcibly-displaced Rohingya communities living in camps in Myanmar.

Thank you to the frontline OXSI camp-based staff and Rohingya communities for invaluable feedback and contributions to improve programming and advocacy.

Thank you to Emily Tomsy Valery, Ania Gaboune, Carly Sheehan, Ines Riccardi Smyth, Christian Snoch, Elettra Balboni, Romain Verchère, Nathalie Vigneron-Larosa, Arthur De Saint Hubert, Damien Machuel, Alice Vanicat, Alberto Aquistapace, Marine Ricau, Lucy Knight, Tawng Mai Nhkum, and Anna Gamma for specific technical expertise and support.

Thank you to HARP for the opportunity to create and disseminate the knowledge gained from this multi-year programme.

Thank you to the WASH Cluster in Myanmar for coordination and support.

Thank you to Pier Francesco Donati for the dedication and visionary leadership as OXSI Consortium Manager.

Author: Sonya Milonova

Layout and illustrations: Chema Roman and Maria José Arce

Translation: Rita Khin

Foreword

This Handbook compiles the learning and knowledge of the Oxfam–Solidarités International (OXFAM–SI) programme we have been supporting to provide water, sanitation, and hygiene (WaSH) services in Rohingya camps and villages in Rakhine State, Myanmar, over the period 2017–2020.

WaSH has been a top priority for the UK Government, and the HARP Facility. As the largest donor of humanitarian WaSH in Myanmar since 2016, we have, through our partners, reached over 243,000 conflict affected people in Kachin, Northern Shan, Rakhine, Chin and Yangon. The OXFAM–SI programme enabled us to focus our assistance on Rakhine, where approximately 126,000 Rohingya and 2,000 displaced Kaman Muslims have been living in overcrowded internment camps in the “Sittwe restricted area” since 2012. They lack access to basic WaSH, education and health services, face restrictions on their freedom of movement and their livelihoods, while the Rohingya population is also being denied citizenship. Through HARP–F’s partnership with OXFAM–SI, 82% of all IDPs in camps in Rakhine receive essential WaSH services, including throughout the COVID-19 pandemic.

Like everything HARP–F supports, the WaSH project run by our OXFAM–SI partners is designed to respond to the needs of vulnerable populations affected by protracted crisis and increase their resilience; but it also adapted the delivery of WaSH services to the specific context of the Rohingya human rights crisis. The programme favoured community-led processes and has been particularly vigilant during the COVID-19 pandemic to ensure a principled humanitarian response throughout. Many of the programme’s approaches to engage communities, increase their self-reliance and hand over the management of the WaSH infrastructure to them have been adopted as the standard for initiatives by WaSH humanitarian actors in Rakhine.

This Handbook captures this learning and is filling a knowledge gap, backed by evidence, on approaches and techniques to deliver WaSH services in a protracted emergency, particularly in the context of a human rights crisis. It represents an important legacy for the investment that the UK government, HARP–F, OXFAM–SI and camp communities have made in delivering WaSH services in very challenging circumstances. In the aftermath of the February 2021 military coup, the increasing humanitarian needs, the growing violence from the regime and routine human rights abuses, I believe that this knowledge is invaluable to inform the overall humanitarian response in Myanmar, and in other protracted crisis contexts.

Sonia Zambakides
HARP–F Fund Director

ACKNOWLEDGMENTS	03
FOREWORD	05
LIST OF CONTENT	07
INTRODUCTION	08
WATER	20
SANITATION	32
HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT	50
SOLAR LIGHTING	66
SOLID WASTE MANAGEMENT	78
MONITORING, EVALUATION, ACCOUNTABILITY, AND LEARNING	90
EMERGENCY RESPONSE: COVID-19	104
APPENDIX	114

1.1 Purpose of this Handbook

This handbook details the activities and lessons learned of the Oxfam–Solidarites International (SI) consortium providing water, sanitation, and hygiene (WASH) services in Rohingya camps and villages in Sittwe Township in Rakhine State, Myanmar, from 2017–2020.

When the project launched in 2017, there was limited guidance available on approaches and techniques to deliver WASH services in a protracted emergency, particularly in the context of a human rights crisis. The Oxfam–SI partnership (referred to as “OXSI”) piloted and tested strategies to adapt the delivery of WASH services to the specific protracted Rohingya crisis in Myanmar, while focusing on increasing engagement and ownership of the community.

Relatively long-term funding – unusual for humanitarian programming – allowed OXSI the opportunity to tailor approaches, innovate solutions, increase efficiency, and optimise collaboration and the use of resources. The funding stability as well as the large scale of the programme allowed OXSI to build up a long-standing team with technical expertise and deep contextual knowledge and to focus on improving the programme by mainstreaming community engagement, gender, and accountability. Most of these processes and factors resulted in an increased value for money (VfM), especially as the consortium absorbed work in new areas during the three-year implementation.

In addition, OXSI amassed the experience and understanding needed to put in place context-specific operating principles, implement principled programming, and influence the direction of the overall humanitarian response in Rakhine. As an active member of coordination platforms at both national and subnational levels in Myanmar, OXSI contributed to the design of national standards and guidelines and highlighted any emerging needs by putting forward evidence and feedback from the field.

The set-up of the OXSI consortium to mainstream community engagement, gender, and accountability while providing vital WASH services emerged from learning from the previous project cycle. This process of learning and adapting continued during the OXSI consortium – a process that is also rare for humanitarian programmes that sometimes do not have time to reflect on learning and practices. The Humanitarian and Resilience Programme (HARP) and OXSI decided to invest resources to create a handbook to consolidate all of this knowledge produced during the WASH programme and to make it available to different stakeholders: the WASH community and WASH Cluster in Myanmar, as well as the wider community of WASH practitioners.

Many of the approaches described are adaptable and relevant to a protracted emergency linked to a human rights crisis. This handbook aims to help cover a gap of knowledge and also to stimulate further discussion on WASH approaches in these unique contexts.

The content of the handbook was gathered from official documentation of activities (Standard Operating Procedures, assessment results, Focus Group Discussions, learning reviews, reports, etc.), as well as from several key informant interviews (KIIs) with Oxfam and SI staff.

1.2 Context Background

Rakhine State, the westernmost state of Myanmar, is home to over three million people. According to the 2017 Myanmar Living Conditions Survey, it is the second poorest state in the country, with a poverty rate of 41.6%, compared to 24.8% nationally,¹ and lags behind the national average in almost every area. Rakhine also has the highest vulnerability of any state or region – more than half of the population experiences some form of vulnerability in relation to housing materials, educational attainment, safe sanitation, drinking water, child dependency, availability of identification cards or direct exposure to conflict.² Rakhine State, with its long coastline, is also vulnerable to natural hazards and climate change. In addition to limited investment in disaster risk reduction, much of the state’s farmland is poorly adapted to these challenges.³

Rakhine has a diverse ethnic and religious population. Rakhine Buddhists make up the largest group and Muslims constitute the second largest. The majority of Muslims in Rakhine are stateless Rohingya, while a smaller number are Kaman. Although the situation in Rakhine State has garnered significant international attention in recent years, the conflict there is not new. In fact, ethnic minorities across the country have faced discrimination and human rights abuses for decades. The conflict in Rakhine especially is one of long-term institutionalised state-directed discrimination and segregation, embodied in law, regulation, procedures, and daily practice of both military and civilian authorities.⁴

In Rakhine, the first large exodus of the Rohingya from Myanmar to Bangladesh occurred in the late 1970s in response to military crackdowns, including forced labour, torture, and rape. In 1982, Myanmar enacted a Citizenship Law which deprived Rohingya of citizenship. In 1991, 200,000–250,000 refugees again fled Myanmar in response to a military operation and sheltered in camps in the Cox’s Bazar district of Bangladesh. In 2012, violence between Muslims and Buddhists, with occasional support from state security forces, led to scores of deaths, destruction of property, and mass displacement in Rakhine. Myanmar authorities responded by separating communities, moving Rohingya and other Muslim groups to camps, where most of them remain today. In 2016, a Rohingya armed group, the Arakan Rohingya Salvation Army (ARSA), attacked three police posts in northern Rakhine. The military retaliated with a major security operation marked by widespread human rights violations, causing more than 87,000 Rohingya to flee to Bangladesh over the next 10 months. In August 2017, prolonged military pressure in Rakhine led ARSA to mount another attack on around 30 security posts in northern Rakhine. The armed forces of Myanmar, the Tatmadaw, again responded with a crackdown against Rohingya in Rakhine State, committing crimes against humanity and driving more than 600,000 Rohingya to flee to Bangladesh over two months.⁵ This latest round of “clearance operations” was described by the UN Secretary General as ‘ethnic cleansing’ and the UN-mandated Independent International Fact-Finding Mission on Myanmar concluded that the state’s actions bore all the hallmarks of genocide with intent⁶. Last year, Myanmar was tried for these events at the International Court of Justice (ICJ) under the Application of the Convention on the Prevention and Punishment of the Crime of Genocide. The trial brought increased international attention to crimes carried out by the Myanmar military and to the continued persecution of the Rohingya, while making it clear that Myanmar

1 UNDP, World Bank Group, & Myanmar Central Statistical Organization. (June 2019). Myanmar Living Conditions Survey 2017. <https://www.undp.org/content/dam/myanmar/docs/Publications/PovRedu/undp-mm-mlcs-poverty-report.pdf>

2 Humanitarian Assistance and Resilience Programme Facility & the Myanmar Information Management Unit. (June 2018). *Vulnerability in Myanmar*. https://themimu.info/sites/themimu.info/files/documents/Report_Vulnerability_in_Myanmar_HARP-MIMU_Jun2018_ENG_Print_version.pdf

3 ReliefWeb, Humanitarian Data Exchange, Humanitarian InSight, & Financial Tracking Service. (December 2019). Humanitarian Needs Overview: Myanmar. https://reliefweb.int/sites/reliefweb.int/files/resources/MMR_HNO_2020_FINAL_131219.pdf

4 Fieldview Solutions. (June 2018). Time to Break Old Habits: Shifting from Complicity to Protection of the Rohingya in Myanmar. https://www.fieldviewsolutions.org/fv-publications/Time_to_break_old_habits.pdf

5 Amnesty International. (2017). Caged Without a Roof: Apartheid in Myanmar’s Rakhine State. <https://www.amnesty.org/download/Documents/ASA1674842017ENGLISH.PDF>

6 Fact-Finding Mission on Myanmar. (September 2018). Report of the Detailed Findings of the Independent International Fact-Finding Mission on Myanmar. <https://www.ohchr.org/EN/HRBodies/HRC/Pages/NewsDetail.aspx?NewsID=23575&LangID=E>

mar's internal mechanisms failed to incriminate those responsible and revealed that the GoM has entrenched a culture of impunity.

Prior to the 2017 exodus, over a million Rohingya lived in Rakhine State. They were subject to severe rights abuses and restriction of movement. To this day, there are hundreds of thousands of Rohingya in Rakhine state, all either physically or virtually imprisoned, suffering from inadequate food, shelter, medical services, livelihoods and education and all fearing daily for their lives. The conditions severely restrict almost every aspect of their lives, and their human rights are routinely violated. In the area now known as the "Sittwe restricted area" in central Rakhine, about 126,000 Rohingya and 2,000 displaced Kaman Muslims have lived in internment camps since 2012. They suffer from overcrowding, inadequate sanitation facilities, inadequate educational opportunities, deliberately limited access to healthcare, and are prevented from most possibilities of livelihood or self-sufficiency due to the restrictions placed on them by the state. The camps in the Sittwe restricted area do not meet the emergency Sphere standards of minimum land area per person, covering a surface that is only one third of the minimum.

In the restricted area, those living in existing Rohingya and Kaman villages, although not displaced, face nearly all of the same challenges as Rohingya and Kaman living in camps, including lack of freedom of movement and access to basic services. Many villagers in the Sittwe restricted area took in displaced friends and family from other areas in central Rakhine, so they may care for extra residents. However, households in villages have their own family homes, latrines, and handpumps, meaning they live in less-crowded conditions than those in camps, who are cramped into tiny one-room shelters. In previous years, there was hope that the situation in Myanmar would change and people would be allowed to return to their villages of origin. Since then, human rights abuses have intensified and the camps, which were intended as only a temporary solution, have become increasingly entrenched. The situation in Rakhine is now a protracted crisis with long-term and severe impacts on human rights and deteriorating living conditions for the affected communities.

The protracted nature of the displacements has become clear, as evidenced by the Government of Myanmar's (GoM) lack of policies for a lasting and peaceful solution in the region. The GoM shared their official National Strategy on Camp Closures with the international community in November 2019, outlining the government's plans for the return and resettlement of internally displaced people (IDPs) across the country, as well as the 'closure' of IDP camps. The strategy does not specify any funding committed to these measures, nor provide clear timelines regarding land rights issues, particularly for people 'returning' to villages that no longer exist. Several camps in Rakhine have been declared "closed" after camp residents were simply relocated to newly-constructed single-family shelters next to the old camps. These "camp closures" were conducted without meaningful consultations with communities, who were not given any choices except to move or to not move to the new locations. The new locations are not called camps, but the conditions for Rohingya forced to live there have not changed. Considering the prevailing protection challenges across much of Rakhine State and the significant outstanding challenges in relation to addressing the root causes of the crisis, such as the lack of freedom of movement and pathways to citizenship, prospects for sustainable, voluntary and dignified return of forcibly displaced Rohingya to their places of origin or of choice are likely to remain limited in the near future. With Bangladesh straining under the burden of hosting over a million refugees, it is possible that Bangladesh and Myanmar will again force Rohingya back across the border into newly-constructed and inhumane internment camps.

Although ethnic Rakhine Buddhists are not subject to the same rights abuses and restrictions of movement as the Rohingya, they have a long history of grievances against the Bamar-dominated Union government.⁷ After decades of clashes between the Arakan Army (AA), an ethnic Rakhine militia fighting for greater autonomy, and the Tatmadaw, conflict severely escalated starting in late 2018, causing the displacement of

⁷ Fieldview Solutions. (June 2018). Time to Break Old Habits: Shifting from Complicity to Protection of the Rohingya in Myanmar. https://www.fieldviewsolutions.org/fv-publications/Time_to_break_old_habits.pdf

about 90,000 people by the end of 2020 across central and northern Rakhine and Chin states. Reports of the Myanmar army imposing collective punishment on villagers suspected of supporting AA soldiers, burning down Rakhine villages, using land mines, and engaging in other rights abuses, compounded with neglect by the Central Government for decades, have heightened tensions between ethnic Rakhine communities and the Tatmadaw. These events have had the unintended consequence of softening hostility between Rakhine Buddhist communities and Rohingya and Kaman Muslim communities, potentially due to the perception of the Tatmadaw as a common adversary. The AA has made several announcements of solidarity, clarifying that they fight for all communities in Rakhine State, including the Rohingya. Rohingya refugees in Bangladesh have even raised money to support displaced ethnic Rakhine communities.

The GoM's reluctance to permit humanitarian organisations to assist the Rakhine IDPs has also contributed to the anger of the Rakhine population toward the GoM and the Tatmadaw. For humanitarian actors responding to the multiple crises in Myanmar, access to affected populations has been inconsistent and increasingly laborious and bureaucratic. Following the violence in 2016 and 2017, humanitarian agencies lost all access to Rohingya communities for months. In 2017, new regulations were put in place for organisations to apply for Travel Authorisations (TAs) for every staff in order to pass the camp checkpoints. The TAs included comprehensive workplans with additional supporting documents to explain activities and required multiple government approvals. At the time, TAs were valid for only two weeks and, accordingly to many organisations, were given arbitrarily. Although this later changed to a duration of one month, the requirements for TAs continued to increase, resulting in large workloads for organisations who wish to maintain access to camps.

There has been a notable decrease of collaboration between the international community working in Rakhine and the GoM. The government's ongoing restrictions of access and communication have contributed to the shrinking of humanitarian space and created unnecessary challenges for programme implementa-

tion. In addition to the complicated TA processes and total restrictions to some areas, several Rakhine townships experienced the longest internet ban worldwide, which lasted over 14 months. Currently, only 2G access is available in eight townships, purportedly to hinder the activities of the AA. These restrictions affect over a million civilians who lack access to vital information during conflict and a global pandemic. The government's reaction to COVID-19 in Myanmar has at times prevented humanitarian actors from delivering services, including lifesaving services, and has led to further shrinkage of humanitarian access; for example, international staff have not received travel authorisations to the camps since April 2020.

The humanitarian community (INGOs and UN agencies) working in Rakhine have experienced tumultuous relationships with government actors and the ethnic Rakhine community over the years. A growing anti-INGO and UN sentiment culminated in attacks on over 30 international organisations in Sittwe in March 2014 and a temporary evacuation of INGOs from Sittwe. The Rakhine State Government (RSG) placed the blame on INGOs for disproportionately helping Rohingya communities without supporting the ethnic Rakhine population. This showcases a profound misunderstanding of the nature of humanitarian response. However, many organisations accepted the blame, agreeing with the government's assessment that the international community had failed to build a mutually respectful relationship with the Rakhine Buddhist population. The UN and INGOs have since then worked to develop a more 'conflict sensitive' approach, and expanded their operations to offer services to ethnic Rakhine communities.⁸ This has calmed the situation for humanitarian organisations and allowed their presence and work to be accepted, or at least tolerated, for the time being.

In camps, the ongoing displacement, movement restrictions, segregation, and a lack of access to basic services have undermined resilience and coping mechanisms, as well as distorted former community structures and dynamics for Rohingya and Kaman

⁸ Fieldview Solutions. (June 2018). Time to Break Old Habits: Shifting from Complicity to Protection of the Rohingya in Myanmar. https://www.fieldviewsolutions.org/fv-publications/Time_to_break_old_habits.pdf

communities. These factors make camp governance extremely challenging. The government appoints Camp Management Committees (CMCs), a role that is not formally compensated, as the official leaders and representatives of each camp. Communities recognise CMCs as the highest level of authority in the camps, yet many report feeling intimidated by them and unable to freely voice their opinions, concerns, or report abuses of power. Although the government for the first time appointed some female CMC members in 2019, it is understood that they do not have meaningful decision-making power or influence within the CMC. This is important because despite not being trusted by communities, CMCs hold a powerful role in the design, delivery, and communication of services and are responsible for leading dispute resolution processes for cases such as gender-based violence (GBV).

Religious leaders, on the other hand, are more respected and have a much higher level of influence than CMCs or government. Shelter leaders are also trusted and people report feeling comfortable to raise issues with them. Camp-based staff and volunteers of organisations working in camps also have a level of influence within camps and villages. Yet none of these key players possess significant decision-making power in the camps.

While the government and CMC are regarded as having the most authority and power within the camps, this perception amounts to having control over humanitarian assistance rather than being the primary duty bearers. Service provision is regarded as the role of INGOs. Government focal points are often not present in the camps, except to deliver warnings about cyclones and collect data to report back to government officials.

Due to historical and ongoing denial of educational opportunities, as well as competing priorities for survival, people in camps continue to fall behind in key educational markers such as literacy. In 2019, a study conducted by DRC found that 63.5% of men and 72% of women were not able to read or write a simple sentence in any language.⁹

Vulnerable groups such as the elderly, people with disabilities, and women and girls face even greater obstacles in camps. Disability rates are higher in contexts of conflict, displacement and humanitarian emergencies due to conflict- and disaster-related impairments and lack of access to services. This is the case in Sittwe camps, where disability rates exceed the national average. People with disabilities are often “invisible” to service providers because they may not be able to participate in consultations in public spaces or may even be actively hidden from sight.

Gender norms intersect with age and change at different stages throughout the life cycle – particularly for girls during puberty. As in the rest of Rakhine and in Myanmar, women in camps face a range of socio-cultural and structural barriers to taking on leadership roles, communicating with leaders, and influencing public decisions.¹⁰ Reports highlight that a deterioration of living conditions, limited access to aid, and inadequate livelihoods increases rates of GBV. The fear of violence severely affects women and girls’ mental health, and further prevents them from accessing services and being involved in social and educational activities. Approximately a quarter of households in camps are female-headed households who face additional barriers in accessing essential services due to cultural restrictions of women’s movements and lower household income because women face barriers in participating in the labour force and receive lower pay for work than men.¹¹

⁹ Danish Refugee Council. (July 2019). Information Needs Study: Sittwe and Pauktaw IDP Camps.

¹⁰ Price, C. for INGO Rakhine Initiative. (June 2018). Gender and Age Analysis: Sociocultural and Structural Barriers to Essential Services.

¹¹ Price, C. for INGO Rakhine Initiative. (June 2018). Gender and Age Analysis: Sociocultural and Structural Barriers to Essential Services.



1.3 OXSI WASH Programme

Oxfam and Solidarites International (SI) both have a history of working in Myanmar. Oxfam first started working in Myanmar in 2008 and in Rakhine in 2013; SI also started working in Myanmar in 2008 after Cyclone Nargis and in Rakhine in the aftermath of Cyclone Giri in 2010. Furthermore, Oxfam and SI have a strong organisational relationship and history of collaborative programming in Myanmar. Prior to the current programme, Oxfam and SI worked in a consortium through the Department for International Development (DFID)/ Humanitarian and Resilience Programme (HARP) funded WASH programme in Sittwe since 2014, and collective advocacy on WASH since 2013.

Working within the coordinated humanitarian response in Rakhine and informed by a thorough needs assessment, Oxfam and SI entered into a new consortium in September 2017 to provide WASH services to 97,647 Rohingya, Kaman, and Rakhine forcibly-displaced people living in camps and villages in Sittwe township. This consortium, referred to as the “OXSI” WASH Programme, was designed to last for three years and was later extended to 2021. This product covers only the work of the consortium in its first three years.

The main objectives of the programme are to provide essential WASH services while starting to transition to community-managed WASH, handover specific WASH services to the private sector, civil society and/or government, and to build resilience of communities. The programme focuses on the provision of safe drinking water and safe, dignified, and appropriate sanitation services; faecal sludge removal, treatment, and disposal; solid waste management and drainage maintenance; and hygiene promotion to positively change hygiene behaviours. The programme aims to accomplish these goals while focusing on increasing community engagement, building ownership of infrastructure, and eventually handing over WASH infrastructure and services to communities or local authorities. The programme aims to mainstream gender, protection, and accountability in all activities.

OXSI described the longer-term vision for resilience in the context of prolonged displacement in Sittwe as a healthy, peaceful, and cohesive community that

takes ownership over maintenance of infrastructure and receives services from relevant and accountable duty bearers – government or private actors. In the context of this programme, resilience was defined as the ability of communities to transition from dependency on WASH service provision by external international humanitarian actors to community-managed ownership, self-determination, and autonomy. Therefore, the programme’s contribution to this long-term vision for resilience is that programme beneficiaries and communities as a whole have the capacities, motivation, and resources to operate and maintain WASH services themselves, to take responsibility for their own and their family’s hygiene, and to actively contribute to community sanitation and environmental hygiene through positive behaviour change.

A total of 22 camps and villages were covered under the programme in the beginning; this number increased to 25 in early 2019 with the handover of three more locations from another WASH agency, increasing the total people covered by OXSI’s WASH programme to over 100,000. Of these locations, 11 are Rohingya camps in the restricted area; 11 are Rohingya villages in the restricted area; and three are Rakhine Buddhist camps outside of the restricted area. Services provided in each area were determined based on a thorough needs assessment.

Oxfam and SI co-designed the WASH Programme together, drawing on each other’s relative strengths and experiences from working in Rakhine State. To maximise efficiency, cost effectiveness, opportunities for handover to duty bearers and relationship building, OXSI developed an implementation model, dividing responsibilities both geographically and by specialist service provision. Community mobilisation components of the programme – such as behaviour change, handover, resilience building, listening and accountability – were conducted by one lead agency per camp or village. This was allocated based on geography, existing knowledge of the camp/village, and current caseload. The consortium then divided specialist service provision across all sites as follows:

- SI was responsible for WASH infrastructure, including

the upgrading and standardisation of all WASH hardware and the management of major repairs to WASH infrastructure

- SI was responsible for the sludge management chain, including desludging, transportation, and treatment
- Oxfam was responsible for water quality testing
- Oxfam was responsible for leading the consortium on community engagement, behaviour change, gender mainstreaming, and MEAL

For part of the programme, OXSI also worked with Internews to focus on accountability, two-way communication, and increasing awareness of the complaints response mechanism – this work is further explained in Chapter 7. OXSI also had co-funding support or collaborations with UN Women, UNICEF, ECHO, Rockefeller Foundation, and Centre de Crisis for specific activities of the programme.

The OXSI consortium is managed by a Steering Committee which includes the Country Directors from Oxfam and SI and the Consortium Manager. The Consortium Manager manages the five key positions in the Programme Management Unit: WASH Programme Manager (hardware), WASH Coordinator (Community Engagement Lead), Gender and Protection Coordinator, MEAL Coordinator, and the Government and Liaison Coordination Consultant.

OXSI Approaches

The role and actions of humanitarian actors in Sittwe camps have deep impact on endorsing or fighting the existing power dynamics and narrative that ultimately affect the targeted communities. The Do No Harm approach and protection principles have to be fully integrated into the humanitarian response. The OXSI programme aimed to do this through mainstreaming community engagement, gender, accountability, advocacy, and a principled approach to implementation of activities.

Community engagement: The previous programme focused mainly on service delivery of humanitarian aid, applying traditional top-down approaches with

little involvement of target populations in identifying needs and modalities to address them. Assessments conducted prior to the start of the OXSI programme showed that many people did not feel like they were part of a community, that they did not receive enough information, and over half of respondents reported they were not consulted about latrine upgrades or repairs. It was identified that there is an urgent need to open space for dialogue, trust-building, and sharing with communities. OXSI created and implemented a community engagement strategy ([1A Community Engagement Strategy](#)) to address these concerns through stand-alone community engagement activities (See Section 4.1), as well as focusing on mainstreaming community engagement in infrastructure design, siting, building, and repair (covered in Chapters 2, 3, 5, and 6), and into routine hygiene promotion activities to promote positive behaviour change through community-led and peer-to-peer approaches, emphasizing community leadership and decision-making (See Chapter 4). Overall, the community engagement strategy in practice meant actively listening to, responding to, and advocating for the needs and concerns of communities.

Gender: With the knowledge that women and men are affected differently by conflict and other crises, and because gender equality is a core value of both Oxfam and SI, OXSI aimed from the onset to mainstream gender in all project activities. Following a gender assessment and the development of the OXSI Gender Strategy ([1B Gender Strategy](#)), the Gender and Protection Coordinator worked closely with the WASH teams to provide training and actionable recommendations to integrate gender equality in the programme to increase opportunities for women and girls to meaningfully participate in decision-making, while also prioritising their safety and specific needs. Examples of this can be seen throughout the chapters in the boxes titled “Focus on Equity – gender, protection, and inclusion.”

Accountability: Accountability is an essential component of any successful humanitarian programme. OXSI placed a large emphasis on improving accountability through frequent and diverse community engagement, a sophisticated Community Feedback Mechanism (CFM), including case management and a separate

system for safeguarding and sensitive complaints (see Sections 7.2 and 7.3), improving accountability to communities (see Section 7.5), and continuously reflecting and adapting to community feedback and changing needs (see Section 7.7).

Advocacy: Although this component of the programme is not fully covered in this handbook due to the sensitive nature of the crisis, Oxfam and SI took different approaches to leverage international, national, and local networks and platforms to push forward collective advocacy efforts, amplify community voices, and to advocate for an end to this human rights crisis. Advocacy at the Rakhine level included the standardisation of high-quality WASH infrastructure designs and approaches; increased accountability to communities; collaboration and a clear split of responsibilities for WASH agencies working in camps; and direct implementation instead of using contractors (see next section). At the national level, OXSI advocated for a more principled approach to implementation of humanitarian programming; a unified voice among humanitarian actors in response to the government's camp closure strategy; continued humanitarian access to deliver life-saving services; and a coordinated response of humanitarian and government actors that meets international standards and actively seeks dignified, durable solutions for people affected by the protracted crisis.

Principled programming: The programme implements and advocates for a principled approach to WASH services which do not exacerbate harmful power dynamics in the camps. Several WASH agencies are working in Sittwe camps, and only two of them, Oxfam and SI, directly build WASH infrastructure without hiring contractors. In the aftermath of Cyclone Mora in May 2017, WASH Cluster analysis showed that infrastructure built by contractors had significantly higher levels of damage than infrastructure built directly by WASH agencies. Although the government had given service providers a vetted list of contractors, all of them are ethnic Rakhine who do not want to operate directly in camps and as a result, they hire sub-contractors in camps to complete the work. There is only a handful of contractors in camps, most of whom are also powerful landowners who either control or are part

of CMCs. The WASH Cluster analysis highlighted that partners using contractors could be indirectly supporting corruption because contractors were known to be paying bribes to CMCs and not paying labourers a fair wage. The infrastructure built by contractors was sub-par because the sub-contractors bought low-quality materials and used a portion of the money saved for bribes.

OXSI continues to implement directly, which allows programme managers and construction teams to have oversight of materials and to ensure high-quality construction and fair wages for labourers. OXSI continuously advocated for other WASH agencies to take this approach, both because of the protection risks and Value for Money considerations of using contractors and because, when other agencies continued to use contractors, OXSI experienced significant blockages by CMCs and landowners who demanded to have the contract to build WASH infrastructure. In some areas, especially those bordering camps where other agencies were working through contractors, OXSI was blocked from conducting even minor repairs on infrastructure for months. Eventually, through continuous relationship-building and explaining to community leaders and CMCs that OXSI is not able to award contracts for construction, OXSI was able to continue direct implementation.

The incorporation of these approaches into the WASH programme is further detailed in the rest of this handbook.

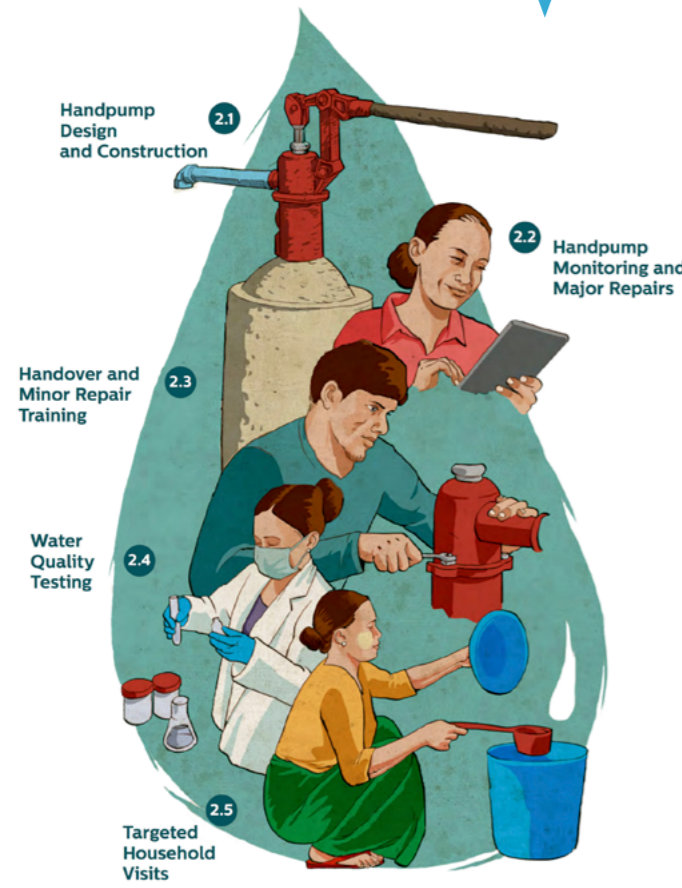
Acronyms

AA	Arakan Army	MHM	Menstrual Hygiene Management
ACE	Action from Community Engagement	MIMU	Myanmar Information Management Unit
ARSA	Arakan Rohingya Salvation Army	MoU	Memorandum of Understanding
BCT	Behaviour Change Technique	NFI	Non-Food Item
BOQ	Bill of Quantity	OD	Open Defecation
CCCM	Camp Coordination and Camp Management	O&M	Operation and Maintenance
CFL	Child Friendly Latrine	OXSI	Oxfam Solidarites International consortium
CFU	Colony Forming Units	P2P	Peer-to-peer
CGI	Corrugated Galvanised Iron	PDM	Post Distribution Monitoring
CMA	Camp Management Agency	pH	potential of Hydrogen
CMC	Camp Management Committee	PMU	Programme Management Unit
COVID-19	Coronavirus Disease	Ppb	Parts per billion
CFM	Community Feedback Mechanism	PPE	Personal Protective Equipment
CwC	Communication with Communities	PSEA	Protection against Sexual Exploitation and Abuse
DFID	Department for International Development	PVC	Polyvinyl Chloride
E. coli	Escherichia coli (an indicator for faecal contamination)	RANAS	Risks, Attitudes, Norms, Abilities, and Self-regulation
F2F	Face-to-face	RSG	Rakhine State Government
FGD	Focus Group Discussion	SI	Solidarités International
FSM	Faecal Sludge Management	SOP	Standard Operating Procedure
GoM	Government of Myanmar	SPHERE	Humanitarian Charter and Minimum Standards in Humanitarian Response
HARP	Humanitarian and Resilience Programme	STS	Sludge Treatment Site
HBT	Hopper Bottom Tank	SWM	Solid Waste Management
HCD	Human-Centred Design	TA	Travel Authorisation
ICJ	International Court of Justice	TLS	Temporary Learning Space
ICT	Information and Communications Technology	TOC	Theory of Change
IDP	Internally Displaced Person	TWG	Technical Working Group
IEC	Information, Education, and Communication	UN	United Nations
I/NGO	International / Non-Governmental Organisation	UNICEF	United Nations Children's Fund
KAP	Knowledge Attitudes and Practice	VFM	Value For Money
KII	Key Informant Interview	WASH	Water, Sanitation and Hygiene
MEAL	Monitoring, Evaluation, Accountability and Learning	WQT	Water Quality Testing
MELF	Monitoring Evaluation and Learning Framework	WFP	World Food Programme
		WHO	World Health Organisation

How to use this handbook

Each chapter starts with an illustrated table of contents

An introduction to each chapter is next to each illustrated table of contents



Click on chapter sections to jump to the section

C2. Water

The United Nations General Assembly recognised safe drinking water and sanitation as a human right in 2010, acknowledging that these basics are essential for health, dignity, and the realisation of other rights. During a crisis, inadequate water quantity and quality is the underlying cause of most public health problems. Water can easily become contaminated at different points as users collect, transport, store, and use it. Therefore, WASH agencies should work with communities to manage the entire water chain: water sourcing, treatment, distribution, collection, household storage, and consumption.

As part of the humanitarian WASH programme in the Sittwe restricted area, Oxfam and Solidarites International (OXSI) are responsible for construction and major repairs of boreholes and handpumps, monitoring of the systems, training communities to conduct minor repairs, water quality testing and follow-up, and raising awareness to reduce contamination risk during storage, transport, collection, and use.

Title of the chapter and page number

Each chapter is divided into sections

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.

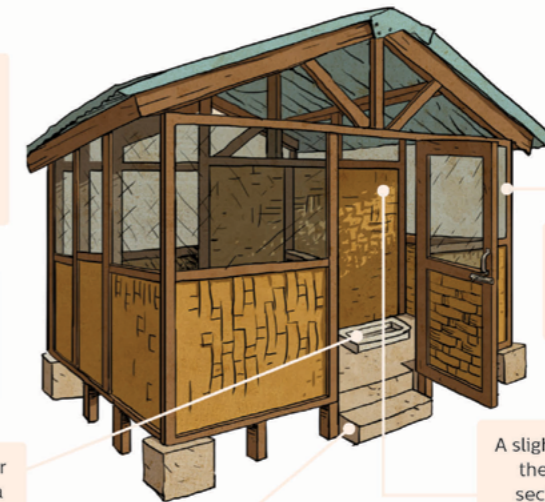
In the Sittwe WASH programme, OXSI learned that children under the age of five years old could not use the household latrines, and even children under 10 preferred to defecate outside. Through consultations with children, supervised by their parents, OXSI learned that children faced multiple barriers 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.



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

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

(3G Potty Hub Drawings)

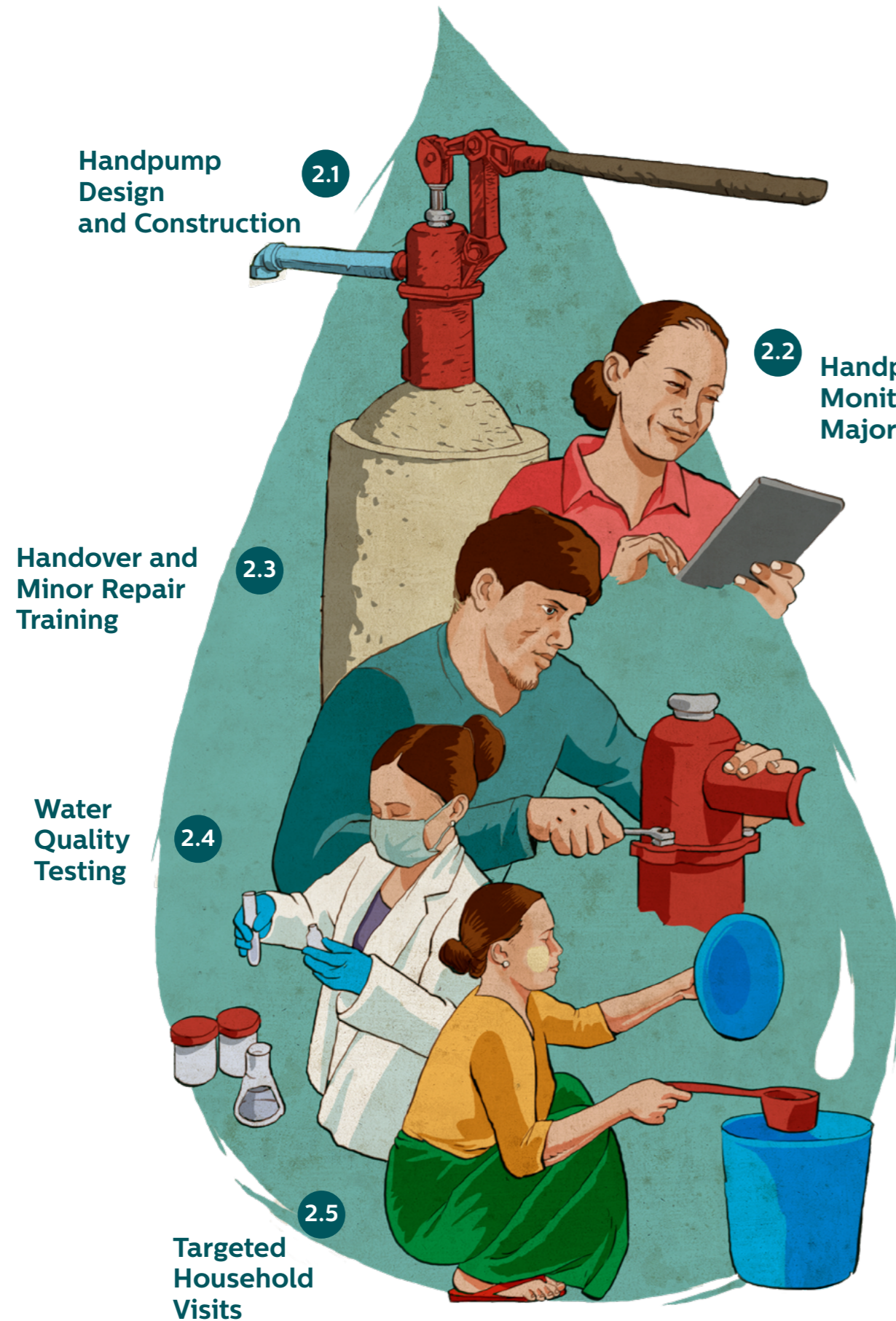
Focus on equity – gender, protection, and inclusion

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.

Jump to any chapter using the side tabs

Boxes are used to highlight tips, challenges, and mainstreamed components of the project

Click on links to see detailed guidelines or drawings



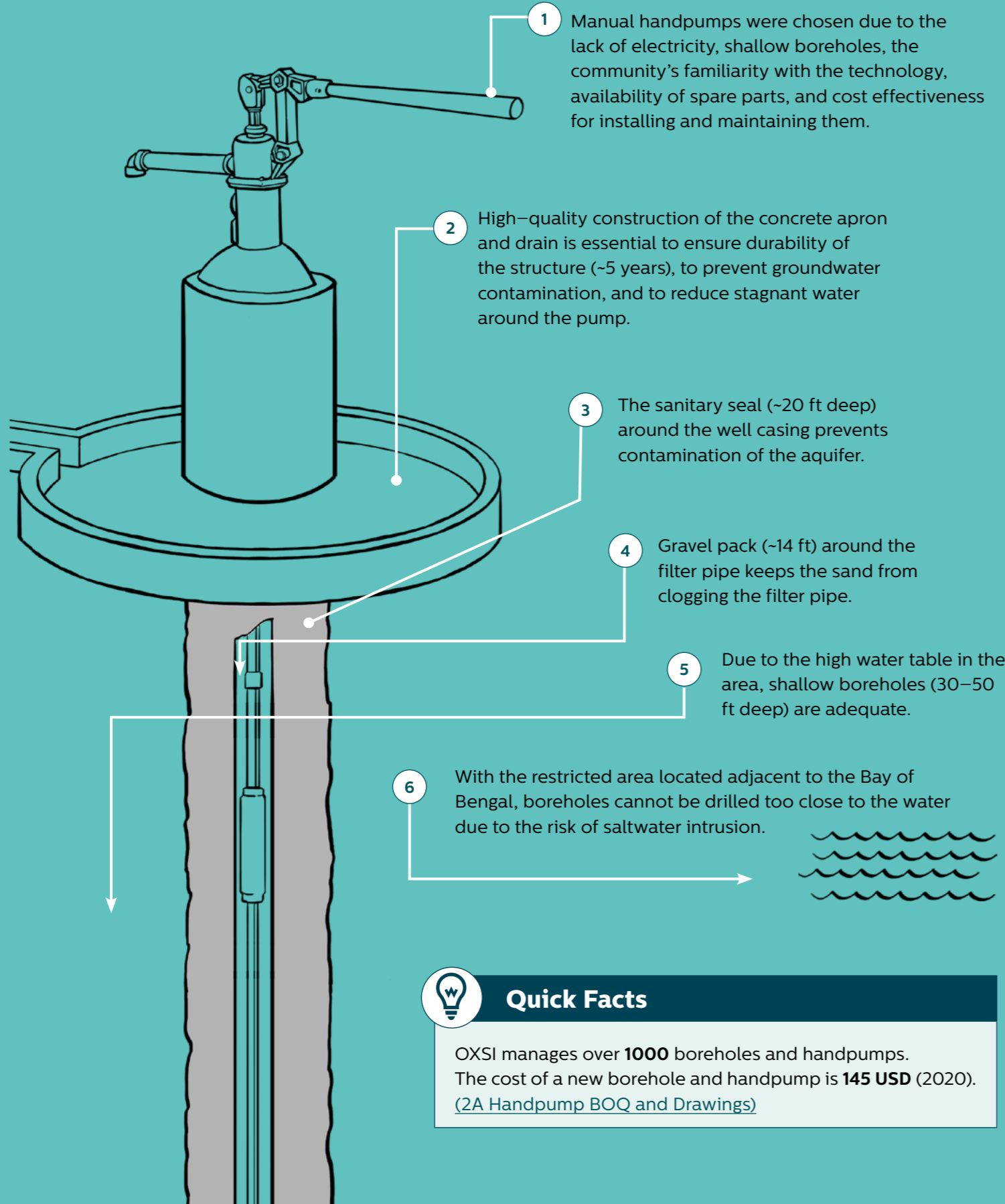
C2. Water

The United Nations General Assembly recognised safe drinking water and sanitation as a human right in 2010, acknowledging that these basics are essential for health, dignity, and the realisation of other rights. During a crisis, inadequate water quantity and quality is the underlying cause of most public health problems. Water can easily become contaminated at different points as users collect, transport, store, and use it. Therefore, WASH agencies should work with communities to manage the entire water chain: water sourcing, treatment, distribution, collection, household storage, and consumption.

As part of the humanitarian WASH programme in the Sittwe restricted area, Oxfam and Solidarites International (OXSI) are responsible for construction and major repairs of boreholes and handpumps, monitoring of the systems, training communities to conduct minor repairs, water quality testing and follow-up, and raising awareness to reduce contamination risk during storage, transport, collection, and use.

2.1 Handpump Design and Construction

Design Considerations



Quick Facts

OXSI manages over **1000** boreholes and handpumps. The cost of a new borehole and handpump is **145 USD** (2020). ([2A Handpump BOQ and Drawings](#))

Overview of Construction Process for Hand-Drilled Boreholes



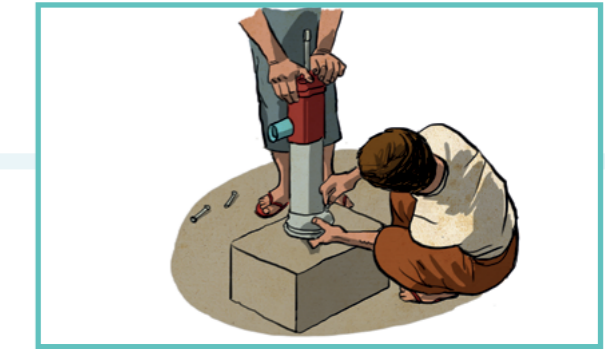
The team fills a 6" PVC pipe with water, covers the top, and pushes downward while twisting; this creates the pressure needed to drill down through the soft soil. They attach another PVC pipe to the first one and continue this process until the hole is approximately 40 ft deep.



The team installs the filter pipe, casing pipe, and the suction pipe in the hole. They pour in the gravel pack, a layer of clay, and the cement grout sanitary seal to fill the gap between the outside of the casing pipe and surrounding soil.



The team constructs the handpump pillar, borehole apron, and borehole drainage. While constructing the concrete pillar, they install the nuts and bolts to which the handpump will attach. They leave the concrete to dry.



The team installs the handpump and plasters the borehole apron and drainage with cement. The water quality will be tested by the Water Quality team prior to handing over the new handpump to the community.

OXSI Challenges

Due to complex power dynamics in Sittwe camps, OXSI's approach of directly constructing WASH infrastructure without engaging corrupt contractors sometimes led to blockages of new construction by camp leaders.



OXSI Solutions

Continuous dialogue with key stakeholders to build relationships and provide updates on plans and processes is vital in any WASH programme. OXSI learned to engage with camp leaders, appealing to their desire to improve conditions in camps to push forward the construction of new infrastructure without feeding into established systems of corruption. OXSI's decision to implement directly instead of contracting out services is explained in more detail in Section 1.3.

2.2 Handpump Monitoring and Major Repairs

WASH programmes should aim to involve communities in WASH service provision in multiple ways, including monitoring infrastructure and reporting issues.

In the OXSI programme, MEAL teams check the status of every handpump each month using a mobile-based functionality monitoring tool ([2B Handpump Functionality Check](#)), but communities can also file a Service Request through the Accountability mechanism at any time to receive a faster response to a problem (see Section 7.2). The MEAL team promotes Service Requests because they demonstrate a sense of ownership and initiative of the community—eventually, functionality checks will be used exclusively for internal functionality tracking and donor reporting rather than for making maintenance schedules.

The definition of functionality may vary in different contexts. OXSI defines a handpump as “functional” if there are no issues with the pump head, pillar, or slab and the borehole produces adequate flow. Each month, following a functionality check, the OXSI construction team receives a list of handpumps that need major repairs and schedules these repairs into their monthly workplan. (Communities handle minor repairs, addressed in the next section.) Borehole major repairs include replacing the casing pipe, replacing the borehole suction pipe, replacing the entire handpump, and repairing the apron slab.

OXSI Monthly Functionality Check

<p>Handpump design</p> <p><input type="checkbox"/> blue <input type="checkbox"/> orange</p> <p>Is it functional?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p><input type="checkbox"/> If no, record problems</p> <p>Does it need to be maintained?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If yes, write down what is needed</p> <p>Does the apron extend at least 2 ft around the borehole?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p>	<p>Apron slab status</p> <p><input type="checkbox"/> bad <input type="checkbox"/> fair <input type="checkbox"/> good</p> <p>Condition of drainage</p> <p><input type="checkbox"/> not present</p> <p><input type="checkbox"/> present and not functioning</p> <p><input type="checkbox"/> present and functioning</p> <p>Stagnant water</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Presence of soak pit</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Soak pit functioning</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p>
--	---

OXSI Challenges

In a protracted crisis, multiple organisations may have built water infrastructure of varying designs and standards over many years. In the Sittwe camps, organisations imported and installed handpumps for which spare parts cannot be found locally (the “blue pumps”). This is a challenge as the handpumps break and OXSI cannot repair them. In addition, many of the “non-OXSI” boreholes are not built correctly and frequently experience issues such as pumping up sand or discoloured water. OXSI does not have the capacity to regularly monitor, repair, and test each of these boreholes and handpumps.

OXSI Solutions

WASH agencies must have a clear strategy for taking over infrastructure built by other agencies and communicate clearly with camp leaders, communities, and with other service providers about how monitoring and repairs will be handled. OXSI monitors and repairs only OXSI-managed boreholes, which are clearly labelled, and spreads awareness for residents to use only these boreholes for drinking and cooking. As the imported handpumps break, OXSI gradually replaces them with local handpumps and ensures that spare parts are always available. OXSI also advocates within the WASH Cluster for other agencies to monitor and test the boreholes they have drilled, as well as to use a standard design for boreholes to avoid common design problems.

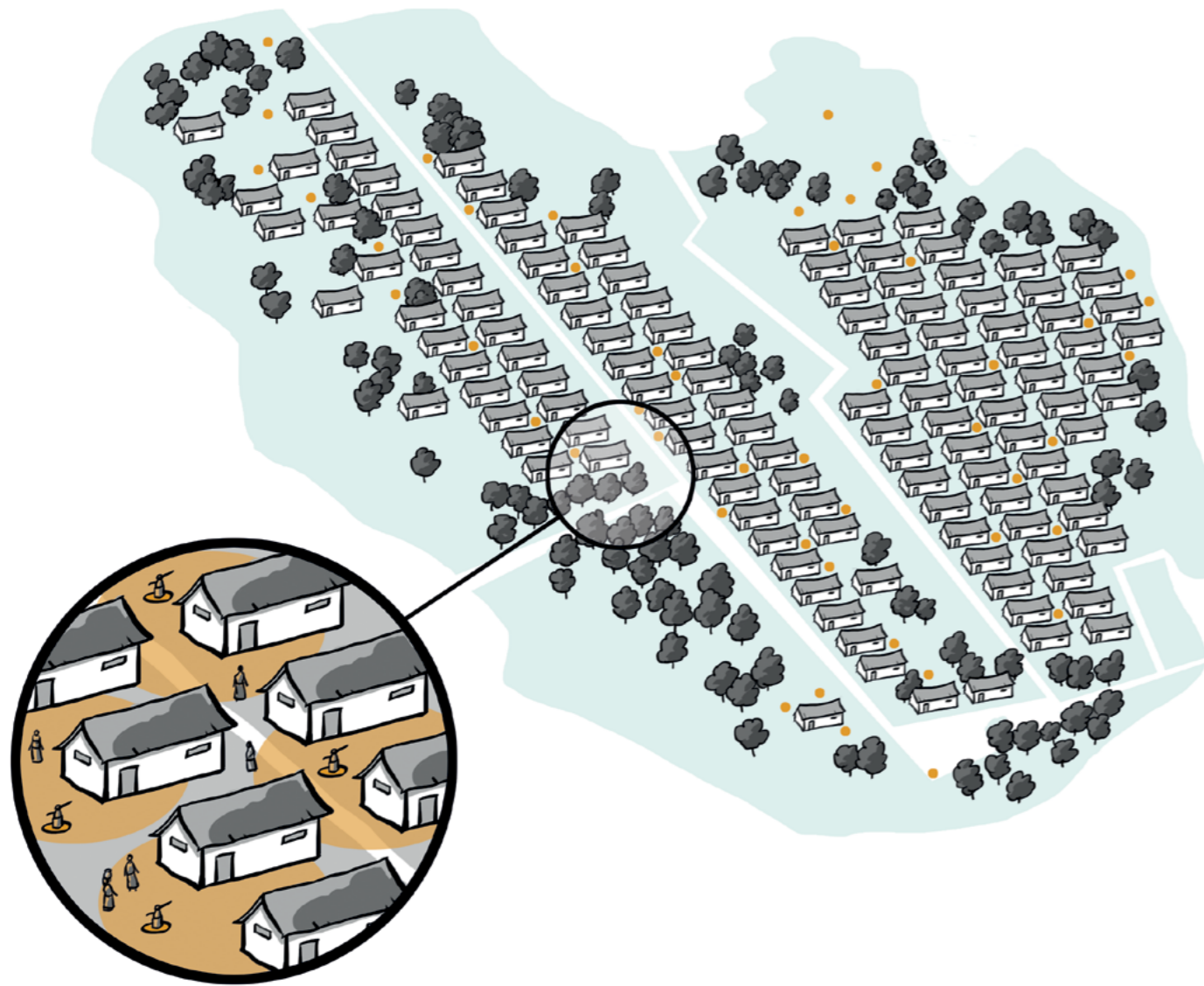
2.3 Handover and Minor Repair Training

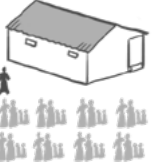
In addition to engaging women and men (and where appropriate, girls, boys, the elderly, and people living with disabilities) in designing, building, repairing, and maintaining WASH infrastructure, a process of “handing over” new infrastructure to users is important to increase the community’s sense of ownership, as well as to communicate that the new infrastructure is ready to use.

However, forcibly displaced families grouped into artificial “communities” are unlikely to feel the same sense of ownership over infrastructure that they might have at home. During the handover, communities and WASH agencies should agree on roles and responsibilities so that communities feel engaged but not over-burdened by caring for WASH infrastructure.

While OXSI handpumps are public and available to all, the closest residents (about 20 households) will be most likely to use a new handpump and agree to take responsibility for it during the handover ceremony ([2C Handpump Handover Certificate](#)). The community’s responsibilities involve keeping the area around the borehole clean, conducting minor repairs, reporting theft to CMCs, and reporting major repair needs to OXSI through Service Requests. OXSI takes responsibility for training, providing spare parts for minor repairs, monthly monitoring, water quality testing and follow up, and major repairs.

The OXSI construction team holds trainings once a year to teach community members how to conduct minor handpump repairs. The Community Mobilisation team invites one female and one male representative from each longhouse to the training, although everyone is welcome to join. During the training, the construction team explains all the tools they will need and how to replace each part included in the list of materials. The participants then practice using the tools and changing the parts. They are also informed of the procedure to swap old parts for new parts and borrow tools from any OXSI office. Minor repairs conducted by communities include replacing the outlet PVC pipe, replacing missing bolts and nuts that hold the handpump together, and replacing the handpump arm and handle.



 Each longhouse
Up to 10
households
1 Longhouse leader

 Longhouse
● Borehole

Groups of shelters around a borehole are responsible for repairs.
Part of Dar Paing Camp, Sittwe.

Focus on equity – gender, protection, and inclusion

It remains difficult to engage women in infrastructure repair because it is still not widely accepted as “women’s work” in many places around the world. By encouraging one male and one female representative from each longhouse to join the minor repair training, OXSI has raised the percent of female participants who volunteer for the trainings to 15%. Women are rarely seen conducting minor repairs on handpumps, but they participate in minor repairs by requesting spare parts from the offices.

OXSI Challenges	OXSI Solutions
<p>The looting of WASH infrastructure is common practice when it is known that agencies will replace stolen parts to repair infrastructure. OXSI’s system of providing spare parts for minor repairs opens the door to theft of handpump parts, particularly for the repair of handpumps that are not managed by OXSI.</p>	<p>Raising awareness about the value of public hand-pumps that WASH agencies actively monitor, repair, and test helps to reduce looting. To further deter theft, OXSI also informs communities that a stolen part must be brought back before a repair can be done.</p>

2.4 Water Quality Testing

To ensure delivery of high-quality water, WASH agencies should test water regularly.

Local conditions and the source and treatment of water all contribute to determining the tests necessary, but the minimum recommendation is to test for thermotolerant coliforms and turbidity, as well as pH and free residual chlorine if water is chlorinated.

In the Sittwe restricted area, WASH partners previously distributed household-level filters, which had a short lifespan and high breakage rate and later showed inconsistency in providing clean water. Data from years of water quality testing in the area showed that contamination was incredibly low in boreholes and tended to occur at the household level or between the borehole and household. As a result of this information, OXSI implemented a new water quality strategy for this programme with a focus on testing boreholes and households, preventing contamination, and promoting safe water chain behaviours.

The OXSI WASH programme established a Water Quality Testing (WQT) laboratory in the Oxfam office in Sittwe in late 2017. The lab analyses samples collected in camps and villages for the following: E.Coli (all OXSI-managed boreholes and a sample of households), specific conductivity and pH (all OXSI-managed boreholes), and arsenic (5–10% of OXSI-managed boreholes in each location). Turbidity testing is not needed for the clear water produced from the

groundwater sources in Sittwe. OXSI conducts tests twice per year, during the dry season and the rainy season ([2D Water Quality Sampling and Testing SOP](#)).

OXSI temporarily “closes” boreholes that fail the microbiological test (>10 CFU / 100 mL) until the construction team takes remedial action to reduce contamination and treat the borehole ([2E Shock Chlorination SOP](#)) and a follow-up test confirms the water is clean. The Water Quality team also tests a sample of households, and the Community Mobilisation team conducts household visits as a follow up for all failed household samples (see Section 2.5).

Testing over several years prior to the start of the programme indicated that arsenic was not a common problem in the area; however, a few borehole samples showed arsenic levels exceeding the Myanmar standard in 2019. In response, OXSI set up a response protocol, increased testing from 5% to 10% of all OXSI boreholes, and advocated to the WASH Cluster for comprehensive arsenic testing. When a borehole sample exceeds the Myanmar standard of 50 ppb, OXSI dismantles the handpump permanently so it cannot be used, and another water source is recommended or a new borehole drilled for the users of the closed borehole.

OXSI Challenges

In a protracted crisis where multiple organisations and individuals have built infrastructure over many years, the current WASH actor may not be able to sufficiently manage all pre-existing WASH infrastructure. OXSI focuses on maintaining, testing, and rehabilitating only the boreholes handed over from the previous WASH actor, but receives many requests to test boreholes not built or managed by a recognised WASH agency.

Collection of water quality data is among the most difficult to digitise, because information is entered both in the field and in the laboratory on different days.



OXSI Solutions

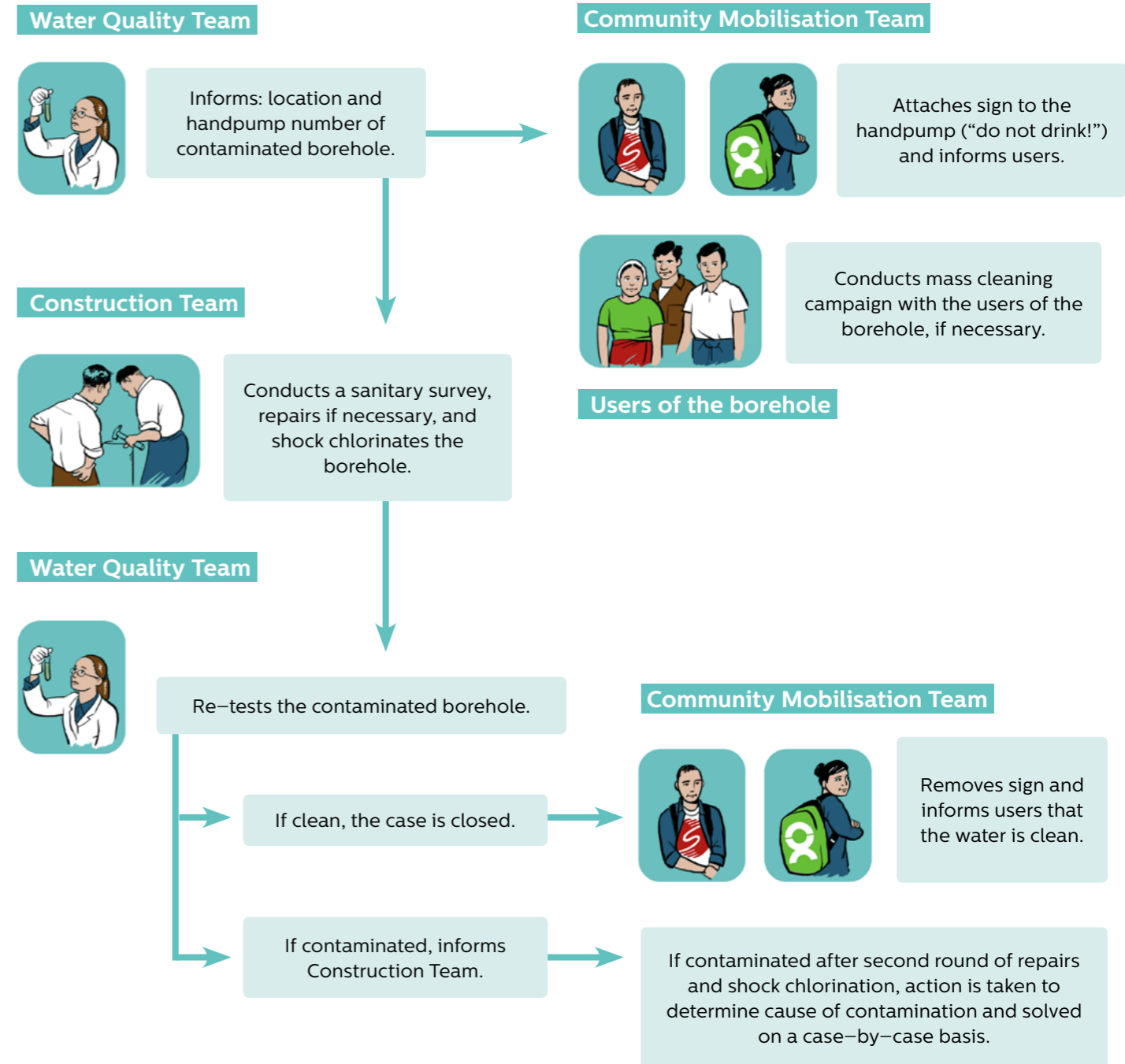
WASH agencies must communicate clearly with communities about the services they provide and areas they cover. In the Sittwe restricted area, OXSI focuses on testing only OXSI-managed boreholes, which are clearly labelled, and spreads awareness for residents to use only these boreholes for drinking and cooking. Communities use water from non-monitored boreholes for other water needs, such as laundry and cleaning.

WASH agencies should not avoid digitising data collection even if the entire process cannot be digitised. OXSI water sample collectors use tablets to record information in the camps, which lab officers in Sittwe town download and combine manually with the test results. Launching this process required creative solutions for transporting and charging tablets and training staff but collecting even half of the data digitally saves time, improves data quality and analysis, and significantly reduces paper use.

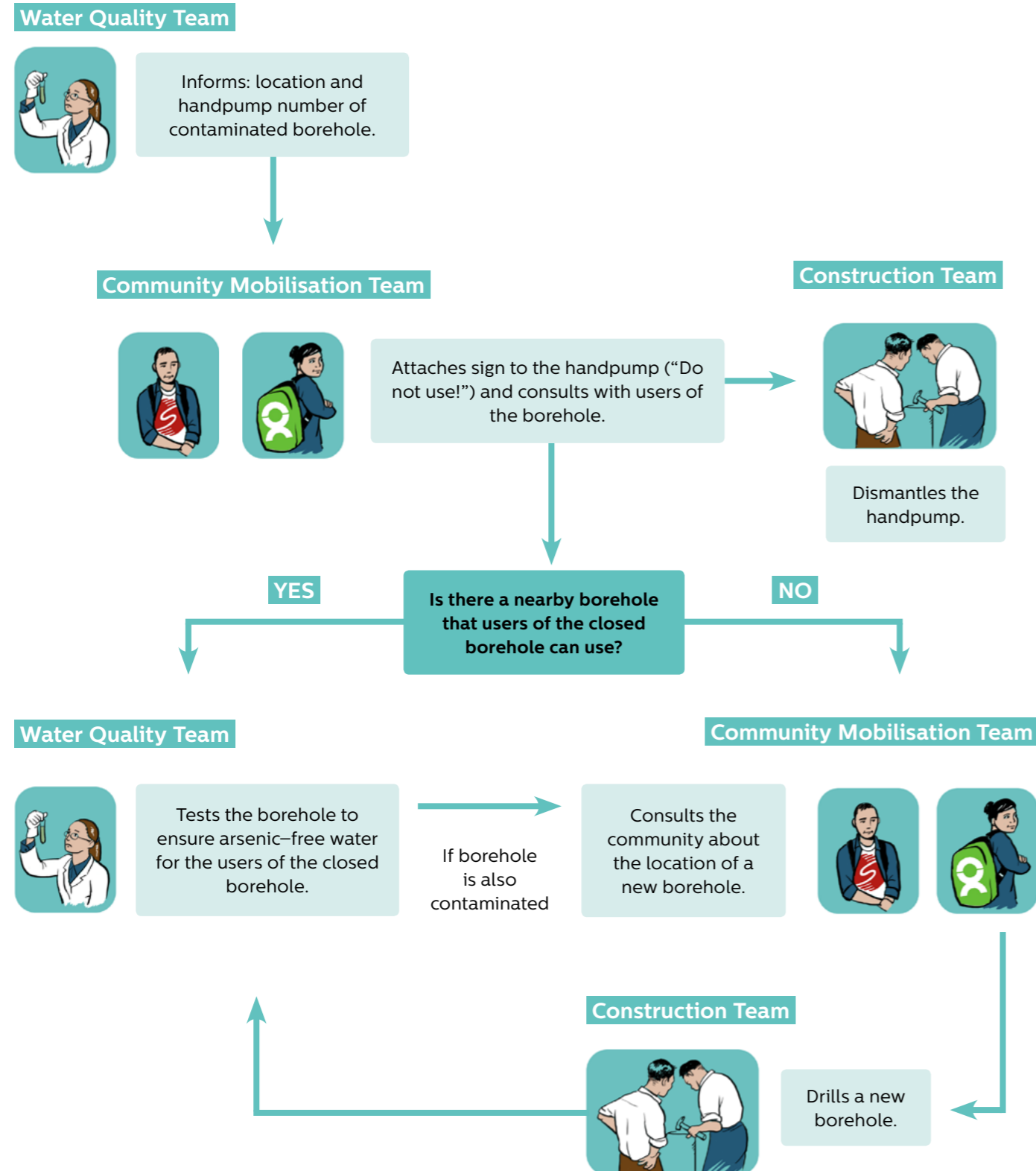


Signs placed on the contaminated handpump instruct users not to use the water for drinking or cooking; in case of arsenic contamination, the handpump is completely dismantled.

This flowchart shows the actions taken and communication between and among teams when a borehole sample fails the **microbiological** test.



This flowchart shows the actions taken and communication between and among teams when a borehole sample fails the arsenic test.

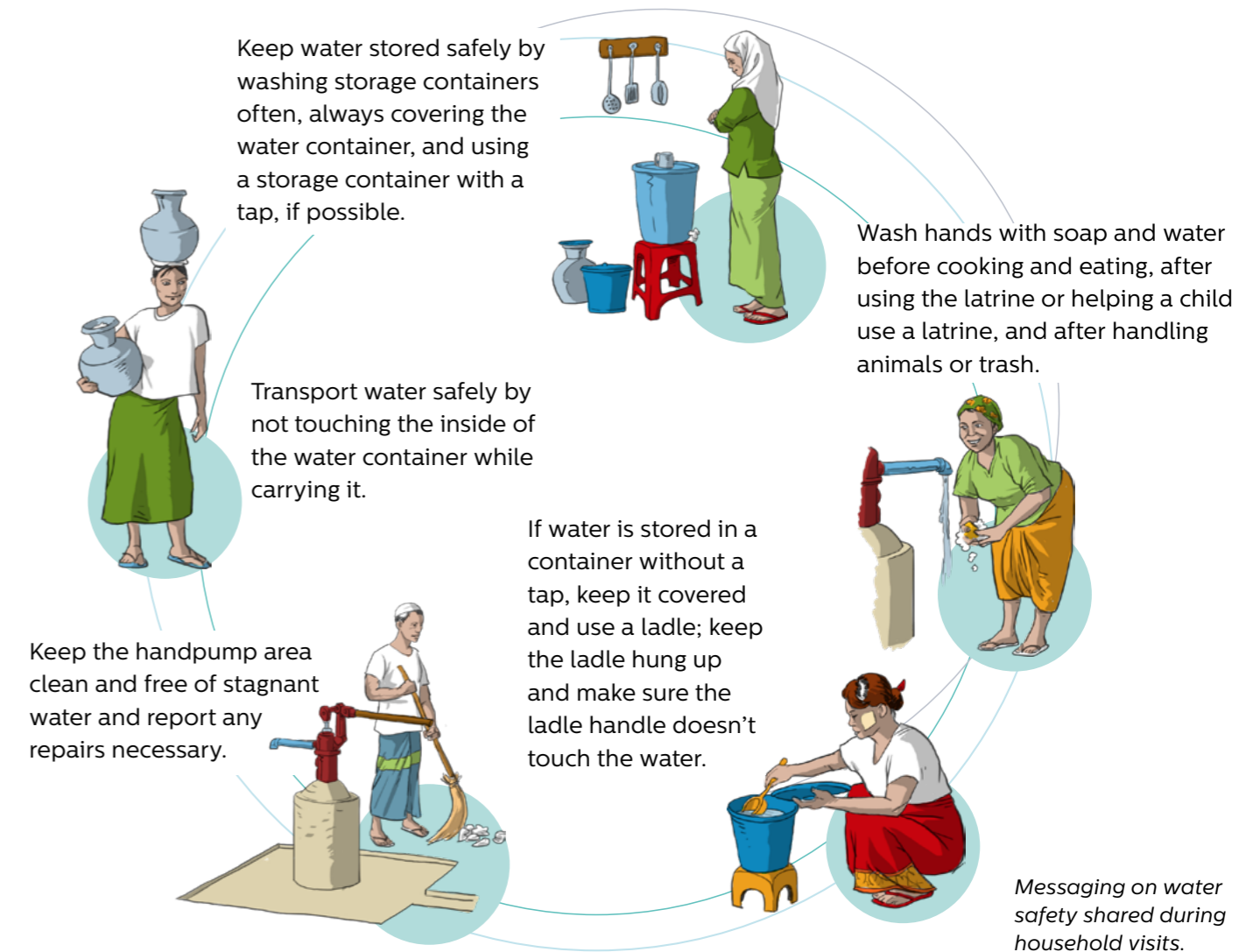


2.5 Targeted Household Visits

Feeding back to the community the results of water testing is important to build and maintain trust, especially after relatively intrusive household water sampling.

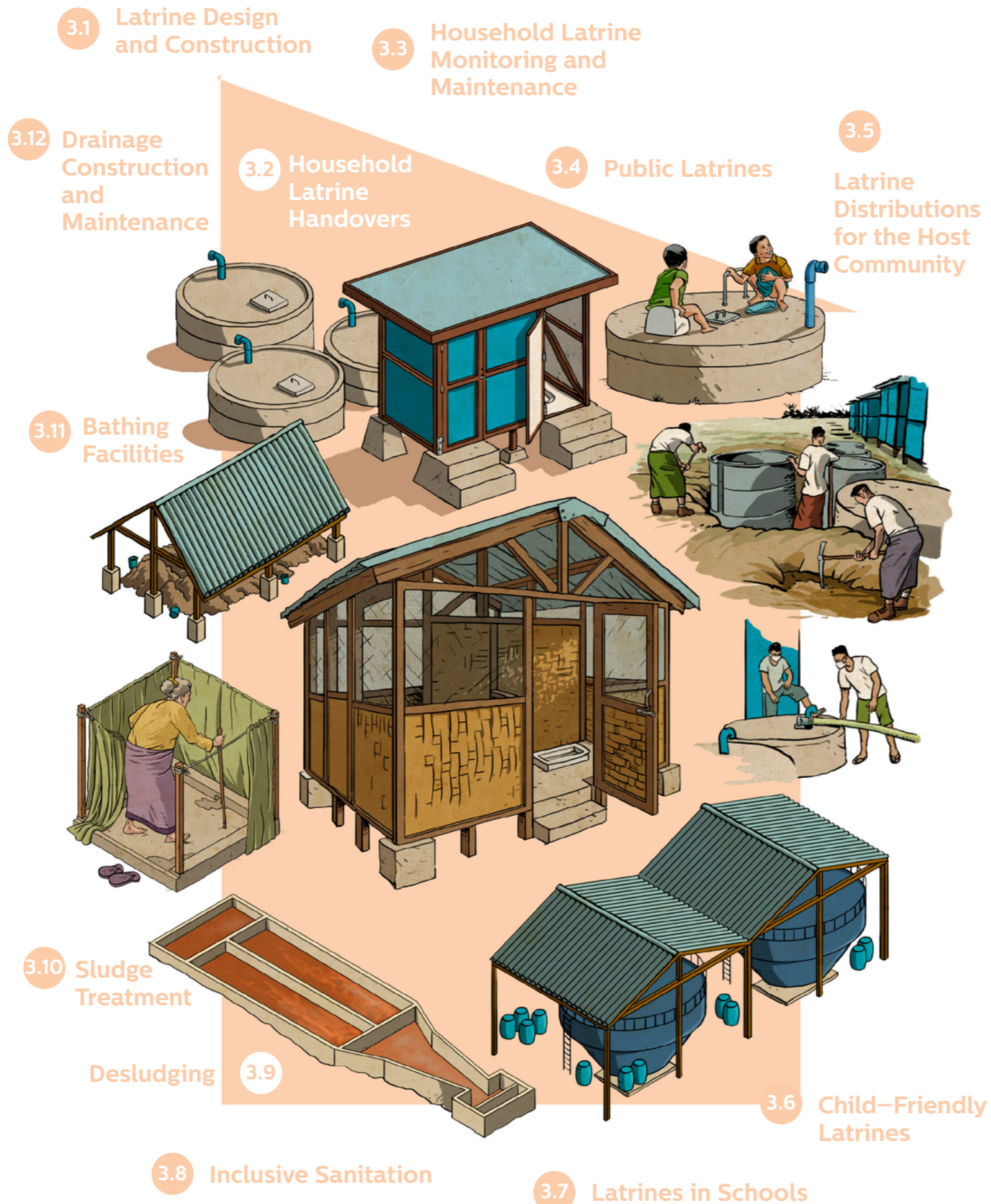
When a household water sample fails, the Community Mobilisation team visits the family to share the results and recommend behaviour changes to minimise the risk of contaminating drinking water when collecting, transporting, storing, and using water.

The team shares good practices with the help of the Water Safety Flipchart to ensure that household members have specific knowledge for how to improve their water behaviours (2F Targeted Household Visit SOP).



Focus on equity – gender, protection, and inclusion

Unintentionally, the team meets primarily with women during targeted household visits, because women are both more likely to be at home during the day and to claim responsibility for handling water in the household. Female Community Mobilisation staff are essential to conduct these household visits, because women often turn away male staff if another male is not at home.



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.

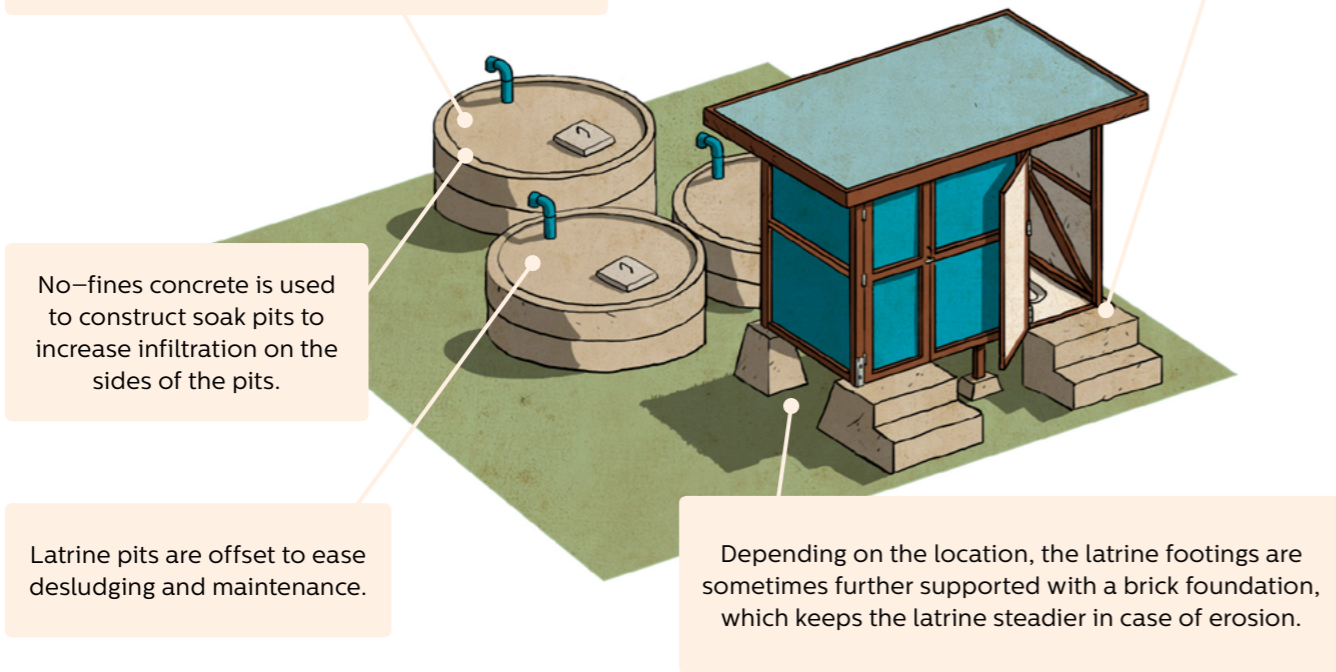
Although the focus is usually on excreta management, sanitation also encompasses controlling vectors of disease through solid waste management and surface water drainage. The latter is also included in this chapter, while the former is addressed fully in Chapter 6.

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.



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

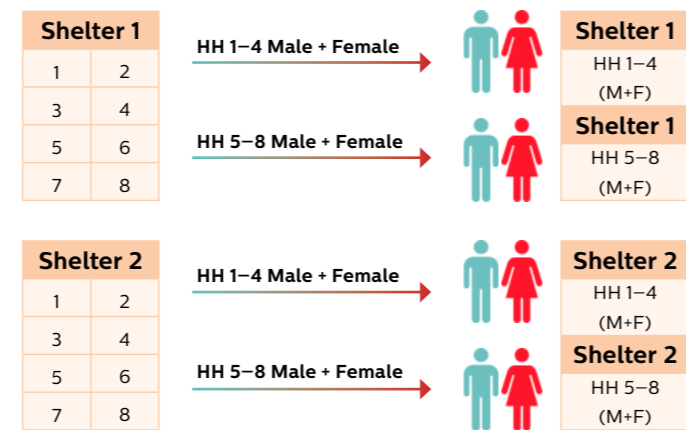
During an emergency, WASH agencies tend to construct public latrines, but as an emergency becomes prolonged, it may be possible to “hand over” latrines to households to monitor, clean, conduct minor repairs, and report major repair needs.

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.

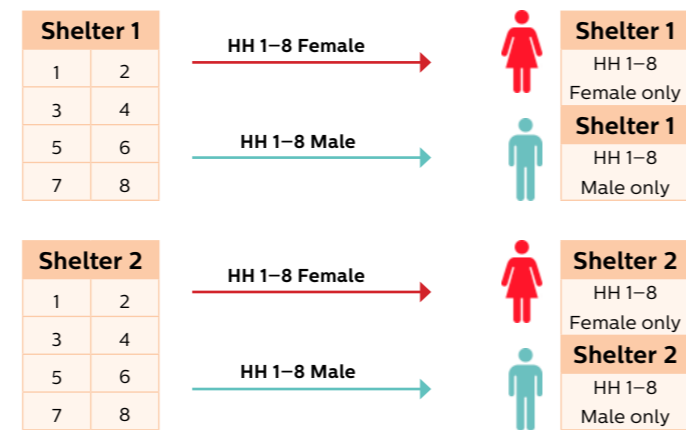
However, in some situations, women and girls reported not feeling comfortable sharing latrines with men from their families or neighbouring families. As part of OXSI’s goal to mainstream gender and protection in all WASH activities, the Community Mobilisation team piloted a new consultation process to 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.

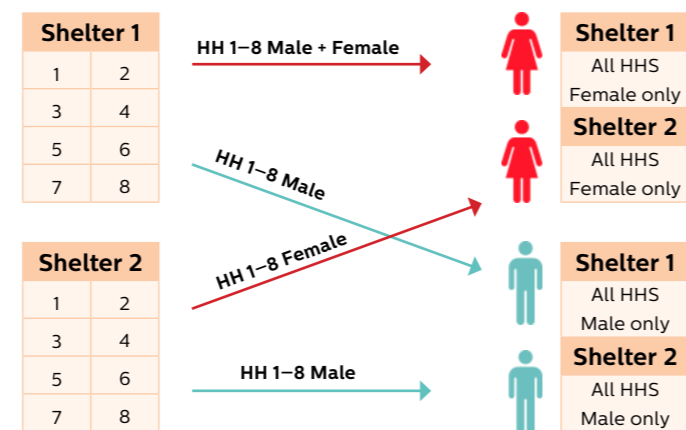
SCENARIO 1 (Non-segregated, one latrine block for one shelter)



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



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



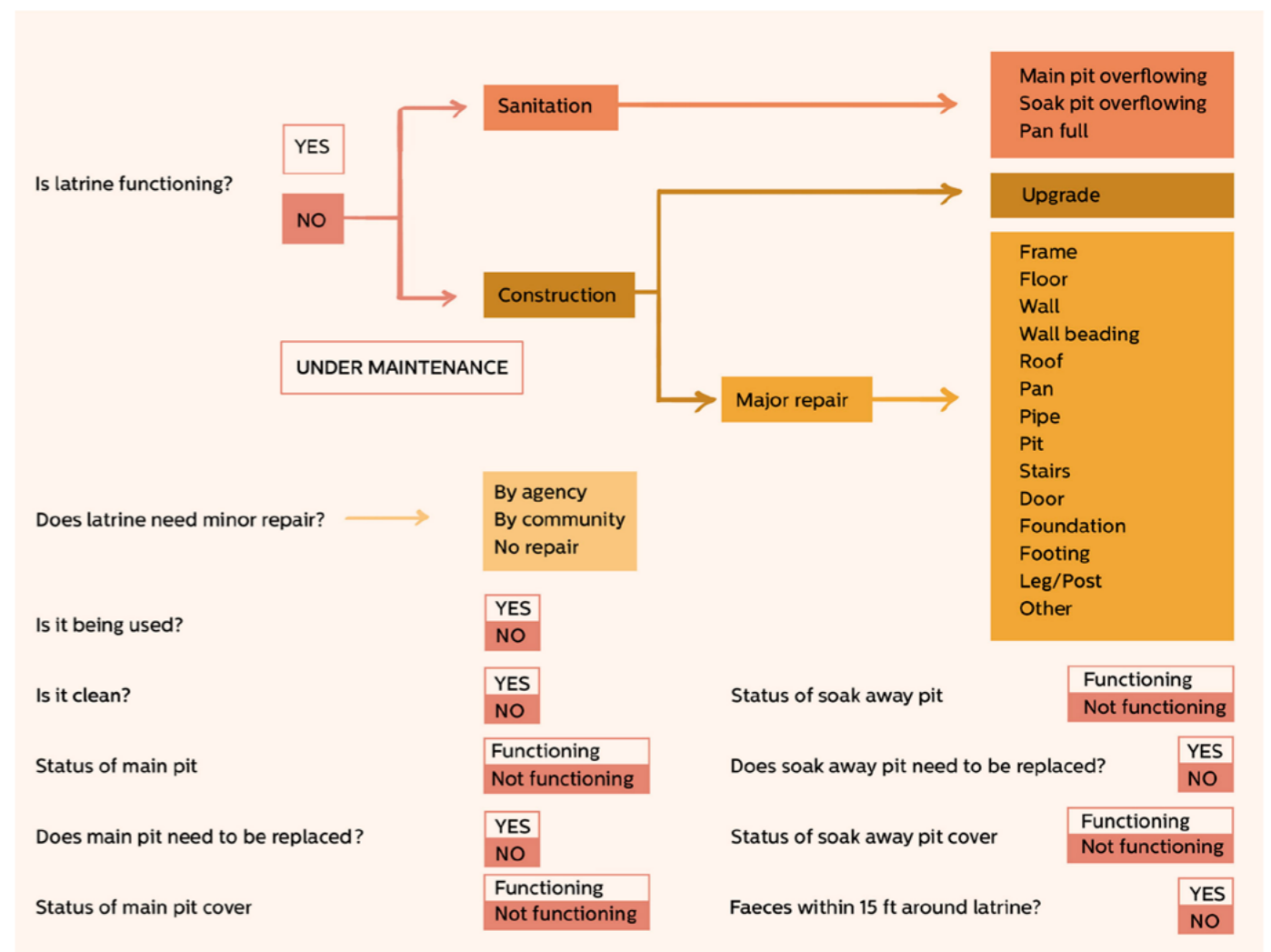
3.3 Household Latrine Monitoring and Maintenance

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 Community Feedback Mechanism, CFM (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 CFM 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 Community Feedback 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 CFM. ([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 CFM, 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 CFM, 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.

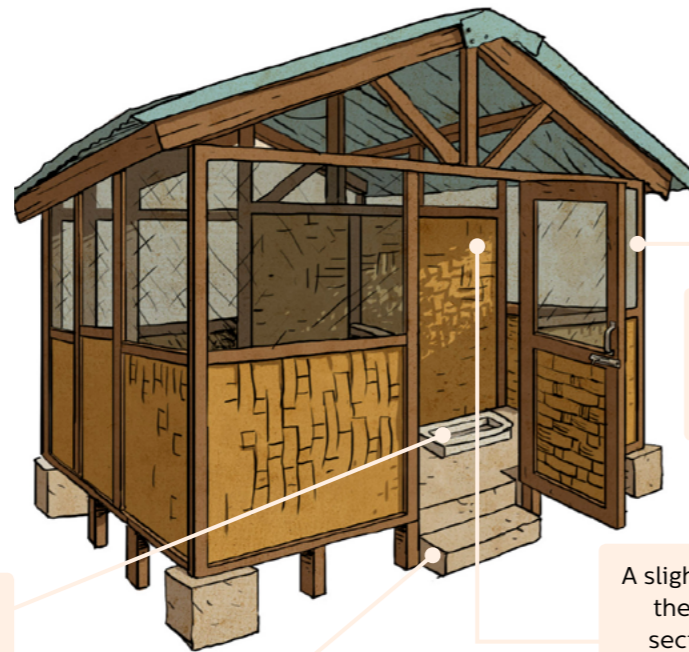
In the Sittwe WASH programme, OXSI learned that children under the age of five years old could not use the household latrines, and even children under 10 preferred to defecate outside. Through consultations with children, supervised by their parents, OXSI learned that children faced multiple barriers 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.



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

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

(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).

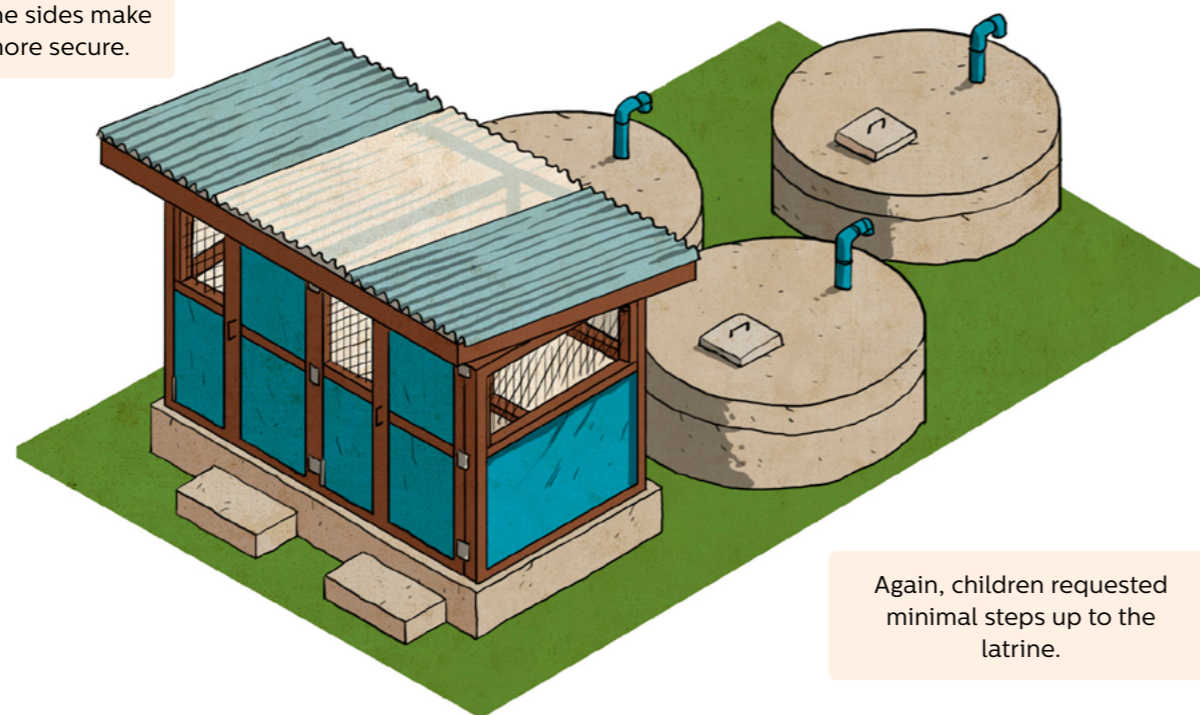
Children from grades 1–5 attend Temporary Learning Spaces (TLS), with each TLS focusing on one or two grades. This allowed OXSI to work with children in a narrow age range at each TLS to understand their specific needs and preferences for latrines. For kindergarten TLSs, OXSI installed the same child-friendly 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.

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 CFM, (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

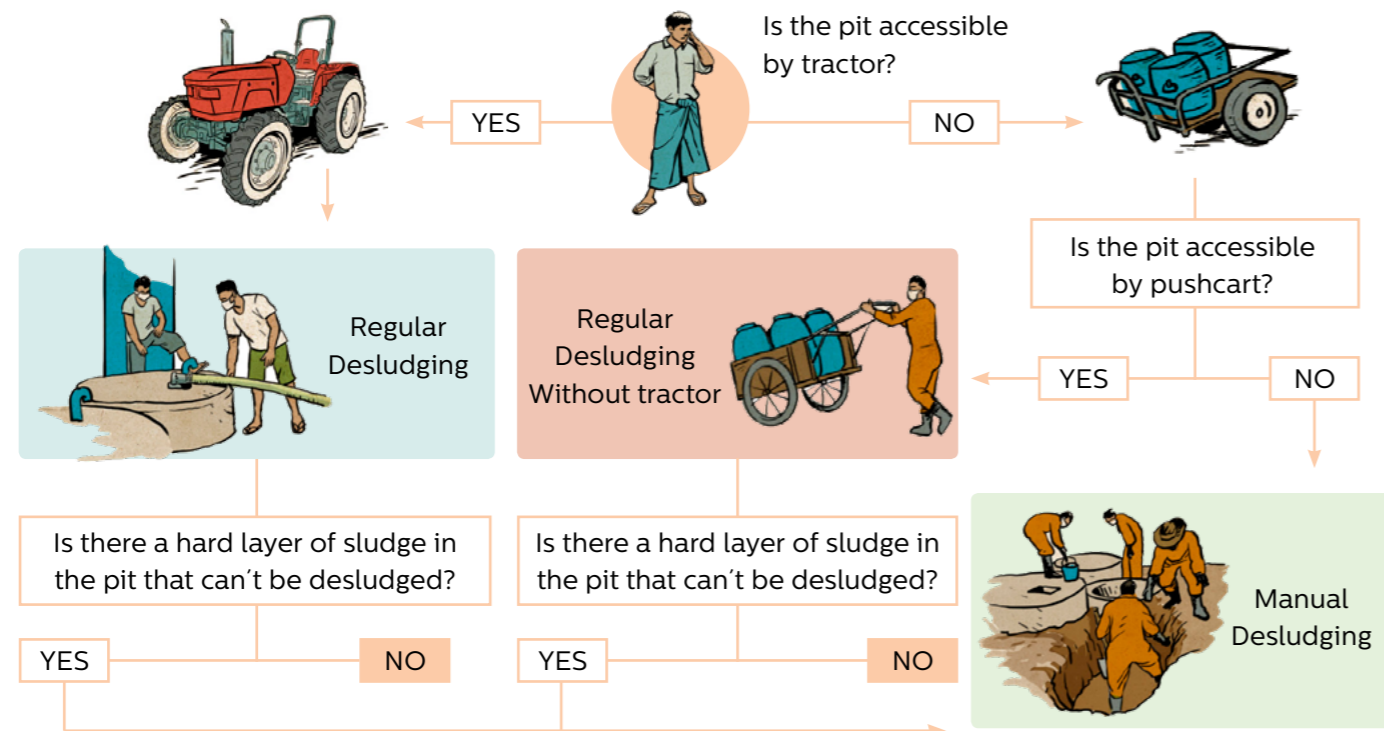
Unless camps have adequate space to relocate latrine superstructures over new pits when latrine pits fill up, WASH agencies need to plan to provide desludging services.

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 “regular desludging without tractor”. 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.



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.

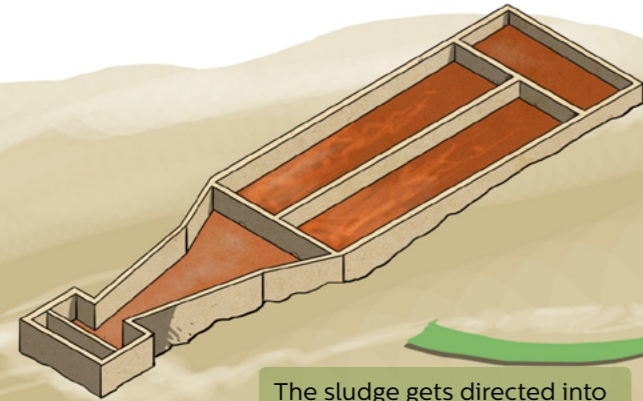


Quick Facts

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

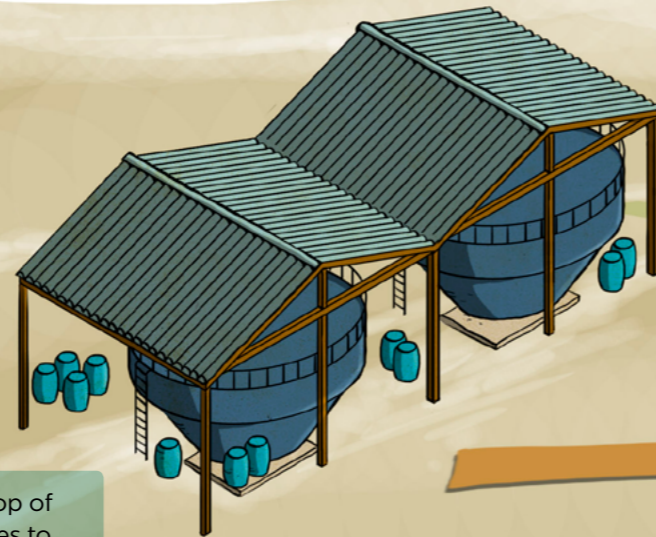
Workers empty sludge into a reception tank which screens out large solids using a bar screen



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

Hopper Bottom tanks

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

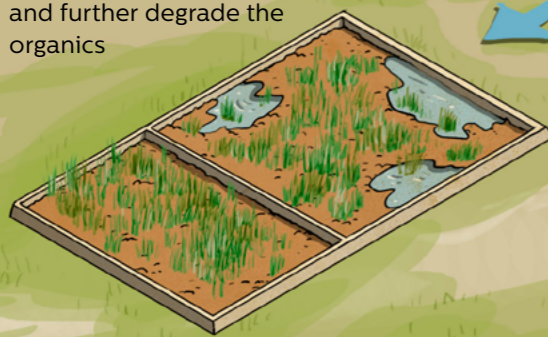


Liquids— The liquid from the top of the hopper bottom tanks moves to an anaerobic baffled reactor

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

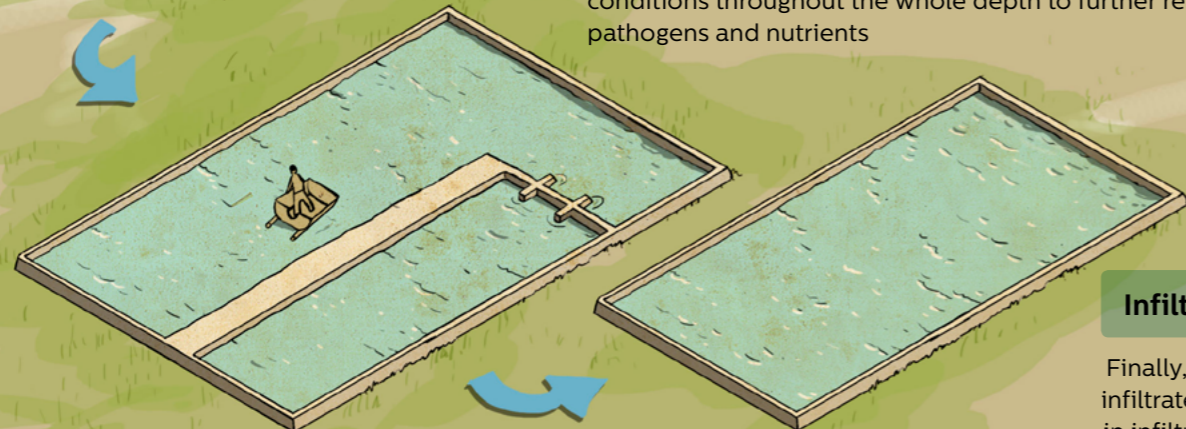
Constructed wetland

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



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

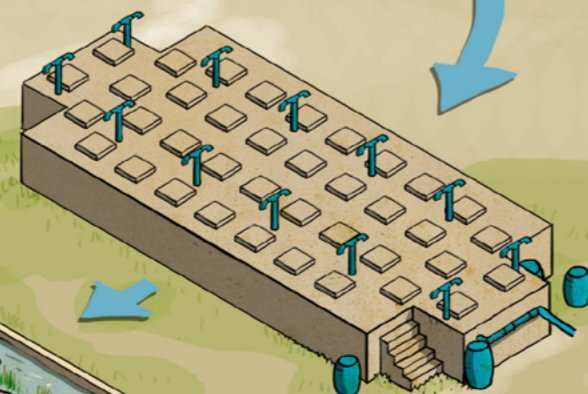


Infiltration basins

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

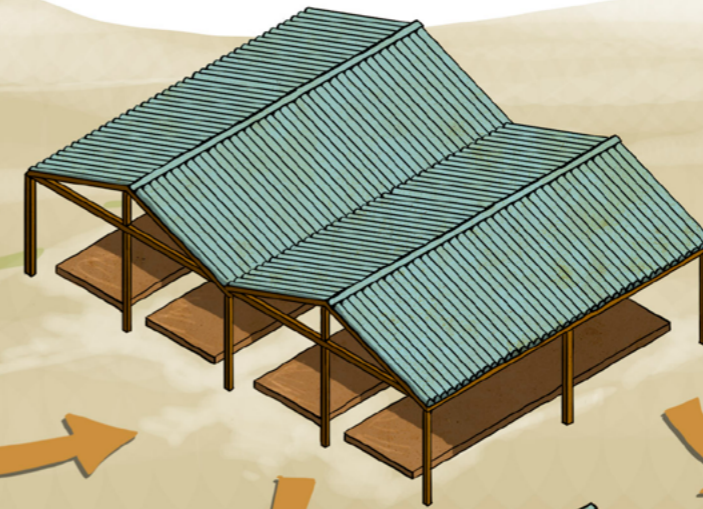
Anaerobic baffled reactor

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



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



Dry sludge storage

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

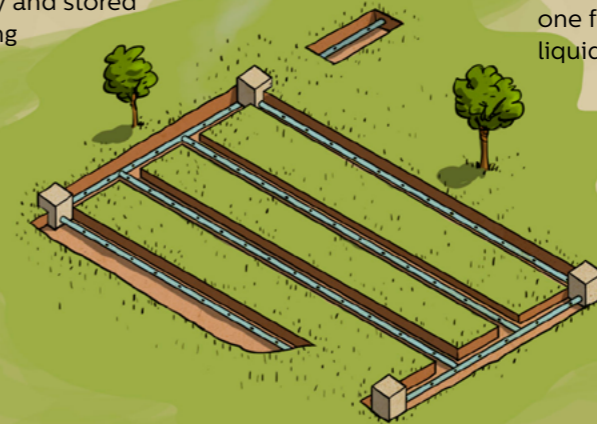


Incinerator

Finally, workers incinerate the dry sludge

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

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.

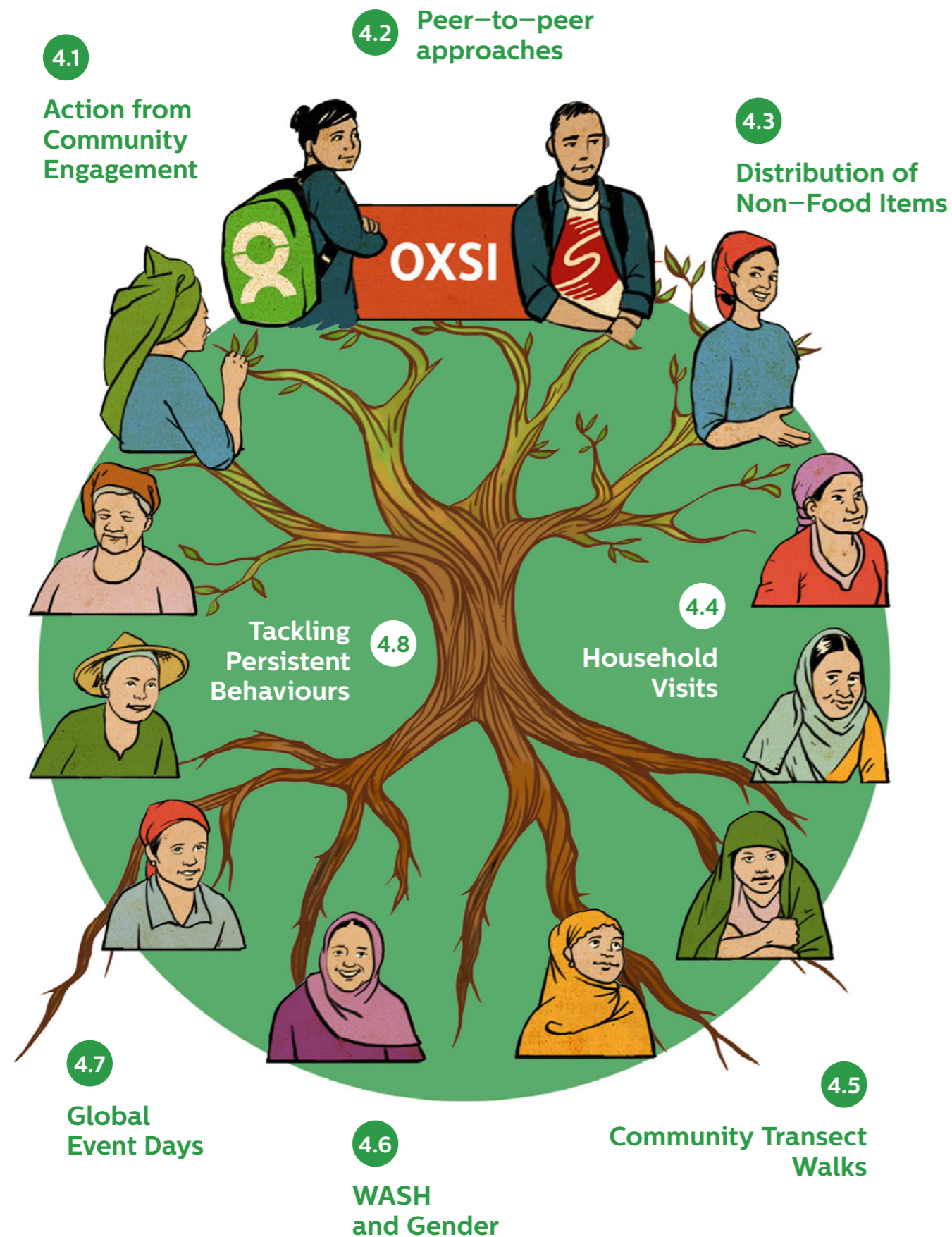
At the beginning of the programme, OXSI conducted regular assessments of the state of the drainage, focusing especially on main drainage channels. After the construction team completed the planned major maintenance and construction, they maintain drainage channels based only on CFM complaints. Some service requests received through the CFM, 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 CFM 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.



C4. Hygiene Promotion and Community Engagement

Positive hygiene behaviours are just as important, if not more important, than clean water and safe sanitation facilities in preventing the spread of disease, especially in dense camp settings. Hygiene promotion is a major component of humanitarian WASH programming, with the ultimate goal of changing hygiene behaviours, primarily through education and with the provision of non-food items (NFIs) needed to practice healthy hygiene behaviours.

In the Sittwe camps, previous Knowledge, Attitude, and Practice (KAP) surveys showed a gradual increase in the level of hygiene knowledge – however, the acquisition of knowledge had not directly translated into changed practices. The OXSI approach to hygiene promotion, as well as the overall programme approach, aimed to move away from top-down messaging to working with communities to understand barriers, provide enabling tools, and guide behaviour change while considering the challenging environment.

Therefore, the OXSI WASH programme, while continuing to focus on hygiene education, emphasised community engagement and systematic behaviour change approaches to impact stubborn behaviours. The community engagement strategy outlines three key objectives for building trust and community, increasing ownership of WASH infrastructure, and improving hygiene behaviours through participative programming and proven behaviour change models. This chapter focuses on two of these three objectives, excluding the work on ownership, which is covered in other chapters.

4.1 Action from Community Engagement

Engaging communities in designing WASH programming leads to greater positive behaviour uptake and helps agencies understand real priorities.

Community engagement is critical for behaviour change and for building resilience, as well as for designing and implementing effective programming overall. The OXSI WASH programme mainstreamed community engagement throughout its activities, which required first and foremost an attitude shift for OXSI staff. Although the team modified many activities to increase participation, decision-making, and leadership of communities, it proved even more effective to facilitate this attitude shift through the creation of new activities.

The OXSI WASH programme introduced a new community engagement approach under the project name of “Action from Community Engagement (ACE)”. ACE aimed to build trust and teamwork; actively listen and foster two-way communication; increase problem solving skills, sense of community, and ownership; and engage more people in the creation of WASH campaigns. Although ACE uses tried and tested tools, they were chosen and combined to form a process unique to OXSI and the Sittwe camps. The flexible tools allow small groups to identify and break down problems and then design and implement campaigns to tackle an identified WASH issue. Each ACE process takes 2–3 months, with the end goal of a community-led campaign to solve a WASH issue identified by the group. ([4A ACE Manual](#))

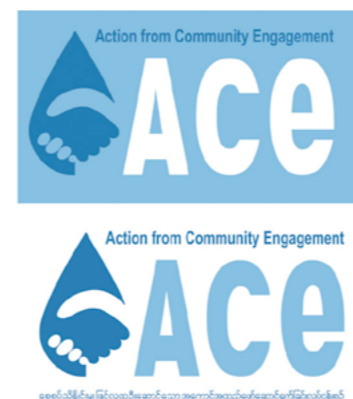
OXSI piloted ACE with two groups of men and two groups of women prior to scaling up the approach. The pilot showed a need for more staff training, detailed guidelines for each of the activities, more transparency about the ACE process with the rest of the community, and flexibility in adapting the approach for each group. During the pilot, all OXSI WASH staff participated in the creation of a logo for ACE, which ‘branded’ it as a unique approach within OXSI. The chosen logo shows a handshake inside of a water drop to signify collaboration of OXSI and communities in creating WASH campaigns.

The same small group of participants (maximum of 15 people) complete the ACE activities together in the order specified because they build upon each other. The first three activities the group does together—Community Mapping, Photovoice, and Problem Tree—are “needs-identification” activities, which help the group explore, prioritise, and break down WASH issues in their community. The groups are somewhat homogeneous to assist them in choosing issues that are relevant for and representative of most of the group members.

Several design options

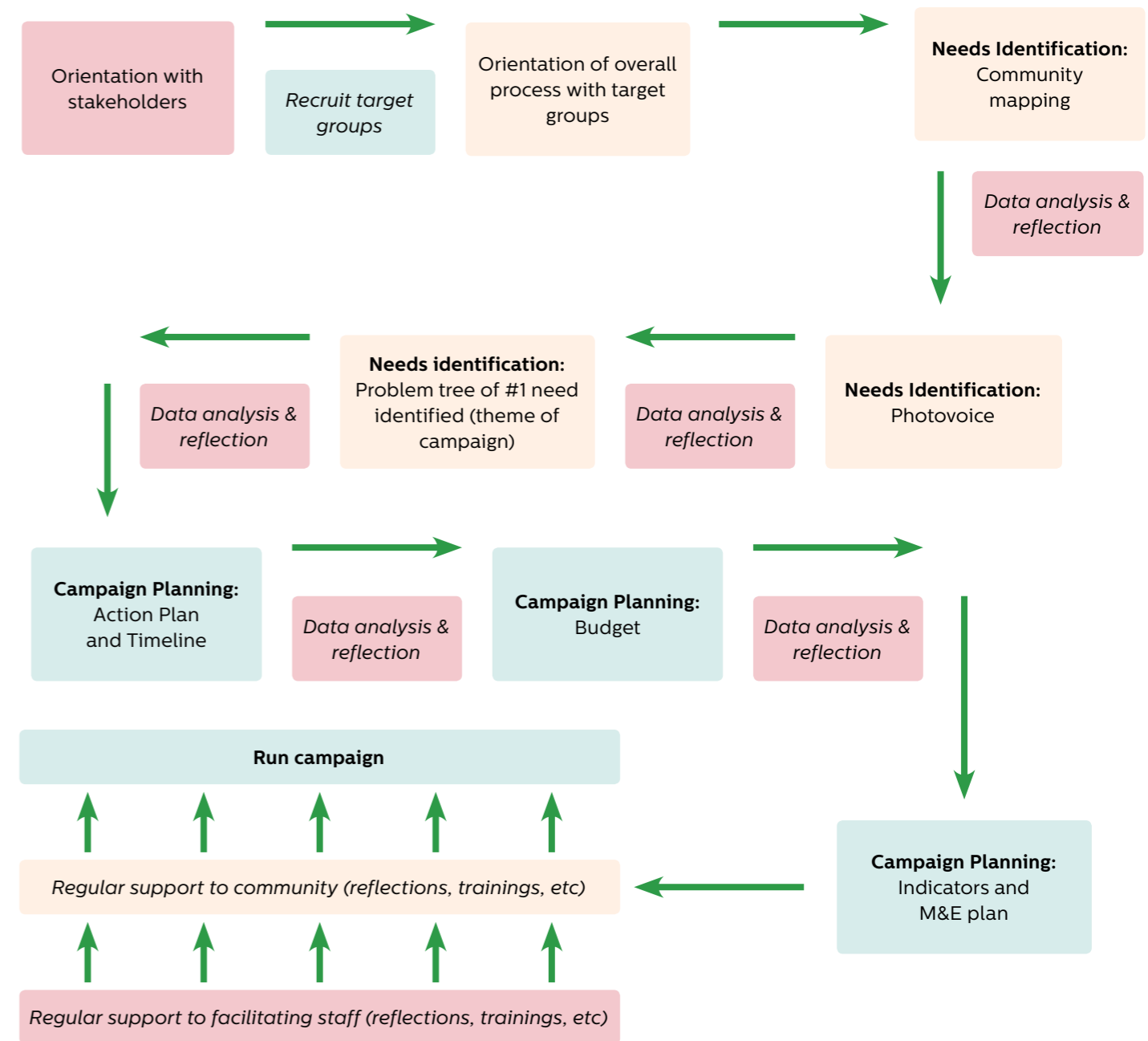


Final version



The participative creation of a logo for the Action from Community Engagement process branded it as a unique activity within the programme.

A flowchart showing the ACE activities

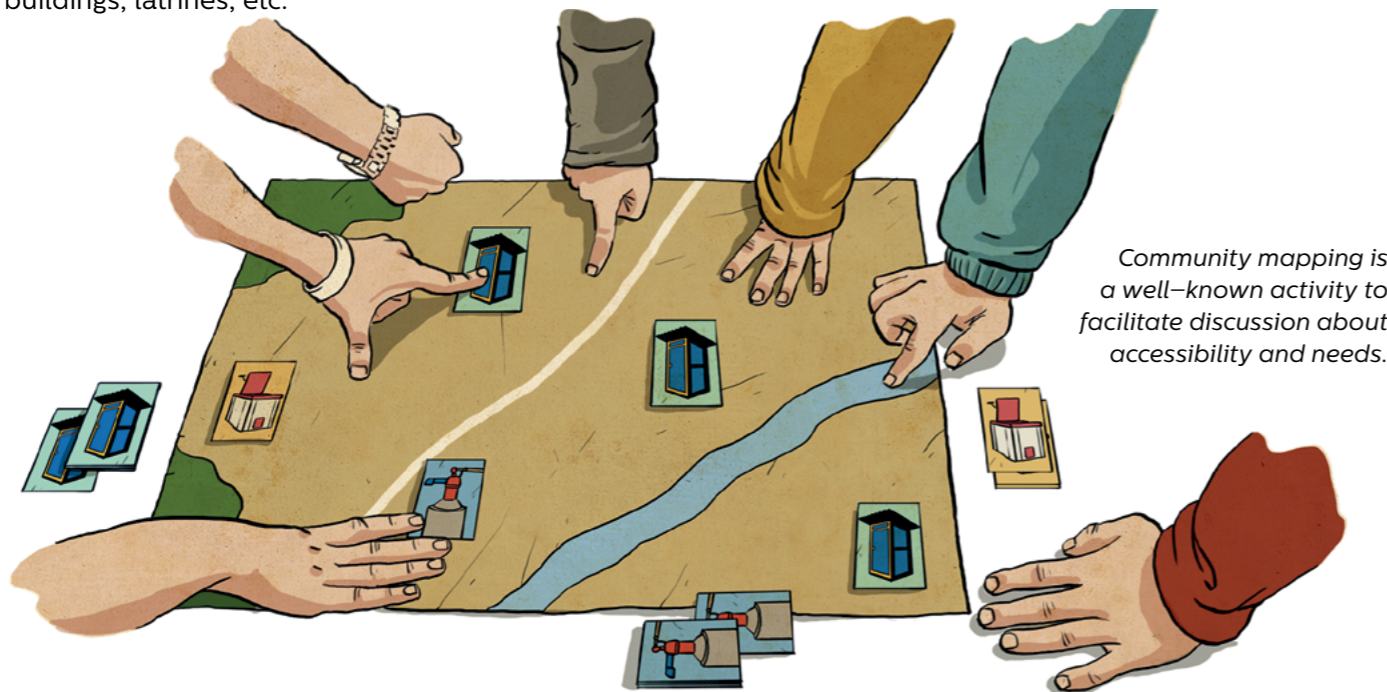


Focus on equity – gender, protection, and inclusion

As much as possible, ACE tools are designed to allow participants with different backgrounds and abilities to join. For example, literacy is not a prerequisite, particularly for the interactive and illustrated needs-identification activities. More importantly, the entire ACE process can be adjusted to the needs and preferences of each group, from the activities they choose to do, to the format of the deliverables of each activity, to the topics they discuss and the WASH issue they choose for their campaign.

Community Mapping

The community mapping exercise is the first in the ACE process, serving as an icebreaker for the group to get accustomed to participative activities and to start thinking about needs in their community. The activity challenges the group to decide and discuss the elements of their area that they perceive as important, to mark what is or isn't accessible, and to build confidence and teamwork. To include illiterate participants, minimal or no writing is used, and the group can opt to use pre-made icons or create new icons to symbolise roads, buildings, latrines, etc.



Community mapping is a well-known activity to facilitate discussion about accessibility and needs.

Photovoice

Photovoice is a participatory photography method where participants use photography and dialogue to deepen their understanding of an issue, reach decision-makers with their stories, and take action at the community level. Because photography crosses cultural and linguistic barriers, photographs describe realities, communicate perspectives, and raise awareness of issues that may not be easily communicated otherwise. In the ACE process, photovoice is used as a visual aid to help participants identify and discuss the issues they see, and to prioritise one issue to work on in their campaign.

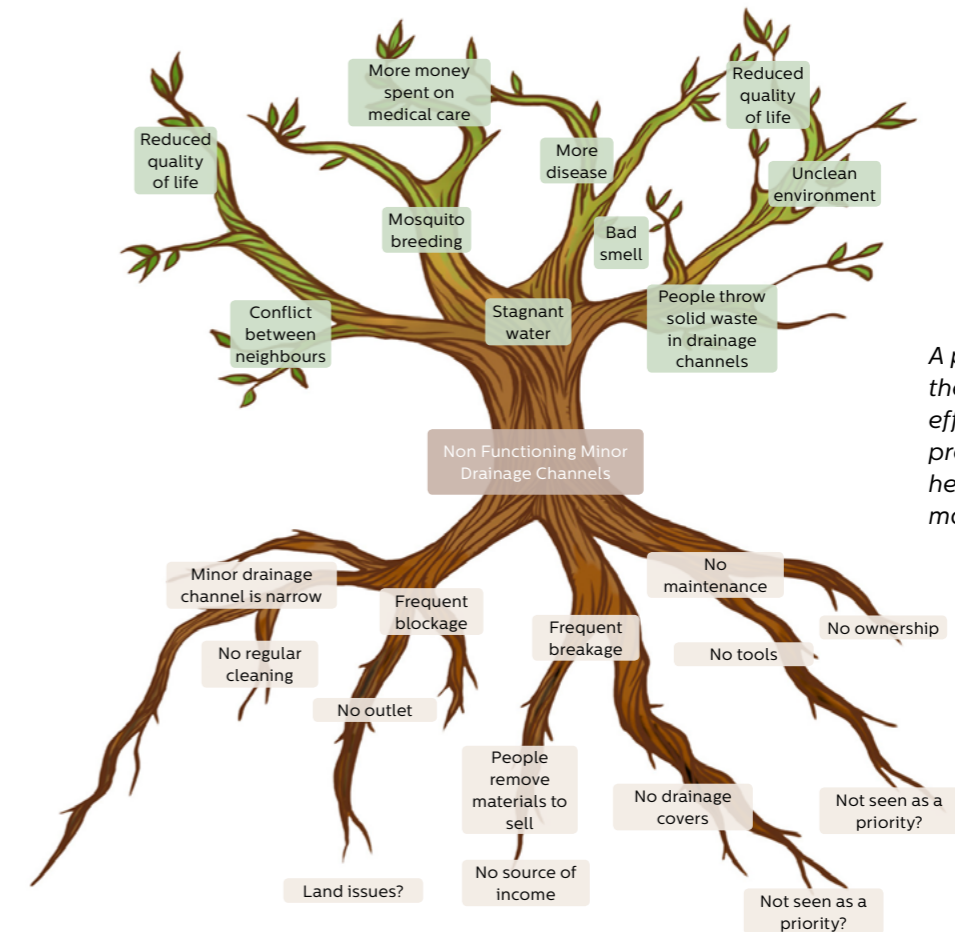
Unlike the other ACE activities, photovoice takes several sessions. Participants learn to use cameras and over several days, take pictures to depict attitudes and practices around water and sanitation that influence health in the community. They then write a caption (a "photostory") for one chosen picture. The group comes together again to share their photographs and photostories and uses the pictures to prioritise the issues in their community and to choose one issue to focus on for the next step.



During photovoice, participants take pictures of WASH-related issues in their community to prioritise needs as a group.

Problem Tree

A problem tree is a tool for breaking down an issue to understand the different causes (roots) and effects (branches) of the problem. The problem tree illustrates that a large problem often has many causes, and although it may feel overwhelming, the issue can be solved by gradually addressing each of the causes. The ACE group identifies primary and secondary causes of the issue by asking, "why does this happen?" and primary and secondary effects by asking, "what does this lead to?". They then identify the causes they have some influence or control over and choose one to focus on for their campaign.



A problem tree illustrates the causes (roots) and effects (branches) of a problem (trunk), which helps break it down into manageable pieces.

OXSI Challenges	OXSI Solutions
<p>Components of ACE, particularly photovoice, are sensitive in certain contexts, and camp leaders blocked this activity in some Sittwe camps. In other areas, campaigns that involved any construction were blocked.</p>	<p>Prior to launching new activities, WASH agencies need to carry out assessments and consult stakeholders to ensure communities are not put at risk by participating. OXSI took time to explain the ACE process to camp leaders and to obtain permission in advance.</p> <p>In addition, participants should receive protection tips before carrying out sensitive activities, which are always voluntary. OXSI emphasised that during photovoice, only WASH infrastructure and consenting adults should be photographed, and cautioned participants not to photograph police, checkpoints, distributions, or events. In some cases, ACE groups just skipped the photovoice activity.</p>

Campaign–Building

The second phase of ACE is the “campaign–building” phase and includes 2–3 sessions to put together an Action Plan and Timeline, Budget, and an Indicators and Monitoring Plan. The ACE groups have freedom to self–organise and plan their campaign in a way that suits all the participants. For example, they can verbally agree on an action plan, with notes kept by OXSI staff only for record–keeping. These activities help the group plan the campaign to tackle one of the WASH problems identified earlier. Most of the action plans have components that the ACE group leads as well as steps where they need the support of OXSI staff (for example, purchasing and delivering materials for construction).

The campaigns vary in length and complexity depending on the issue the group has chosen. For example, one group organised a 1–day cleaning campaign each week for a month, while another two groups worked together to design, construct, and install small MHM incinerators, a process that took three months (see Section 6.5).

Although the ACE process is time–intensive and requires training and support, staff and participants give largely positive feedback. After completing the ACE process, almost all of the participants have expressed interest in continuing to meet and discuss new issues, with many saying that ACE has given them confidence to tackle even non–WASH issues.

OXSI tries to continue to engage the ACE groups when possible. For example, during the pilot, one ACE group wanted to focus their campaign on providing solar lights, but at the time, OXSI was only in the planning stages of solar light installation. The ACE group chose another topic to focus on for their campaign. When OXSI was ready to start the solar lighting project, the Community Mobilisation team came back to the ACE group to ask for their support in siting the solar lights and spreading awareness to ensure that materials would be kept safe. See Section 5.1 for more details.

Focus on equity – gender, protection, and inclusion

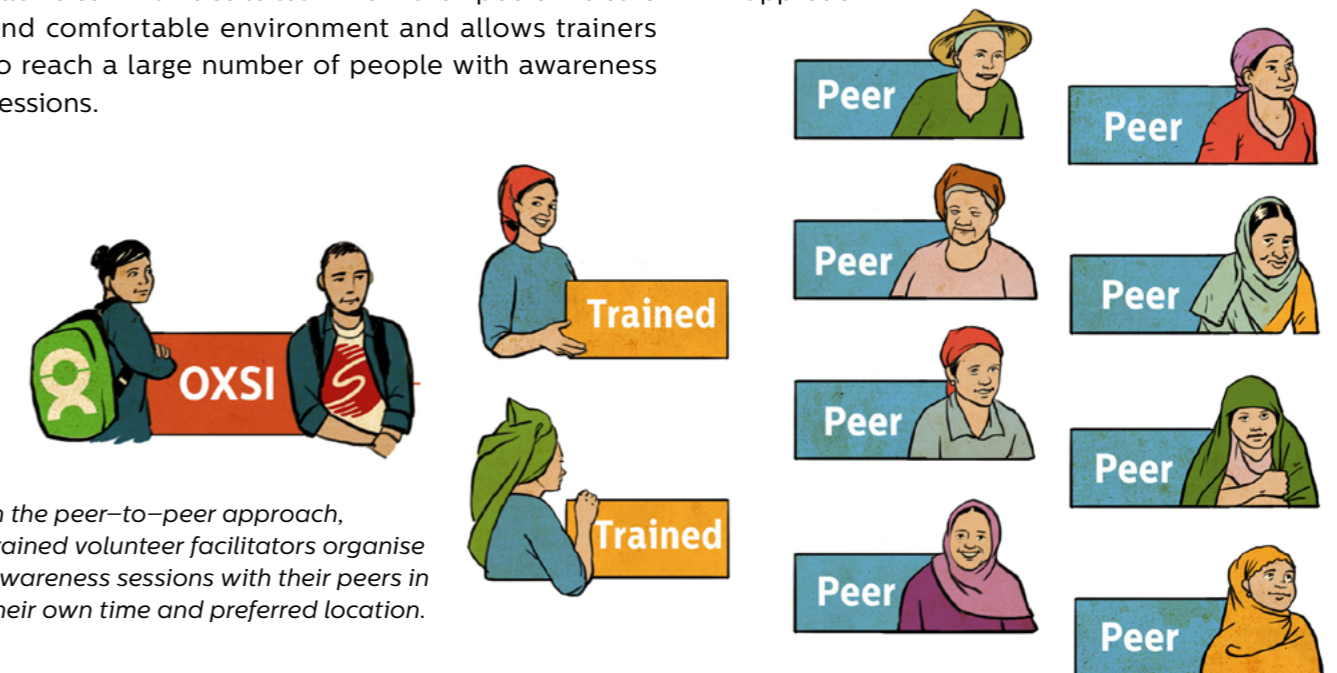
Community engagement means reaching diverse groups within the community, not just leaders. There can be barriers to participation in hygiene promotion activities such as ACE, particularly for people with disabilities, which WASH agencies need to address. OXSI worked with Humanity and Inclusion to conduct a comprehensive training for all staff on disability rights and models and barrier mapping, and developed an action plan to involve people with disabilities in the programme. The action plan gave the teams concrete steps to work on to open space for people with disabilities to participate in OXSI activities, such as arranging transportation to activities, conducting house visits to share information and invitations to sessions, and creating more accessible IEC. Barrier mapping also identified key challenges in accessing WASH facilities, especially latrines, which is addressed in Section 3.8.

4.2 Peer–to–peer approaches

The peer–to–peer (P2P) awareness raising model, like ACE, is built on the belief that communities know their needs and can be agents of positive change among their peers.

A small group receives training on a topic and then takes the initiative to pass on information to empower others, build relationships, and inspire collective problem–solving and self–reliance. Those who receive training organise small groups in their homes or location of choice on their own time. The P2P model allows communities to learn from their peers in a safe and comfortable environment and allows trainers to reach a large number of people with awareness sessions.

OXSI has slowly implemented the P2P approach to replace top–down one–way messaging for three hygiene promotion activities: WASH in Schools, WASH for Women, and Menstrual Hygiene Management (MHM). All of these activities were initially led by OXSI staff and, in most areas, have transitioned to using the P2P approach.



In the peer–to–peer approach, trained volunteer facilitators organise awareness sessions with their peers in their own time and preferred location.

WASH in Schools

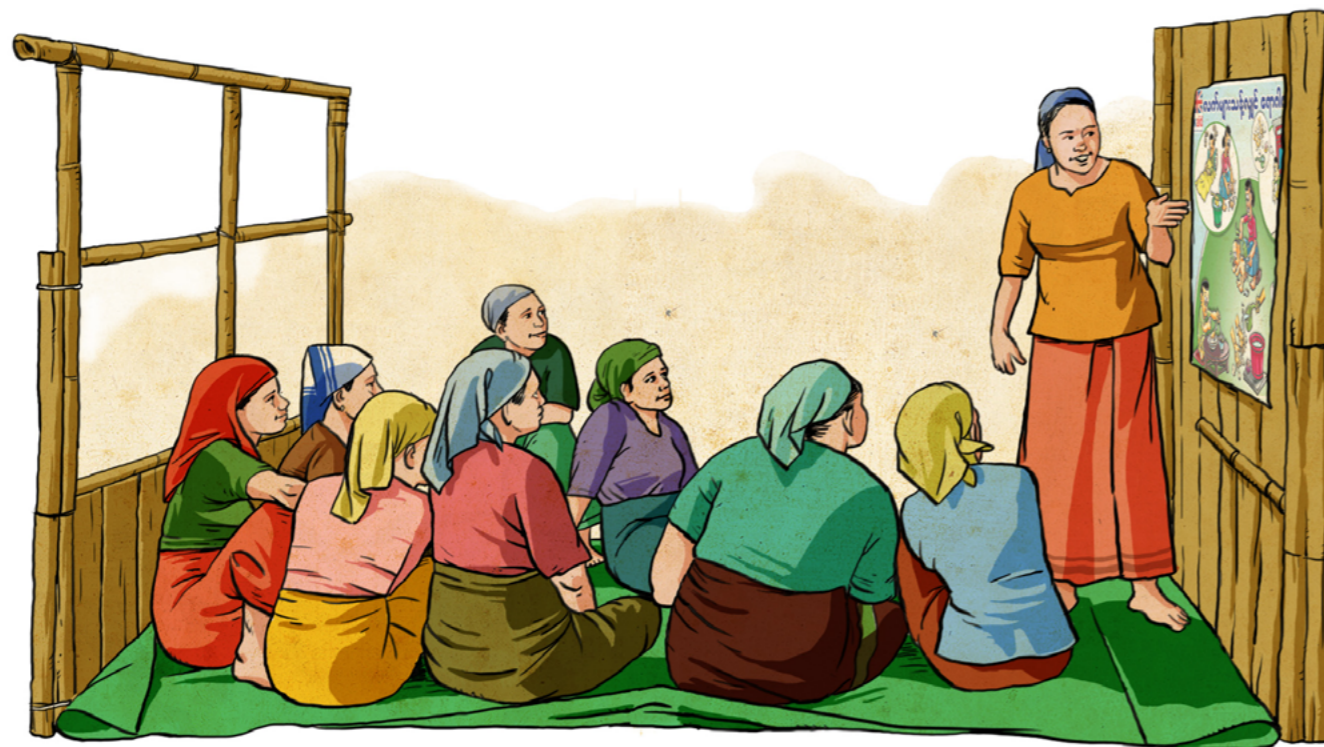
In most countries, school curriculums incorporate some hygiene education, but in emergencies, WASH and education agencies can work together to ensure tailored hygiene education as well as functional WASH infrastructure in schools. In collaboration with the education sector and teachers, OXSI conducts WASH in School sessions in over 100 Temporary Learning Spaces (TLSs), madrassas, and Child Friendly Spaces (CFSs), reaching children from kindergarten to grade 5. To do these sessions, the OXSI team works closely with teachers to set a schedule for the sessions and then recruits students in grades 2–5 to join “WASH Clubs”. The students in WASH clubs receive training from OXSI and then conduct hygiene promotion sessions for younger students. They use games, songs, child–friendly IEC, and demonstrations to make the activities more engaging.

To learn and practice positive hygiene behaviours, children need access to functional WASH infrastructure in schools and at home. Handwashing with soap is an especially important behaviour to prevent disease and children who practice it early are more likely to continue it into adulthood. OXSI built two simple handwashing stations for testing by children in two TLSs. Children used the stations and gave feedback, emphasising the height of the stand (too high for children in kindergarten), while the teachers made suggestions to improve the stability of the handwashing stands while keeping them portable. OXSI incorporated the feedback into a final design, and handwashing stands were manufactured in camps and installed for the TLSs that had no existing handwashing station or had stations that need repair. For OXSI’s process of designing and installing latrines in schools, see Sections 3.6 and 3.7.

WASH for Women

Due to power dynamics in certain contexts, WASH agencies should consider conducting sex-segregated awareness sessions, FGDs, and other activities to increase participation and comfort of female participants. In addition, although WASH is the responsibility of all household members, women and girls often bear the biggest burden of domestic and WASH duties in the home, so it is especially important to reach women and girls in WASH awareness sessions. OXSI trains small groups of women in each camp to disseminate hygiene messages using the P2P approach. Each participant works in the area where she lives,

focusing on 5–10 shelters, and conducts at least one session per month with a small group of neighbours and peers. OXSI organises a monthly training refresher session to give the group more information, IEC, and to allow the leaders to share feedback and get advice on their sessions. The topics covered by the groups include: waste management, cleaning of the house and latrine, water transportation and storage, personal hygiene, decision making in the household, sharing experiences related to WASH, using WASH items, understanding the F-diagram, and more.



Women use the peer-to-peer approach to discuss WASH issues in small, female-only groups.

Menstrual Hygiene Management

Gender inequality has led to, among other things, restrictive cultural taboos, stigma, and shame around menstruation. Addressing both the practical and strategic needs of women and girls related to menstruation and menstrual hygiene requires comprehensive programmes. In addition to the distribution of essential menstrual products (Section 4.3) and construction of incinerator bins for sanitary

pad disposal (Section 6.5), OXSI works with women and girls (and eventually men and boys) to raise awareness on menstrual hygiene and to dispel myths and break taboos around menstruation. Again using the P2P approach, MHM leaders receive training and IEC from OXSI to pass on during P2P sessions. To facilitate learning for illiterate participants, the training covers one topic each month, with frequent refresher trainings on past topics. The trained leaders start organising their own P2P sessions whenever comfortable, and share feedback on their sessions during monthly meetings.



IEC showcasing “good” and “bad” MHM practices is used during MHM peer-to-peer sessions.

In small P2P sessions, the trainers provide clear information on menstruation, help women and girls recognise symptoms and learn about ways to alleviate them, recommend healthy hygiene practices and well-being during menstruation, and advise on ways to properly dispose of sanitary protection materials. (4B MHM SOP) The MHM groups also actively participate in the design and installation of small sanitary pad incinerators, a process described in Section 6.5.

Although MHM groups currently focus on women and girls to ensure they feel knowledgeable and comfortable speaking about MHM, the programme plans to add a component for men and boys to receive training and to have discussions on MHM and gender inequality. Men and boys can contribute significantly towards changing cultural norms and taboos around menstruation and are often involved in decisions related to women’s menstrual hygiene needs. It might be difficult at first to talk with men about MHM due to reluctance, prejudices, myths, and misconceptions surrounding the issue, but through effective education and communication, this can change.



Focus on equity – gender, protection, and inclusion

Women can experience pushback from camp leaders or even family when stepping into a leadership role, being active in their community, or discussing issues considered taboo. Therefore, WASH agencies should discuss with camp leaders why women leaders are essential for specific activities, start small (such as with a pilot), and focus on “easier” topics (such as hygiene behaviours) prior to tackling more controversial issues. The P2P approach allows women and girls to gather in small groups in their homes as they would normally socialise, which limits community pushback. However, it is also vital to bring men and boys into the conversation about topics considered “women’s issues” to bring about lasting change in perceptions and taboos.

4.3 Distribution of Non-Food Items

Specific personal and household items are essential for hygiene, health, dignity, and well-being, and to create an enabling environment to practice positive hygiene behaviours.

The Sphere standards provide guidance on minimum essential hygiene items and quantities, but WASH agencies must conduct assessments to determine what Non-Food Items (NFIs) people need, as well as the best modality for delivery (eg. in-kind, cash, voucher, etc.). In the Sittwe restricted area, OXSI distributes hygiene kits on a monthly basis, as well as other items every six months or as needed.

Hygiene kits

In camps, OXSI distributes a monthly in-kind hygiene kit to every household, which contains body soap, laundry soap, and sanitary pads. Due to a lack of market access, distribution of cash or vouchers is currently not feasible in Sittwe camps. When the soap supplier reduced the weight of their soap, the programme switched to a different, unscented soap bar to continue to meet Sphere standards. However, Hygiene Kit Post-Distribution Monitoring (PDM) showed that women and girls preferred and requested the scented soap. OXSI put in place a system of distributing two hygiene kits – one with scented soap and one with unscented – on a quarterly schedule, to meet the needs of the community while adhering to Sphere standards. Subsequent PDMs consistently showed more than 90% satisfaction with the quantity and quality of the items. In 2020, in response to the COVID-19 pandemic, OXSI changed its distribution protocol to adhere to COVID-19 preventative measures. ([4C HK Distribution SOP COVID19](#))



Hygiene kits containing body soap, laundry soap, and sanitary pads are distributed each month, while other distributions are less frequent.

Dignity kits

A gender assessment and feedback from women and girls revealed a need for underwear distribution, so in the second half of the programme, OXSI distributed dignity kits containing female underwear every six months. Because mostly men come to OXSI offices to collect hygiene kits, OXSI piloted a new approach for these distributions during which female facilitators distributed items to groups of 8–10 households at a time near their shelter, inviting only women and girls to join. The facilitators brought a variety of colours and sizes of underwear to each distribution, and the participants chose the kind they wanted, which was important for women and girls who rarely have a choice in distributed items. This approach also ensured that as many women and girls as possible could join the sessions and that they felt comfortable during the distribution. ([4D Dignity Kit Distribution Pilot SOP](#)).



Other

OXSI distributed several other hygiene items throughout the project, always involving communities to understand needs and preferences. For example, OXSI distributed water containers and potties to each household, and household and environmental cleaning supplies (broom, rake, shovel, bamboo basket) to each longhouse. More complex distributions are highlighted in the sanitation chapter (Sections 3.4, 3.5, 3.8, and 3.11).

4.4 Household Visits

Household visits are essential for reaching the most vulnerable as well as ensuring complete coverage when sharing important information, such as during an acute crisis or event.

However, staff must conduct household visits with care, because they are disruptive and can violate privacy. At the beginning of a household visit, staff need to ask if it is a good time to talk and make sure that all household members agree to the visit and understand that they can choose to end it at any time without negative consequences.

In Sittwe camps, OXSI uses household visits in the following ways:

- When a case of severe diarrhoea is reported, the Community Mobilisation team visits surrounding households to notify them of a case near them, to encourage them to visit the clinic if they experience diarrhoea, and to inform them about the free availability of Aquatabs (for purifying drinking water) and Oral Rehydration Solution (ORS, for rehydrating during diarrheal episodes) in the OXSI offices.
- When a borehole fails the water quality test, OXSI informs users of the handpump not to use it for drinking, cooking, or washing dishes or food, unless they boil the water. When the borehole is remediated and cleared for use, OXSI again informs households that it is safe to use.
- As explained in Section 2.5, when a household sample fails the water quality test, OXSI conducts a household visit to inform the household of the result and to share information on positive water storage, transport, and use behaviours to prevent contamination.
- To increase awareness and use of the Accountability System and to allow people an opportunity to file a complaint in private, accountability officers conduct household visits (Section 7.4).
- Household visits are conducted to close the feedback loop when someone has submitted a complaint to the Accountability System (Section 7.5).
- Before and during the COVID-19 response (Section 8.2), to prevent large gatherings, household visits were used to convey important information.
- After Transect Walks (Section 4.5), if a specific household is consistently “flagged” for poor hygiene behaviour by neighbours, the Community Mobilisation team will visit and encourage the household to respond to the issue.

4.5 Community Transect Walks

A Community Transect Walk is a participative tool for observing and discussing with communities any resources, problems, land use, and features in an area.

One of the tools used in the Community-Led Total Sanitation approach, this activity can be adapted to a variety of issues.

In the OXSI programme, the activity involves Community Mobilisation staff recruiting community members to walk together in their area to identify WASH issues and opportunities. The group splits the issues identified into two categories: those that the community can solve without help, and those where support from the WASH agency is needed.

The group then develops a brief action plan to solve the issues identified during the Transect Walk, with tasks assigned to community members or the WASH agency. If a non-WASH issue is identified, OXSI can refer the information to the appropriate agency, or provides information to the group on how to refer the complaint. Unlike typical hygiene promotion sessions, Transect Walks allow discussion of multiple topics, promote problem solving, and engage men, women, and children in a mixed group to build a sense of community ([4E Community Transect Walk](#)).

4.6 WASH and Gender

As part of the Do No Harm principle, WASH agencies need to avoid inadvertently contributing to perpetuating gender stereotypes through their activities.

Although the gendered division of labour in many cultures puts women and girls in charge of household and childcare duties, WASH agencies can ensure that women and girls have adequate hygiene information while at the same time advocating for more gender equitable division of labour and, where possible, seeking to challenge restrictive gender norms.

Mainstreaming gender in WASH activities and staff training can help programmes avoid common pitfalls, but creative activities can challenge participants in new ways. In Sittwe camps, in collaboration with the *Inclusive Development and Empowerment of Women in Rakhine State Joint Programme*, the WASH team adapted an activity typically used in gender trainings to create a hygiene promotion activity focused on promoting gender equality, called “Balancing WASH”. The objectives of the activity are to raise awareness on the inequitable distribution of labour in WASH-related work and other domestic work in the household, and then to review the key messages on good hygiene practices associated with each WASH activity.

The creation of this activity, as well as the accompanying IEC, involved several consultations with female camp-based staff and groups of men and women who tried out the activity in its draft form and gave feedback on the design of the icons and the activity. In the final version of the activity, the participants create a table to show the different tasks performed by members of the family, with time indicators to show the length spent on each task, and then compare the work done by male and female household members. The facilitators pose questions to deepen dialogue about gender norms, the unequal division of labour in WASH and domestic household duties, and who in the household makes the most decisions about WASH-related issues. ([4F Balancing WASH SOP](#))

Gender focal points piloted the activity in camps and provided mostly positive feedback. Male participants reported higher awareness of women’s work in the household and the realisation that unpaid household work is also work, just like paid work. Men also committed to help with household work and

to encourage their sons and brothers to participate. The activity was especially well received with illiterate participants because it relies entirely on icons and tick marks, with no writing or reading involved. However, comprehensive gender training for facilitators is pivotal to sufficiently address participant criticism; otherwise, the activity could be counterproductive.



The Balancing WASH activity challenges men and women to examine the gendered division of domestic and WASH responsibilities in the household.

4.7 Global Event Days

Certain days are designated annually as observance days to raise awareness on a specific issue, and these present an opportunity for WASH agencies to hold special events.

Three main WASH-related global days are celebrated in OXSI camps each year: Global Handwashing Day, World Water Day, and World Toilet Day. Because OXSI’s programming already focuses heavily on handwashing, good behaviours around water use and storage, and toilet use, the main purpose of the special days is to have a festive event that is fun for children, includes games and prizes to test knowledge, rewards people for demonstrating their WASH knowledge publicly, and brings people together to celebrate positive changes. These events are designed to inspire people to feel part of a global community who cares about WASH issues. OXSI holds global event days in each camp, which almost always include the following:

- Decorations, informational posters specific to the event, music, and refreshments.
- Introductory speeches from OXSI staff and influential leaders in the community about the importance of the topic.
- Songs, skits, and/or dances performed by children illustrating a WASH concept.
- A quiz or activity for adults and/or children, often involving prizes.

OXSI staff and participants give overwhelmingly positive feedback about WASH events, saying they are fun and engaging. However, limited space and resources make it impossible to include everyone, and the events must be capped at about 200 people. This proves especially challenging in larger camps, where many people have likely never joined an event day. OXSI strives for diversity at these events by inviting children from different schools, influential leaders, men and women, elderly and youth, and people with disabilities.

Smaller events are also held to celebrate additional days such as Menstrual Hygiene Day, World Humanitarian Day (to celebrate humanitarian staff), and 16 Days of Activism Against Gender-Based Violence. These global designations provide an opportunity for collaboration with other agencies and across sectors to bring attention to these important issues.

4.8 Tackling Persistent Behaviours

Hygiene education, WASH infrastructure, and NFI items that enable positive hygiene behaviours are sometimes not sufficient to change long-standing behaviours.

For example, in Sittwe camps, despite years of hygiene education focused on eliminating open defecation (OD, the practice of defecating outside rather than into a toilet), it remained a common practice and a persistent public health risk. To continue the battle against OD, OXSI took a multi-pronged approach of listening and understanding, continuing education, providing accessible infrastructure, and monitoring OD.

The OXSI team received intensive training on the Risks, Attitudes, Norms, Abilities, and Self-Regulation (RANAS) approach for behaviour change and applied it in understanding the driving factors of OD. The approach includes a detailed questionnaire to evaluate behavioural factors within each of the RANAS categories and a doer/non-doer analysis to identify the most significant difference between doers and non-doers. Based on the results, several Behaviour Change Techniques (BCTs) are suggested, adapted to the context, and used to tailor interventions to have the highest impact on changing the behaviour.

OXSI conducted an intensive interview of caretakers of children between 3–5 years old and focused on two targeted behaviours: letting their child defecate in the open and teaching their child to use a latrine. The doer/non-doer analysis identified certain behavioural factors that had the most significant difference between doers and non-doers. Using the BCTs suggested to target these factors, OXSI staff created new activities or interwove the BCTs into existing activities to increase

messaging impact. Another questionnaire at the end of the intervention period will be used to evaluate the results in the targeted camps and compare them to the “control” camps.

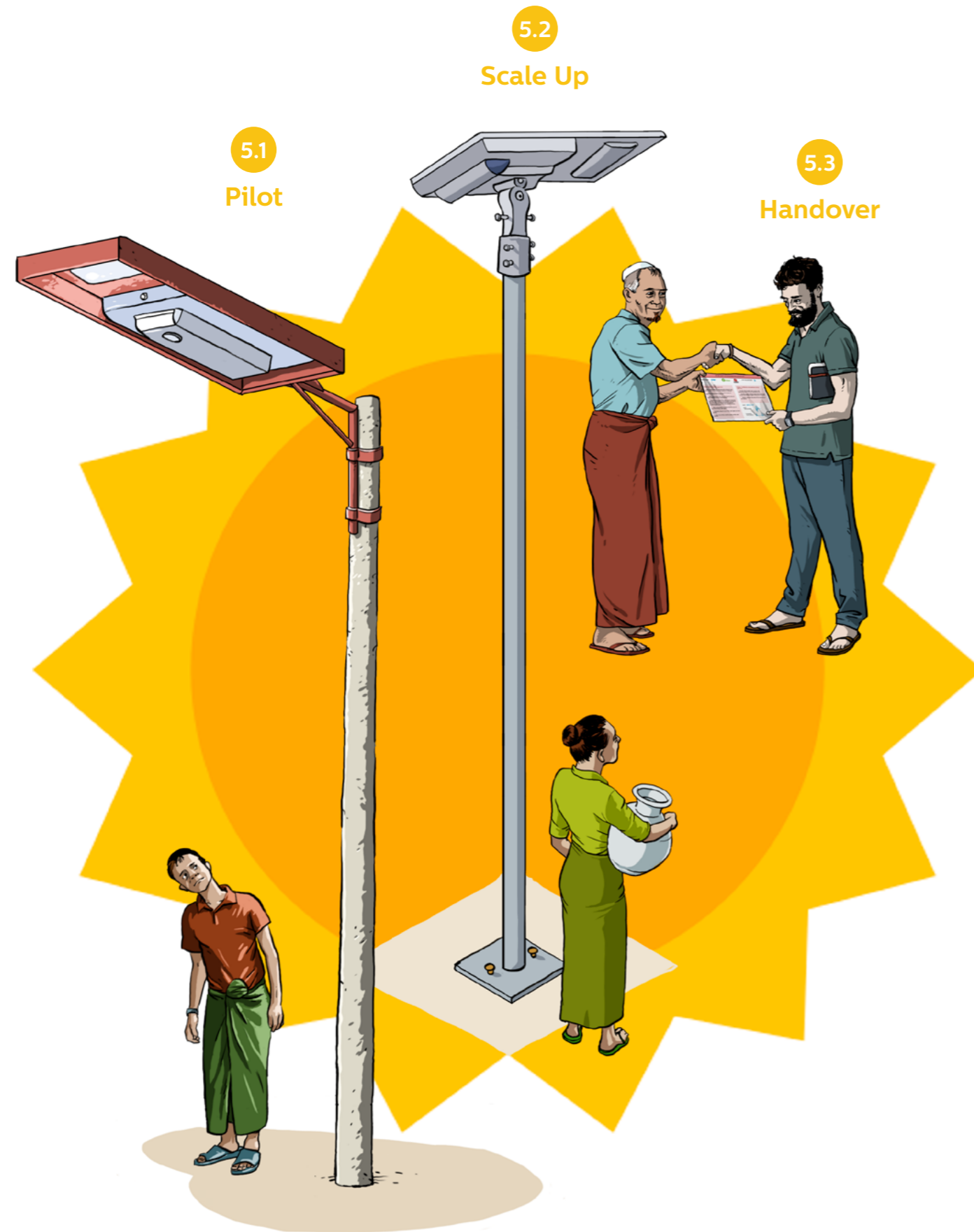
A Human-Centred Design (HCD) consultancy, 17 Triggers, also worked in OXSI camps to identify causes of OD and to make suggestions. They discovered a gap in knowledge not covered by OXSI’s hygiene promotion messaging: teaching children to use latrines. They developed activity guidelines and corresponding IEC for OXSI to teach parents about potty training and how to teach children to ask for help with using a latrine. OXSI paired the launch of this activity with the distribution of potties for every household.

In addition, 17 Triggers piloted “Latrine Helpers”, a process where households volunteered for shifts to assist small children to use latrines, clean up, and wash their hands. Although the activity did not move past pilot stage, it showed the households involved that they could solve child OD in their neighbourhood with creative community solutions.

In addition to understanding the causes of OD and targeted hygiene education, OXSI worked with children to design accessible child-friendly latrines, covered in Section 3.6. The hardware suggestions resulting from the 17 Triggers consultancy are covered in Sections 3.6 and 3.8.



IEC showing positive behaviour makes awareness sessions more engaging for children and adults alike



C5. Solar Lighting

Inadequate lighting around WASH facilities reduces their usage at night, especially by women and children, primarily due to fear of violence and abuse. Poor lighting also makes it more difficult for the elderly and people with disabilities to access WASH facilities at night. In a camp setting, WASH agencies take responsibility for providing lighting around WASH facilities, while other agencies typically provide lighting for other public areas.

Vandalism, theft, and poor technical expertise and workmanship have hindered previous solar street light projects in Rakhine. Although former WASH agencies installed solar lighting around latrines in the Sittwe restricted area, all of the systems were in disrepair or fully non-functional at the time that OXSI took over as the WASH agency. When planning new solar installations, OXSI took a step back to evaluate how to install better designs and work with communities to reduce theft.

5.1 Pilot

A pilot can be helpful for new or technical interventions that are difficult for communities to design.

A pilot helps to identify problem areas in the design, protocol, and/or materials suppliers, and increases the likelihood of success during scale up. In the case of solar lighting, the OXSI pilot was essential for learning and led to changes in the design of the solar systems.

Things to consider when choosing a solar system include design options, cost, the availability of spare parts, lead time, maintenance and technical expertise requirements, community involvement and preferences, and more. After an assessment of the technical feasibility of installing solar lighting in the OXSI camps, two main viable designs emerged:

- A centralised system: solar panels, controller, batteries, and inverter are located in a central location, connected with wiring to lights on poles placed near latrines.
- Integrated units: each pole houses a solar panel, battery, light, and controller in a single, standalone unit placed near latrines.

Prior to the pilot, OXSI considered it best to install a centralised system in all camps and to supplement with integrated units in isolated locations where wiring from a central location would be inefficient. However, piloting each system in a separate, similarly-sized camp would clearly highlight the advantages and disadvantages of each design.

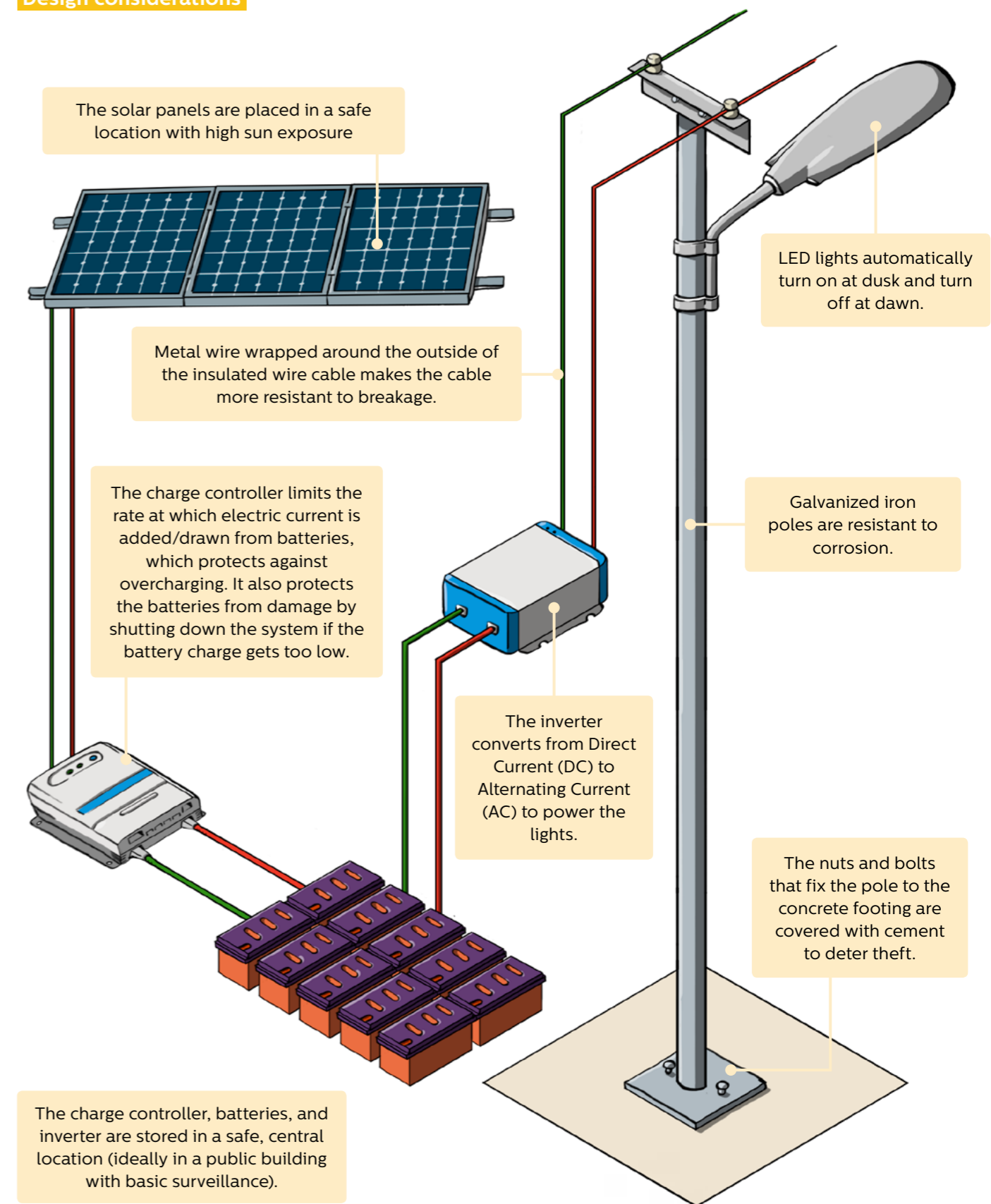
OXSI selected two camps with almost the same population and where OXSI had strong positive relationships with camp leaders to test the two solar designs.

Pilot 1

Although one camp already had a centralised system in place, the new centralised system pilot focused on exploring better quality equipment and a different supplier, as well as higher involvement of the community in the entire process to combat frequent breakage and theft. OXSI planned to pilot a hybrid system by installing integrated units to cover latrines that could not be covered by the centralised system; however, due to the small size of the camp, the centralised system adequately covered all of the areas that needed lighting and the hybrid system was not needed. Therefore, in Pilot 1, OXSI installed two centralised solar systems with nine solar lamps each.

A former men's ACE group that had expressed interest in working on solar lighting (see Section 4.1) worked closely with OXSI solar technical staff to identify locations for solar posts, as well as safe public buildings to install the solar stations. After approval from camp leaders, OXSI installed the solar stations in a school and a mosque. The ACE group continued to support the process by informing the community about the installation, making sure CMCs were informed and engaged, and committing to help keep the solar systems safe. Together with the CMC, the ACE group signed the handover certificate for the systems, pledging to take responsibility to recover looted items, report malfunctioning lights to OXSI, and monitor the systems regularly (for more about handover, see Section 5.3).

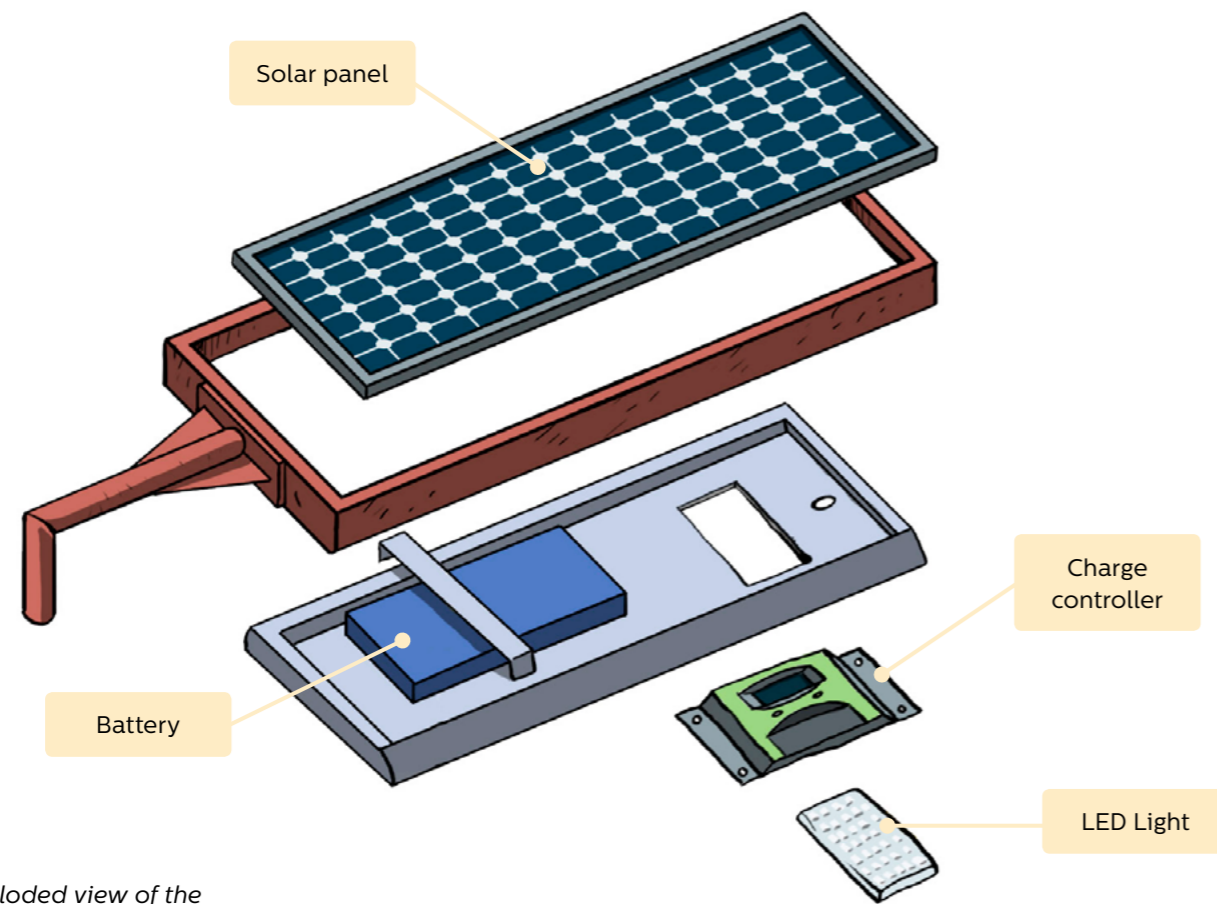
Design considerations



Pilot 2

In a Technical Working Group (TWG) organised for partners implementing solar lighting, OXSI and other agencies designed a second solar system: an integrated design featuring the solar panel, battery, light, and controller in a single, standalone unit that simply needs to be mounted onto a pole. Unlike the stand-alone solar units previously installed in several camps, where the components could be separated and used for other purposes (and thus were more useful if stolen), this truly integrated design means that the solar unit can only be used as a light.

OXSI piloted this second design in another camp of a similar size to Pilot 1, again with a total of 18 units installed (two more units were later added in public spaces). As with Pilot 1, OXSI consulted with camp leaders about the design and location of the solar lights. Unlike Pilot 1, there was no need for a secure central location for the solar system components. The community agreed to monitor and take care of the solar units near their homes and report any issues to OXSI.



An exploded view of the integrated solar unit used in Pilot 2

OXSI Challenges

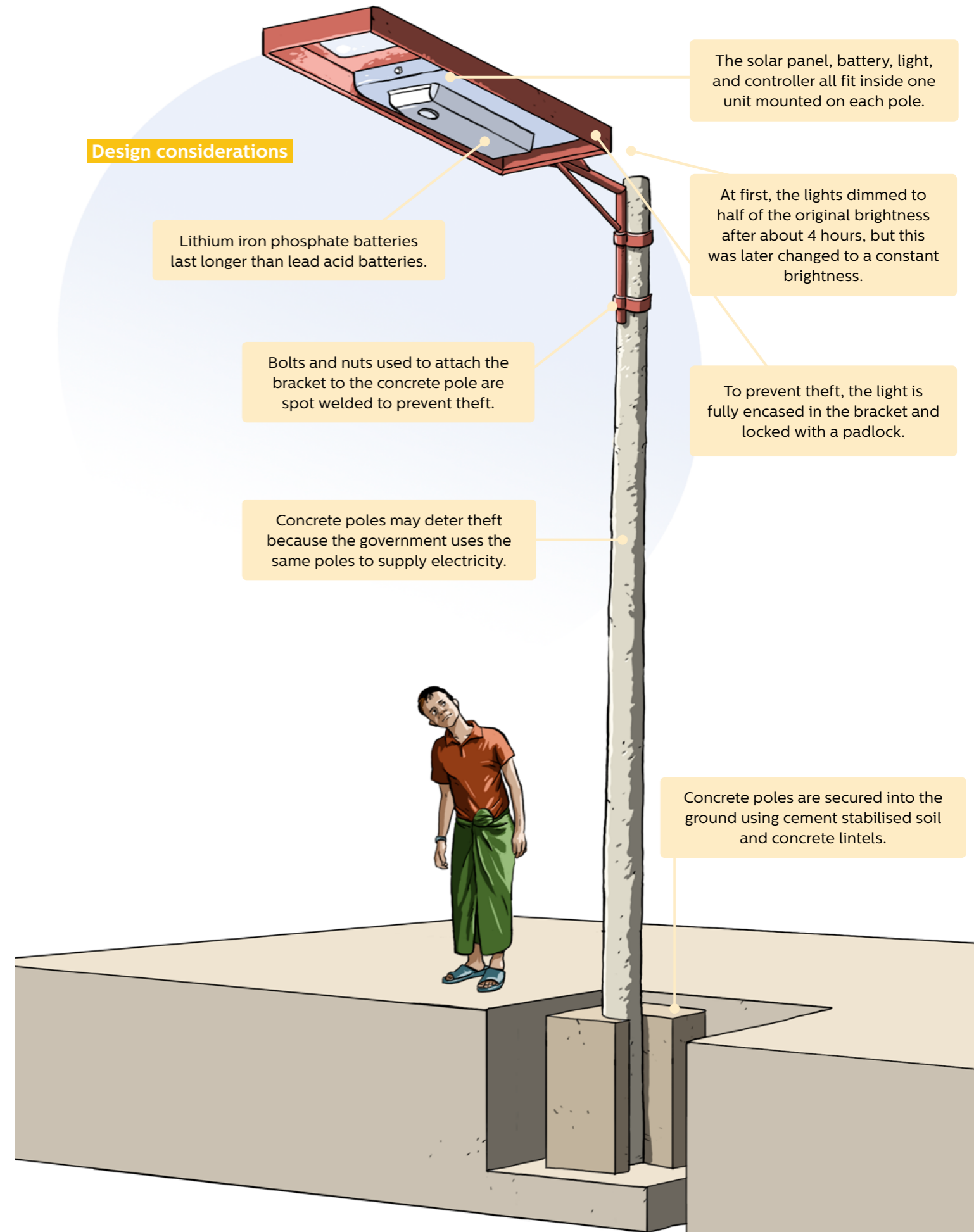
High quality solar components are essential for solar systems to function as designed. For Pilot 2, the manufacturer initially provided lights that did not comply with the specifications provided, resulting in the lights turning off partway through night. In addition, the bracket covered part of the solar panel, which negatively affected the output of the panel.



OXSI Solutions

These types of projects require technical expertise and research, either in-house or through the help of Technical Working Groups. OXSI worked with the supplier to swap the components with those that met the tender specifications, modified the bracket design, and changed the light angle to resolve all of the problems.

Design considerations



Lithium iron phosphate batteries last longer than lead acid batteries.

Bolts and nuts used to attach the bracket to the concrete pole are spot welded to prevent theft.

Concrete poles may deter theft because the government uses the same poles to supply electricity.

The solar panel, battery, light, and controller all fit inside one unit mounted on each pole.

At first, the lights dimmed to half of the original brightness after about 4 hours, but this was later changed to a constant brightness.

To prevent theft, the light is fully encased in the bracket and locked with a padlock.

Concrete poles are secured into the ground using cement stabilised soil and concrete lintels.

Pilot Results and Reflection

OXSI assessed the results of the two pilots, with special emphasis on technical and financial considerations such as cost, design life, installation difficulty, and efficiency.

A summary comparison of the two designs:

Criteria	Pilot 1: Centralised Solar System (Myanmar Solar Power)	Pilot 2: Integrated Solar Unit (Solar Solutions)
Cost (per light)	Higher (USD 560)	Lower (USD 311)
Warranty	Shorter (1 year)	Longer (3 years)
Design Life	Shorter (major components last about 2 years)	Longer (4+ years)
Battery	Bulkier, don't last as long, could be damaged by deep discharge (lead acid)	More compact, last longer, not damaged by deep discharges (lithium iron phosphate)
Solar panel type	Less efficient (polycrystalline)	More efficient (monocrystalline)
Efficiency	Low (110W solar panel for one light)	High (50W solar panel for one light)
Theft of electricity	Possible	Not possible
Theft of expensive components	Similar (greater use for lead acid batteries and solar panel, but these components are protected)	Similar (easier to steal, but less desirable; can only be used as a light)
Flexibility for pole placement	Similar (wiring to central power station, but doesn't require poles to be placed in sunny location)	Similar (no wiring needed, but requires poles placed in sunny location)
Installation difficulty	Moderate to hard (especially the requirement to secure expensive components in safe space; limited in camps)	Easy
Vulnerability to environmental hazards	Similar	Similar
Maintenance	Slightly harder (whole system shuts down if there is a problem, which requires troubleshooting to find problem, but some parts are available in Sittwe, which could make maintenance easier and faster)	Slightly easier (problem with one unit does not affect others, easier to find, very easy to replace entire unit. However, opening integrated unit and replacing individual components is difficult)
Local availability of spare parts	Similar (more parts needed; some parts available in Sittwe while others need to be ordered from Yangon, possibly imported by Yangon supplier)	Similar (spare parts need to be ordered from Yangon, possibly imported by Yangon supplier)

Community perceptions

During pilots, feedback from communities is more crucial than ever, because big and small changes alike are easier to make prior to full scale-up. The OXSI team conducted focus group discussions (FGDs) in the pilot camps with women, men, and children to listen to feedback on the two solar systems.



Several flaws of the pilot analysis emerged over time. First, OXSI did not pilot a hybrid system using both the centralised and stand-alone units in one camp, as originally planned. Second, it is possible that the centralised system could have been designed differently to be less expensive, which may have changed the final decision (however, the quality of the components would have suffered). Third, the two communities consulted could not meaningfully compare the pilot systems, since they each experienced only one system – because neither of the communities

expressed dissatisfaction with their system, the results of the consultations were not used to decide between the two systems, but rather to tweak any problems highlighted by communities for the chosen system. Finally, the short duration of the pilots meant that longer-term maintenance, ownership, and management could not be meaningfully assessed. In the next programme, OXSI will continue to monitor and consult communities about the solar light installations to collect feedback for future programming.



Focus Group Discussions are an effective way to gather feedback.

5.2 Scale Up

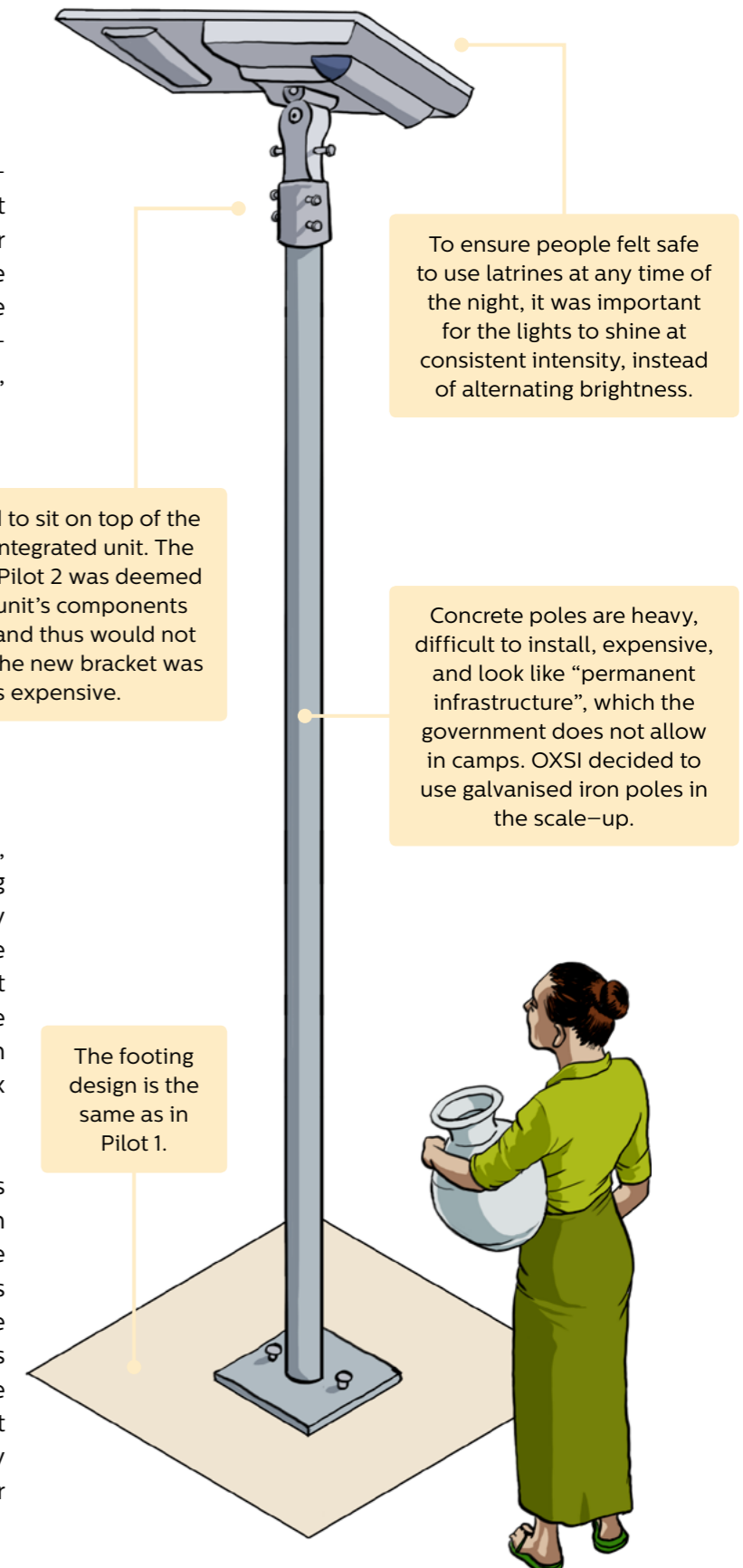
Analysis of a pilot is used to inform any improvements and scale up of the intervention.

The assessments, observations, and consultations showed that the integrated units in Pilot 2 performed better overall, but the full solar design needed a few modifications. To scale up in the remaining camps, OXSI installed the integrated solar lights from Pilot 2, the galvanised iron poles and the footings from Pilot 1, and a newly designed bracket.

A new bracket was designed to sit on top of the pole and to screw into the integrated unit. The theft-proof bracket used in Pilot 2 was deemed unnecessary, because the unit's components cannot be used separately and thus would not be useful except as a light. The new bracket was also significantly less expensive.

To scale up the design in the other camps, OXSI followed its usual steps of involving communities as much as possible, especially in the decision about the locations of the lights. Following the pilot and assessment period, the scale up to the remaining nine camps was relatively smooth and quick, with the remaining lights installed in about six weeks. [\(5A Solar Light BOQ\)](#)

OXSI shared the experience and final designs of the solar lights with other humanitarian agencies in Rakhine, and others are using the integrated solar design for light installations in and outside of camps. Depending on the demand for spare parts, these installations may influence the local market, bringing more spare parts and technical knowledge about solar lighting to Sittwe. Over time, this may positively affect the sustainability of the solar light installations in Sittwe camps.



5.3 Handover





With all newly-completed infrastructure, a ceremony for “handing over” infrastructure to users is vital to increase ownership and engagement, to answer questions, and to communicate important information about the infrastructure.

For the solar lights, the handover process differed slightly for the centralised system (Pilot 1) and the integrated units, but in both cases, the main concern of OXSI and the community was theft prevention.

During the handover, a group of households closest to the solar point (or, in the camp with the centralised system, those responsible for the mosque and school where the solar stations were secured) gathered with

OXSI staff to learn more about the solar installation, ask any questions, and choose two solar point representatives to sign the handover certificate. Everyone gathered for the handover made a public commitment to keep the infrastructure safe from theft and to report any issues to OXSI. OXSI agreed to handle all of the repairs and maintenance. [\(5B Solar Light Functionality Check\)](#)

A snapshot of the certificate outlining the specific responsibilities is pictured below.

SOLAR LIGHT SYSTEM HANDOVER CERTIFICATE	
CAMP NAME STMG	# OF SOLAR POINT 3
	
<p>Camp representatives agree to:</p> <ul style="list-style-type: none"> Take responsibility for all materials included in the solar system mentioned in the handover certificate. Take responsibility to inform OXSI in case of material looting and/ or damage. Take responsibility for relevant action in case of solar material looting or destruction. Assume ownership of the solar system materials and take responsibility to get back the materials in case of looting and inform OXSI for required technical support to return the looted materials to the original place. Take responsibility to inform OXSI in case of non-functioning solar lights. Regularly check to see if the solar lights are functioning. Take care of the overall security of the solar system. 	<p>Oxfam + Solidarites International (OXSI) agree to:</p> <ul style="list-style-type: none"> Provide fully installed solar systems with functioning lights in the pre-identified areas. Provide regular technical supervision of the solar system and technical support whenever it is needed. Replace damaged materials (if the materials are not stolen). <p>DATE JULY 8, 2019</p> <p>OXSI representative: </p> <p>Community representative: </p>

[\(5C Solar Point Handover Certificate\)](#)



Focus on equity – gender, protection, and inclusion

Women, men, children, and the elderly should attend handover ceremonies to understand that the infrastructure belongs to them, not only to community leaders or those involved in WASH agencies' activities. During handover ceremonies, WASH agencies need to be clear about rules and responsibilities. In OXSI camps, for example, men and boys were forbidden from socialising under the solar lights, because this behaviour made women and girls feel unsafe to use the latrines, which defeated the main purpose of installing the solar lights. Women and girls feel more comfortable to report such behaviour if the rules are clearly outlined and if they feel ownership of the infrastructure.



One copy of the handover certificate is kept by the organisation and another is kept by one of the chosen community representatives.

6.1 Household Waste Separation



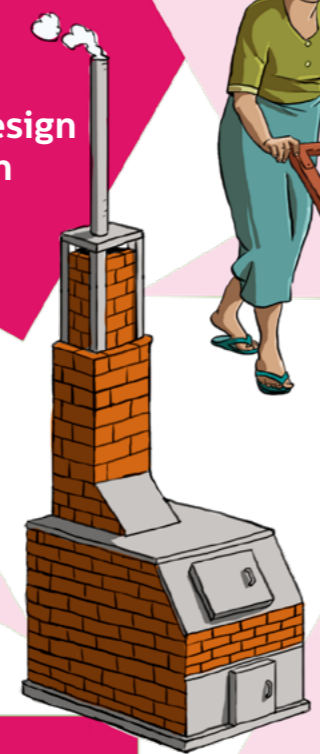
Collection and Transport

6.2



Incinerator Design and Operation

6.3



6.4

Incinerator Monitoring and Repair



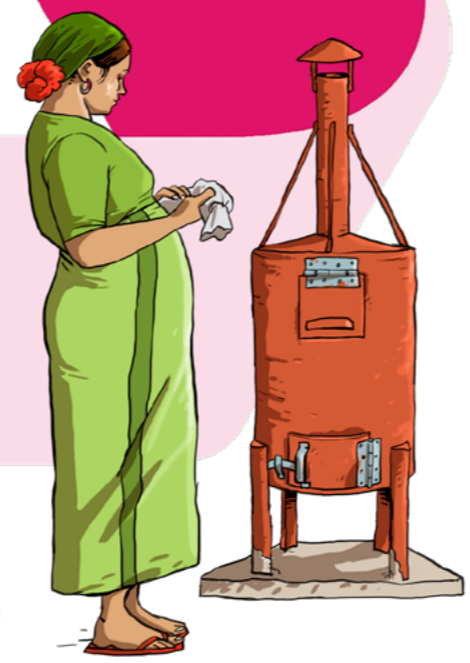
6.6

Cleaning Campaigns



6.5

Menstrual Waste Incinerators



C6. Solid Waste Management

In many countries, including Myanmar, municipal solid waste management (SWM) is still not prioritised outside of large cities, leaving many households to deal with solid waste on their own. Sophisticated SWM, especially disposal, is often too expensive for humanitarian programmes, leading to imperfect and unsustainable solutions, which becomes particularly problematic in prolonged emergencies. However, SWM plays a key role in WASH programming to reduce public health risks and keep the environment clean. WASH agencies collect, transport, and dispose of solid waste while drawing the link between SWM and disease reduction in hygiene promotion sessions and engaging communities to help keep their surroundings clean.

The details of a SWM system will vary, depending on the type of waste generated, contextual limitations, and preferences for waste storage, collection, and disposal. Prior to setting up a new system, WASH agencies should understand what happens with waste, both at the household level and the community level, and to evaluate routes, required frequency, and number of workers needed for waste collection, as well as identify final disposal sites and methods.

6.1 Household Waste Separation

An analysis of waste at the household level will indicate the amount of waste separation already occurring, if any.

Separating waste at the household level generally makes solid waste management more efficient, but that depends on several factors, such as the type of waste produced, feasibility of recycling, and the final disposal method. The analysis conducted in Sittwe camps showed that households already receive incentive to separate waste—for example, many households feed food scraps to chickens or sell recyclables to shops that collect recycling. Analysing waste streams also revealed that organics and recyclable plastics, glass, metal, and paper do not make up a significant portion of dumped waste, which gave OXSI the information needed to set up the SWM system.

In a previous programme, Oxfam conducted a pilot to further encourage residents of one camp in the Sittwe restricted area to separate waste. Because waste collected in camps is incinerated, removing non-flammable items such as glass and metal helps the incinerator workers process waste faster, and separating out wet waste such as food trimmings makes combustion more efficient and produce less smoke. The waste separation pilot involved raising awareness and the distribution of containers for organic waste and dry waste. The pilot led to mixed behaviours, with some households starting to separate waste for the first time, while others continued to mix all the waste in one bin.

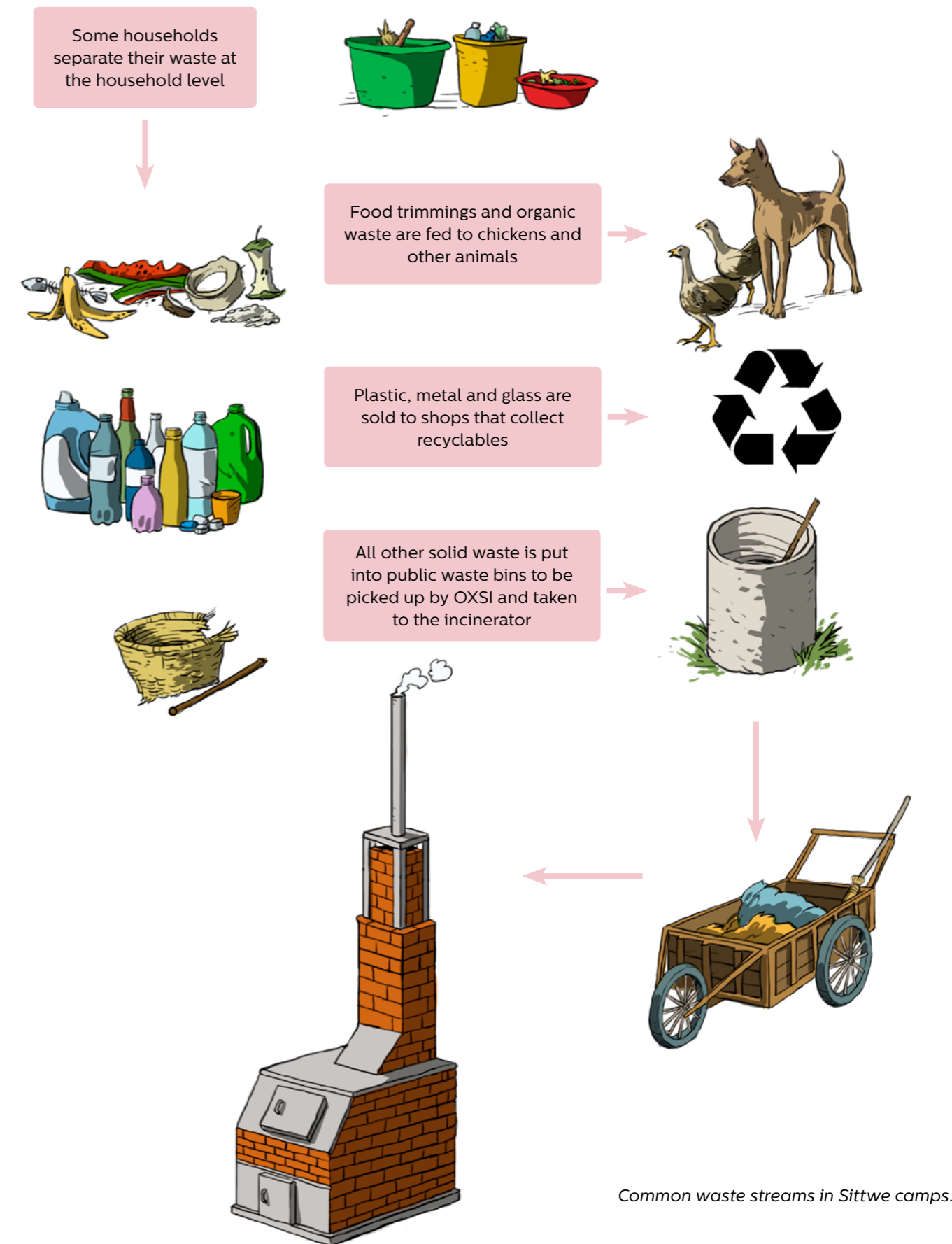
During this programme, OXSI has continued to encourage waste separation, with similar mixed results. Households that feed food waste to animals and/or sell recyclables to recycling vendors continue to do so, while others mix waste because they are far away from recycling shops or unaware of them, don't have chickens or other animals, do not have enough bins in their rooms to separate waste, or simply don't like to separate waste. In general, the separation of waste at household level was not incentivised enough to become habitual for those not already practicing household waste separation. In the future, OXSI could explore other factors that drive or hinder household waste separation based on the special needs of each household.



Some households separate waste into three categories: organic waste, recyclables, other.

Tip

Responsible solid waste management includes avoiding the creation of more waste as much as possible. OXSI takes care to minimise packaging in non-food item distributions—for example, monthly hygiene kits are distributed in cardboard boxes, which camp residents use for storage or as a fire starter, and only the sanitary pads have plastic packaging.



Common waste streams in Sittwe camps.

6.2 Collection and Transport

After household bins get filled up, solid waste must be either picked up or deposited in a central location for pick up and transport to the waste processing area.

Through consultations and experience, OXSI has found advantages and disadvantages with different public bin designs. For example, bamboo waste bins are light, moveable, and allow ventilation, but must be replaced every six months; concrete bins are durable but not moveable; plastic bins are sturdy and moveable, but the most expensive option.

Considerations about collection efficiency, value for money, and accountability led OXSI to hire environmental cleaners assigned to collect waste from public bins and to pick up litter in specific zones in the camps where they live. In dense camp settings with small unpaved roads, environmental cleaners cannot navigate heavy machinery to collect waste. Instead, they collect the waste in pushcarts, and when full, take the pushcarts to incinerators in each camp. The placement of public bins is important, especially to allow women and girls to dispose of waste during the day and night without walking too far from their shelters; however, too many bins are a burden for environmental cleaners to empty and if not emptied frequently, will become a public health risk or will be removed by nearby households bothered by the smell of old waste.

Pilot

To increase the efficiency of waste collection, OXSI piloted a collection service in one camp. During the pilot, environmental cleaners moved along a predetermined path on the same days and at the

same time each week and used a bell to signal people to come out and dispose of their household waste directly into pushcarts. If someone was not home at the time of the waste collection, they continued to use public waste bins as usual. When full, the environmental cleaner took the pushcart of collected waste to the incinerator.

The pilot ran successfully for a month, and a survey of 60 households showed that the majority (82%) liked the new waste collection system. In addition, although the total quantity of waste collected during the pilot did not change significantly compared to the volume collected using the old system, the number of days the environmental workers needed to collect the same amount of waste per week decreased. Environmental cleaners also reported that the new system made their jobs easier, since they no longer had to shovel out the waste from each waste point. They still needed to empty public waste points, but not as frequently.

OXSI scaled up this waste collection system in half of the camps where OXSI manages WASH. In the remaining camps, environmental cleaners continue to collect waste from public waste bins and transport it in pushcarts to the incinerators. Different systems will work in different situations, so it is important to pilot options and consult communities to find what works best.



Focus on Equity – gender, protection, and inclusion

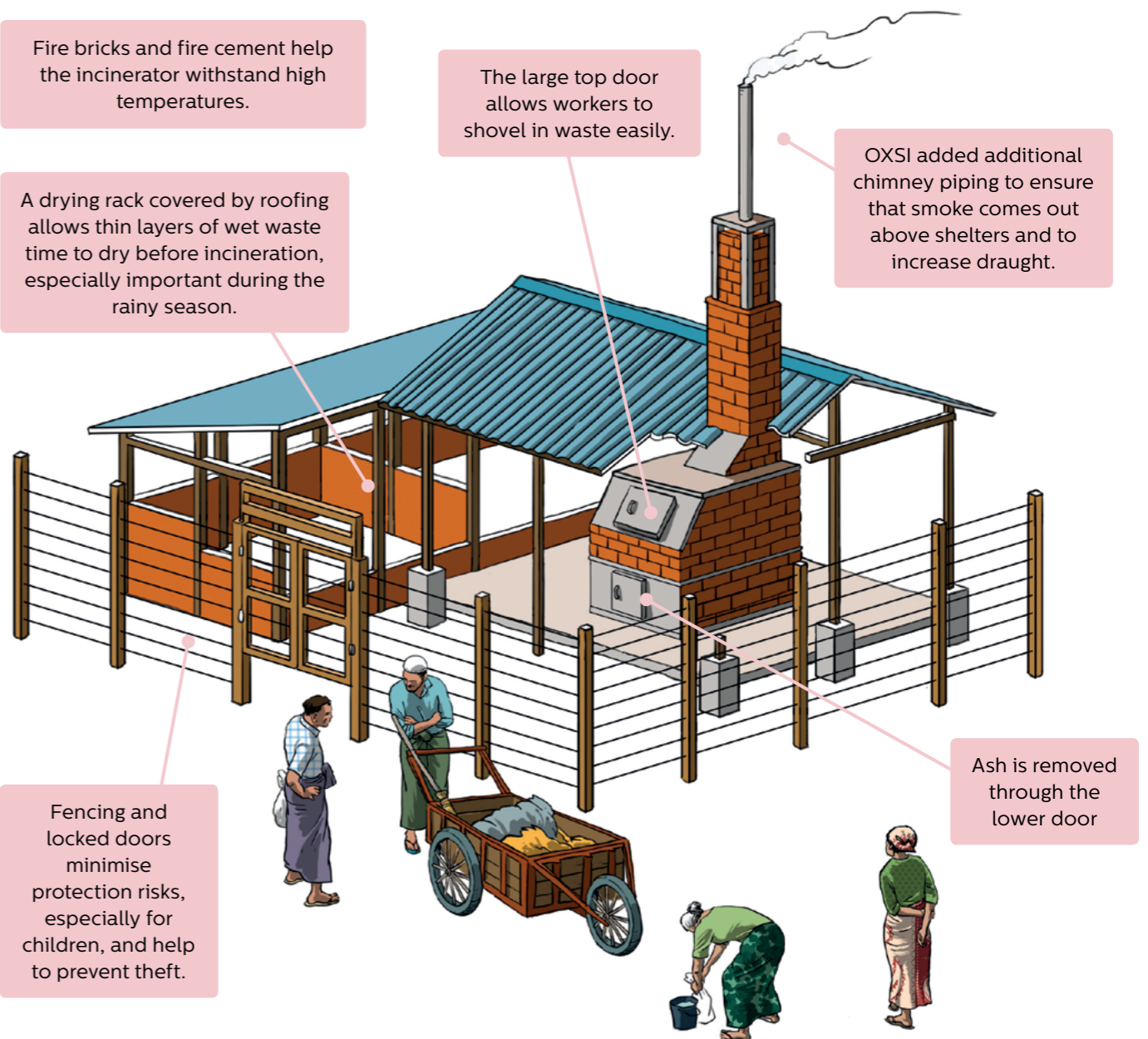
Environmental cleaning can provide an income-generating opportunity for affected populations during a humanitarian response. In WASH programmes, where construction activities tend to favour male workers, women may have less access to livelihood opportunities. For better or worse, women are often accepted as environmental cleaners, and therefore this activity provides an important opportunity for women to earn income. In some OXSI camps, environmental cleaners split a monthly shift, with each cleaner working for two weeks of the month to allow more people an opportunity to earn income.

6.3 Incinerator Design and Operation

In an emergency, and especially in rural areas where local governments do not provide solid waste management services, WASH agencies may have limited options for the treatment and disposal of solid waste.

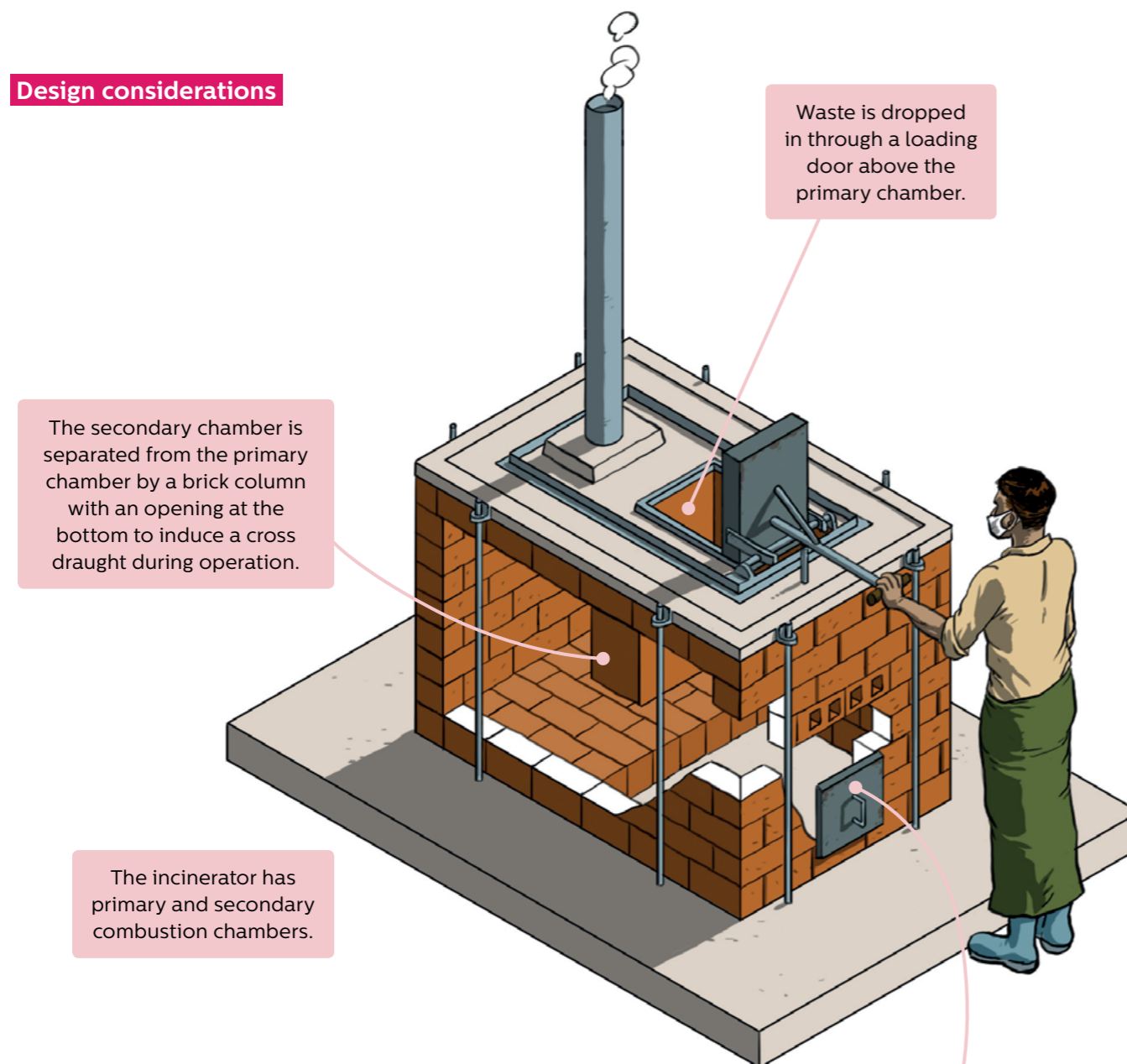
A waste analysis, including an understanding of community preferences, should be conducted prior to finalising treatment systems. In the flood-prone and densely populated Sittwe camps where managed landfills are impossible, incineration of solid waste is the most practical option, albeit not the most environmentally sustainable. In OXSI camps, there are two different incinerator designs. In the majority of camps, OXSI operates one of these large incinerators.

Design considerations



The remaining camps have two smaller De Montfort incinerators, which are designed to dispose of medical waste (endorsed by WHO), and thus reach higher temperatures and are more efficient (6B WHO DeMontfort Incinerator). This means they process waste faster, despite a smaller capacity than the larger incinerators, but require more frequent loading, which translates into more manual labour for incinerator workers.

Design considerations



Quick Facts

The large incinerator can process 20 kg of dry waste per hour for 12 hours per day, and costs about **4,430 USD** (2020). The smaller De Montfort incinerator costs about **1,650 USD** (2020). (6C BOQ and technical drawings)



Incinerator workers bury organic waste and material not viable for burning.

Pollutants emitted by incinerators pose health risks for workers, and WASH agencies should take these concerns seriously. Organisational health and safety measures should be in place and followed, with training and PPE provided to all SWM workers. There are also specific immunisations that WASH agencies should consider providing for SWM workers, such as tetanus. The OXSI Community Mobilisation team provides training for incineration workers, which includes how to separate waste, how to dry waste before incineration, how to load waste into the incinerator to maximise combustion efficiency, and the importance of and rules about wearing proper PPE on the job.

Incinerator workers bury organic waste and material not viable for burning (e.g. rusty metal sheets) in a pit in the incinerator compound and collect recyclables to sell to a recycling shop. They sometimes bury ash, especially during the dry season so the wind does not spread it; they also allow farmers from the surrounding areas to use the ash on their soil. The burying of waste in an informal landfill is not ideal, and a better solution should be explored in future programmes.

OXSI Challenges

In some locations, incinerators were too close to shelters, causing complaints about smoke. However, if located more remotely, SWM workers struggle to make multiple trips to the incinerators per day, and remote incinerators attract more thieves – in OXSI camps, materials from incinerators (metal doors, hardwood, roofing sheets) are frequently looted.

OXSI Solutions

WASH agencies should carefully consider the siting of incinerators in consultation with communities. Place incinerators as far from shelters as possible, and consider typical wind directions to minimise smoke reaching shelters. If not possible to build incinerators far away, increase chimney height and reduce the number of days incineration takes place. WASH agencies can reduce looting by partnering with communities to build ownership of infrastructure and by making infrastructure more difficult to loot. OXSI engaged camp leaders to monitor the incinerators to prevent looting. In addition, OXSI slowly replaced incinerator components with sturdier and harder to remove materials, such as concrete instead of timber posts.

6.4 Incinerator Monitoring and Repair

Involving communities in monitoring and repair is not always feasible for technically complex or dangerous infrastructure such as incinerators.



OXSI monitors incinerators with a monthly functionality check.

Unlike other WASH infrastructure, OXSI does not “hand over” incinerators to communities, and therefore, communities do not participate in any monitoring or maintenance. Once again, the OXSI MEAL team conducts a monthly functionality check to report the status of each incinerator ([6D Incinerator Functionality Check](#)). The results of the functionality check are transmitted to the construction team, who schedule in the repairs into their monthly workplans. Communities can also request repairs through the Community Feedback Mechanism (CFM) at any time.

OXSI Functionality Check

<p>Status of incinerator fencing</p> <p><input type="checkbox"/> good <input type="checkbox"/> needs maintenance</p> <p>Is there a collection/drying space inside the fencing?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If yes, is there a concrete slab for collection/drying space?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If yes, status of collection/drying space</p> <p><input type="checkbox"/> good <input type="checkbox"/> needs maintenance</p>	<p>Is the incinerator working?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If no, write down problems</p> <p>Are there any cracks?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Are the doors in place?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>Is there a roof over the incinerator?</p> <p><input type="checkbox"/> yes <input type="checkbox"/> no</p> <p>If yes, status of roofing</p> <p><input type="checkbox"/> good <input type="checkbox"/> needs maintenance</p>
--	--

6.5 Menstrual Waste Incinerators

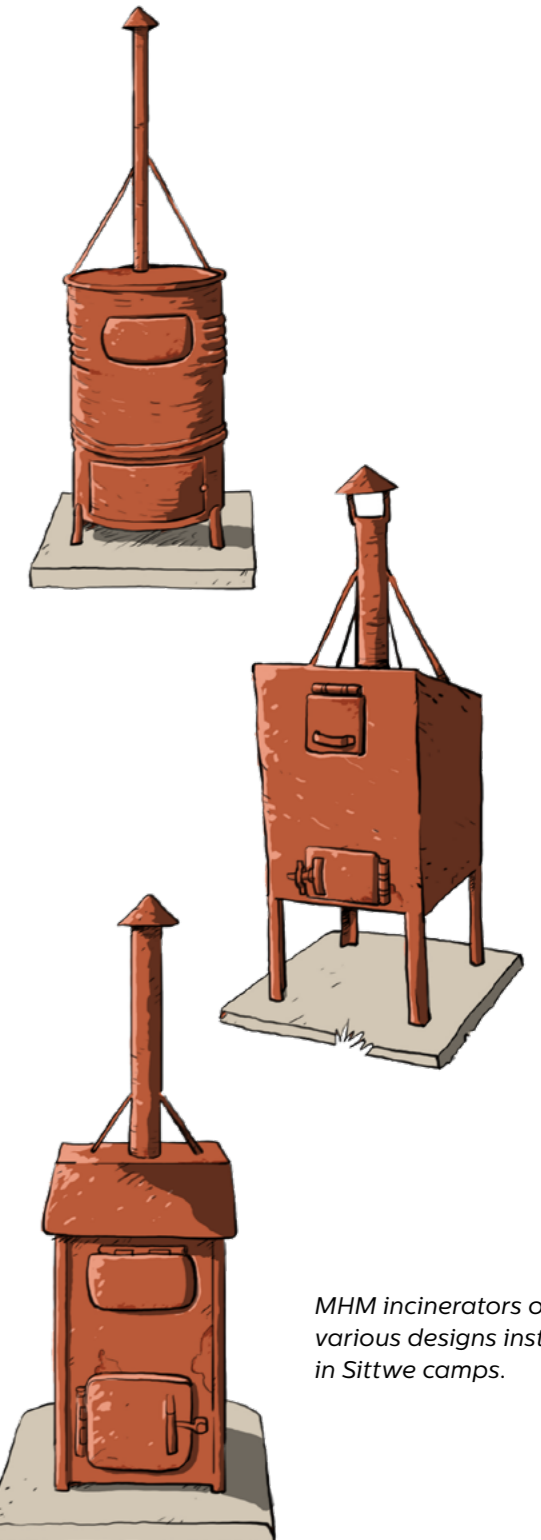
Although humanitarian actors have increasingly incorporated menstrual hygiene management (MHM) into emergency response, the distribution of menstrual materials continues to be the most common activity, which represents only one component of a complete MHM response.

This section focuses on OXSI’s approach to finding solutions in a challenging environment for menstrual material disposal and waste management – to learn about peer-to-peer MHM educational groups and to see the menstrual products OXSI delivers, see Sections 4.2 and 4.3, respectively.

Consultations with women and girls are essential to understand needs, habits, taboos, and preferences for MHM. Through this process, OXSI learned that women preferred to bury or burn used sanitary pads to prevent men, including men working at the incinerators, from seeing the sanitary products brought in with the other waste. Burying is not a preferred option in the camps due to the population density and the high water table, so OXSI worked with women to improve the other option: to make incineration of sanitary waste accessible, private, and fully handled by women.

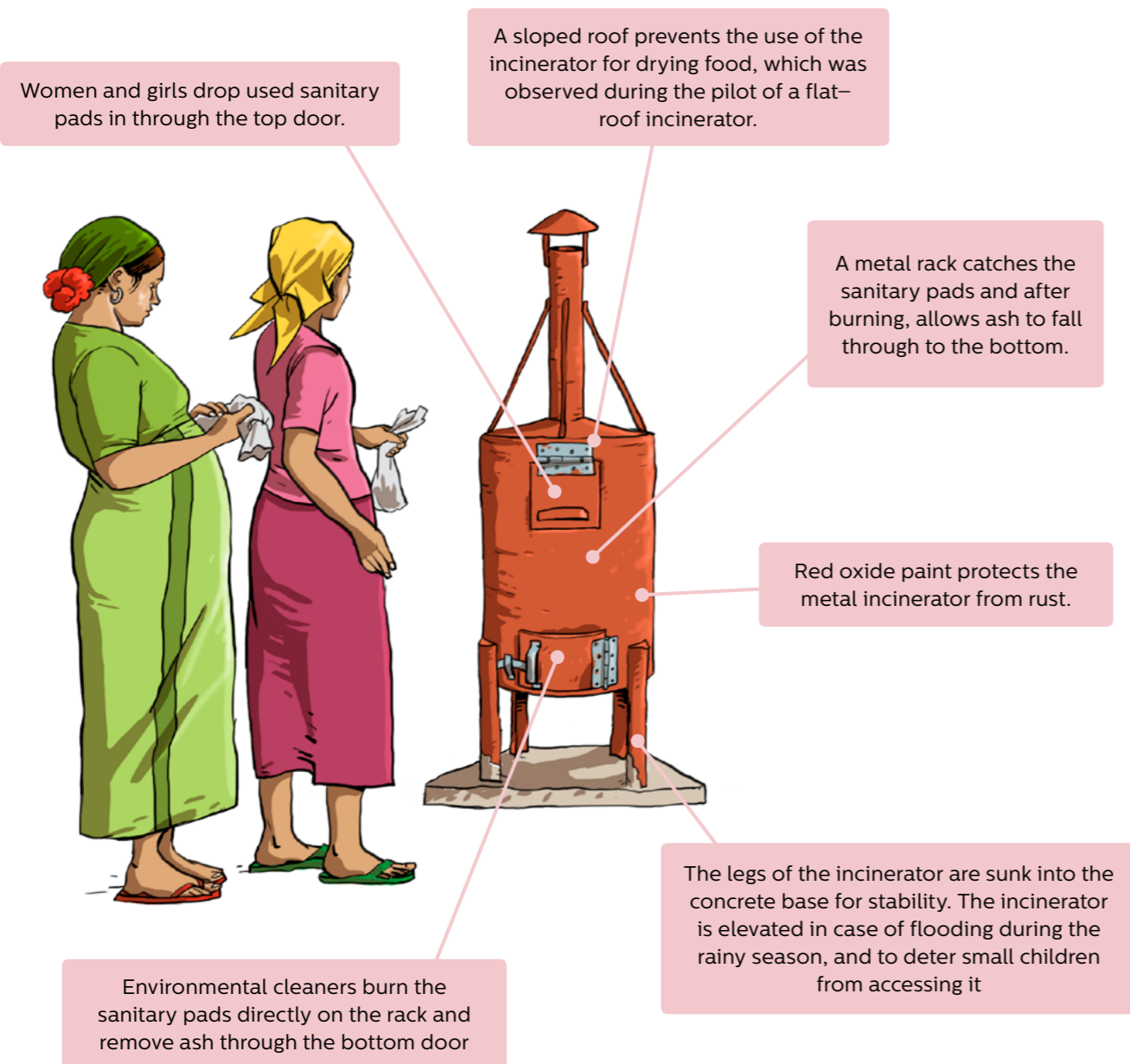
In a previous programme, Oxfam worked with women to conduct a pilot to design and test 24 small MHM incinerators in one camp. Female environmental cleaners checked the incinerators regularly and burnt sanitary products directly in the small metal incinerators, with no transport necessary. Women reported that they used and liked the boxes and requested more incinerators, so OXSI scaled up this process in other camps by consulting with women on incinerator design and locations.

Two Action from Community Engagement (ACE) groups (see Section 4.1) designed two more MHM incinerators with slightly different designs and manufactured 30 for one camp. These two groups contained a mix of men and women, and the men expressed just as much interest as women in working on this issue to help women and girls in their community. When scaling up MHM incinerators in all camps, women and girls heavily favoured the round MHM incinerator designed by the ACE group. OXSI installed over 300 MHM bins, about one for every 11 latrines.



MHM incinerators of various designs installed in Sittwe camps.

Design considerations



(6D MHM Incinerator Drawings)

Environmental cleaners, Community Mobilisation staff, or ACE members, depending on the camp, monitor and report on the functionality and use of the MHM incinerators and inform the Construction team if they need any repairs. This monitoring is not formalised like for other infrastructure, but since environmental cleaners routinely check on and burn the contents of the boxes, additional monitoring has not been necessary. Community Mobilisation teams and MHM groups continue to educate communities about the purpose of the MHM incinerators and to instruct children not to play with the incinerator bins.

Due to numerous challenges in camps, the MHM incinerators are not a perfect solution to ensure the desired level of privacy for women and girls. In most of the camps, latrines are shared by households and not sex-segregated (see Section 3.2), so both women and men see the MHM incinerators located near latrines. However, women and girls prefer the MHM incinerators over other solutions under the current circumstances, and OXSI continues to work with them through the MHM groups (see Section 4.2) to collect feedback and make adjustments in the design, use, and maintenance of the incinerators.

6.6 Cleaning Campaigns

In a protracted emergency, WASH agencies have the opportunity to work with communities to increase long-term engagement in WASH service provision.

This proves easier for some activities than for others. Communities often accept both women and men participating in the collection of solid waste, and it does not require technical skills or sophisticated tools. Even if employing environmental cleaners to collect solid waste, WASH programmes can improve ownership and accountability by organising regular camp cleaning campaigns to engage more people in the cleaning process. The OXSI Community Mobilisation teams organise cleaning campaigns and invite men, women, and older children to help clean up around their shelters. There are several types of cleaning campaigns, but all aim to bring people together and inspire them to take care of their environment:

- **Routine cleaning campaigns** are organised by OXSI Community Mobilisation teams weekly or bi-weekly, depending on the location and season. The team engages neighbouring shelters to participate in cleaning the area around their shelters with tools provided by OXSI or using their own tools (distributed by OXSI to every shelter). Environmental cleaners join the campaigns with pushcarts to take the waste to the incinerator.
- **Spontaneous cleaning campaigns** are sometimes conducted in response to a complaint, Transect Walk (see Section 4.5), or if there is waste around a borehole that fails a microbiological test (see Section 2.4). These cleaning campaigns are also organised after a storm or windy day to clean up debris.
- **Joint cleaning campaigns** are organised with OXSI and CMAs once a month. Both organisations contribute tools, pushcarts, environmental cleaners, and refreshments, and engage a large number of participants to join. [\(6F Camp Cleaning Campaigns\)](#)

- **Drainage cleaning campaigns** are conducted as-needed, but especially as part of monsoon season preparedness to ensure that rainwater clears more quickly and does not cause flooding or stagnant water. Drainage cleaning campaigns are sometimes organised together with CMAs. OXSI negotiates with camp leaders to identify a dumping location for drainage waste, since it is too wet for the incinerator. Clearing drainage is more difficult than a routine cleaning campaign and usually attracts mostly male participants.

- **Open Defecation (OD) campaigns** started in late 2019 as another way to engage communities in solving OD. OXSI held meetings with the community to develop a plan for the campaign to target problem areas once per month. These are similar to cleaning campaigns but focus on cleaning up OD only. The location for the OD campaign is identified through Transect Walks (see Section 4.5) as well as the results of the monthly latrine functionality check (see Section 3.3). The OD campaign is always conducted early in the month so as not to skew the functionality check OD data.

[\(6G OD Cleaning Campaigns\)](#)



Environmental cleaners taking a pushcart of waste to the incinerator after a community cleaning campaign.



C7. Monitoring, Evaluation, Accountability, and Learning

Monitoring, Evaluation, Accountability, and Learning (MEAL) aims to comprehend and demonstrate the impact of humanitarian intervention, supports timely and evidence-based decision making, and allows humanitarian programmes to adjust to changing contexts. Humanitarian programmes need independent MEAL staff and processes in place to measure progress on programme indicators, present results to programme staff as well as to communities, and have flexibility to adapt policies and practices in response to feedback.

A MEAL approach in an acute emergency will look different than in a protracted crisis, but in all situations, monitoring, evaluation, and learning ultimately boil down to accountability. Accountability means that all service providers take account of, and are held accountable by, different stakeholders, primarily those affected by the exercise of such power. Characteristics of accountability should be highly visible in all aspects of WASH programming—as a mainstreamed component of the programme, OXSI embedded accountability in the project vision of increasing engagement and two-way communication. Monitoring is also highlighted throughout each infrastructure chapter. This chapter dives into a few more components of MEAL in the OXSI WASH programme: the development of a logical framework for the programme; a formal, trusted Community Feedback Mechanism; measuring perceptions; and learning and adapting in response to feedback.

7.1 Logical Framework Matrix

The logical framework matrix (logframe) is a management tool used to design, monitor, and evaluate interventions.

As much as possible, agencies should write the logframe with everyone involved in the project—greater inclusivity leads to better planning, understanding, and ownership of the project. One way to do this, as the OXSI MEAL team chose to do, is to conduct Logframe Development Workshops to involve key staff in the process of creating the logframe. This first required deep mutual understanding of the aims of the programme, unpacked from the Theory of Change (TOC), which was previously socialised and validated by key staff. The team then discussed how to measure progress against the TOC, and which aspects of the project would be standalone goals or activities and

which need to be mainstreamed throughout the project (some components fell into both categories, such as gender, accountability, and community engagement). It was also important for the logframe to include some “open” indicators, such as those defined by ACE groups (see Section 4.1), designed to be updated at specific points in the programme to allow adaptations. After the workshops, the MEAL team circulated the draft logframe to all staff, as well as technical experts supporting the project for feedback. The OXSI logframe is unique in its participative design, its flexibility to adapt in response to feedback, and in measuring processes as well as outcomes.

The OXSI WASH programme has seven outcomes:



Conflict-affected populations have access to and ownership and management over the provision of safe water in their communities



Conflict-affected populations have access to and ownership and management over the provision of safe sanitation in their communities



Conflict-affected community are aware of and promoting positive hygiene practices



Increased and strengthened influencing across various platforms at the local and national levels to amplify key concerns from conflict-affected communities



A strengthened culture of accountability and transparency exists in the delivery of WASH services to affected populations



Clear and comprehensive Gender and Protection mainstreaming throughout the project implementation



Emergency Planning implemented and Emergency Response ready to adapt and launch

(7A OXSI Logframe)

7.2 Community Feedback Mechanism

A Community Feedback Mechanism (CFM) is perhaps the most visible aspect of accountability in humanitarian responses.

Indicators of a good CFM include an accessible, trusted, and easy to use system to log feedback; an adequate response time; feedback on the outcome of the complaint (“closing the loop”); and programmatic changes in response to feedback, if necessary. During a humanitarian response, the responsibility of ensuring a CFM exists lies with Camp Coordination and Camp Management (CCCM) agencies, but every service provider needs to have systems in place to ensure two-way communication and accountability.



Step 1: Feedback Given

Not all systems for collecting and responding to feedback will apply to all contexts, so an assessment of communication channels should be conducted prior to setting up a CFM. Before the OXSI WASH programme started, Oxfam assessed the CFMs in place in the previous consortium, mostly complaint boxes and hotlines, and consulted with communities about the efficacy of the systems. With high illiteracy rates and low cell phone ownership in Sittwe camps, most people could not access complaint boxes and

hotlines. Communities overwhelmingly preferred to give feedback face-to-face (F2F) with staff, evidenced by the success of desk-based F2F mechanisms implemented by Camp Management Agencies (CMAs). OXSI built the new accountability system around this feedback, implementing a mobile F2F system designed to complement existing CMA systems (see Section 7.3), wherein dedicated staff roam around the camps to collect feedback. The OXSI system also emphasises collecting feedback as part of routine activities, which allows groups to report feedback together during hygiene promotion sessions or individuals to report privately during household visits.

Multiple options now exist to streamline data collection using Information Communication Technology (ICT), and support from specialised accountability and technology experts can make the difference in setting up a successful CFM, especially if introducing new technology.



Step 2: Input Feedback in Device



Tip

Although an accountability culture means that the entire team feels accountable, dedicated accountability positions, both staff and volunteer, have been recognised as having a positive impact on the culture and practice of accountability, especially when launching a new CFM.

One comprehensive system that easily ties together and documents all the steps of the feedback loop, from collecting feedback to closing the loop, can simplify the flow of feedback processing. OXSI set up the digital CFM in a platform called SurveyCTO, which staff access on tablets to collect feedback or on the computer to download data. The OXSI system not only collects complaints; it allows for case management.



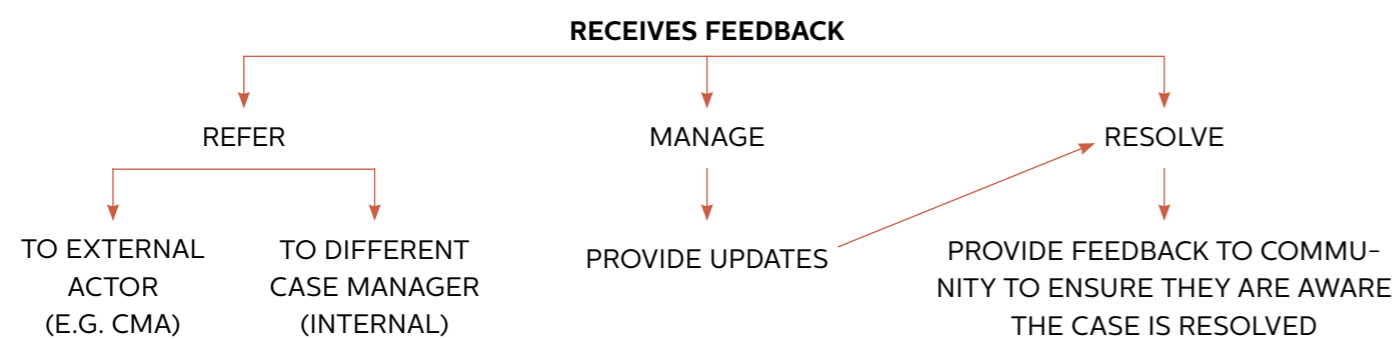
Step 3: Technical teams refer, manage, or resolve feedback

The person who initially collects the feedback records the case details and the system automatically sends the feedback to the proper department – construction, sanitation, community mobilisation, water quality, gender and protection, or MEAL. Case managers from each of these teams receive the feedback and include it in their action plan to resolve. Case managers ensure the feedback loop is closed before closing the case (see Section 7.5).



Step 4: Close the feedback loop

All of the OXSI staff received training for case management, and all case managers receive weekly reminders to handle pending cases. Generally, a case manager has a few options when receiving a case:



Step 5: Reporting and analytics

The OXSI accountability mechanism does not directly link to any external stakeholders, so referrals to external agencies must be handled by case managers for each individual case. The CMA and OXSI CFMs do not always “talk” to each other well, and timely referrals and follow up depend largely on the persistence of staff, which emphasises the need for well-trained staff.

The ICT experts worked together with the OXSI team to define categories of feedback. There are five categories, as listed below. Complaints get elevated into different categories based on the length of time the complaint has been unresolved.

Category	Explanation
WASH Service Request	A request for service that falls within the ordinary work of the consortium.
Cat-1 : Positive feedback	Feedback which is positive about the programme activities or services received.
Cat-2 : Request for other assistance	A request for services that are not provided by the consortium but may be provided by other organisations.
Cat-3 : Minor dissatisfaction with activities	A complaint about the activities, services or infrastructure that the consortium is providing that has been unresolved for over two weeks.
Cat-4 : Major issue with activities	A complaint about the activities, services or infrastructure that the consortium is providing that needs urgent attention or that has been unresolved for a month or more.

A success factor for the OXSI CFM is its link to operation and maintenance, making it a “living tool” that is frequently utilised by the whole team. For example, service requests for construction repairs are integrated into the construction team’s monthly work plan along with the results of monthly infrastructure functionality checks. Service requests will eventually phase out the need for frequent monitoring of infrastructure to create construction workplans. In this way, a functioning and well-used CFM indicates a community’s increased ownership over WASH infrastructure, and it helps WASH agencies to respond to community needs more efficiently.



Step 6: Programme change

Documentation as part of the accountability process is vital to measure performance of the accountability systems themselves. In OXSI’s system, the CFM data links with PowerBi, a data visualisation service, which produces reports showing the number of cases received; basic information on the complainant; the type of feedback; the number of cases managed, referred, and closed; and the length of time to close a case. This set up ensures that almost the full cycle of the CFM (except for closing the loop) is automatically documented. The system also shows who manages and closes each case, allowing for greater accountability.

Tip

The Community Feedback Mechanism is a key way to provide feedback to service providers but should not be the only way. WASH agencies can collect further feedback through routine Post-Distribution Monitoring assessments, satisfaction surveys, Focus Group Discussions on specific projects and activities, etc.

7.3 Safeguarding, Whistleblowing, and Sensitive Feedback

Sometimes, a separate system is needed to collect sensitive information.



OXSI designed the new F2F CFM to work in collaboration with CFMs already established by Camp Management Agencies (CMAs), which functioned well. OXSI was able to implement an almost entirely F2F CFM because camp residents have the option to report sensitive issues, such as complaints of staff behaviour, to CMAs without having to face OXSI staff to do so. OXSI trained enumerators to help people who approach them with protection or gender-based violence feedback to report them to the appropriate agency. When collaborating with other agencies, it is vital to make sure that data sharing agreements are in place and that both agencies have solid data privacy policies to ensure privacy and protection for the complainant.

In addition, OXSI collects safeguarding issues and whistleblowing complaints through two hotlines – one for Oxfam and one for SI—managed by safeguarding focal points, not through the CFM. Specially trained staff positioned in Sittwe and in Yangon answer the hotline and refer cases to be investigated according to internal procedures, while providing specialised support to the survivor. Oxfam also offers a global online reporting mechanism, but it is only accessible in a few languages and for those with access to the internet.



Focus on equity – gender, protection, and inclusion

Although staff responsible for collecting feedback should be close to the community to ensure a high level of trust, they may face increased risks and protection concerns if collecting sensitive feedback. Measures must be taken to set up safe reporting mechanisms to decrease risks to staff. In Sittwe camps, this meant bypassing camp-based safeguarding focal points and linking cases to staff outside of the camps.

7.4 Accountability Awareness

The success of a new CFM depends largely on the training of staff and the awareness and trust of the system by the community, not only on the design of the system.

To create a culture of accountability, all staff and communities need to understand the CFM and other reporting mechanisms. Communities must understand that there are specific ways to “talk” to service providers in ways that are documented and acted upon. Staff focusing on protection and gender mainstreaming in particular need to be involved in the design and implementation of reporting mechanisms. The OXSI Gender and Protection Coordinator organises regular awareness sessions on safeguarding and whistleblowing for camp-based staff and volunteers, while the MEAL team conducts trainings for data collectors, case managers, and all staff to better understand the CFM and discuss ethics and consent. The MEAL team also manages accountability focal points, who roam around camps to collect feedback on tablets.

OXSI launched the CFM as a pilot in one camp prior to scaling up in all locations. The pilot allowed close supervision and quick troubleshooting of problems, as well as an introduction to the system in practice for the staff.

OXSI engaged Internews as a partner for one year of the programme to strengthen accountability and communication. Among other tasks, Internews worked on the Accountability Awareness campaign in camps, focusing on two main components:

- Capacity building and guidance to camp-based staff on accountability so that they can deliver key messages accurately and effectively to communities.
- Facilitating sessions with the community and conducting awareness sessions door-to-door to explain accountability and the CFM and the ways of utilising it. Door-to-door visits ensured that those not regularly participating in OXSI sessions were also aware of the system.

To facilitate awareness raising in camps, Internews produced an animated video and IEC about accountability, the CFM, and OXSI’s services in Rohingya, Rakhine, and English. The extracted audio file can be sent to non-smart mobile phones, while the video is uploaded on tablets and smartphones and played at the end of most standard hygiene activities and events.

Focus on equity – gender, protection, and inclusion

Household visits to collect feedback through the CFM ensures that those who are not able to come to offices, such as the elderly or people with disabilities, are reached and heard.

The concerted effort to spread awareness about the CFM and about the services provided by OXSI led to a spike in cases in the CFM. Throughout the programme, this pattern was seen with every increase of awareness raising sessions on accountability, suggesting that continued awareness sessions encourage communities to make use of the CFM.



Community members providing feedback to an OXSI MEAL staff, as demonstrated in a video created by Internews

7.5 Closing the Loop

Closing the feedback loop is often the most difficult part of a CFM for staff to remember and track. However, the mechanism cannot be effective without this component.

Transparency about how agencies resolve cases is integral to community trust, and accountability mechanisms only operate if there is trust. Feeding information back to communities about what they can expect when providing feedback, how its handled, and clear protocols on responsiveness allow community members to make informed choices on whether or not to report feedback again.

It is helpful to have a clear schedule in place for when and how to get back to communities about their feedback results. For example, OXSI case managers check their accounts for new cases on specific days twice a week, and try to resolve, give an update, or refer all active cases by a specific day each week.

The next day, the MEAL team downloads the updated database and shares the results of non-sensitive cases with accountability field staff, who go out the following day to follow up with those who gave feedback that has been resolved or updated. Some cases are resolved simply by providing feedback to communities without any practical action, such as when there is a blockage that prevents OXSI from repairing broken infrastructure. In this case, staff may feel discouraged closing the loop when the problem

has not been solved, but it is vital for communities to understand why the problem persists so as not to lose trust in the agency and in the CFM.

Staff also encourage communities to continue filing complaints even if they know the issue cannot yet be solved, because agencies can use the complaints for advocacy with others to work on the complaint.

The Programme Management Unit (PMU), sometimes alongside a case manager, handles sensitive cases by directly contacting the person who filed the complaint. For all cases, there is a deadline to respond to communities within two weeks, even if the case has not been resolved.

OXSI works to improve accountability to communities through monthly meetings with camp leaders to provide project updates, answer questions, and hear concerns. This has shown to be particularly important in camps where blockages stalled work. Another way that OXSI practices accountability to communities internally is through “Hearing Sessions”, organised with all camp-based staff and the PMU once a month to give and collect feedback on programme challenges, successes, and updates.



Focus on equity – gender, protection, and inclusion

The collection and processing of beneficiaries’ personal data by humanitarian agencies can pose protection risks, especially if beneficiary data ends up in the wrong hands. Humanitarian agencies must have and follow data protection policies to ensure that only minimal and essential data is collected, stored safely, and accessed only by those who need it for planning or reporting purposes. When searching for a safe system for data collection, Oxfam conducted a feasibility assessment on digital protection, and found SurveyCTO to be one of the safest for collecting information. In addition, all data collectors and accountability staff received extensive training on data protection and digital protection rights.

7.6 Perception-based Assessments

A key aspect of accountability and learning in emergencies is listening to and acting upon the perceptions of affected communities. Without taking perceptions into account, there may be a large disconnect between how a humanitarian agency views its assistance and how affected people experience humanitarian aid.

In the past, Knowledge, Attitude, and Practices (KAP) surveys in the Sittwe restricted area consistently showed high levels of knowledge without evidence of corresponding behavioural changes. For the OXSI WASH programme, translating objectives on increasing community engagement, ownership, and satisfaction into indicators and specific follow-up actions required the development of several perception-based assessments to replace the KAP surveys. This shift to measuring satisfaction, participation, and overall impact of the programme on health (in addition to quantitative assessments such as infrastructure checks) also reflected the goal of the OXSI programme to place communities at the centre of decision-making. The perception-based assessments also sought to

highlight how higher engagement and satisfaction in activities results in positive behavioural changes that affect health.

The MEAL team developed each assessment using the same platform as the CFM, validated it with technical teams, piloted it, created a sampling strategy, and then launched each assessment. Following the data collection phase, the MEAL team analysed each set of data and compiled it to be presented and discussed with the entire OXSI team during Learning Reviews. The MEAL team also had to conduct extra training for enumerators to teach them how to conduct perception-based surveys, with a focus on ethics, consent, and data quality. These surveys are briefly described below.

Satisfaction Survey

The satisfaction survey is a comprehensive survey that focuses on perceptions of key WASH activities as well as learning from these activities. Although it incorporates elements of previous KAP surveys, it goes beyond the traditional KAP survey to also include information on consultation, participation, and satisfaction. The survey asks people about their perceptions on frequency and quality of consultations; participation in handovers, repairs, and other WASH activities and how useful they are; important practices to prevent diarrhoea; solid waste management behaviours; handwashing practices; whether or not there are enough WASH facilities and if they are safe and accessible; access to information; satisfaction with infrastructure design; sanitary pad disposal practices; and more. It also serves as a means of measuring the effectiveness of the accountability mechanism, by measuring transparency, information sharing, and awareness of the CFM.

The survey is conducted every six months on tablets using SurveyCTO and analysed by downloading the data into Excel. ([7B Satisfaction Survey](#))



The Satisfaction Survey collects peoples' perspectives on WASH activities and services.

Participation Survey

Many humanitarian agencies aim to have high participation in their programmes. Although most agencies report numbers of participants in activities and events, it is difficult to measure meaningful participation. The OXSI programme aims to increase community engagement and needed a way to measure beyond participation to peoples' perceptions on their involvement and decision-making in activities. The OXSI MEAL team developed the participation survey through consultations with communities, particularly women, to understand what meaningful participation means to them. The rungs of the participation ladder—consult, inform, demonstrate acceptance, negotiate, and take decisions—were decided together with communities. The format of the participation survey, consensus-based FGDs, was also preferred by women because they felt more comfortable expressing themselves in an FGD setting.



The Participation Survey is conducted through FGDs and requires consensus from all participants.

Every six months, the participation survey is conducted on paper both with OXSI staff and with communities through FGDs and compared to the baseline. For each activity, the group gives a rating from 1–4 on how much they were consulted, informed, demonstrated acceptance, negotiated, or took decisions in that activity. The group must reach consensus on each activity. Consensus ensures that one or two people do not dominate the FGD and speak on behalf of everyone else, something that happens frequently in FGDs unless carefully avoided. ([7C Participation Survey](#))

Pharmacy Assessment

The overall goal of WASH programming is to positively impact health outcomes. Although OXSI receives health data from the health cluster operating clinics in the Sittwe restricted area, feedback from communities showed that most people seek help at clinics only for severe illness. In addition, there are not enough clinics to serve the entire population, and many people cannot afford to travel to a clinic. Therefore, people frequently buy medicine from small pharmacies in camps. OXSI implemented a simple assessment to ask pharmacy owners every six months which medicines they sell the most, focusing especially on medicines to treat diarrhoea. Because most pharmacy owners do not keep meticulous records over months, this is classified as a perception survey. Although many other factors could influence whether or not people buy medicines and which medicines they buy (eg. availability, lack of income, closure of pharmacies, etc.), this assessment provides a snapshot of common health ailments in camps, and if, over time, people buy more or less medicine for specific ailments that are of interest to WASH agencies.

(7D Pharmacy Assessment)



The Pharmacy Assessment is conducted to keep track of the types of medicine most commonly sold in camps.

7.7 Learning and Adapting

One of the key reasons for collecting regular feedback is to learn and adapt programming to better meet needs of the community.

The changes may include the addition of a new activity or item to distribute, a different way to conduct an ongoing activity or distribution, a new or different way to share information, and so on. Even minor adaptations are vital in demonstrating to communities that agencies listen and respond to requests and to changing needs. In a multi-year programme, needs and approaches will change, and teams will learn and adapt continuously—therefore, it is important for programmes to have tools in place to reflect on activities with staff and communities and to support these changes.

The design of the OXSI MEAL approach itself developed from a change in the context and from feedback in the previous consortium. As the emergency in Sittwe became prolonged and was widely recognised as a human rights crisis, OXSI shifted from top-down aid delivery to more community-led processes to transfer as much agency and decision-making as possible to communities to avoid further disempowerment and dependence on external organisations. The MEAL tools, described in this chapter, thus evolved to reflect this change by focusing less on delivery targets and more on regular consultations with communities to check if activities meet needs, to involve more people in the design and maintenance of infrastructure, and to work together to identify and solve problems.

One opportunity to consult both teams and communities is a routine Learning Review conducted to dialogue about all collected data and how to use it among those involved in the response. The data evaluated can include internal processes, approaches, and harmonisation between actors, as well as programmatic results such as infrastructure functionality, PDMs, satisfaction surveys, pharmacy assessments, and participation surveys. In the OXSI WASH programme, each Learning Review identifies a series of recommendations that the team tracks in a Learning Review Matrix. These recommendations have included ways to improve coordination between teams, the creation of guidelines for specific activities, new approaches for solving blockages and building relationships with stakeholders, ideas for increasing community engagement, and many other recommendations focused on increasing the efficacy of the programme and meeting emerging community needs.

Some examples of changes made in response to feedback in the OXSI programme are below:

OXSI Feedback	OXSI Adaptation
Through PDMs and the CFM, women requested more sanitary pads and underwear.	The programme adapted by including a dignity kit distribution every six months for the remainder of the programme. To enable women more choice and dignity in having a choice of colours and sizes of underwear, the programme adapted its distribution protocol to have staff do the distribution in small groups at household level (see Section 4.3).
The latrine functionality data and other monitoring found consistent evidence of open defecation (OD) in the camps. Through consultations, it also became evident that OD is practiced by children as well as the elderly and people with special needs who may not be able to get to latrines.	OXSI adapted to include formative research on OD to create strategic behaviour change programming to solve the issue (See Section 4.8). With Child Friendly Latrine construction already planned, the project also added an inclusive sanitation consultancy designed to assess needs and recommend tailored sanitation solutions for people with special needs (see Section 3.8).
Through a gender assessment and the CFM, the team learned that some women felt uncomfortable to share latrines with men.	Although communities had previously given preference to have family-shared latrines rather than sex-segregated public latrines during the latrine handover process, OXSI re-started the discussion at shelter level to propose other alternatives for family-shared and sex-segregated latrines. Focus group discussions held at household level allowed the decision to be made by each group of households rather than by WASH agencies (see Section 3.2).
Updated SPHERE standards dictated that agencies distribute more body soap, which required OXSI to change to unscented soap due to cost. Feedback from PDMs found that women in particular appreciated more soap but preferred the scented soap, which they also use as shampoo.	OXSI could not provide scented and unscented soap in each hygiene kit, so adapted by creating two separate hygiene kits. One of the kits includes scented soap and is distributed every three months (see Section 4.3).



C8. Emergency Response: COVID-19

The COVID-19 global pandemic dramatically changed lives, economies, and ways of working in 2020. The World Health Organisation (WHO) declared the COVID-19 outbreak a global pandemic on March 11th and called upon governments around the world to scale up their response to contain the pandemic. As many cities and entire countries went into lockdown, the most vulnerable, including those living in densely populated camps, did not have the option to isolate or to work remotely. In addition to existing risks and threats, forcibly displaced and stateless populations faced a heightened risk of COVID-19 due to more densely populated conditions, lack of access to adequate health care, and restricted delivery of critical services.

Myanmar announced the first case of COVID-19 in the country on March 23 and shortly thereafter, the Government of Myanmar started to enforce regulations and a partial lock down to prevent the potential spread of the virus. The COVID-19 pandemic presented a new challenge for many humanitarian organisations and required fast adaptation of activities and ways of working to prevent transmission while continuing life-saving activities. In Sittwe camps, COVID-19 introduced additional challenges as the authorities used the pandemic as an excuse to further violate the rights of Rohingya and Kaman communities.

8.1 Contingency Planning

Many humanitarian organisations regularly develop contingency plans for potential emergencies, such as extreme weather events or conflict escalation.

OXSI updates its seasonal contingency plan annually and was prepared, while closely monitoring the development of COVID-19, to develop a contingency plan for responding to the pandemic.

Contingency plans that include clear “triggers” help teams know when to activate a specific part of the plan. For the COVID-19 plan, OXSI colour-coded the different levels of response according to easily-observable triggers:

Yellow:



Preparedness

Orange:



Risk reduction.
(pandemic announced; cases in Myanmar but outside of OXSI’s area of work)

Red:



Response.
(cases declared in OXSI’s area of work)

The contingency plan clearly indicates which activities continue and which are paused at each level of response. In addition, the plan includes activity guidelines that outline, at each level, specific changes to activities and ways of working to reduce the transmission of the virus while continuing to provide life-saving assistance. This also involved defining the necessary Personal Protective Equipment (PPE) needed for staff at each phase of the response for different activities based on their exposure risk. [\(8A Activity Guidelines\)](#)

Together with the contingency plan, OXSI developed several SOPs and guidance notes to ensure that teams safely implemented programme activities. As with any modifications, OXSI involved gender, protection, and accountability staff in the creation of the guidelines and SOPs and focused on addressing risks to frontline staff and the groups most vulnerable to the crisis.

In addition, OXSI set up emergency teams composed of national staff from each department to carry out lifesaving activities in case of limited access to camps.



Focus on equity – gender, protection, and inclusion

The COVID-19 pandemic affects men and women differently, and this understanding is the first step to creating effective and targeted communication campaigns. The Gender and Protection Coordinator conducted training for all OXSI staff to discuss the additional challenges that women face during the pandemic. These challenges include a higher risk of contracting the virus because the majority of healthcare workers and caretakers in the home are women; an increase in domestic violence and limited ability to seek help due to isolation; lower knowledge and exposure to information; loss of autonomy and social support networks; and limited access to healthcare, especially for “non-essential” concerns. OXSI included this information in messaging for communities, and created a gender checklist for COVID-19 response activities for internal use. [\(8B Gender Checklist\)](#).

8.2 Adapting Activities

A new emergency response rolled out in an organisation’s area of ongoing implementation may involve the cancellation or modification of activities and the introduction of new activities.

For the OXSI team, the development of the contingency plan involved creating some new activities (see next section) as well as dividing current activities into two broad categories:

- Critical life-saving assistance that had to continue during all levels of the COVID-19 response, while making sure staff conducted these activities as safely as possible.
- Activities considered too high-risk or not in line with COVID-19 infection prevention and control (IPC) measures that could either be paused or significantly altered to lower or prevent the risk of transmission. The contingency plan, along with activity guidelines, outlined the modifications taken to each of these activities at different risk levels.

Examples of OXSI life-saving activities that continued regularly during 2020 and the adaptive measures put in place include:

OXSI Life-Saving Activity	Adaptive Measures during COVID-19
Monthly distribution of hygiene kits	OXSI prepositioned several months’ stock of hygiene kits in camps in case of loss of access. The first adaptation of the Hygiene Kit SOP included physical distancing during distribution, handwashing before entering the distribution area, etc. Once the situation reached Level 3 (response), the SOP was again adapted and staff began distributing the kits door-to-door while wearing PPE, distancing, and never entering households. (8C Hygiene Kit Door to Door Distribution)
Desludging of latrines and operation of the STS	Again, OXSI ensured adequate stock of materials in camps to operate the STS and carry out desludging activities. The Sanitation Team prepared to manually desludge overflowing latrines in all camps for a period of one month in case of access constraints. Sanitation staff split into two teams that alternated work days to reduce the total number of people in contact with one another.
Solid waste management	Instead of organising mass cleaning campaigns, OXSI engaged communities to take responsibility to clean their surroundings by themselves. OXSI environmental cleaners, dressed in appropriate PPE, still collect waste from public waste bins and deliver it to the incinerators, which continue to operate safely.
Hygiene promotion sessions	To avoid gathering people in large groups, OXSI switched to conducting hygiene promotion sessions through megaphones, audio files, and with door-to-door visits only, while wearing PPE, maintaining physical distance, and conducting discussions outside with a maximum of five people. Additional COVID-19 IEC was developed to facilitate information sharing. (8D COVID19 IEC)

To ensure staff safety and to decrease risk for frontline staff in carrying out essential activities, all staff received cloth masks, and staff carrying out essential activities received additional PPE such as gloves, goggles, and even full body suits (for specific activities in case of a large outbreak in camps). OXSI provided training on how to use, dispose of, and care for the PPE. Handwashing facilities were installed in any OXSI camp offices that didn't already have them, near dedicated buckets for disposing of used PPE (regularly taken to incinerators).

In addition to modifying existing activities, OXSI introduced a new set of activities to curb transmission of COVID-19. These activities aligned well with OXSI's ongoing WASH activities and did not require extensive training, except for the new physical distancing guidelines, which initially proved difficult for teams accustomed to gathering communities for educational sessions.

The new activities included the distribution of communal handwashing stations and additional soap. OXSI provided a bucket with a tap to serve as a handwashing station for every two shelters, while the shelter residents contributed to the provision of handwashing stands, which could simply be a plastic stool to hold up the bucket. The communities also agreed to maintain the handwashing stations by refilling the water and taking turns contributing soap.

In addition to communal handwashing stations, OXSI started regular disinfection of WASH infrastructure components frequently handled by many people (eg. handpump handles, latrine door handles, etc.) and messaging on COVID-19 prevention using megaphones. OXSI conducted training of staff and communities about COVID-19 symptoms, transmission, and prevention.

As the pandemic response continued, it became necessary for agencies to track and measure progress and changes resulting from COVID-19 as well as from the response itself. OXSI worked closely with the Communicating with Communities (CWC) inter-agency group to develop and implement a community perception survey to track COVID-19 related information and use the findings to modify the response. OXSI integrated the questions into a Knowledge, Attitudes, and Practice (KAP) survey as a baseline assessment in late May 2020 to understand

community perceptions and needs. The OXSI gender needs assessment carried out later in 2020 also examined the effects of COVID-19 on communities, staff, and the project. OXSI adapted its messaging to address the gaps found in these assessments, such as the need for more information about symptoms, how COVID-19 is transmitted, and what to do if someone develops symptoms.



The provision of handwashing stations and soap was key in the fight against COVID-19 transmission.

8.3 Modifications of Ways of Working

In some cases, a new emergency will also involve a change in ways of working, particularly when faced with access restrictions.

Due to the nature of the COVID-19 emergency, the preventive measures put in place by governments could decrease humanitarian access to vulnerable communities. From previous experience and given that access had become steadily more difficult for years, OXSI knew that entry to the camps could be denied, and in addition to changing WASH activities, also implemented adaptations to the ways of working in 2020.

Immediately, OXSI assessed the need for staff to go into camps on a daily basis and started to focus on ensuring that camp-based staff had everything needed to work independently in camps with frequent communication to staff outside. This required training for some staff and the provision of more laptops, cell phone credit, and the set up of electricity in camp offices that did not yet have it. Both Oxfam and SI enforced a work from home policy and scheduled office work attendance for critical operations only. With some international staff getting stuck outside of Myanmar or in Yangon for extended periods, it was also important to set up regular online meetings to ensure effective coordination mechanisms were in place within the consortium team at all levels and with other stakeholders.

The remote management systems put in place rely on the expertise of camp-based teams, some of whom had to quickly take on new responsibilities and learn new skills. The teams' adaptation and ability to continue to manage the programme uninterrupted validated OXSI's overall approach, which focuses on increased ownership and decision-making at community level, as well as the effort to slowly localise the response. In fact, the success of the management systems in place during most of 2020 informed OXSI's development of future programming to focus on strengthening technical expertise and facilitating processes to formalise partnerships and transition services to community groups or local entities in camps. OXSI also plans to support these community groups in camps in their discussions with duty bearers to identify durable solutions.

When the threat of COVID-19 limited staff access to camps, OXSI set up hotlines to receive complaints from communities through camp-based accountability staff. Each camp had a mobile phone for staff to receive feedback, and the phone number was posted on bulletin boards and spread by camp-based staff conducting COVID-19 awareness sessions. Feedback on cases was also given via the same channel. Although hotlines are not ideal in the camps, where cell phone ownership is low, particularly among women and girls, this provided a temporary alternative for those who did not feel comfortable going to OXSI offices to file complaints.



OXSI set up hotlines for collecting and responding to feedback for those who did not feel comfortable filing complaints face-to-face.

8.4 Coordination

Coordination between organisations, clusters, and the government is extremely important when facing a new emergency.

In Rakhine, an inter-agency task team was established at the end of March to work on a coordinated response. OXSI joined the taskforce to provide technical support for WASH-related activities and plans. The Rakhine State Government (RSG) organised a parallel task team, and while the two teams initially did not communicate well, the humanitarian task team quickly adapted to the instructions of the RSG.

Most other working groups operating in Sittwe also took on new tasks and activities during the COVID-19 pandemic. For example, the Communicating with Communities (CwC) working group regularly tracked

rumours and sent out reports to agencies. This was helpful for agencies to hear about and respond quickly to any misinformation being circulated. Protection agencies monitored and sent out reports about individual and community access to information, ability to respond to and prevent COVID-19, access to resources and services, and key protection risks linked to COVID-19. The Hygiene Promotion Technical Working Group coordinated on key messaging and IEC development and translation. Every cluster and working group discussed the COVID-19 response and worked together to fill gaps.



A coordinated response is a key protection principle and especially crucial at the start of a new emergency to ensure full coverage of needs.

8.5 Principled Programming

In a rapidly-evolving new emergency, humanitarian agencies must continue to hold themselves accountable in practising safe programming, adhering to humanitarian principles and standards, and upholding their values.

While many countries did their best to quell the spread of COVID-19, some struggling democracies and highly repressive states used the pandemic as an excuse to violate human rights. Due to the complex human rights crisis in Sittwe, OXSI remained vigilant during the COVID-19 response and continued to try to ensure principled action.

For example, when cases emerged in Myanmar, authorities requested the assistance of humanitarian actors to support COVID-19 quarantine and isolation centres, including the request to OXSI to provide WASH services. The set-up of these centres was not transparent in terms of management, conditions, and occupancy. OXSI had concerns that the centres pose protection risks for Rohingya communities and could cause harm as well as destroy trust between

communities and the organisations working in camps who would be perceived as collaborators in these facilities. At the same time, it was important that the facilities had proper WASH facilities, and OXSI's intervention could minimise the overall harm caused.

To assist with these difficult decisions, OXSI created a checklist to assess each situation on a case-by-case basis. The checklist was shared with other agencies and clusters to promote and influence a discussion on a principled humanitarian response that does not create further harm to strained communities. With the use of this checklist, OXSI assessed and confidently assisted several quarantine facilities in camps with the construction of latrines and bathing spaces, as well as with the provision of hygiene kits.

OXSI WILL not support: if ANY of the following criteria or conditions are met due to risk of causing harm, undermining our values & humanitarian principles:

There is direct support or active collaboration with armed actors, including the Police Force and other groups that might infringe humanitarian principles and OXSI values.

Support sites are where incidents of threats, coercion, violence, blackmail or sexual exploitation and abuse have occurred or suspected to have occurred.

Women and girls do not have access to care by preferred gender.

Sites do not have gender segregated facilities for women and girls who are quarantined/isolated from their households/families.

Family separation occurs without the best interests of the child or children in mind.

Individuals are forced to incur costs associated with their isolation/quarantine or associated processes.

No considerations for child protection and the safeguarding of vulnerable adults are taken into account.

**If any responses are YES, OXSI will NOT support.*

OXSI might support: if through our activities we are able to mitigate, reduce, or address the following conditions and/or risks (more analysis will be needed):

People in sites have limited access to communication and information and OXSI can ensure individuals have unfettered access to timely and relevant communication/ information.

Specific needs for vulnerable individuals exist and OXSI's support can ensure their specific needs are better understood and met appropriately.

Sites do not have gender separated facilities and OXSI's support can ensure increased gender and protection analysis, and the construction/installation of separate facilities for different genders with protection considerations.

There are unclear or unofficial plans regarding stay(s) and OXSI's support to site management will lead to the development and communication of a clear plan for people's stay.

Where OXSI can influence and ensure women and girls have access to care by preferred gender.

Where OXSI can influence and ensure family separation does not occur.

Where it is clear and communicated that individuals will not be forced to incur costs associated with their isolation/quarantine or associated processes.

Child protection and PSEA measures have been considered and a safeguarding complaints mechanism is in place.

**If some/all responses are YES, follow up with management to discuss further and if agreed, review the green criteria.*

OXSI WILL support: (community-led and government-led initiatives), IF we are informed and/or involved in the rationale for setting-up of facilities, management arrangements (with a focus on ensuring people's safety and protection during their stay), and ALL of the following criteria/conditions are met:

Sites are free from involvement of armed actors and other groups that might infringe humanitarian principles and OXSI values.

Communities in the surrounding area(s) of the quarantine or isolation centre and the main target group(s) of the centre have been consulted, informed, and acknowledge such arrangements as an appropriate solution for the specific local context to reduce the spread of infection in the community while respecting safety and dignity of the individuals hosted.

People admitted to the site(s) have done/do so voluntarily.

People in the site have unfettered access to timely and relevant communication and information.

The site has gender separated facilities for personal hygiene and sleeping.

Women and girls have access to care by preferred gender and their specific needs are considered.

Families and children/siblings are kept together.

Specific needs for vulnerable individuals are being met.

Costs associated with the stay are not incurred by individuals/families.

There is a clear and communicated plan for the stay, including details on transportation, admission and release processes.

Activities adhere to WHO standards and guidance, if applicable.

People in the site are safe and the site is free from incidents of threat, coercion, violence, blackmail or sexual exploitation and abuse, or suspected incidents.

People's dignity and privacy (including data privacy) are not infringed.

Site management is transparent and has community acceptance and/or involvement.

Verification is possible through MEAL activities or Protection Monitoring.

Child protection and PSEA measures have been considered and a safeguarding complaints mechanism is in place.

**If ALL responses are YES, proceed with support by completing the Safe Programming Matrix and discussing with management*



COMMUNITY ENGAGEMENT STRATEGY

Humanitarian WASH, Sittwe Township
Oxfam & Solidarités International

INTRODUCTION

In addressing Water, Sanitation and Hygiene (WASH) needs in Sittwe Township, Oxfam and Solidarités International (referred to as 'OXSI') are working in partnership and with other actors to transition to community-managed WASH in 25 camps and villages, covering 53,650 women and 50,627 men. The programme runs from November 2017 - 2020.

Needs assessments and camp consultations conducted prior to the commencement of the project highlight the varied community dynamics that make up the 25 camps and villages. While most people are grouped together according to their families who came together after the violence in 2012, many people do not feel like they are part of a community, that they do not receive enough information about what is happening in the camp, and that they receive little outside information. It was identified that there is an urgent need to open space for dialogue, trust-building, and sharing with communities.

During the current and previous WASH programmes, latrines and boreholes have been "handed over" from WASH agencies to head of households to increase a sense of ownership and sustainability. A sense of ownership is indicated when diverse members of the community take care of, clean and maintain WASH infrastructure, as well as knowing how to ask for assistance for larger problems. Minor repairs and maintenance are handled by communities after training and an official handover are completed. Major repairs are currently reported to and handled by OXSI. However, in the baseline satisfaction survey, 62% of female respondents and 69% of male respondents said they had not been consulted about latrine upgrades or repairs. In addition, requests for major repairs remain low despite major repairs being needed in most camps. There is room for improvement in involving women and men, and where appropriate, boys, girls, elderly, and people living with disabilities, in the design and siting (when possible), maintenance, repair, and requests for repair of WASH infrastructure.

Annual Knowledge, Attitude and Practice (KAP) surveys conducted since 2015 show a gradual increase in the level of hygiene knowledge amongst IDPs. However, there continue to be concerning trends for sanitation and treatment of drinking water, areas where an acquisition of knowledge has not directly translated into changed practices. To impact these stubborn behaviours, a systematic, community-led approach is needed. The new partnership has already begun to transition the hygiene promotion approach from one-way messaging to dialoguing through peer groups and focus group discussions, and targeting activities for specific behaviour changes. However, researchers of behaviour change have highlighted the need to use multiple techniques to engage participants in activities that aim to change norms from the bottom-up.



PURPOSE

This strategy outlines the three key objectives in the community engagement programme, which are aimed at improving the three areas described above: trust building, ownership, and behaviour change.

The purpose of this document is to guide programming and the creation of operational plans to tackle each objective. This strategy is developed specifically to the Sittwe camps and villages context.

VISION

A healthy community that is taking ownership over maintenance of infrastructure and receives services from accountable duty bearers who are responsive to community needs and desires.

CORE VALUES

Gender Equality: we understand that women, men, girls, and boys have different needs, priorities, and experiences, and we take this into account in the design and implementation of all programmatic activities.

Accountability: we are committed to being accountable to the communities that we work with by providing relevant and timely assistance that is based on participation and feedback, which is used to learn and improve programming.

Participation: we aim to ensure that women, men, girls and boys, including the elderly and people living with disabilities, are engaged in decisions and activities that affect their lives.

OBJECTIVES

COMMUNITY ENGAGEMENT STRATEGY OBJECTIVES

OBJECTIVE 1: Create opportunities for women, men, girls and boys, including elderly and people living with disabilities, to decide on, build, and implement campaigns targeting a WASH issue of their choice.

OBJECTIVE 2: Increase sense of ownership of WASH infrastructure built by NGOs by engaging women and men, and where appropriate, girls, boys, the elderly, and people living with disabilities, in the processes of designing, building, repairing, and maintaining WASH infrastructure.

OBJECTIVE 3: Improve hygiene practices by mainstreaming community engagement in standardized hygiene promotion activities.

CONTENTS
INTRODUCTION
WATER
SANITATION
HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT
SOLAR LIGHTING
SOLID WASTE MANAGEMENT
MONITORING, EVALUATION, ACCOUNTABILITY, AND LEARNING
EMERGENCY RESPONSE: COVID-19
APPENDIX



OPERATIONAL TACTICS

Full operational plans for achieving each objective are attached in Appendices A-C. The operational plans are subject to change as needed. The table below summarizes the main points of the plans.

Objective 1:

WHAT:	A new process, Action from Community Engagement (ACE), has been piloted to operationalize objective 1. ACE aims to involve underrepresented groups who gather together in small groups (sensitive to key dynamics - grouped by sex, age, and role within the community) for a series of activities facilitated by OXSI community engagement teams. The groups work on activities in two main phases: Needs Identification and Campaign Building. The activities focused on needs identification help the group identify and break down a specific WASH issue, which then becomes the focus of the group-led campaign to tackle the issue. Within each campaign is an action plan detailing the steps needed to achieve the goal, a timeline of the steps, indicators, a monitoring and evaluation plan, and a budget.
WHO:	The Needs Identification and Campaign Building activities are carried out by small groups. The campaign is then implemented by the small group and any other community members they recruit. OXSI community engagement teams facilitate the implementation of activities and support the campaigns. Technical leads, such as the Gender and Protection, MEAL, and WASH Coordinators also help to train teams, monitor and adjust activities.
WHERE:	The goal is to implement ACE with at least two groups in each camp by the end of the project cycle.
WHEN:	At least one cycle per quarter.
MORE INFO:	The SOPs for each activity are included in Appendix A, but these are flexible tools which may or may not be useful for each group.

Objective 2:

WHAT:	The operational plan for objective 2 aims to increase a sense of ownership by engaging communities in the construction of new WASH infrastructure, as well as the maintenance and repair of existing infrastructure. The plan provides key times and messages for consulting and involving women and men, and where appropriate, boys, girls, elderly, and people living with disabilities, in the design and siting (when possible), maintenance, and repair of infrastructure. Infrastructure such as latrines and boreholes are handed over to households, with a repair system in place that, after receiving training, allows women and men to conduct minor repairs with materials provided by OXSI, and to report major repairs to OXSI through a complaints mechanism.
WHO:	OXSI construction, sanitation, and community engagement teams must work together to meet this objective, but community engagement teams lead on the effort to engage community members on new infrastructure, handovers, and



	repairs. The construction team is responsible for training and ensuring availability of materials for repairs. Receiving, registering, and responding to feedback is the responsibility of the whole OXSI team, with technical support from the MEAL team.
WHERE:	In all camps and villages where OXSI operates.
WHEN:	At every stage of the project cycle. Some activities are only applicable when new infrastructure is constructed, but repairs and maintenance are always ongoing.
MORE INFO:	The SOPs for each activity are included in Appendix B.

Objective 3:

WHAT:	The operational plan for objective 3 focuses on creating more opportunities for participation and community engagement within each of the existing hygiene promotion activities. These activities focus on important hygiene education, awareness raising, and outreach during emergencies. The purpose of these activities is to raise awareness and change hygiene behaviours, so the key audience is women and children. However, although the activities are responsive to existing gender roles and responsibilities, they also seek to challenge restrictive gender norms – for example, by promoting a more equitable split of household WASH duties and by increasing women’s involvement in decision making.
WHO:	OXSI community engagement teams, with feedback from technical leads, are responsible for carrying out hygiene promotion activities and for engaging communities in these activities.
WHERE:	In all camps and villages where OXSI operates.
WHEN:	At every stage of the project cycle. Each activity has a different schedule and frequency.
MORE INFO:	The SOPs for each activity are included in Appendix C, with notes about how to make each activity more participative. These SOPs are designed to change throughout the project cycle.

GENDER STRATEGY – HARP December 2018-September 2020

1. INTRODUCTION

The purpose of this strategy is to plan how the WASH project funded by HARP will promote gender equality in all aspects of WASH. Its main focus is on gender, but with some references to protection.¹

2. WHY GENDER IN HUMANITARIAN RESPONSE IN RAKHINE

Integrating gender equality in humanitarian work is necessary for three reasons:

- Women and men are affected differently by conflict and other crises.
- Gender equality is in Oxfam's and SI's core values.
- Addressing gender is fundamental to achieving the project goals.

In the section below, we look at these reasons more in detail.

2.1 Men and Women are affected differently by the current situation

Oxfam and SI believes that while Myanmar's transition has had many benefits in terms of gender equality², this has not happened in conflict affected areas such as Rakhine State, because of intercommunal tensions, poverty and a lack of investment by the central government.

Partners' data and experience in the area as well as recent assessments from the WASH cluster and Protection Sector provided analysis on specific gender and inclusion vulnerabilities in Sittwe³. From these analyses we know that women in both communities (and especially Muslim ones) are isolated by their lack of education and Myanmar language skills as well as cultural norms⁴. Whilst women are the primary care-givers in the homes, responsible for cooking, collecting water, washing clothes and family hygiene and sanitation, they have very little decision-making power in their households and have limited access to information which is channelled to them through their husbands or community leaders.

2.2 Both Oxfam and SI believe in promoting gender equality

Oxfam's Humanitarian Position says that every person deserves dignity and respect, and to enjoy their rights to life and security. We must provide assistance and protection in each crisis where we work that are:

- Impartial: for every person, according to their needs, without discrimination because of race, gender, religion, age or anything else; and
- Independent: directed without influence from any interest group or political group.

Oxfam's humanitarian approach also includes a strong focus on Respect for Women's Rights and Gender justice. 'We respond to needs expressed by women and girls, as well as men and boys, and believe that equitable humanitarian aid can help challenge the inequality they face. Oxfam also

¹ This is because protection is here understood as being limited to mainstreaming of its 4 key elements: meaningful assessment, safety and dignity, empowerment/working with others, accountability.

² see Asian Development Bank report, Gender Equality and Women's rights in Myanmar, 'A situation analysis', 2016.

³ Note: the partners will also adhere to the WASH Minimum Commitments for the Safety and Dignity of Affected Populations as well as the Global WASH Cluster's monitoring minimum commitments framework.

⁴ Rapid Assessment Protection Situation of Women and Girls: Rakhine Humanitarian Response. Gender-Based Violence Area of Responsibility Rapid Response Team, Rakhine Humanitarian Response, February 2013.

believes that 'It is necessary to challenge discrimination, violence and injustice on the grounds of sexual orientation or gender identity, as well as the power imbalances that prevent LGBTI people from enjoying their rights'.

For SI, gender equality in humanitarian action is about effectively reaching all segments of the affected population. Humanitarian actors must therefore design programs to meet the needs of men, women, boys and girls and ensure that they all have safe and equal access to humanitarian assistance. SI also states that gender equality is about ensuring that the protection and assistance provided is planned and implemented in a way that benefits women and men equally, based on an analysis of their needs as well as capacities.

2.3 Addressing gender will help achieve the results of the project

For the project, it is necessary not only to ensure gender equality within humanitarian WASH programming but also enable women to take leadership roles. Evidence from other humanitarian programmes in the country show that targeting women and girls is not enough—men and boys need to be considered as agents to strengthen equality, women's empowerment, and leadership within communities.

3. INTEGRATING GENDER IN HARP

HARP's outcome 6 is: **Clear and comprehensive gender (and protection) mainstreaming throughout the project implementation.** In addition, the project documents refer to gender integration in all five other outcomes (see programme logframe). This strategy suggests a number of principles to realise these commitments.

Principles

Effective gender mainstreaming and the realisation of gender outcomes need:

- Willingness on the part of all to learn about gender equality and put its values and tools in practice.
- Gender synergies between the various components of the programme.
- Regular collaboration among different Consortium members and staff at different levels.
- Gender mainstreaming is the responsibility of all managers and staff, with support of the Gender and Protection Coordinator (GPC).

The approach to effectively mainstream gender and the realisation of the HARP gender commitments is based on two areas of work, one Operational (3.1) and one Organizational (3.2), each with several objectives, adapted from the programme goals.

Objective

3.1 Operational

Objective 1: Ensuring fair, safe and suitable access and use of WASH facilities and services for women, girls, men and boys. This will contribute to Outputs 1 and 2.

Objective 2: Changing WASH behaviour through community engagement and ownership by women, girls, men and boys. This will contribute to Outputs 1, 2, 3, and 5.

Objective 3: Promoting women's Participation (voice) and Leadership. This will contribute to Outputs 1 and 4.

3.2 Organizational: Internal to Oxfam and SI

Objective 1 PERSONNEL: HARP staff understands and applies the principle and practices of gender equality, in the community and within the organization.

Objective 2 SYSTEMS: All HARP systems (HR, logistics, facilities etc.) are fair and create a safe and respectful environment for people of different gender and backgrounds.

4. COORDINATION

Coordination is key to achieving our gender ambitions. In particular:

- Regular exchange of ideas and information on gender between Oxfam and SI.
- Coordination with relevant clusters and working groups on gender and protection.
- Close collaboration with UN Women for exchange of information, support and resources such as training material, reports, etc.
- Coordination with Gender staff based in Yangon (and Myitkyina) to ensure a common approach and understanding of gender equality.
- Close coordination between Gender and Protection Coordinator and Advocacy staff.

5. RESPONSIBILITIES

- The overall responsibility for the implementation of this strategy, monitoring progress and the use of budgets is with Programme Management Unit (PMU).
- The Gender and Protection Coordinator is responsible for the activities in his/her action plan and those specified in this strategy.
- All staff and managers of the Consortium are responsible for gender mainstreaming in their own work, supported by the Gender and Protection Coordinator.
- The participation in and support of the Gender and Protection Coordinator should be at the earliest stages of any activity.

6. ACTION PLAN

OPERATIONAL			
Objective 1: Ensure fair, safe and suitable access and use of WASH facilities and services for women, girls, men and boys			
ACTIVITIES	When	Resources needed	Responsible
ACTIVITY 1			
Carry out regular Gender Assessments, either self-standing or as essential components of other assessments (PDMs, satisfaction surveys, etc.)	Regularly	Time, Budget	MEAL team and GPC
ACTIVITY 2			
Incorporate the results of Gender Reviews and other Assessments (PDMs, satisfaction surveys, etc.), into the WASH programme to continuously and concretely address needs of women and girls, promote their dignity and comfort, and prevent GBV. Use the same results to identify emerging issues and innovative solutions.	Regularly	Time, Budget	Programme Teams supported by GPC
ACTIVITY 3			
Identify individual women leaders, also trained within the Women Empowerment Programme, and support them to work with other women to directly: <ul style="list-style-type: none"> - Now: use feed-back mechanisms to improve access to and quality of water, hygiene kits (including the quality of soap), solar lights (so they are upgraded and replaced when they are broken), MHM disposal systems, etc. - And in the longer term: participate in the design and siting (when possible), maintenance, and repair of infrastructure, both at the training and hand-over stages. 	Q1 2019	Budget	Community Engagement Teams WEP with GPC
ACTIVITY 4			
Research the extent and consequences of the practice of women bathing inside their shelter, already identified by a Gender Analysis, and practical ways to address it (including through advocacy with different stakeholders).	Q2 2019	Budget	GPC
ACTIVITY 5			
OXSI HARP should advocate at different levels to highlight the issue of actors working in OXSI camps in an uncoordinated way (eg. providing boreholes and phasing out without maintaining them or monitoring water quality) because this represents a public health risk. Find solutions for the lack of water during the dry season, especially in STMG.	Regular on going		WASH Teams

ACTIVITY 6			
HARP to improve access to latrines by: - Piloting latrines handover following the Basara camp model of separate household Female, Male latrines in all camps, to promote the safety and dignity of women and girls, and the use of MHM box. - Make sanitation facilities easily and safely accessible to children, the elderly, and people with mobility impairments.	From Q1 2019		WASH Team supported by GPC
ACTIVITY 7			
Provide MHM boxes in DP, HMZ, BDP and TC camps and improve MHM sessions for men and women to encourage the use of MHM box everywhere.	From Q3 2019		SI Construction Teams and WASH Teams
ACTIVITY 8			
Provide underwear for women and girls to improve hygiene and protect dignity as part of the yearly WASH NFI kit.	Once a year	Budget, Plan	Logistics Team with WASH Teams
Objective 2: Changing WASH behaviour through community engagement and ownership by women, girls, men and boys			
ACTIVITIES			
ACTIVITY 1			
All community engagement activities (hygiene promotion sessions, events, and celebrations etc.): Fully engage women and girls, especially in leadership roles. Have men support women's engagement and leadership. Challenge restrictive gender norms around WASH. Promote a more equitable division of household WASH duties.	On going	Time, Tools	Community Engagement Teams with GPC
ACTIVITY 2			
Develop activities to engage men and CMC members to change their attitudes and behaviour towards women, give space and opportunities to them in WASH and other community activities.	Q4 2019	Time, Budget, Tools, Staff	GPC, WEP
ACTIVITY 3			
Research (also using community engagement tools) the limitations young women and girls have in having needs met and voices heard on WASH issues, and use the evidence to work with women leaders and groups to campaign (in consultation with IRC who founded girl teenage groups in That Kay Pyin and Ohn Taw Gyi)	On going	Budget	GPC, WEP

Objective 3 Women's Participation (voice) and Leadership			
ACTIVITIES			
ACTIVITY 1			
Map existing women's groups (formed by HARP and other organizations, including CMC), their role, activities and leadership, and assess opportunities and challenges	Q1 2019	Time	GPC with WASH Teams and WEP
ACTIVITY 2			
As soon as possible: Ensure that the groups' Actions Plans focus on campaigns on WASH, MHM, safe drinking water or hygiene promotion issues of their choice through Needs Identification and Campaign Building activities of ACE. Support the groups and their leaders with resources and advice, also encourage them to become self-help groups broader in scope (for example on family relations, early marriage, livelihood, etc.)	Q1 2019	Budget, Tools	GPC with WEP and Community Engagement Teams with
ACTIVITY 3			
HARP to carry out advocacy with government to include women in CMC committees, also as leaders.	Q1 2020	Advocacy Plan	Project Coordinator
ACTIVITY 4			
Monitor changes in women's voice and leadership and on the effectiveness of women' groups, and use the evidence for programme development and advocacy.	On going	Tools	MEAL Team and GPC
ORGANIZATIONAL			
Objective 1 PERSONNEL: HARP staff understands and applies the principle and practices of gender equality, in the community and within the organization.			
ACTIVITY 1			
In recruitments, check existing capacities and attitudes on gender or willingness to learn. After recruitment, provide context specific gender inductions to all new staff.	On going	Tool (induction etc.)	Recruiting Manage, HR, GPC
ACTIVITY 2			
Train male and female HARP staff in all technical aspects of the work, and give both equal chances to practice technical and other skills in project activities. This will increase the capacity of all staff, and facilitate women's participation in programme activities.	Annually		All managers
ACTIVITY 3			
Provide regular gender mainstreaming capacity building to staff (programme, HR, logistics, finance, etc.) giving priority to training on Humanitarian Gender Minimum	Quarterly	Time, Budget	GPC and safeguarding focal

Standards, so that they become familiar with its values and methodologies and responsible for its results. Include issues and mechanisms on safeguarding.		
ACTIVITY 4		
Use short and innovative activities to change gender attitudes, and build confidence of all staff and managers (e.g. celebrations of 16 days of activism, 'gender café', speakers)	3 Times per year	Budget
Objective 2 SYSTEMS: All HARP systems (HR, logistics, facilities etc.) are fair and create a safe and environment for people of different gender and backgrounds.		
ACTIVITY 1		
Aim for gender balance in teams at all levels- including in camps - through recruitments by adopting clear job requirements, varied methods for disseminating vacancy information, and avoiding stereotypes about jobs for men or women.	As necessary	
ACTIVITY 2		
Check for gender contents in: participation diagnostic tool, latrine functionality survey, feed-back mechanisms, satisfaction survey, functionality checks, and all other formats used regularly.	Quarterly	Plan
ACTIVITY 3		
Establish Gender Focal points in the camps	Q3 2019	
ACTIVITY 4		
Review HARP budget so that enough is transparently earmarked for gender activities, even where they are not specified in the current budget.	Q2 2019	

7. RISK MANAGEMENT

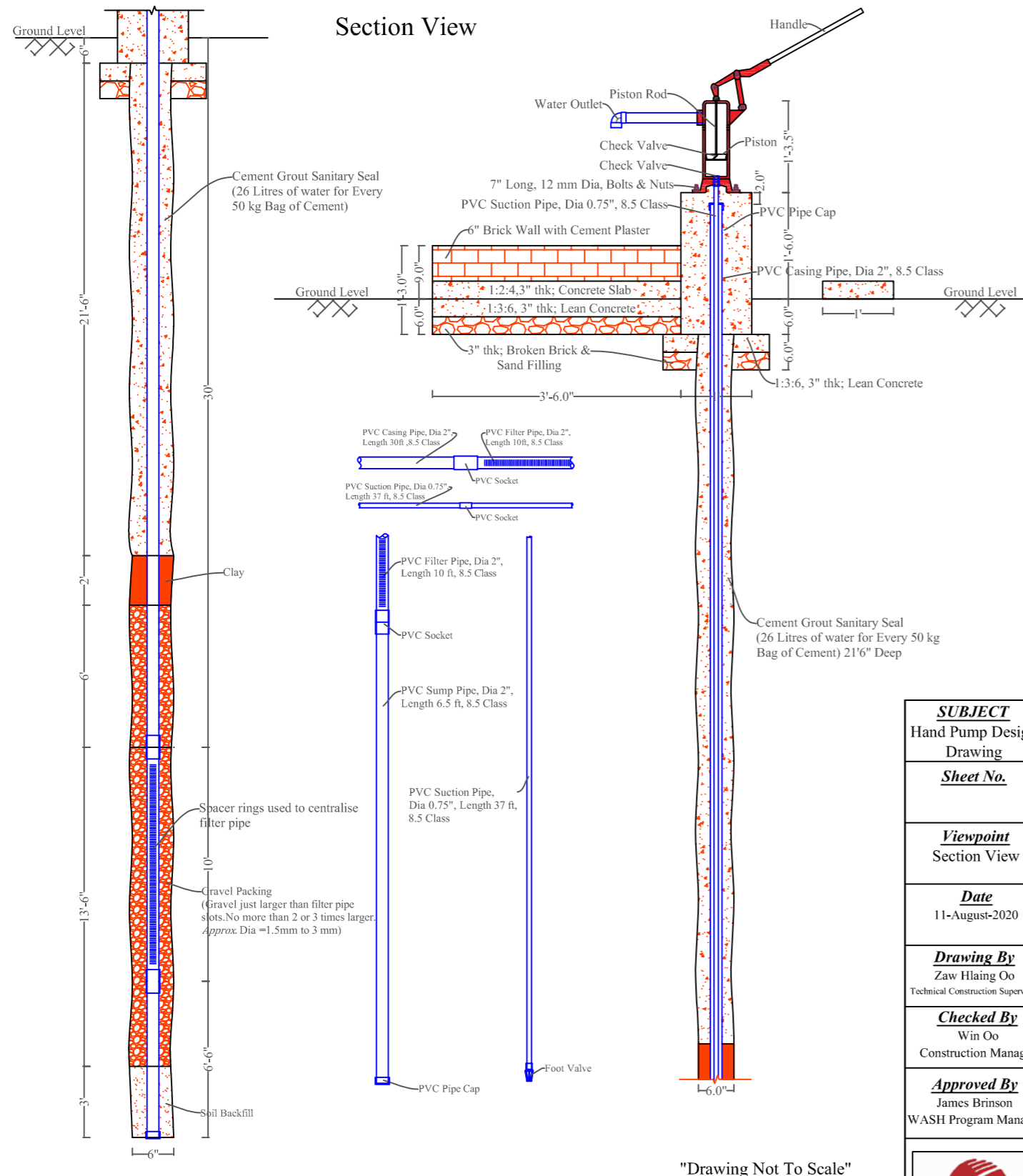
Risks	Prevention or mitigation
All HARP teams, especially field teams, have competing demands which may make them reluctant to take on gender activities highlighted in the Gender Action Plan.	Share this strategy and Action Plan with all team leaders for consultation before approval. Share and coordinate work plans of all teams. Raise awareness of all teams of the importance of giving sufficient time to gender tasks.
Women's Groups and leaders involved in the Women Empowerment Project (WEP) have been receiving incentives. At the end of the WEP, incentives from HARP will endanger their participation and the work of groups and committees.	Consult senior manager for a budget review. Consult with WEP manager.
New gender activities, for example engaging men, may be difficult to implement with just one Gender and Protection Coordinator.	Train field staff and volunteers in appropriate methodologies. Share gender human resources with other Oxfam projects (UNDP, WEP, DPP etc.). Use short term consultant.
Recent budget amendments have not ensured that allocations have been kept for gender work.	Consult senior managers for a budget review.
Some activities are innovative (such as engaging men) and may be difficult to implement in conservative areas and with CMC.	Consult with field WASH teams.



ACRONYMS

ACE	Action from Community Engagement
BDP	Baw Du Pha
CMC	Camp Management Committee
DP	Dar Paing
GBV	Gender Based Violence
GPC	Gender and Protection Coordinator
HARP	Humanitarian and Resilience Programme
HMZ	Hman Zi
MEAL	Monitoring, Evaluation, Accountability, and Learning
MHM	Menstrual Hygiene Management
NFI	Non-Food Item
OTG	Ohn Taw Gyi
PDM	Post Distribution Monitoring
PMU	Programme Management Unit
STMG	Say Tha Mar Gyi
TC	Thae Chaung
WEP	Women Empowerment Programme

HAND PUMP DESIGN DRAWING



SUBJECT
Hand Pump Design Drawing

Sheet No.

Viewpoint
Section View

Date
11-August-2020

Drawing By
Zaw Hlaing Oo
Technical Construction Supervisor

Checked By
Win Oo
Construction Manager

Approved By
James Brinson
WASH Program Manager



Activity - Construction of 2" Diameter Borehole LOCATION - SITTWE Bill of Quantity (17.6.2020)

No.	Description	Qty.	Unit	Rate (MMK)	Amount (MMK)
Materials					
Pipe and fittings					
1	0.75" ϕ PVC pipe, 8.5 class, 19.5 feet length	2	No.	2,000	4,000
2	2" ϕ PVC pipe, 8.5 class, 19.5 feet length	2	No.	6,800	13,600
3	2" ϕ PVC filter pipe, 8.5 class, 10 feet length	1	No.	12,000	12,000
4	2" ϕ PVC end cap	2	No.	1,500	3,000
5	Check valve ARS red (ϕ 0.75")	1	No.	3,500	3,500
6	PVC adaptor threaded - 2" female, 0.75" male	1	No.	600	600
7	PVC socket, 8.5 class (ϕ 0.75")	1	No.	500	500
8	PVC socket, 8.5 class (ϕ 2")	1	No.	650	650
9	PVC elbow, 90 degree (ϕ 1 1/4")	1	No.	650	650
10	PVC valve socket (ϕ 1 1/4")	1	No.	1,000	1,000
11	PVC short pipe, 1 feet length (ϕ 1 1/4")	1	No.	200	200
12	PVC elbow, 90 degree (ϕ 0.75")	2	No.	500	1,000
13	Seal tape	2	Coil	250	500
14	PVC Pipe Glue 500 g	1	Tin	4,000	4,000
Concrete pillar					
15	Bricks	45	No.	140	6,300
16	Cement	0.3	Bag	8,500	2,550
17	Gravel	0.01	Sud	90,000	900
18	Sand	0.04	Sud	26,500	1,060
Platform & drainage					
19	Bricks	170	No.	140	23,800
20	Cement	1	Bag	8,500	8,500
21	Gravel	0.03	Sud	90,000	2,700
22	Sand	0.09	Sud	26,500	2,385
Hand pump					
23	Hand pump (orange colour)	1	Set	33,000	33,000
24	Bolt and nut 6 arner, 6" long with washers	4	Piece	500	2,000
Plaster					
25	Cement	0.5	Bag	8,500	4,250
26	Sand	0.04	Sud	26,500	1,060
Slab					
27	Cement	1	Bag	8,500	8,500
28	Gravel	0.03	Sud	90,000	2,700
29	Sand	0.02	Sud	26,500	530
Labour					
30	Mason	2	DW	6,200	12,400
31	Worker	3	DW	4,800	14,400
32	Drilling team	1	Group	21,000	25,000
Total Material and Labour Costs					197,235

Borehole Functionality Check - OXSI

Field	Question	Answer
date <i>(required)</i>	Date of Information	
Enumerator_name <i>(required)</i>	Enumerator Name	
lead_agency <i>(required)</i>	lead Agency	Oxfam Oxfam SI SI
camp_name <i>(required)</i>	Camp name	camp_value camp_label
sector_block	Sector/block Number	1 1 2 2 3 3 4 4 6 6 a A b B c C d D e E f F g G h H i I j J k K l L m M n N o O
infrastructure_type <i>(required)</i>	Infrastructure type	BH BH
referential_number <i>(required)</i>	Referential Number	
pump_design <i>(required)</i>	Pump design	dg_orange DG Orange dg_blue DG Blue No_HP No Handpump
Check and Skip		
is_the_hand_pump_functional <i>(required)</i>	Is the borehole/Hand pump functional?	Yes Yes No No
BH_major_repair <i>(required)</i>	Borehole Major Repair	borehole_dried Borehole Dried flow_rate_slow(redrilling) Flow Rate Slow(redrilling) sandy Sandy water_colour_change Water colour change water_smelling Water Smelling pump_old Pump Old big_washer_set Big Washer Set square_washer Square Washer pillar/pillar_nut Pillar/Pillar Nut arm Arm arm_support Arm Support arm_clip Arm clip chlorination_ongoing Chlorination ongoing other Other
if_other_write_down_the_major_problems <i>(required)</i>	If other, Write down the major problems	
dose_the_borehole_need_to_be_maintained <i>(required)</i>	Does the borehole need to be maintained?	yes Yes no No
if_yes_write_down_the_minior_problem <i>(required)</i>	If yes, write down the minor problem	big_washer_set Big Washer Set square_washer Square Washer pillar_nut Pillar Nut Arm Arm arm_support Arm Support arm_clip Arm Clip sandy(softly) Sandy (softly) other Other
if_other_write_down_the_minior_problems <i>(required)</i>	If other, write down the minor problems	

Field	Question	Answer
around_the_borehole <i>(required)</i>	Apron slab dimensions: Is the apron width at least 0.5 m (2 feet) around the borehole ?	yes Yes no No
apron_slab_status <i>(required)</i>	Apron slab status	good Good (No crack, and no undercutting under the apron) fair Fair (No crack but minor plastering to be done) bad Bad (major crack, potential contamination, could lead water into source through apron)
condition_of_borehole_drainage <i>(required)</i>	Condition of borehole drainage	present_and_functioning Present and functioning present_and_not_functioning Present and not functioning (not clean, damaged) not_present Not Present
is_there_stagnant_water_around_borehole <i>(required)</i>	Is there stagnant water around borehole (less than 2m around slab)?	yes Yes no No
Soak_Pit	Is there any soak pit near borehole?	yes Yes no No
Soak_Pit_Functioning <i>(required)</i>	Is soak pit functioning?	yes Yes no No

HANDPUMP HANDOVER CERTIFICATE

(A) Handpump Details

Location	
Handpump number	
Nearest shelter number	
Date of handover	

(B) Handpump allocation

The above handpump has been allocated and is being handed over to the nearest households, listed below:

No.	Shelter No.	Name of Head of Household	Male	Female	Total	Signature	
1						1	2
2							
3						3	4
4							
5						5	6
6							
7						7	8
8							
9						9	10
10							
Total for shelter							
No.	Shelter No.	Name of Head of Household	Male	Female	Total	Signature	
1						1	2
2							
3						3	4

4							
5						5	6
6							
7						7	8
8							
9						9	10
10							
Total for shelter							
No.	Shelter No.	Name of Head of Household	Male	Female	Total	Signature	
1						1	2
2							
3						3	4
4							
5						5	6
6							
7						7	8
8							
9						9	10
10							
Total for shelter							
Total							

(C) Conditions of handover

Responsibilities of the community

- All the households in these shelters shall have equal access and right to use the handpump. People from other households, not listed here, also have the right to use the handpump at any time.
- Households will ensure that the concrete platform around the handpump is regularly cleaned, and the drainage channel is kept clear.
- Households commit not to steal, remove, or mis-use any part of the handpump. OXSI is not responsible for replacing stolen materials.
- Households are jointly responsible for carrying out minor repairs to the handpump. OXSI can replace broken parts (see below), but the community is responsible for carrying out the repairs. Any repairs necessary should be implemented without due delay so that people's access to water is not affected.

Responsibilities of OXSI

1. OXSI commits to ensuring that the handpump is functioning at the time of handover.
2. After the handover, OXSI will continue to provide handpump spare parts **only** when the broken part is provided; unfortunately, OXSI will not replace pumps which are stolen.
3. After the handover, OXSI will continue to rehabilitate the concrete apron and drainage channel when needed, based on the results of a monthly functionality check carried out by OXSI.
4. After the handover, OXSI will continue to monitor water quality of the borehole twice per year, and conduct shock chlorination where needed to remove contamination.
5. OXSI will provide refresher training for communities so they are qualified to carry out repairs.

(D) Signature

In signing this Handover Certificate, all parties recognise and agree to the above conditions.

Signature	Name	Signature
OXSI
CMC
Shelter
Shelter
Shelter



WATER QUALITY TESTING LABORATORY IN SITTWE

STANDARD OPERATING PROCEDURE FOR WATER SAMPLING AND TESTING

Contents

Introduction.....	2
Sampling.....	2
Household Sampling.....	3
Sampling Materials.....	4
Sampling Procedure.....	4
Borehole sampling.....	5
Household sampling.....	5
Water Quality Testing.....	6
Microbiological Testing Instructions.....	7
Materials.....	7
Preparation.....	8
Aseptic Procedures.....	10
Quality Control Measures for Microbiological Testing.....	15
Other Tests.....	16
pH Testing Instructions.....	16
Specific Conductivity Testing Instructions.....	17
Arsenic Testing.....	17
Calibration of Equipment.....	18
pH Calibration.....	18
Conductivity Calibration.....	19
Temperature Calibration.....	19
Appendix.....	20
Appendix A: Locations and Sampling Numbers (to be updated bi-annually).....	20
Appendix B: Water Quality Analysis (Raw Source and Household Water) Form (on tablet).....	21
Appendix C: Signs to Inform Communities about Contaminated Boreholes.....	23
Appendix D: 95% Confidence Interval Counts (0-100).....	25
Appendix E: Communication Flowcharts.....	26
Appendix F: Instructions for performing an arsenic test.....	27



Introduction

Oxfam and Solidarités International (SI) are working in partnership (referred to as “OXSI”) to deliver Water, Sanitation, and Hygiene (WASH) services in 24 camps and villages in Sittwe for more than 100,000 people. As part of this programme, a new water quality testing laboratory has been established at the Oxfam office in Sittwe. Oxfam, as the lead for water quality testing, is responsible for collecting and transporting water samples from the field to the laboratory and carrying out tests to ensure that the water is safe to drink. The Oxfam Sittwe Water Quality Laboratory was established in late 2017, and testing began in January 2018.

In the previous programme, partners conducted blanket distribution of Ceramic Water Filters (CWFs) to each household in the camps. Based on a review of water quality testing results and the CWF study conducted in 2016 (1), there was sufficient data to show that the CWFs were not consistently producing safe water. In addition, they are a non-sustainable intervention with a short life span and high breakage rate, are not available in the local market, and not affordable to IDP households.

Instead, OXSI proposed to focus resources on testing boreholes, preventing contamination, and promoting safe water behaviours. Boreholes that fail water quality tests will be ‘closed’ for drinking water and remedial action taken to reduce contamination. Thus, the core objective of the Water Quality Laboratory is to provide reliable water quality testing for Sittwe IDP camps, with results which are quickly actioned, leading to improved water quality and/or less people drinking contaminated water. However, OXSI is only able to test, treat, and repair boreholes and handpumps managed by OXSI, and is not able to provide testing for the many “private” boreholes that have been drilled by individuals or other organisations.

The Water Quality Team (WQT) consists of two field-based water sample collectors and two water quality officers based in the lab in Sittwe (with frequent field travel), with oversight from a manager in the WASH team. Water quality testing is conducted twice a year, once in the dry reason, which starts in December and ends in May, and once in the rainy season, which usually starts in June and ends in November. Water samples are more likely to be contaminated in the rainy season than in the dry season in general because of the high water table; water serves as a good transport medium for faecal material to the pump sites.

The objective of this document is to explain the standard operating procedure (SOP) for collecting and testing water samples in camps and villages in Sittwe Township. All the water quality staff are responsible for reading and following the standard operating procedure (SOP) described in this manual. The laboratory manager, officers, and assistants are responsible for ensuring that sample collectors are abiding by the SOP in this manual.

Sampling

Because Oxfam and SI no longer distribute any type of household water treatment (eg. ceramic water filters), there is a need to ensure all handpumps are delivering clean water. However, only a statistically significant sampling of households is tested, with each area treated as an independent cluster. The purpose of the household samples is to provide insight into the safe water chain practices of different sites. Sites with poor results are prioritised for safe-water campaigns by the community mobilisation teams.

¹ Ceramic Water Filter Assessment, Rakhine, Myanmar Cluster, January 2016.

The number of boreholes and the sampling size of households in each area are shown in Appendix A. This table must be updated approximately every six months to reflect newly drilled boreholes and population changes. Only functional handpumps can be tested, so the number of tested boreholes is usually lower than the total number in each location. Some villages that are geographically close are grouped, and households are statistically sampled in each cluster of villages. In some villages, OXSI does not do water quality testing because there are no longer public OXSI-managed boreholes.

To have a practical protocol for collecting household samples in the field, it is sometimes useful to look at the ratio between the total number of boreholes and the statistical sampling size for households in each area. For instance, in STMG, the total number of boreholes is 198, whereas the sampling size for the households is 92, resulting in an approximate ratio of 2:1. That means that sample collectors collect two borehole samples for every one household sample—they collect a water sample from a borehole followed by a sample from a nearby household, then move on to the next borehole water sample without collecting a household water sample. They repeat the same process until all the boreholes are tested.

Household Sampling

The household sample size is calculated using the Cochran Formula:

$$n_0 = \frac{z^2 pq}{e^2}$$

where z is 1.96 for a 95% confidence interval, p is the estimated proportion of households to have the attribute in question (for a conservative estimate of variance, we use 50%), $q = 1-p$, e is the desired level of precision (in this case, 10%), and n_0 is the resulting sample size.

$$n_0 = \frac{(1.96^2)(0.5)(0.5)}{0.1^2} = 96 \text{ households}$$

For a smaller population that is known, or in this case, the number of total households in the area, we adjust Cochran's formula:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

where N is the population size (in this case, the total number of households), and n is the new, adjusted sample size.

For example, the total number of households in Mingan Village is 151, so the sample size should be:

$$n = \frac{96}{1 + \frac{95}{151}} = 59 \text{ households}$$

When selecting households, sample collectors must choose a household where the members use the same borehole as the one that was just tested, but otherwise the sampling is random. By comparing the borehole and household samples, we can assess the impact of our interventions to improve practices

and ensure a safe water chain. For instance, if water from a borehole is clean but the corresponding household samples are contaminated, then it can be inferred that the household is not collecting, transporting, and/or storing water safely to avoid contamination. On the other hand, if the household samples are clean but the corresponding borehole is contaminated, it indicates that water treatment at the household level (such as the use of filter, chlorine, etc.) is effective.

If a handpump is not operational, the sample collectors make a note of it and do not collect a sample from that pump. In cases where the number of existing functional handpumps is much less than expected, the sample collectors need to collect more household samples correlated to other handpumps to fulfil the minimum requirement of household samples. The number of household samples is not dependent on the number of handpumps in each area, just on the number of households.

When collecting a household sample, the sample collectors conduct a rapid household water sanitary survey, which is also used to correlate with the microbiological results and identify key risks for remedial messaging to focus on. The survey, which is included in full in Appendix B, includes the source of water, the type of container used for storage, the type of treatment (if any) the family uses, and other information.

Sampling Materials

Materials required for sample collection each day are:

- 40 clean empty water bottles, approximately 0.6 liters
- Ice boxes large enough to fit all the water bottles
- Ice
- Hand sanitiser
- Water sample analysis data sheets or tablet to collect data
- List of handpumps for each area and the number of household samples needed
- Markers, pens, and tape for marking water bottles and filling out data sheets

Sampling Procedure

Some sample collection materials are prepared and delivered to the area of sampling a day in advance so that the sample collectors can begin sampling by 9am. The Oxfam laboratory then sends additional clean water bottles, data sheets, and the ice box to the location around 9am of the testing day.

Dedicated and trained part-time camp-based sample collectors are responsible for sample collection. Two people are required to carry out the task: one person collects water samples and another person looks for the corresponding households, as well as fills in the required information in the tablet. Sometimes a female volunteer also accompanies the water collectors to assist with carrying out sample collection in households where women in the household are not comfortable with allowing the male sample collectors inside.

The ID for a water sample is comprised of the date of collection in combination with a serial number which is used for laboratory work. The serial number starts with “1” for the first sample of the day, whether it is from a borehole or a household. On a new day of water sample collection, the first sample collected is labelled as serial number “1”, the second sample “2”, and so on.

It takes approximately five minutes to collect a water sample at each location. Typically, 30-40 samples are collected each day, Monday through Thursday. In the case of holidays or workshops causing the team to fall behind schedule, additional sampling and testing is done on Friday, with the results read on Saturday.

Borehole sampling

For collection of a water sample from a borehole, sample collectors follow these steps:

1. Clean hands using hand sanitiser.
2. Pump out water for 30 seconds to purge and rinse the pump setup.
3. Rinse a clean water bottle with water from the pump two times.
4. Collect water (at least 500 mL) into the bottle, making sure that the top of the water bottle and the bottle cap does not touch anything.
5. Assign a serial number for the sample and note the number on the water bottle and in the water quality analysis data sheet. Label the bottle (as shown in Figure 1) with the date and the time of water collection, the pump number, and assigned serial number.
6. Place the filled water bottle in the ice box.
7. Record the serial number in the water quality analysis sheet in the tablet along with the other information.



Figure 1. Labelled water bottles

Household sampling

For collection of a household water sample, the collectors follow these steps:

1. Select one or two households who use the borehole where a sample was just collected (based on how many household samples are needed in the location).
2. Clean hands using hand sanitiser.
3. Fill a clean water bottle with at least 400 mL of water from the water container used for drinking in the household. Do not dip the bottle into the water container in the household. If there is a ceramic water filter installed on a water container, collect the filtered water sample only. If the household generally scoops out the water with a cup or ladle, use the same method to fill the water bottle. (In case the family prefers that you do not enter the household, instruct someone in the household on how to collect the water sample).
4. Assign a serial number for the sample and note the number on the water bottle and in the water quality analysis data sheet. The label on the water bottle should include the date and the time of water collection, barrack number, and room number, along with the serial number.
5. Place the filled water bottle in the ice box.
6. Fill in the necessary information in the household water quality analysis sheet in the tablet (Appendix B).

The water samples are placed inside the ice-filled box, and a water-proof folder containing the water quality analysis sheets or tablet is carried separately. The box and the folder/tablet are transported to the laboratory within six hours. Water samples are collected and processed on the same day, with results available within 24-hours.

Water Quality Testing

Microbiological testing is carried out for all samples, but pH and specific conductivity are only measured for borehole samples. The conductivity provides an indication over time of possible saline intrusion caused by over extraction of the shallow aquifers. The pH indicates the chlorine dose required for effective shock chlorination. In the beginning of the programme, only 5% of boreholes were tested for arsenic once a year, since it was not historically a problem in the Sittwe area; after several test results showed high arsenic levels, the team started to test 10% of boreholes in May 2019.

Table 1. Testing overview

	Frequency	Sampling Method
Microbiological Testing		
Routine borehole testing in camps and villages	Twice per year – dry season and rainy season	100% of OXSI boreholes in camps and villages
Follow up borehole testing in camps and villages	All failed boreholes after remedial action	100% of failed OXSI boreholes after remedial action

Routine household testing in camps and villages	Twice per year – dry season and rainy season	95% C.I. and 10% accuracy. Each site is an independent cluster
Other Testing		
Specific Conductivity	Once per year – dry season	100% of OXSI boreholes
pH	Twice per year—dry and rainy season	100% of contaminated OXSI boreholes
Arsenic	Once per year, changed to twice per year in 2019	5% of OXSI boreholes in each site; changed to 10% of OXSI boreholes in 2019

In the first year of the project, the WQT tested for Thermotolerant Coliforms (TTC) as a proxy indicator for *E.Coli*; the decision to switch to testing *E.Coli* was made in 2018. *E.Coli* is considered the best indicator of faecal contamination because unlike other coliforms, it is almost exclusively of faecal origin.

Microbiological Testing Instructions

Materials

- Potakit (Components, shown in Figure 2, include 20 aluminium petri dishes, 200 membrane pads, 200 membranes, 38.1g Membrane Lauryl Sulfate Media, lighter, filter assembly base, filter funnel and locking collar, flexi rack system, hand lens, lubrication grease, media measuring device, membrane forceps, membrane pad dispenser, pistol grip hand pump with rubber tubing, polypropylene bottles, sample cup and cable, incubator, upper and lower O rings)



Figure 2. Components of the Potakit.

Additional equipment:

- Oven
- Methanol
- Lighter
- Electric kettle
- CHROMAgar broth powder
- Hand sanitiser
- Dishwashing liquid
- Surgical gloves
- Tissue paper
- Face masks
- Masking tape
- Markers and pens

The instructions below are adapted from Potaflex Instruction Manual produced by Wagtech²

Preparation

1. Assembly of components



Figure 3. Assembly of filtration apparatus

- | |
|--|
| <ol style="list-style-type: none"> 1. Hand Vacuum Pump 2. Filtrate Flask 3. Sampling Cup 4. Graduated Aluminium Reservoir Tube 5. Membrane Support & Compression Holder 6. Sealing Gaskets 7. Bronze Sintered Support |
|--|

² Potaflex User Manual, downloadable from: <https://www.palintest.com/products/potaflex/>



Figure 4. Assembly of the reservoir tube filtration base

2. Preparation and use of MLSB media

In the first year of the project, the Water Quality Laboratory used Membrane Lauryl Sulfate Broth (MLSB). The steps to prepare the MLSB are:

- 2.1 For 200 tests, dissolve 38.1g of Membrane Lauryl Sulfate Broth (MLSB) in 500 ml distilled water in a flask or beaker.
- 2.2 Heat the mixture (but do not boil) or stir to ensure the powder is fully dissolved.
- 2.3 Pour the medium into the 50ml plastic bottles provided (ensure they contain no residues of previous MLSB or cleansing agent).
- 2.4 Replace bottle tops but leave them slightly loose – do not tighten. Sterilise bottles upright in an autoclave.
- 2.5 Sterilise at 121°C for 10 minutes, or place bottles in a pressure cooker and maintain steam at pressure for 15 minutes. Remove bottles, allow to cool, tighten the tops and then store in the cool and dark.
- 2.6 When the media has cooled to room temperature, pour about 2mls onto each membrane pad to sufficiently saturate the pad.
- 2.7 When the pad is fully saturated, pour off any excess MLSB.

- 2.8 The dissolved media should remain stable for 6-8 weeks. However, if there are any signs of contamination (e.g. yellowing, cloudiness, etc.), discard it.
- 2.9 Ideally, to reduce the possibility of contamination, use the bottle of media only on a daily basis and use a fresh bottle on each subsequent day. However, if this is not possible, then the bottle must be resealed immediately, and the media may be re-sterilised by boiling in a water bath for 15 minutes.
- 2.10 Clean empty media bottles thoroughly before re-use. Any residues should be washed out with hot water; cleaned with a little detergent; rinsed several times in clean water; dried and stored in a clean environment with the tops replaced.
- 2.11 The MLSB solution may be applied to the pads for up to 6 hours before sampling, if stored in a cool environment.
- 2.12 If the MLSB powder is stored in dry, cool conditions, it should have a shelf life of 5 years.

3. Preparation and use of Chromogenic media

After the first year of the programme, the WQT switched to a different media in order to grow *E. Coli*. The chromogenic media is prepared from a powder with these steps, adapted from the supplier manual³:

- 3.1 Disperse slowly 25.5g of powder base in 1L of purified water.
- 3.2 Swirl or stir gently to homogenise.
- 3.3 Heat and bring to boil (100 °C) while swirling or stirring regularly.
DO NOT HEAT TO MORE THAN 100 °C. DO NOT AUTOCLAVE AT 121 °C.
- If using an autoclave, use it without pressure.
- For the 100 °C heating step, mixture may also be brought to a boil in a microwave oven: after initial boiling, remove from oven, stir gently, then return to oven for short repeated bursts of heating until large bubbles form.
- 3.4 Cool down to room temperature.
- 3.5 The prepared media is referred to as CHROMAgar Liquid ECC.
- 3.6 Prepared broth can be kept for up to 1 month under refrigeration (2/8 °C) if properly prepared and protected from light and contamination.

Aseptic Procedures

General hygiene and aseptic procedures are of paramount importance. Everything must be kept clean and sterile, particularly on the following surfaces:

- Inner surface of the sampling cup
- Inner surface of the filter funnel
- Filter membrane and support pads
- Upper surface of the membrane support
- Inside of the petri dishes
- Support pad dispenser arm and forceps

³ Manual available here: https://www.chromagar.com/fichiers/1543248473NT_EXT_038_NOTICE_LECC.pdf

1. Dry the filtration unit and sampling cup dry by using clean tissue paper.
2. Pour 1ml methanol into the sampling cup and swirl
3. Place the sample cup in a normal upright position away from anything flammable.
4. Using a lighter, ignite the methanol. Whilst the methanol is burning, invert the filtration unit into the sample cup.

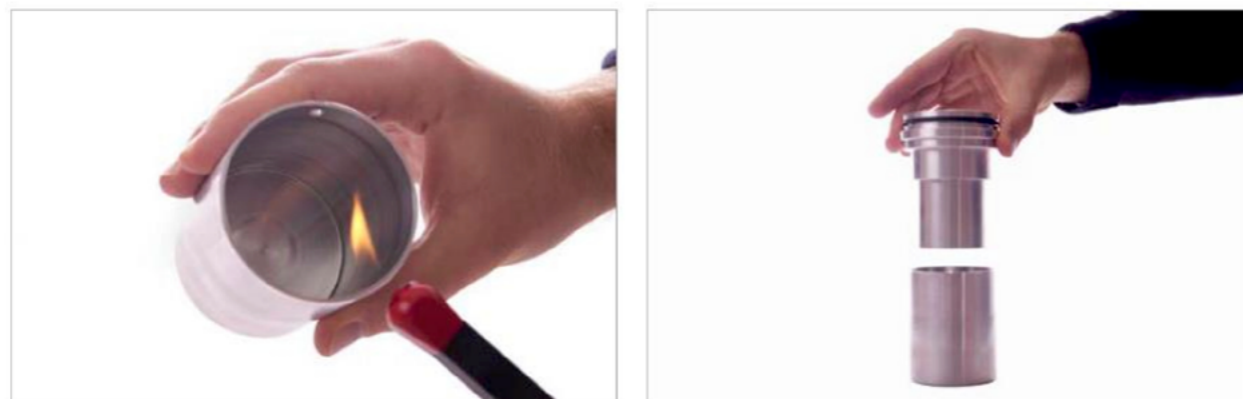


Figure 5. Ignite the methanol and then invert the filtration unit into the sample cup.

5. Wait for at least 5 minutes to ensure that the sample cup and filtration unit are sterile. Methanol burns anaerobically to form formaldehyde, which ensures complete sterilisation.
6. Pour any residual solution away.
7. The above sterilisation procedures (points 1-6) should be carried out immediately before sampling and after the filtration of each sample.
8. Sterilise the aluminium petri dishes in boiling water prior to use. After sterilisation, ensure that the dishes are allowed to dry. Other methods of sterilisation can be employed, including autoclaving, or placing the aluminium dishes in an oven at 300°C for 30 minutes or 150°C for 60 minutes.
9. Pads are supplied sterile in cartridges of 100. A sterile pad dispenser is supplied for introducing the pads into the petri-dishes. Immediately when a cartridge is finished, a new one should be attached to the dispenser. Do not leave the dispenser unattached and if no pad dispenser is available, use sterile forceps (see Figure 6).
10. Before handling a membrane filter with the forceps, it should be flame sterilised thus: hold the forceps tips in a flame for 5 seconds and allow to cool before handling the membrane (Figure 7).

Processing Samples

1. All samples must be incubated within 6 hours of sampling.
2. Dispense a growth pad into a sterile petri dish and saturate with MLSB. If using CHROMagar Liquid ECC, add 2 mL of the liquid medium with the pipette.



Figure 6. Dispense a growth pad into a sterile petri dish and saturate with MLSB.

3. Loosen the filter funnel and remove from the base support.
4. Sterilise the forceps using a flame and allow to cool. Using the forceps, place a sterile membrane onto the bronze membrane support, grid side up. If the membrane tears or becomes contaminated, discard it and use a new one.



Figure 7. Sterilise the forceps and then place a sterile membrane onto the bronze membrane support.

5. Lock the membrane in place by pushing the filter funnel firmly down into position.
6. Pour the water sample into the filter funnel up to the 100 ml line.



Figure 8. Pour water sample up to 100ml line

7. Connect the hand vacuum pump to the filtration unit base and pump to suck the water sample through the membrane.



Figure 9. Apply hand pump to pass the water through membrane.

8. When all the water has been filtered, release the vacuum pump and use the sterile forceps to take the membrane from the filtration unit.



Figure 10. Use the sterile forceps to take the membrane from the filtration unit.

9. Place the membrane on top of the pad which has been saturated with MLSB media or CHROMAgar Liquid ECC.



Figure 11. Place the membrane on top of the pad saturated with MLSB or CHROMAgar Liquid ECC.

10. Replace the petri-dish lid and label with the sample number.
11. Repeat the process for all the samples and then place samples into the incubator.
12. It is important to note that when the last sample has been processed, a resuscitation period of between 1 hour to 4 hours must be observed before incubating. This allows any physiologically stressed coliforms to recover before culturing.
13. To incubate faecal (thermotolerant) coliforms, set the incubator temperature to 44°C. If using CHROMAgar Liquid ECC to incubate *E. Coli*, set the incubator temperature to 37°C.
14. The minimum incubation period is 14 hours following a 4-hour resuscitation. For *E.Coli*, incubate for 18-24 hours.

Counting Coliforms and Recording the Result

1. Following incubation, switch off the power and remove the petri dishes from the incubator.
2. Place the petri dishes on a flat surface.
3. Remove the lids and count all the colonies that are the right colour (see below), irrespective of size. Use a hand lens, if necessary.
4. Count the colonies within a few minutes, as the colours are liable to change on cooling and standing.

For thermotolerant coliforms grown on MLSB:

- Count the yellow colonies and ignore colonies that are not yellow (e.g. pink or transparent). Record the results as colonies per 100 ml.



Figure 12. Count the yellow thermotolerant colonies (with a hand lens, if needed).

For *E. Coli* grown on CHROMagar Liquid ECC:

- Count the blue colonies only. Record the results as colonies per 100 mL.

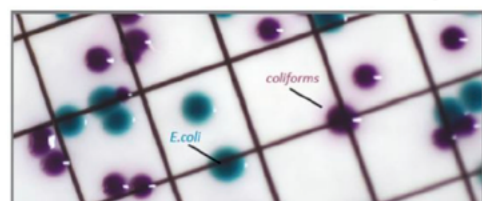


Figure 13. Typical colony appearance, showing *E. Coli* as bright blue, after incubation on CHROMagar Liquid ECC.

A test that has more than 10 colonies of either TTC or *E. Coli* is considered a failed test and will be targeted for remedial action. The results are entered into a database that is accessible to the remedial action team, who you must alert about boreholes that fail the microbiological test.

Camp-based community mobilisation staff are also immediately alerted and visit the hand pump and its users within 24 hours. The users are informed of the water quality test result and told that the borehole water is not safe for drinking but can be used for other purposes. A sign or irremovable tag is placed on the contaminated hand pump as a reminder to the community (Appendix C). If deemed necessary, the community mobilisation team will also organise a cleaning campaign around the hand pump. Within a week, SI will conduct a follow-up sanitary inspection to identify possible contamination routes such as cracks in the apron, a loose riser pipe, or stagnant water short-circuiting. If no obvious contamination route exists, the hand pump is shock chlorinated and the water quality is tested again within one week. If the result is acceptable, the camp-based staff will inform the community and remove the red tag on the hand pump. If the borehole fails the re-test, it will continue to be 'closed' for drinking water. Where the repair team identifies possible contamination routes, a repair will be conducted. Following the completion of the repair, the hand pump will be shock chlorinated, again tested after a week, and then either 'opened' or remain 'closed'. The flow chart outlining this process is shown in Appendix E.

Quality Control Measures for Microbiological Testing

Microbiological Quality Control Measures	
Duplicate plate testing	20% of samples (1 in 5) to have duplicate plate testing. Results checked against normal distribution frequency tables. Reduce to 1 in 10 samples if continuously passing.
Sterilisation (Manifold) blanks	10% to 20% of samples to have a sterilisation blank to check operator performance in sterilisations and preventing false contamination.
Stack (Media) blanks	Each bottle of growth media or once per day, media blanks to check media is not contaminated.
Incubator temperature calibration	Conducted weekly using the equipment quality control check form.

Microbiological Testing Quality Control Checks

Duplicate Plate Testing: Duplicate plate testing involves processing two samples from the same water sample to check the variation. It is important to note that due to the way that bacteria spread out in water, both samples are unlikely to have an identical result. The difference between the two results can be checked on normal distribution frequency tables. The laboratory should process duplicate plates for at least 20% (1 in 5) of water samples. If the duplicate plates are outside of the normal distribution range, that sample must be discarded and a re-test must be done.

If more than 10% of duplicates during the past week are outside of the normal distribution range, the rate of duplicate samples should be increased by 10% (e.g. to 30%). If the following week less than 10% of duplicate are outside of the normal distribution range, the rate of duplicates can be reduced by 10% (e.g. from 30% to 20%). However, the rate of duplicates should never drop below 20%. The normal distribution table can be found in Appendix D.

Sterilisation Blanks: Sterilisation blanks involve testing 100ml of sterilised water. The purpose is to check the integrity of the sterilisation processes. The water used as the blank must be first boiled for 3 minutes, then placed into bottles and then autoclaved to ensure the bottle is also sterile. Bottled water should not be used as the blank. Sterilisation blanks should be conducted for between 10-20% of samples; e.g. one for every 5 to 10 real samples. If the sterilisation blank shows any colonies, all samples correlated to that blank sample must be marked in the spreadsheet as being invalid and must be re-tested.

Stack/Media Blanks: A stack blank involves placing media on an absorbent pad, without a filter, and incubating with the sample set. For Membrane Lauryl Sulphate Broth, if the pad turns from a red/orange to a yellow colour it indicates that the media is contaminated. For the CHROMagar Liquid ECC media, if there is any growth observed on the plate, the media is contaminated. If this happens, the media must be thrown out and all samples from that day must be marked in the spreadsheet as being invalid and must be re-tested. One stack blank should be conducted each day for each unique bottle of growth media used.

Other Tests

All borehole samples will also be checked for pH and Total Dissolved Solids (TDS) or electrical conductivity. The pH confirms if certain locations or boreholes would require higher than normal chlorine dosing. The conductivity will provide an indication over time of possible saline intrusion caused by over extraction of the shallow aquifers.

pH Testing Instructions

The pH of all failed borehole samples should be measured because the failed boreholes will be shock chlorinated, and the effectiveness of chlorine is controlled, in part, by pH. The WQT can take the pH of all handpump samples if samples cannot be kept overnight until the microbiological results are finalised.

Materials:

- pH probe
- pH 7.00, pH 4.01, and pH 10.01 buffer solutions (for calibration)
- 300 mL measuring cups, one for each sample taken that day



Figure 14. Palintest Multi-Parameter Pocket Meter

- Paper for recording results, pen, tape for labelling
1. pH testing should be done after microbiological samples are plated. Only 10mL of each sample is needed.
 2. pH Probe Calibration: Calibration of the pH probe must be conducted at least once a week. As the probe gets older, the calibration may need to be done more frequently. See the Calibration section for more details.
 3. It is good practice to test all samples in a batch after calibration. Set up 15-20 cups in a row, label them, then pour in samples.
 4. On the pH meter, press the ON/OFF button to switch the sensor on. Dip the electrode into the sample, making sure the sample fully covers the electrode. Stir and let the reading stabilise. Record the reading or press HOLD/ENT button to freeze the reading.

Specific Conductivity Testing Instructions

Specific Conductivity is taken for all borehole samples. The specific conductivity measurement is an indicator of saltwater intrusion, the movement of saline water into freshwater aquifers. This is a risk in the Sittwe camps, where many camps are quite close to the bay.

Materials:

- Conductivity meter
 - 1413 uS/cm buffer solution (for calibration)
 - Small measuring cups
 - Paper for recording results, pen, tape for labelling
1. Specific conductivity testing should be done after microbiological samples are plated. Only 10mL of each sample is needed and the same sample can be used that was used for pH testing.
 2. Specific conductivity calibration: Calibration of the conductivity probe does not need to be done as often as pH, but it is good practice to do it once a week, the same as the pH probe calibration. As the probe gets older, the calibration may need to be done more frequently. See the Calibration section for more details.
 3. It is good practice to test all samples in a batch after calibration. Set up cups in a row, label them, pour in samples.
 4. On the conductivity meter, press the ON/OFF button to switch the sensor on. The “MEAS” indicator appears when the meter is in measurement mode. Dip the electrode into the sample, making sure it is completely immersed. Stir and let the reading stabilise. Record the reading in the upper part of the display (automatically temperature compensated to normalised temperature of 25 °C); press HOLD key to freeze the measurement. The lower display shows the temperature of the sample.

Arsenic Testing

The WHO recommended limit of arsenic in drinking water is 10 ppb. However, perhaps because arsenic is naturally present at high levels in the groundwater in parts of Bangladesh and Myanmar, the National Drinking Water Quality Standards for Myanmar published by the Ministry of Health in September 2014 state that the requirement for arsenic in Myanmar is 50 ppb. The WQT uses this standard for Myanmar as the basis for a pass/fail arsenic test, but the programme is advocating for a larger arsenic study in

Sittwe camps. If a result is higher than 50 ppb, immediately disable the handpump so that it cannot be used. Inform residents about the closure of the handpump and put up a sign (Appendix C). If feasible, test boreholes around the contaminated borehole radially to map the contamination patterns and determine levels in nearby boreholes. If there is a borehole with lower arsenic levels nearby to the contaminated borehole, encourage residents to use the one with lower levels.

In the beginning of the programme, 5% of boreholes were tested for arsenic; that percentage increased to 10% after high concentrations of arsenic were found in several boreholes.

To perform an arsenic test, use the Palintest Digital Arsenic Test Kit and the provided instructions, attached in Appendix F. The only exception to the instructions is that if a sample shows concentrations higher than 100 ug/L based on the colour chart, simply record the result as “>100ug/L”. If the sample seems to be lower than 100 ug/L based on the colour chart, use the DigiPAS to get a more accurate reading.

Calibration of Equipment

The following calibration instructions are specific to the Palintest Multi-Parameter Pocket Meter, which measures pH, conductivity, TDS, salinity, and temperature. The instructions below are adapted from the supplier’s instruction manual.

pH Calibration

To calibrate the pH probe, you must use a solution with a known pH value, also known as pH reference or buffer pH solution. The accuracy of your pH measurements is dependent on how accurately the pH probe is calibrated, so make sure to pay particular attention to this step.

We use USA standard buffer solutions, pH 4.01, pH 7.00, and pH 10.01. Use **at least two** standard buffers, always starting with pH 7.00. Because our water samples are usually close to a pH of 8.00, it is better to use pH 10.01 as the second buffer solution.

1. Press the “ON OFF” button to turn meter on and “MODE ENT” to select pH mode.
2. Rinse the sensor with clean water. Select the first pH buffer (pH 7.00) and pour some into a small, clean container. Pour enough that you can cover the entire pH sensor tip.
3. Immerse the sensor into your pH buffer solution, stir gently, and press “CAL”. The primary display will show the un-calibrated pH value, while the secondary display should search for and lock on the closest automatic calibration value.
4. Allow the primary display to stabilise, then press “MODE ENT” to confirm the calibration value. The primary value will blink briefly before the secondary value automatically scrolls through the remaining pH buffers available for calibration.
5. Repeat steps 2-4 with the other pH buffer, either pH 4.01 or pH 10.01.
6. Press “CAL” to return to measurement mode.
7. Pour out the buffer solutions. Do not re-use buffer solutions.

To check the frequency that calibration needs to be performed, do the following:

1. Perform a calibration on day 1. On the following day, simply soak your electrode in the original buffers you performed calibration with and note the readings.
2. Keep doing this procedure every day until the difference between the measurement and the standard is more than 0.30 (for example, the reading says 9.70 in the pH 10.01 buffer).

3. Take note of the number of days that went by since day 1 of calibration. If 5 days went by, proceed to calibrate every 4-5 days to ensure accurate results.
4. As the pH electrode gets older, proceed to do this test monthly to confirm number of days required between calibrations.

Conductivity Calibration

As with pH calibration, to ensure accurate results, calibrate the same probe using a certified conductivity standard solution. First, make sure the conductivity is set to “A.Cal” (Automatic Calibration) with these steps:

Your instrument allows customisation of various settings. To access the setup mode:

- 1 With the instrument off, keep the **MODE ENT** pressed down while you press and release **ON OFF** (Setup) will appear, then as you release **MODE ENT**, **PR-R** (Parameter) will appear.
- 2 Press **HOLD** or **CAL** to choose **PR-R** (Parameter Setup) or **SYS** (System Setup) menu.
- 3 Press **MODE ENT** to enter the selected setup menu.

IMPORTANT It is necessary to save your Parameter and System changes in order for them to take effect.

- 1 When you are finished making your desired changes, press both **HOLD** and **CAL** at the same time and keep them pressed until you see “SA” (Save) on the display.
- 2 With the primary display “SA” and secondary display “YES”, press **SR** (YES), press **MODE ENT** to save the changes. The instrument will resume measurement mode with new setting(s).

Note: If auto-shut off is used, changes will be automatically saved 8.5 minutes after the last change was made.

1. “A.Cal” (Automatic Calibration), choose “YES”.
2. “SPC” (Single-Point Calibration), choose “YES”.

To calibrate:

1. Press the “ON OFF” button to turn meter on and “MODE ENT” to select conductivity mode.
2. Rinse the sensor with clean water. Pour the 1413 uS/cm buffer solution into a small, clean container. Pour enough that you can cover the entire sensor tip.
3. Immerse the sensor into your buffer solution, stir gently, and press “CAL”. The primary display will show the un-calibrated conductivity value, while the secondary display should search for and lock on the closest automatic calibration value.
4. Allow the primary display to stabilise, then press “MODE ENT” to confirm the calibration value. The primary value will blink briefly before returning to measurement mode.

Temperature Calibration

The temperate of the incubators must be checked at least once per week.

To test the temperature calibration of the Potakit incubator, the incubator chamber should be filled with water and the special incubator cap with a hole used to insert the thermometer. The incubator should be left for 1-hour before checking the temperature. The allowed variance is $44 \pm 0.5^{\circ}\text{C}$.

Appendix

Appendix A: Locations and Sampling Numbers (to be updated bi-annually)

No.	Name of Camp / Village	Total households	# of targeted households for testing	# of OXSI boreholes for testing
1	Baw Du Pa	2327	92	130
2	Baw Du Pa village	22	-	-
3	Bar Sar Rar	397	77	25
4	Dar Paing	2005	92	84
5	Dar Paing Village	958	87	23
6	Thay Chaung	1139	89	45
7	Thay Chaung Lathama Village	587	83	18
8	Thay Chaung Muslim Village	1009	88	16
9	Thay Chaung Rakhine Village	155	60	10
10	That Kay Pyin 1	640	84	48
	That Kay Pyin 2	360	76	44
11	That Kay Pyin Village (IDP)	299	73	23
12	Maw Thin Nyar	656	84	46
13	Hman Zi	400	78	29
14	Kaung Doke Kar	400	78	55
15	Ohn Taw Chay	677	84	80
16	Ohn Taw Gyi 1	920	87	109
	Ohn Taw Gyi 3	1448	90	92
	Ohn Taw Gyi 6	360	76	25
17	Ohn Taw Gyi Village	200	65	7
18	Say Tha Mar Chay village	92	47	7
19	Say Tha Mar Gyi Village	235	68	11
20	Say Tha Mar Gyi	2280	92	198
21	Sat Yoe Kya 1 (CDN)	249	69	20
22	Min Gan	151	59	12
23	Sat Yone Su 1	72	-	-
24	Sat Yoe Kya 2	420	-	-

Appendix B: Water Quality Analysis (Raw Source and Household Water) Form (on tablet)

Field	Question	Answer	
Collection_Date	Collection date		
Collector_Name	Water collector name		
SN_WS	Serial number of water sample		
Camp_Name	Camp/Village name	(drop down list of locations)	
Water_Sample_Source	Water sample source	HH	Household
		HP	Handpump
HP_Number_of_Water_Sample	Hand pump number of water sample		
<i>Question relevant when: selected(\${Water_Sample_Source}, 'HP')</i>			
Water Sample Collection From Household			
<i>Group relevant when: selected(\${Water_sample_source}, 'HH')</i>			
Household_Leader_Name	Head of household		
Barrack_No	Barrack number		
Room_No	Room number		
HP_Number	Handpump used (handpump number)		
Water_Container	Type of water container	B	Bucket
		P	Pot
		G	Gorra
		CWF	Ceramic Water Filter
Container_Clean	Is the water container clean?	Clean	Clean
		N_Clean	Not Clean
CC_Present	Is container cover present?	Present	Present
		Absent	Absent
CWF_Present	Is the ceramic filter present?	Using	Present and in use
		Present_Not_use	Present but not in use
		Not_present	Not present
CWF_Good_Not	Is the CWF working properly?	Working_Properly	Working properly
		Not_working	Not working
<i>Question relevant when: not(selected(\${CWF_Present}, 'Not_Present'))</i>			
Water_Treatment	Is there any other water treatment?	None	None
		WTU	Water Treatment Unit
		Aquatab	Aquatab
		WG	Water Guard
		Boiling	Boiling
		Chlorination	Chlorination
		Sedimentation	Sedimentation
Other	Other		

FRC	For chlorination, FRC (mg/L)	
<i>Question relevant when: selected(\${Water_Treatment}, 'Chlorination')</i>		
Mention_Specific	If other, specify	
<i>Question relevant when: selected(\${Water_Treatment}, 'Other')</i>		
Comments	Comments	

Appendix C: Signs to Inform Communities about Contaminated Boreholes



Figure 15. A sign to be placed on handpumps where water samples have failed microbiological testing (removed after shock chlorination and re-test).

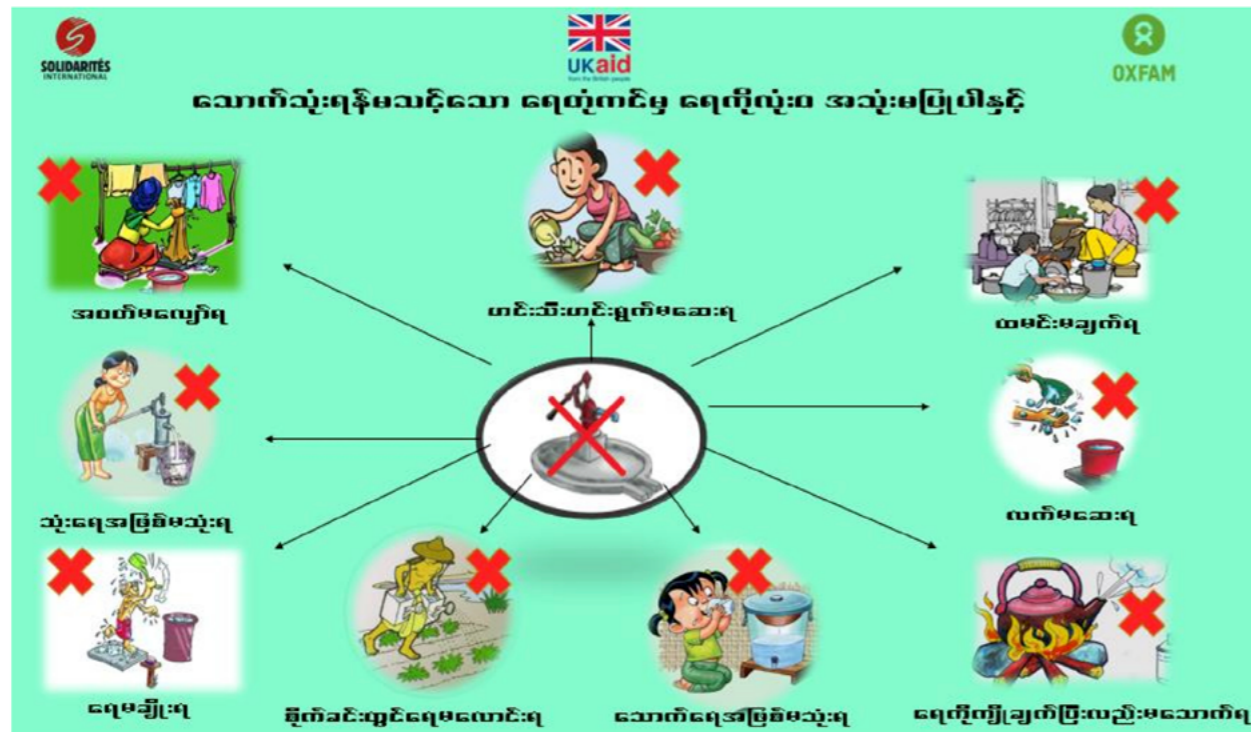


Figure 16. A sign to be placed on handpumps where water samples have failed arsenic testing (handpump disassembled so it cannot be used).



Figure 17. A sign to be placed on handpumps that are closed for cleaning/repair.



Appendix D: 95% Confidence Interval Counts (0-100)⁴

Count1	Count2Min	Count2Max	Count1	Count2Min	Count2Max	Count1	Count2Min	Count2Max
0	0	5	37	22	56	74	52	100
1	0	7	38	22	58	75	52	102
2	0	9	39	23	59	76	53	103
3	0	11	40	24	60	77	54	104
4	0	12	41	25	61	78	55	105
5	0	14	42	26	63	79	56	106
6	1	16	43	26	64	80	57	107
7	1	17	44	27	65	81	58	108
8	2	19	45	28	66	82	58	110
9	2	20	46	29	67	83	59	111
10	3	22	47	29	69	84	60	112
11	3	23	48	30	70	85	61	113
12	4	24	49	31	71	86	62	114
13	5	26	50	32	72	87	63	115
14	5	27	51	33	73	88	63	117
15	6	28	52	33	75	89	64	118
16	6	30	53	34	76	90	65	119
17	7	31	54	35	77	91	66	120
18	8	32	55	36	78	92	67	121
19	8	34	56	37	79	93	68	122
20	9	35	57	38	80	94	69	123
21	10	36	58	38	82	95	69	125
22	10	38	59	39	83	96	70	126
23	11	39	60	40	84	97	71	127
24	12	40	61	41	85	98	72	128
25	13	41	62	42	86	99	73	129
26	13	43	63	42	88	100	74	130
27	14	44	64	43	89			
28	15	45	65	44	90			
29	16	47	66	45	91			
30	16	48	67	46	92			
31	17	49	68	47	93			
32	18	50	69	47	95			
33	19	52	70	48	96			
34	19	53	71	49	97			
35	20	54	72	50	98			
36	21	55	73	51	99			

⁴ Rapid Assessment of Drinking Water Quality: A Handbook for Implementation. World Health Organization, UNICEF. October 2012.

Appendix E: Communication Flowcharts

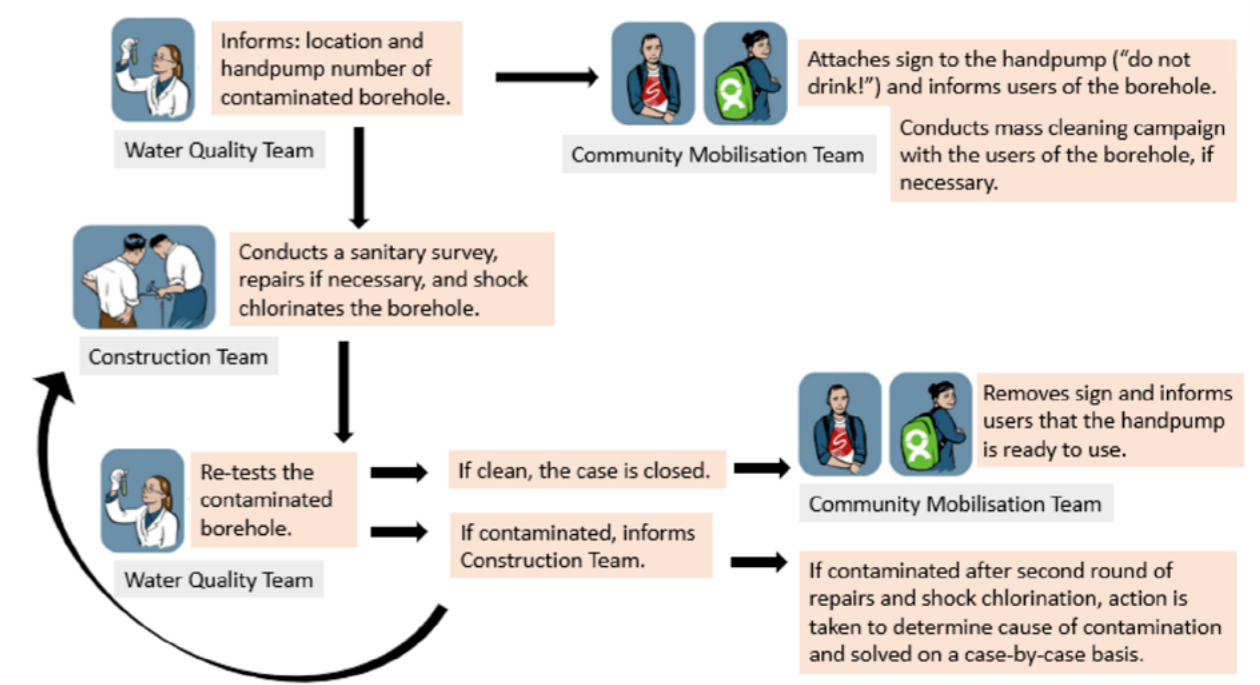


Figure 18. Flowchart showing actions and communication when a borehole fails the microbiological test.

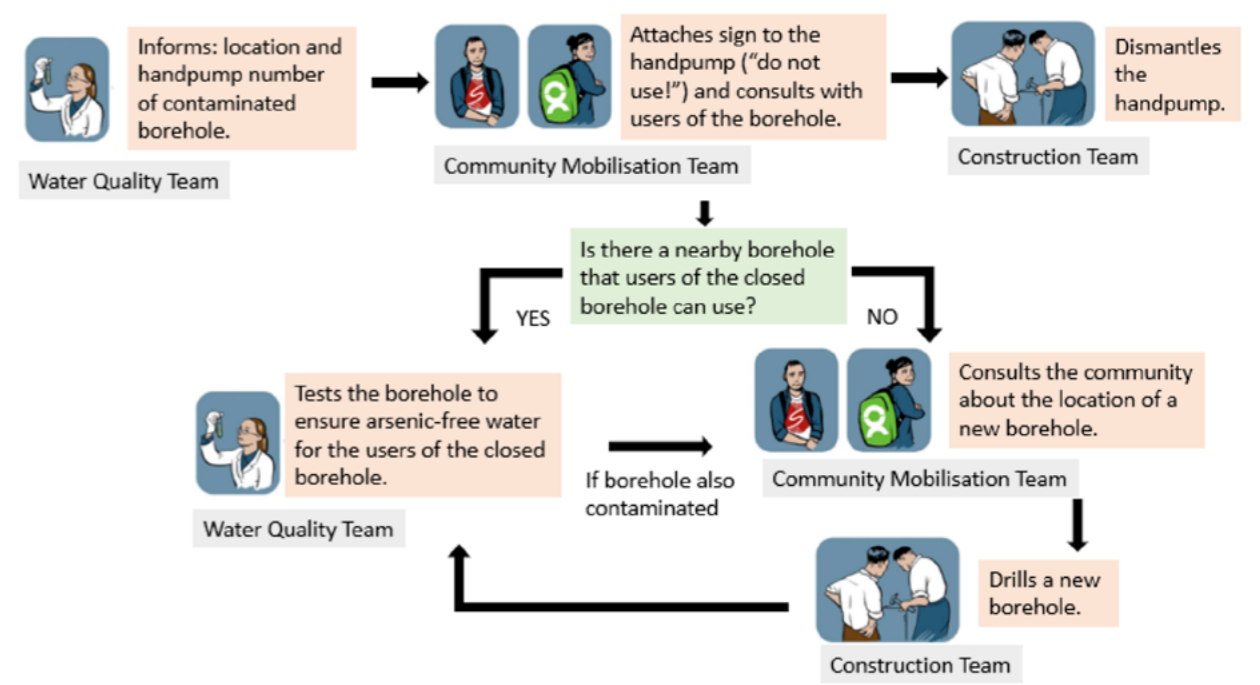


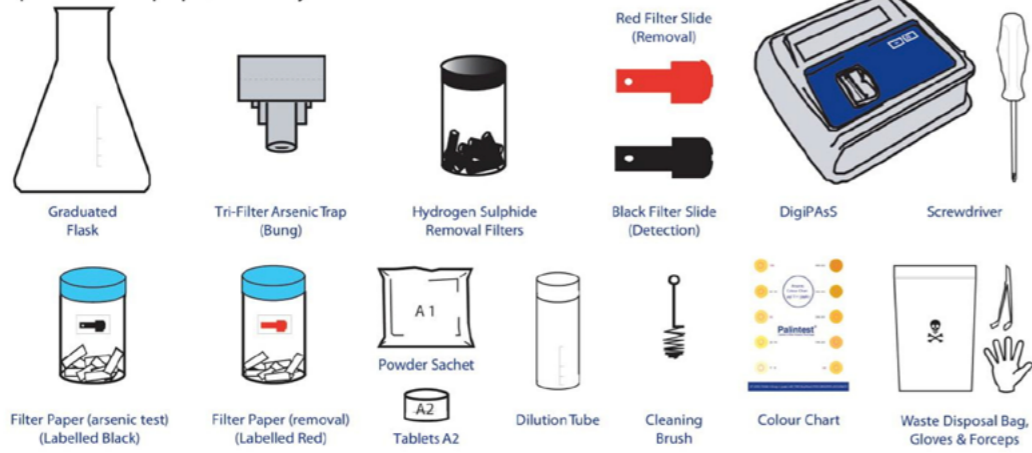
Figure 19. Flowchart showing actions and communication when a borehole fails the arsenic test.

Appendix F: Instructions for performing an arsenic test

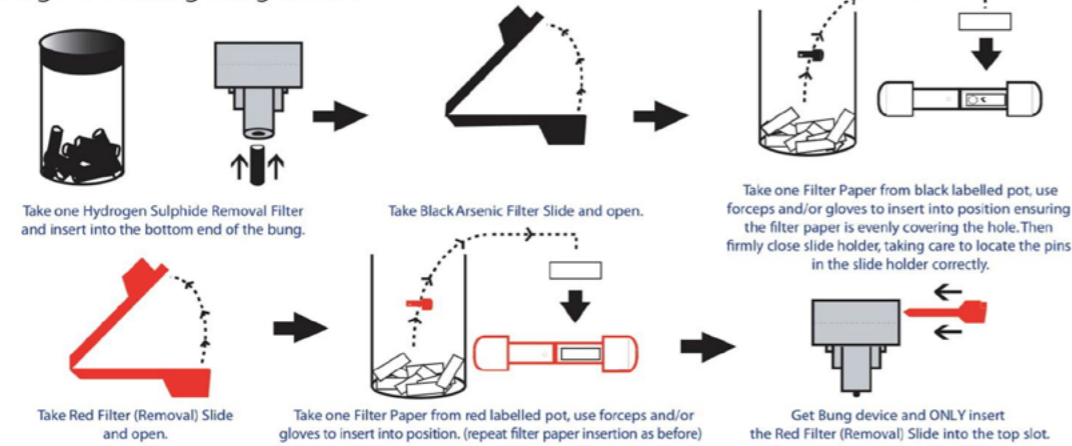
DigiPAS Operation Manual



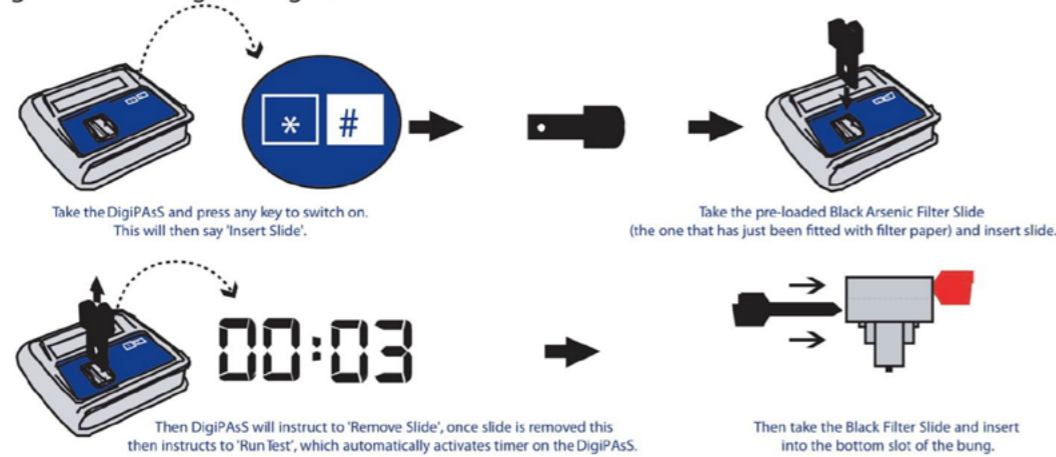
Operation Equipment Key



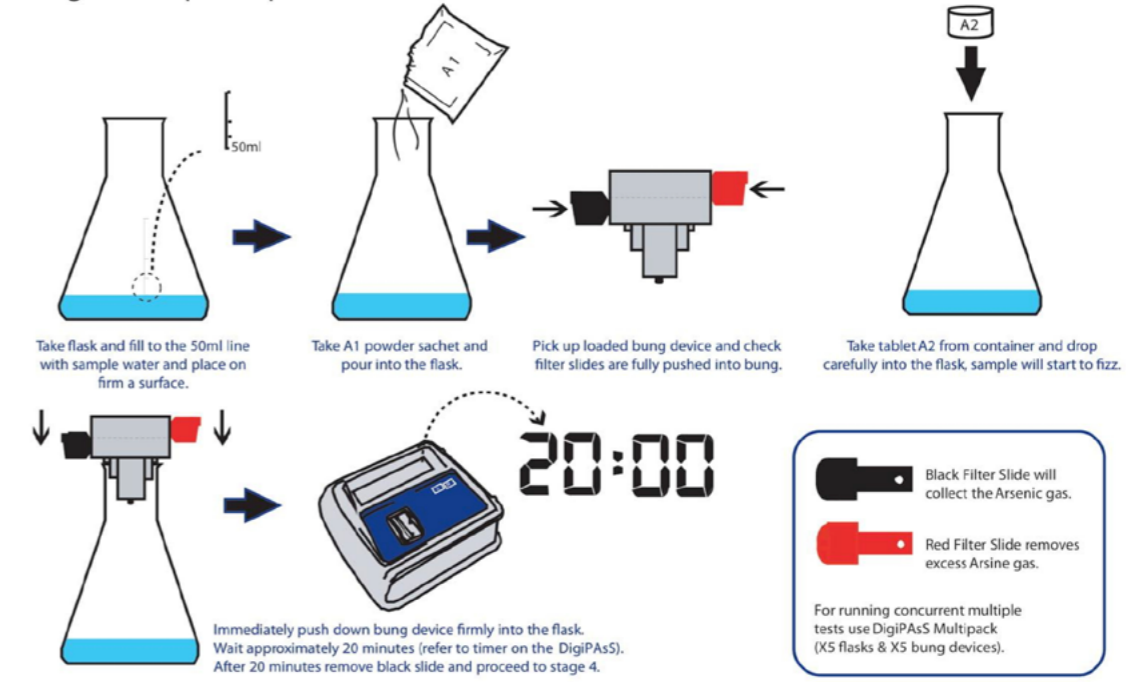
Stage 1: Loading bung device



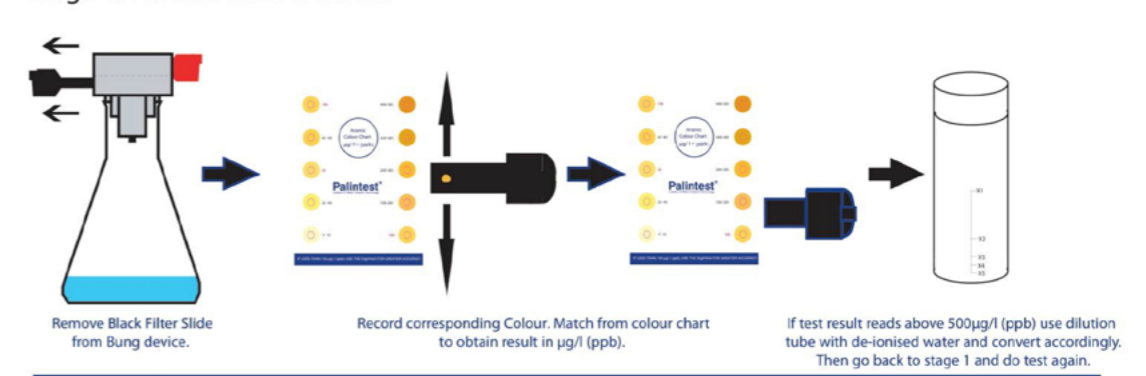
Stage 2: Calibrating the DigiPAS



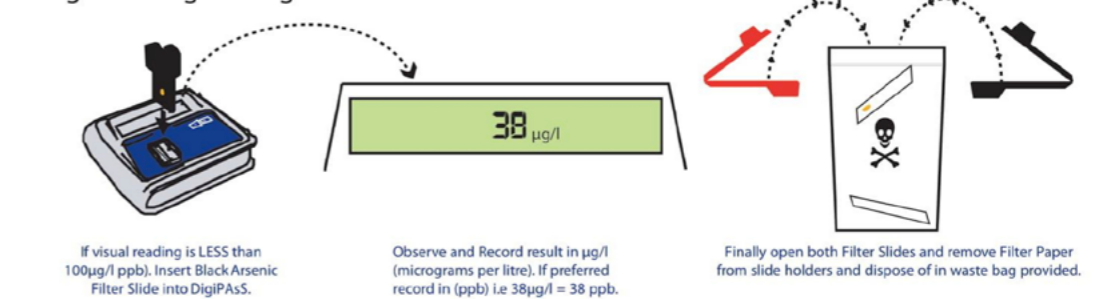
Stage 3: Sample Preparation



Stage 4: Arsenic Measurement



Stage 5: Using the DigiPAS



e mail: export@palintest.com website: www.palintest.com

If you have any enquiries regarding the DigiPAS please contact Palintest's nearest local in country agent or at the above e-mail address.

DigiPAsS Operation Manual



Troubleshooting



	ALWAYS ensure to insert Filter Slides in their allocated slots in the bung device.	
	NEVER insert Red Filter Slide (removal) in the DigiPAsS.	
	ALWAYS handle filter paper, with gloves and/or forceps.	
	ALWAYS insert correct Filter Paper into its appropriate Filter Slide.	
	Take filter paper from pot marked for Black Filter Slide.	
	Take filter paper from pot marked for Red Filter Slide.	
	NEVER use a broken Filter Slide. Discard and use new one for a gas tight seal.	
	ALWAYS make sure Filter Slides are fully pushed into the bung device.	

	IMMEDIATELY insert bung device into flask within 0-2 seconds after powder A1 and tablet A2 have been dropped into the flask, to obtain accurate result.	
	When removing filter paper from slide one should only observe a perfectly symmetrical colour stain, i.e yellow circle. If yellow stain goes beyond circle this suggests a gas leak which will give a low result. Repeat test ensuring Black Filter Slide is closed properly to maintain gas tight seal.	
	If internal cotton wool turns black within the Hydrogen Sulphide Removal Filter, DISCARD in waste bag and insert NEW FILTER.	
	If low battery indicator is displayed, change battery within the next 10 tests.	
	After every test rinse flask with water from next sample. Swirl, shake and discard solution ready for next test.	
	At the end of each day clean the flask with the brush provided.	

e mail: export@palintest.com website: www.palintest.com

If you have any enquiries regarding the DigiPAsS please contact Palintest's nearest local in country agent or at the above e-mail address.

Shock chlorination of boreholes in camps

Introduction

As part of the Water Quality Strategy for the WASH Programme, remedial action is taken every time that a borehole water sample fails a microbiological test. Remedial actions include a sanitary inspection to identify probable causes of contamination, any repairs to the handpump or apron needed, shock chlorination of the handpump, and finally a water quality re-test to ensure the water is safe to drink again. This document focuses on the procedure for shock chlorination of boreholes.

Shock chlorination is the use of a one-off, high dose of chlorine to disinfect a borehole or well. This is usually done in the following cases:

- After construction or after repair. In both cases, there is a likelihood of contaminating the water source and so chlorination should be done as a precautionary measure.
- After a failed bacteriological test—when the water source is known to be contaminated, it must be disinfected.

Shock chlorination should disinfect the water, but it does not always work if there is an underlying problem causing re-contamination, such as a cracked apron or sanitary seal. Prior to shock chlorination, the team should conduct a sanitary inspection to identify probable causes of contamination and take mitigating steps to prevent it from reoccurring.

The chlorine compound used is granular calcium hypochlorite with 65% active chlorine. Granular chlorine is more stable, which allows it to be stored for longer periods than liquid chlorine. Chlorine must be stored in a cool, dry, well-ventilated, and dark location.

A recommended dose for shock chlorination is 250 ppm of active chlorine for a disinfection time of 12 hours¹. To know exactly the correct dose, the amount of water in the borehole must be calculated or approximated; however, it is unreasonable to measure the water level in every borehole that we shock chlorinate. We know that OXSI boreholes are approximately 30 ft deep, with a casing pipe diameter of 2". In the wet season, the water table is only about 2.5 ft below ground level, while in the dry season, it is around 8 ft below ground level. This means that the maximum volume of water sitting in the borehole at rest is only between 13.5 – 17 L.

Because granular calcium hypochlorite contains 65% active chlorine, one heaped teaspoon (about 14g) dissolved in 1 L of water makes a 0.91% solution (9,100 ppm). When added to 17 L in the borehole during the wet season, this results in a concentration of about 500 ppm active chlorine. When added to 13.5 L in the borehole during the dry season, the concentration is even higher, at almost 630 ppm active

¹ "Shock Chlorination of Wells: Technical Brief" Oxfam in Myanmar, 2016. Based on Lifewater guidance (<https://lifewater.org/wp-content/uploads/2018/10/Lifewater-HandPumpRepair-Manual.pdf>) which in turn references a Canadian standard (MOEE, 1987). This states that a chlorine dosage of 250 mg/l is maintained for at least 12 hours for newly constructed wells, but a dosage of at least 50 ppm is used in future.

chlorine.

These concentrations are higher than recommended; however, at the time of writing, the granular chlorine had been in storage for quite some time and is expected to have lost potency, making these concentrations significantly lower. When new stocks are purchased, make sure to adjust the quantity of granular calcium hypochlorite.

Team

Shock chlorination is done by members of the construction team who are familiar with how to dismantle handpumps and are trained in shock chlorination. Typically, 1-2 workers perform several shock chlorinations per day. It is ideal if they are accompanied by a member of the Community Mobilization team, who can answer questions from the community during the procedure and ensure that people understand not to use the handpump overnight.

Materials

- 1) Tools for handpump dismantling: a hammer, chisel, spanner set, and pliers.
- 2) Granular chlorine (1 spoonful for every borehole), carried in a small plastic container.
- 3) 1 plastic spoon
- 4) Gloves
- 5) 1 clean, empty 1L bottle

Procedure

- 1) After the Water Quality Team informs the Construction Team that shock chlorination is needed, the Construction Team communicates to the Community Mobilization team about the date and which boreholes will be shock chlorinated. The Community Mobilization team confirms with the Construction team the location and number of the borehole(s).
- 2) The Community Mobilization team asks for permission to shock chlorinate the borehole by talking to the community members who use the HP. They carefully explain to the community the procedure and why it is important.

Key messages:

- We have tested the water and found that it is currently unsafe to drink.
- The community needs to clean around the handpump (to prevent further contamination), but we also need to chlorinate it now to kill the harmful bacteria in the water and prevent disease.
- We are asking your permission to chlorinate the borehole to make the water safe to drink.
- This process will take 12 hours (one night). During this time, the handpump handle and other parts will be removed, so the community will not be able to use this handpump.
- Together we can identify a nearby borehole that can be used during this time.
- The next day, we will pump out all the chlorinated water until there is no remaining taste or smell of chlorine. The water is then safe to drink.
- Cleaning is critical to ensure this doesn't happen again. The water under ground can easily be contaminated by dirty water on the surface seeping into the soil around the handpump, so the

area must be kept clean, not used for washing laundry, and kept free of stagnant water.

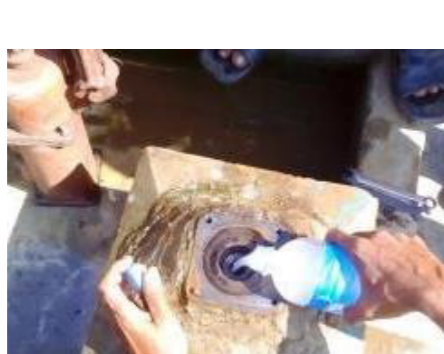
- Put on gloves and prepare the chlorine solution: fill the 1 L bottle with clear water and add 1 spoon of chlorine powder. Close and **shake the bottle for 30 seconds.**



- Remove the sign on the handpump that informs people not to use the water for drinking. Save the sign to put back on the handpump after shock chlorination.
- Dismantle the handpump.



- Pour chlorine solution into the suction pipe.



- Agitate by pumping several times, until a chlorine smell is detected, then stop immediately—do not pump out the chlorinated water.

- Dismantle the handpump so that no one can use it and leave overnight.
- Return **the day after** and reconnect the pump.
- Pump until the chlorine smell is removed.
- Fix the sign on the handpump that tells people not to use the handpump for drinking. This sign will be removed once the water from the borehole is re-tested and is confirmed to be clean.
- Communicate with the Water Quality Team to re-test the handpump within one week of the shock chlorination. The Community Engagement Team will inform the community if the water test has passed and the handpump can be used for drinking.

Note: While their borehole is being shock chlorinated, if the community has any problems using a different handpump due to conflict with the users of the other handpump, this issue should be raised first with the Camp Management Committee and then with OXSI. All OXSI handpumps are open to the public and no one can stop others from using any OXSI handpump.

**ရေတုံ့ထိုင်ထိုင် ဝမ်းပျက်ဝမ်းလျော ရောဂါပိုးမွှေရှိလျှင်
ဆောင်ရန် ရှောင်ရန်အချက်များ**

သောက်သုံးခြင်း

ချွေးတိုက်ခြင်း

**အသီးအရွက်များအားဆေးကြော
ပြီးတိုက်ဖိုက်စားသုံးခြင်း**

ရေကိုတိုက်ချွတ်ပြီးသောက်ခြင်း

Fix this poster to the handpump before and after shock chlorination. The water should not be used for drinking, brushing teeth, or washing food that will not be cooked until a re-test confirms that it is clean.

Targeted Household Visit Standard Operating Procedure

Introduction

At the beginning of the programme, blanket household visits were conducted as a hygiene promotion tool. Community Facilitators would visit each household one by one to teach people about good hygiene behaviour. However, in mid-2018, the approach was changed to “target” households where the water quality test had failed. It was believed that this would lead to more focus and engagement during the visits and behaviour change around water safety behaviours. Targeted household visits are also conducted for special situations, such as to follow up with diarrhoea cases or to systematically inform households about something important. This document addresses only the targeted household visits that are conducted in response to a failed water quality test.

Note: in this document, “drinking water” refers to any water that is directly consumed, as well as water that is used in cooking and to wash fresh fruits and vegetables that will be eaten raw. “Domestic water” is water used for bathing, washing clothes, washing dishes, and other cleaning in the house.

Objectives

The main objective of the targeted household visit is to improve behaviours around water collection, transport, storage, and use, in order to minimize the risk of contaminating drinking water. In the targeted household visit, the results of the household’s water test are shared with the household in order to provide “proof” that the household’s water behaviours could be improved, and good practices are shared with the help of the Water Safety Flipchart to ensure that the household members have the knowledge for how to improve their water behaviours.

Standard Operating Procedure

1. The list of households where the water quality test failed are shared with the Community Mobilisation team by the Water Quality Team once a week. Plan the targeted household visit for the following week.
2. Prepare for the household visits and report your plan to your line manager, who will check the weekly workplan and schedule the visits.
3. When you arrive at the first household, introduce yourself and ask if it is a suitable time to have a household visit. Explain that you work for OXSI and give a brief overview of the work that OXSI is doing, allowing people to ask any questions.
4. Explain that you are visiting this household today because a recent water quality test showed that the water in the household is not clean, (in most cases, the water from the borehole test is clean). Explain that you would like to ask some questions about water behaviours and to give suggestions on how to keep water clean.

5. Ask to see where the household keeps drinking water and check for the following, while using the Water Safety Flipchart to explain good and bad behaviours:

- a. Does the water container have a cover? If there is a cover, praise the household for this behaviour and let them know that water should always be covered, because a cover keeps the water from being contaminated while it is stored. If they don’t have a cover, encourage them to make a cover using a designated plate or pot lid.
- b. Does the water container have a tap? If they have a container with a tap but are not using it for drinking water storage, encourage them to do so. A container with a tap is the safest way to store water so that it does not get contaminated from using a ladle/cup to scoop out the water.



- i. If no tap and the water container is small enough, the next best method is to pour the water from the container to a drinking cup.
- ii. If no tap and the water container is too big to pour, use a ladle or a cup with a handle to scoop water from the container, but do not store the ladle/cup in the water. If possible, hang it somewhere where the part of the cup/ladle that goes into the water is not touching anything. If your hands or the part of the cup/ladle that touches your hands enter the water, you will contaminate the water.

6. If the household uses a Ceramic Water Filter (CWF), take a look at it (open the lid) and ask how long they have been using the CWF. Give the following directions:
 - a. If they have been using the CWF for more than one year (or if they received it from Oxfam or SI), tell them to stop using it. Take out and dispose of the brown ceramic pot, clean the white bucket with water and soap, and use the bucket without the ceramic filter inside.
 - b. The ceramic pot should be cleaned once per month, without soap. See the Frequently Asked Question section for a step-by-step guide for how to clean the CWF.
 - c. If there are any cracks in the brown ceramic pot, tell the household to stop using it and discard it.
7. Ask the household if they use the same container for domestic and drinking water. If yes, encourage them to use a separate container and to make sure everyone in the household knows which container is for drinking water and which one is for domestic water.
 - a. If they have a container with a cover and a tap, this one should be used for drinking water.
8. Ask the household to see which container they use to get water from the handpump. Ask if they do anything before fetching water.
 - a. If they mention cleaning the container, praise them for this behaviour and let them know it is correct. If they don’t mention ever cleaning the container, encourage them to clean the container once a week with soap and water.

9. Ask the person who usually gets the water from the handpump to see how they carry the water container.
 - a. Make sure they are not putting their hands on any part of the container that will contain water or where water will flow from the container to another cup. Show the Water Safety Flipchart as an example of how to properly carry the gorra to avoid contamination.
10. Thank the household members for their time and ask if they have any questions. (See Frequently Asked Questions on the last page of this document).
11. When you finish the household visit, fill out the reporting format with the number of the household, participants, session (1 session = 1 HH visit).



Frequently Asked Questions

1. What does it mean that my water test failed?

If your water test failed, it means that the water that was tested in your household was contaminated with *E.Coli*, which is a germ that can make people sick. It likely happened if someone in the household had dirty hands and then touched the water with their hands.

2. How can I know if my water is clean?

Germs in the water are so tiny that they are impossible to see, so you usually can't see if your water is clean or not. By following the advice given during this household visit and always carrying your water correctly, keeping your water containers clean and covered, and using a clean ladle/cup or tap, you can keep your water clean.

3. When will OXSI distribute new Ceramic Water Filters?

OXSI does not have any plans to distribute new CWFs.

4. When will OXSI test my water again?

OXSI conducts household water tests randomly, twice a year. Your household may get tested again in six months or one year, but it's possible that it won't be tested again at all.

5. How do I clean the Ceramic Water Filter?



The ceramic pot should be cleaned once per month or when the flow rate begins to slow down.

Clean the inside surface of the lid with soapy water and let it dry. Place the lid on a level surface with the clean side facing up.



Carefully lift the ceramic pot out of the receptacle and set it on the lid. Touch only the rim when lifting the ceramic pot.

Do not touch the outside of the ceramic pot with dirty hands and do not set it on an unclean surface.



Scrub the inside of the ceramic pot with a cloth or soft brush and rinse with clear water. **Do not use soap** to clean the ceramic pot.

Clean the receptacle tank and spigot with soapy water.



Put the ceramic pot into the receptacle tank immediately after cleaning to prevent recontamination.

The pot does not have to be dried after cleaning.

Foundation Plan View

Labels: 1:2.4 Concrete footing, 9"thk-1:3 Brick Retaining Wall, 3"thk-1:2.4 Concrete Pit, 5"Ø 1:2.4 Concrete Solid Pit.

PROJECT	
2-BLOCK LATRINE	
SUBJECT	
FOUNDATION PLAN VIEW	
Sheet No.	P-01
Viewspot Scale	1/4" = 1'-0"
Date/ Day	11th Oct, 2017
Drawing By;	Mang Htan Shar Mar Construction Supervisor
Checked By;	Win Oo Construction Manager
Approved By;	Cedric MASCRE WASH PM

SOLIDARITÉS INTERNATIONAL

Structure front View

Labels: 3"x1.5" Timber Purlin, 3"x2" Timber Rafter, 3"x2" Timber Roof Beam, 3"x2" Timber Rails, 3"x2" Timber Door Frame, 3"x3" Timber Post, 2"x2" MS flat Bolt Nut (12Ø mm) 5-long, 9"thk-1:3 Brick Retaining Wall, 3"thk-1:3:6 Concrete Learn.

Complete Structure front View

Labels: 28G CGI Roofing Sheet (Blue Colour), 6"x1" Timber Eave Board, 32G CGI Plain Sheet (Blue colour), Aluminium Door Handle 4"-long, Aluminium hand Staple 4"-long, 2"x0.5" Beading, Aluminium Hinge 4"-long.

PROJECT	
2-BLOCK LATRINE	
SUBJECT	
STRUCTURE FRONT & COMPLETE VIEW	
Sheet No.	P-02
Viewspot Scale	1/4" = 1'-0"
Date/ Day	11th Oct, 2017
Drawing By;	Mang Htan Shar Mar Construction Supervisor
Checked By;	Win Oo Construction Manager
Approved By;	Cedric MASCRE WASH PM

SOLIDARITÉS INTERNATIONAL

Structure front View

Labels: 3"x2" Timber Diagonal Bracing, 3"x2" Timber Rails, 3"x2" Timber Diagonal Bracing, 2"x2" MS flat Bolt Nut (12Ø mm) 5-long.

Complete Structure Back View

Labels: 32G CGI Roofing Sheet (Blue Colour), 6"x1" Timber Eave Board, 2"x0.5" Beading, 32G CGI Plain Sheet Wall.

PROJECT	
2-BLOCK LATRINE	
SUBJECT	
STRCTURE SIDE & COMPLETE VIEW	
Sheet No.	P-03
Viewspot Scale	1/4" = 1'-0"
Date/ Day	11th Oct, 2017
Drawing By;	Mang Htan Shar Mar Construction Supervisor
Checked By;	Win Oo Construction Manager
Approved By;	P-01

SOLIDARITÉS INTERNATIONAL

Structure side View

Labels: 3"x1.5" Timber Purlin, 3"x2" Timber Rafter, 3"x2" Timber Roof Beam, 3"x2" Timber Diagonal Bracing, 1:2.4 Concrete Latrine Pan Farme, Latrine Pan, 3"Ø PVC Latrine Pipe, 80mm Iron bar manhole handle, 60mm Iron bar manhole handle, 1:3 Brick Stair, 1:2.4 Concrete Manhole Cover, 2"Ø PVC Vent Pipe & Elbow, 2"Ø PVC Vent Pipe & Elbow.

Complete Structure side View

Labels: 28G CGI Roofing Sheet (Blue Colour), 6"x1" Timber Eave Board, 2"x0.5" Beading, 32G CGI Plain Sheet Wall.

PROJECT	
2-BLOCK LATRINE	
SUBJECT	
STRCTURE SIDE & COMPLETE VIEW	
Sheet No.	P-03
Viewspot Scale	1/4" = 1'-0"
Date/ Day	11th Oct, 2017
Drawing By;	Mang Htan Shar Mar Construction Supervisor
Checked By;	Win Oo Construction Manager
Approved By;	P-01

SOLIDARITÉS INTERNATIONAL

Activity: Latrine Construction with SI Design - 1 block, 2 rooms					
No	Item	Unit	No.	Unit cost (MMK)	Amount
A Material					
Latrine Structure					
1	Brick	No.	1050	140	MMK 147,000
2	Cement	bags	8	8,500	MMK 68,000
3	Sand	suds	1	26,500	MMK 26,500
4	Gravel	suds	0.1	90,000	MMK 9,000
5	Blue plain metal sheet (4' x 100' x 28 G)	roll	0.4	103,000	MMK 41,200
6	CGI sheet for roofing (2' x 6' x 28 G)	shts	6	3,900	MMK 23,400
7	Nail 1.5"	viss	0.3	2,600	MMK 780
8	Nail 2"	viss	0.3	2,600	MMK 780
9	Nail 2.5"	viss	0.75	2,500	MMK 1,875
10	Nail 3"	viss	0.75	2,500	MMK 1,875
11	2.5" Roofing nail with washers	viss	0.5	3,700	MMK 1,850
12	Twist flat	No.	9	500	MMK 4,500
13	Crude oil (earth oil) - varnish	gal	1	3,500	MMK 3,500
14	Mosquito net (4' x 100')	roll	0.2	9,500	MMK 1,900
15	Plastic latrine pan + 3" pvc elbow 45 degree x 2	No.	2	3,200	MMK 6,400
16	PVC elbow, 2" dia, 90 degrees	No.	3	1,000	MMK 3,000
17	PVC tee, 2" dia, 90 degrees	No.	4	1,000	MMK 4,000
18	PVC pipe, 3" dia, 19.5' long, 8.5 class	No.	0.5	12,800	MMK 6,400
19	PVC pipe, 2" dia, 19.5' long, 8.5 Class	No.	1	7,000	MMK 7,000
20	Aluminium hinge - 4"	No.	6	550	MMK 3,300
21	Aluminium handle - 6"	No.	4	700	MMK 2,800
22	Padlock, medium size, SP Brand (best qual	No.	2	2,300	MMK 4,600
23	Metallic strap (2' x 2" x 4 mm)	No.	6	2,300	MMK 13,800
24	Bolt and nut, 8 arner, 4" with washers	set	12	500	MMK 6,000
25	Aluminium hasp and staple - 4"	set	2	550	MMK 1,100
26	Aluminium bolt tower - 6"	set	2	700	MMK 1,400
27	Metallic mesh 3mm (2" x 2" x 6' x 80')	roll	0.1	133,000	MMK 13,300
28	Hard wood first class - 3" x 3" x 15'	No.	3	13,600	MMK 40,800
29	Hard wood first class - 3" x 2" x 18'	No.	1	10,200	MMK 10,200
30	Hard wood first class - 3" x 2" x 15'	No.	9	8,500	MMK 76,500
31	Hard wood first class - 3" x 2" x 12'	No.	1	6,800	MMK 6,800
32	Hard wood first class - 3" x 1.5" x 12'	No.	3	6,800	MMK 20,400
33	Hard wood first class - 3" x 1" x 15'	No.	4	6,800	MMK 27,200
34	Hard wood first class - 6" x 1" x 18'	No.	1	10,200	MMK 10,200
35	Hard wood first class - 6" x 1" x 12'	No.	1	6,800	MMK 6,800
36	Hard wood first class - 2" x 0.75" x 12'	No.	20	1,700	MMK 34,000
Latrine Pits x 3					
37	Cement	Bag	15	8,500	MMK 127,500
38	Sand	Sud	0.6	26,500	MMK 15,900
39	Gravel	Sud	1.2	90,000	MMK 108,000
40	3"Ø PVC pipe	Ft	15	656	MMK 9,846
41	2"Ø PVC pipe	Ft	12	359	MMK 4,308
42	3"Ø PVC elbow 45°	Pcs	3	1,400	MMK 4,200
43	2"Ø PVC elbow 90°	Pcs	3	1,000	MMK 3,000
44	2"Ø PVC tee	Pcs	3	1,500	MMK 4,500

Activity: Latrine Construction with SI Design - 1 block, 2 rooms					
No	Item	Unit	No.	Unit cost (MMK)	Amount
45	Old engine oil (to coat iron mould)	Liter	18	1,200	MMK 21,600
Latrine Pit Covers x 3					
46	Cement	Bag	3	8,500	MMK 25,500
47	Sand	Sud	0.15	26,500	MMK 3,975
48	Gravel	Sud	0.3	90,000	MMK 27,000
49	MS rod, 8 mm Ø	Ft	240	200	MMK 48,000
50	Binding wire, 18 G	Viss	0.3	3,000	MMK 900
51	2"Ø PVC pipe	Ft	3	359	MMK 1,077
52	2"Ø PVC elbow 90°	Pce	6	1,000	MMK 6,000
A Sub material costs					MMK 1,049,466
B Labour charges					
1	Workers	DW	39	4,800	MMK 187,200
2	Masons	DW	13	6,200	MMK 80,600
3	Carpenters	DW	4	6,200	MMK 24,800
B Sub labor costs					MMK 292,600
TOTAL AMOUNT					MMK 1,342,066

Focus Group Discussion for Latrine Handovers

AIM: To gain feedback about the process of latrine handovers and discuss the possibility of segregating latrines by gender.

Process

There should be two or three staff members for each FGD: a facilitator, a note taker, and an observer (optional). The staff for each FGD should match the gender of the group.

The roles of the FGD team are listed below:

- The facilitator should be guiding the discussion
- The note taker should be capturing the findings
- The observer (optional) should be monitoring the FGD and taking photos if permission has been gained

Recruitment:

- Participants need to be recruited and informed ahead of time about the time, date, and location of the FGD. Participation in the FGD is always voluntary.
- Two FGDs for every two barracks: male and female group, FGDs occur **at the same time**.
- One male and one female from each room in each barrack.
- **The two groups come together at the end to make a final decision for their two barracks.**
- If a final decision is reached, the latrine handover process can be done right away on the spot (have latrine kits and documents ready).

Introduction

Welcome to our FGD and thanks for taking the time to join us today. My name is I am the FGD facilitator, I am here to guide the discussion. This is who will be our note taker if permission is gained to do this, and this is who will be our observer and help us to run the FGD.

We are here to gain feedback on the latrine handover process, to discuss the option of segregating latrines by gender, and to make a final decision on latrine handover together, if we all agree.

We would like your permission to take notes and take photos. Can you raise your hands if:

1. If you give permission for us to take notes. (The notes will not contain your names or any private information.)
2. If you give permission for us to take photos during the FGD

The note taker needs to record if permission from the whole group has been given. Only use a method of recording data if consent has been given.

As we will be taking notes (if permission is gained) we ask that people talk one at a time as otherwise we will not understand what is being said. Please feel free to leave at any time if you choose.

There are some rules for FGDs which I would like you all to remember:

- There are no right or wrong answers
- Only one person should speak at a time
- You don't need to agree with others, but you must listen respectfully as others share their views

Do you have any questions before we begin?

Why are we here?

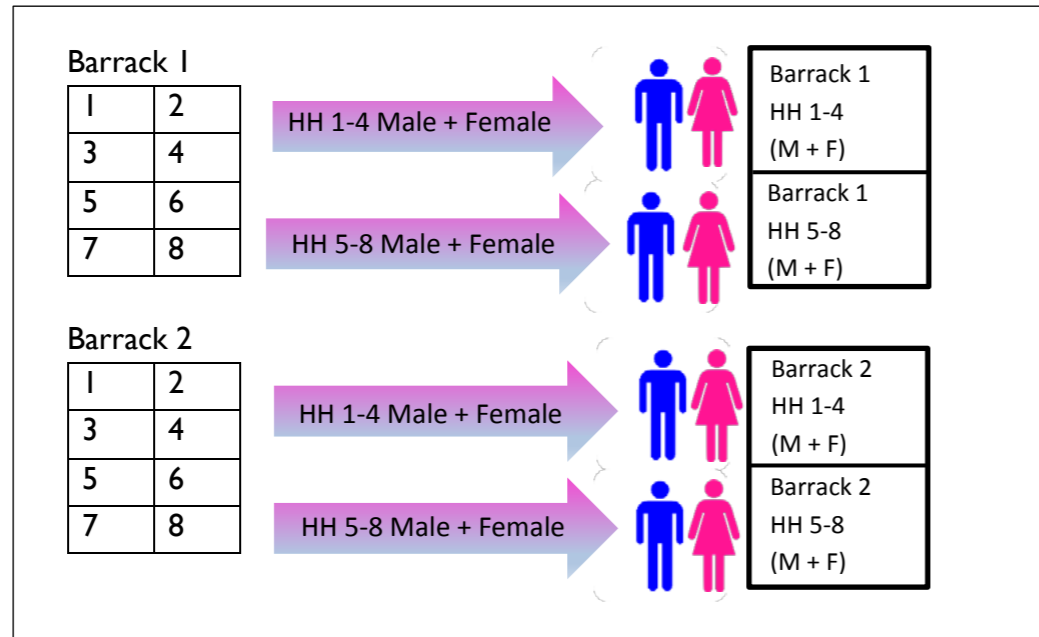
Oxfam/SI has received a lot of feedback about the way that latrines are handed over to households. In the past, one latrine room has been handed over to half of a barrack (4-5 households). Members of the community, especially women and girls, have expressed that they would like the latrines to be segregated by gender for their comfort and safety. (Explain the three scenarios illustrated below). Please note that in both of the proposed new scenarios, **the same number of people would be sharing one latrine.**

We are here to facilitate for your two barracks to reach a decision about latrine handovers – the decision is completely up to you!

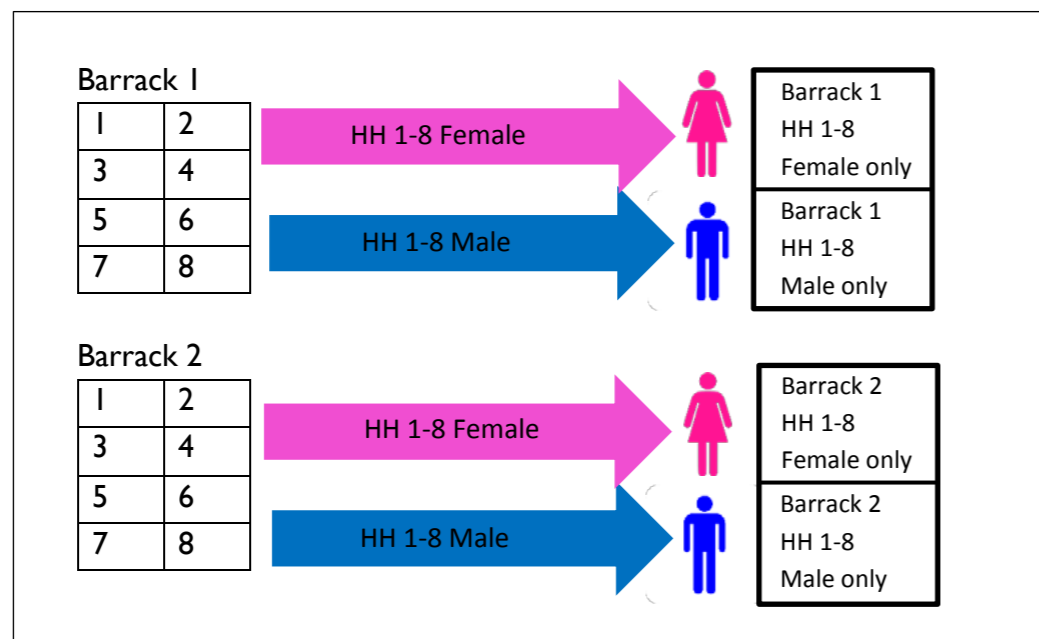
Questions

1. Which scenario do you prefer? (Ask people to vote, count the number of votes for each)

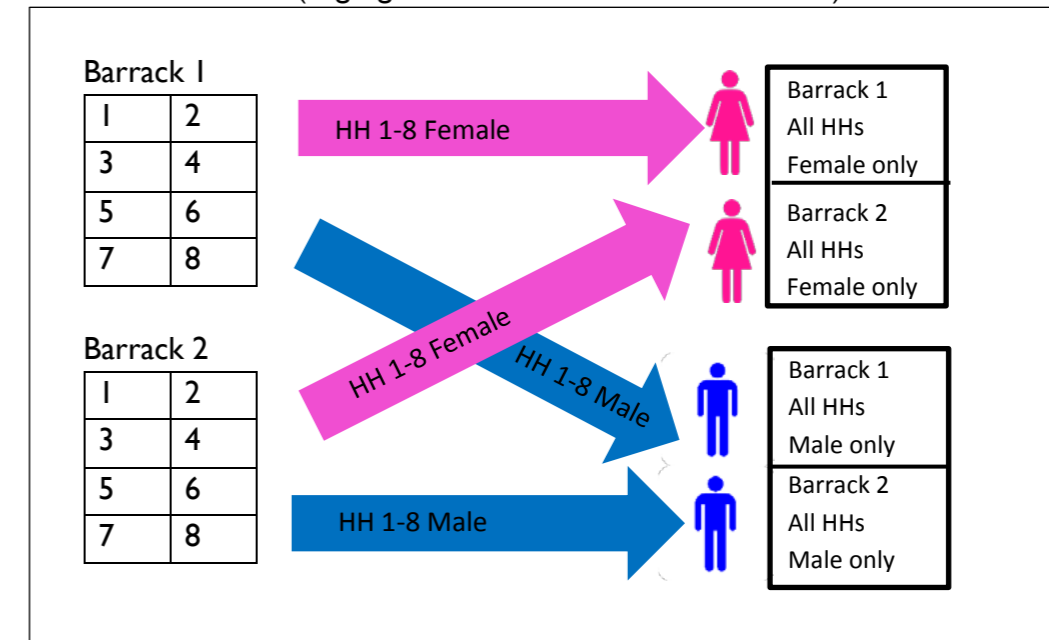
SCENARIO 1 (Current)



SCENARIO 2 (Segregated, one block for one barrack)



SCENARIO 3 (Segregated, two blocks for two barracks)



2. Those of you prefer scenario 1, why?
3. Those who prefer scenario 2, why?
4. Those who prefer scenario 3, why?
5. **(Join with the other FGD group for the final discussion and decision)** Can you reach a decision all together to do the handover using one of these scenarios? *Scenarios 1 and 2 can be decided by one barrack, but scenario 3 has to be decided by two barracks together.*

The group should all agree on one of the scenarios for a decision to be made. If a decision is not made by consensus, ask what follow-up steps can be taken and record the main discussion points (eg. if someone important is missing from the discussion, the group may ask to postpone the decision – in that case, decide a date and time to follow up).

If a decision is reached, groups can receive their keys, latrine kits, etc, and sign the handover documents.

To close the session, the facilitator should thank the participants for their time and ask the note taker to summarize the main points from the discussion.

Summary of Session

Date of FGD:

Time of FGD:

Facilitator:

Note Taker:

Observer:

Number of people:

Barrack numbers:

Male or female: M/F

Permission gained for note taking: Y/N Permission gained for taking photographs: Y/N

Question No	Answers given
1.	Scenario 1 – Scenario 2 – Scenario 3 –
2.	
3.	
4.	
5.	

Latrine Functionality Check - OXSI

Field	Question	Answer
date <i>(required)</i>	Date of Information	
Enumerator_Name <i>(required)</i>	Enumerator Name	
camp_name <i>(required)</i>	Camp Name	camp_value camp_label
sector_block	Sector/block	1 1
		2 2
		3 3
		4 4
		6 6
		a A
		b B
		c C
		d D
		e E
		f F
		g G
		h H
		i I
		j J
		k K
l L		
m M		
n N		
o O		
infrastructure_type <i>(required)</i>	Infrastructure type	LT LT
latrine_reference <i>(required)</i>	Latrine Reference	
type_of_latrine <i>(required)</i>	Type of latrine	single Single
		double Double
		4-4-block
		block
room_reference <i>(required)</i>	Room Reference	a A
		b B
		c C
		d D
		N_N No Number
Latrine_Functioning <i>(required)</i>	Is the Latrine functioning? <i>Functional = IDPs are able to use, so provide privacy, safe pipes and pits in a good state.
Non-Functional = Pipe and pit is broke and sludge is spreading and pit is full or overflowing
Under Maintenance = A latrine is under maintenance and it cannot be used so far.</i>	Yes Yes
		No No
		under_maintenance Under Maintenance
sub_category <i>(required)</i>	If Latrine is not functioning, which sub-category it falls under?	construction Construction
		sanitation Sanitation
If_construction <i>(required)</i>	If construction, mention the problem below	Upgrade Upgrade
		Major_Repair Major Repair
Construction_major_repair <i>(required)</i>	What type of major repair?	foundation Foundation
		Footing Footing
		LP Leg/Post
		floor Floor
		Frame Frame
		Wall_Beading Wall Beading
		Door Door
		Walling Walling
		Roofing Roofing
		Pan Pan
		Pipe Pipe
		Pit Pit
		stair Stair
		Other Other
Other_copy <i>(required)</i>	If Other, Please Specify	
If_sanitation <i>(required)</i>	If Sanitation, specify the problems below	main_pit_overflowing Main pit overflowing
		soak_pit_overflowing Soak pit overflowing
		pan_full Pan full
		pit_full Pit full

Field	Question	Answer
Does_latrine_need_to_be_repaired_minor <i>(required)</i>	Does latrine need to be repaired minor?	by_agency by agency
		by_community by community
		No_repair No repair
Minor_repair_by-agency <i>(required)</i>	Minor repair by agency	Beading_for_Walls Beading for walls
		Door_Hinge Door Hinge
		Roof Roof
		Walling Walling
		door Door
		holes_leakage Holes on the pit/ leakage
		manhole_cover_main_pit Manhole cover: main pit
		manhole_cover_soak_pit Manhole cover: soak pit
		pipe_connection_missing pipe connection missing between main pit and soak pit
		stair Stair
		handle Handle
		Inside_lock Inside Lock - Bolt towel
		Outside_lock Outside Lock - Hasp and staple
		Other Other
Minor_repair_by_community <i>(required)</i>	Minor repair by community	Pad_lock Pad Lock
Other <i>(required)</i>	If Other, Please Specify	
Being_used <i>(required)</i>	Is the latrine being used?	yes Yes
		no No
latrine_Clean <i>(required)</i>	Is the latrine clean?	yes Yes
		no No
Identification_of_main_pit <i>(required)</i>	Identification of main pit	a A
		b B
		c C
		d D
		same_a Same A
		same_b Same B
		same_c Same C
No_main_pit No main pit		
Status_of_main_pit <i>(required)</i>	Status of main pit	Functioning Functioning
		Not_Functioning Not Functioning
Replace_Main_Pit <i>(required)</i>	Does the main pit need to be replaced?	yes Yes
		no No
Status_Main_Pit_Cover <i>(required)</i>	Status of main pit cover	Functioning Functioning
		Nonfunctional Unfunctioning
Identification_of_soak_away_pit <i>(required)</i>	Identification of soak away pit	a A
		b B
		c C
		d D
		same_a Same A
		same_b Same B
		same_c Same C
no_soak_away_pit No soak away pit		
Status_of_soak_away_pit <i>(required)</i>	Status of soak away pit	Functioning Functioning
		Not_functioning Not functioning

Field	Question	Answer	
Replace_Soak_away_pit <i>(required)</i>	Does soak away pit need to be replaced?	yes	Yes
		no	No
Status_Soak_away_pit_cover <i>(required)</i>	Status of soak away pit cover	Functioning	Functioning
		Nonfunctional	Unfunctioning
Faeces <i>(required)</i>	Is there any faeces within 15ft around latrine?	yes	Yes
		no	No

Community Construction Leads for Latrine Maintenance Improvement

Overview

This document describes the OXSI plan to improve latrine maintenance in the Sittwe IDP Camps. This Latrine Maintenance Improvement Plan is designed to reduce the number of latrines requiring maintenance as well as reduce the Complaints Response Mechanism (CRM) response time.

The Latrine Maintenance Improvement Plan involves recruiting Community Construction Leads. These Community Construction Leads are responsible for carrying out repairs on latrines. The Community Construction Leads only repair latrines in response to CRM service requests. Examples of tasks that the Community Construction Leads carry out are listed below:

- Pit patching
- Patching of peepholes using plain metal sheet
- Replacement of CGI roofing sheet

The latrine maintenance tasks are determined by the Construction Team. Each week, the Construction Team are provided with a list of the construction related CRM service requests by the Construction CRM Case Manager. After receiving the list, the Construction Officers and Construction Agents visit the latrines that are on the CRM list to verify that the CRM data is correct. The Construction Officers and Construction Agents then make a list of tasks for the Community Construction Leads to complete. The Community Construction Leads are paid to fix latrines using Task Contracts (just like the Task Contracts used for borehole redrilling). The Task Contract lists exactly how many latrines need to be fixed and what needs to be fixed on each latrine to receive payment.

Materials for the repairs are provided by SI. The Construction Agents determine the quantity of materials to give to the Community Construction Leads based on the maintenance tasks that require completion. The Community Construction Leads are also provided with the tools that they require to carry out the maintenance tasks. The Construction Team keeps record of what tools the Community Construction Leads are given. The Community Construction Leads are required to return the tools on Friday afternoon each week.

After the Community Construction Leads finish the work listed on the Task Contract, the Construction Officers and Construction Agents check that all work on the Task Contract has been completed and that it is done to a high standard. The Community Construction Leads are not paid until their work has been checked and approved. The Construction Team records on the list of construction related CRM service requests when a Community Construction Lead has completed a task. This list is sent to the Construction CRM Case Manager once per week so that he can close the CRM cases using Survey CTO. The Construction Team also informs the relevant ComMob staff in each camp office once a case is closed. The ComMob staff then informs the person that made the service request that it has been resolved.

Currently the Construction Team tells the Community Construction Leads what latrines require repairing.

However, it is planned to work with the ComMob Team and MEAL Team to improve this process. When the ComMob staff tells the person that made the service request that it has been resolved, they should explain that the case has been closed by a Community Construction Lead and provide the name of the person and how he/ she can be contacted for future latrine maintenance requests. They should tell the person that if they have a service request in the future, they should inform the Community Construction Lead. The MEAL Team should then work with the Community Construction Leads so that they know how to ensure service request they receive are entered into the CRM. The Community Construction Leads will have an incentive to support with entering service requests into the CRM because if there are more service requests, then they are able to fix more latrines and make more money.

The number of Community Construction Leads recruited in each camp will be based on the size of the camp and the volume of latrine maintenance tasks that require completion. The Community Construction Leads are able to work in groups of two or three to complete maintenance task (e.g. one skilled carpenter and one skilled mason). If the Community Construction Leads are completing maintenance tasks in groups, the Construction Team will determine how payment should be divided before the work is started based on the duties carried out by each person in the group. The Construction Team will pay each person in the group individually to ensure each person gets the correct amount.

Selection Criteria

The selection criteria for the Community Construction Leads is provided below:

The Community Construction Lead must live in the sector of the camp that he/she is responsible for. It is hoped that this will increase the sense of ownership of the work they complete because they will be helping their neighbours.

People with disabilities who have the capacity to complete the work will get preference. If required, the Construction Team will provide training to increase their capacity.

Women who are interested in working as Community Construction Leads will get preference. If required, the Construction Team will provide training to increase their capacity.

People with previous experience working for SI will get preference in selection as Community Construction Leads (e.g. skilled daily workers who have done good work in the past).

The Community Construction Leads must be respectful and follow the instructions given by the Construction Team.

All Community Construction Leads must be > 18 years of age.

Payment

The amount that the Community Construction Leads are to be paid to complete different maintenance tasks is summarised in the table below:

Maintenance Task	Payment (MMK)
Patching of peephole using plain metal sheet (one side of wall including beading)	1,000
Replacement of 1 × plain metal sheet (including beading)	1,000
Replacement of 1 × CGI roofing sheet	800
Replacement of mosquito mesh (one side, including beading)	700
Fixing broken stairs	1,000
Replacing broken stairs	6,000
Replacement of damaged hardwood (minor)	500
Replacement of damaged hardwood (one side of wall)	1,000
Replacement of latch, door hinge, etc.	500
Replacement of damaged PVC pipe	500
Repairs to floor (minor)	1,000
Repairs to floor (major)	6,000
Replacement of toilet pan	1,000
Pit patching (minor repair)	500
Replacement of pit air vent	300
Replacement of manhole (plastering only)	500

FAMILY LATRINE DONATION

VILLAGE		DATE of donation			
# OF HOUSEHOLDS in the compound	# OF BENEFICIARIES in the compound				
	0-5 years	6-14 years	15-64 years	65 +	

A copy of the file is needed for:

Household Representative:	<input checked="" type="checkbox"/>	Solidarites International:	<input checked="" type="checkbox"/>
---------------------------	-------------------------------------	----------------------------	-------------------------------------

This document gives all the information regarding the donation of materials and tools to build one (01) latrine.

Household representative designated below agree to:

- Take responsibility of all materials and tools received for the construction of the latrine;
- Take responsibility to follow the design and construction instructions given by the SI Team;
- Take responsibility to dig the pit of the latrine 7' deep and install the bamboo reinforcement;
- Take responsibility and assume the ownership of the latrine;
- Take care of the cleaning of the latrine;
- Take care of the overall maintenance of the latrine: padlocks, locks, roofing, etc.
- Take responsibility to dig another pit when pit is full and re-install the structure onto the new pit;
- Fairly share the responsibility and the cleaning between all the members of the household.

OXSI agrees to:

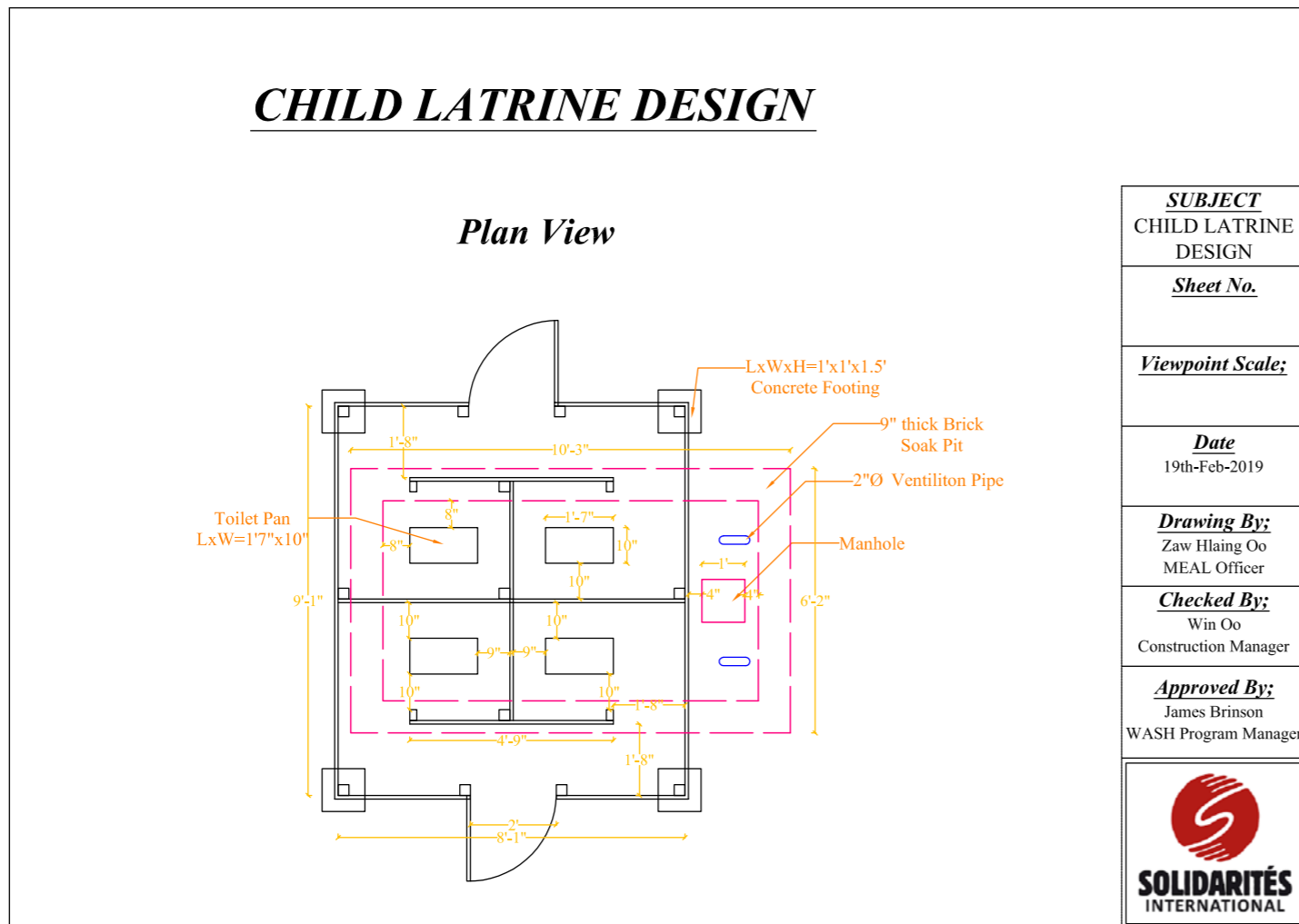
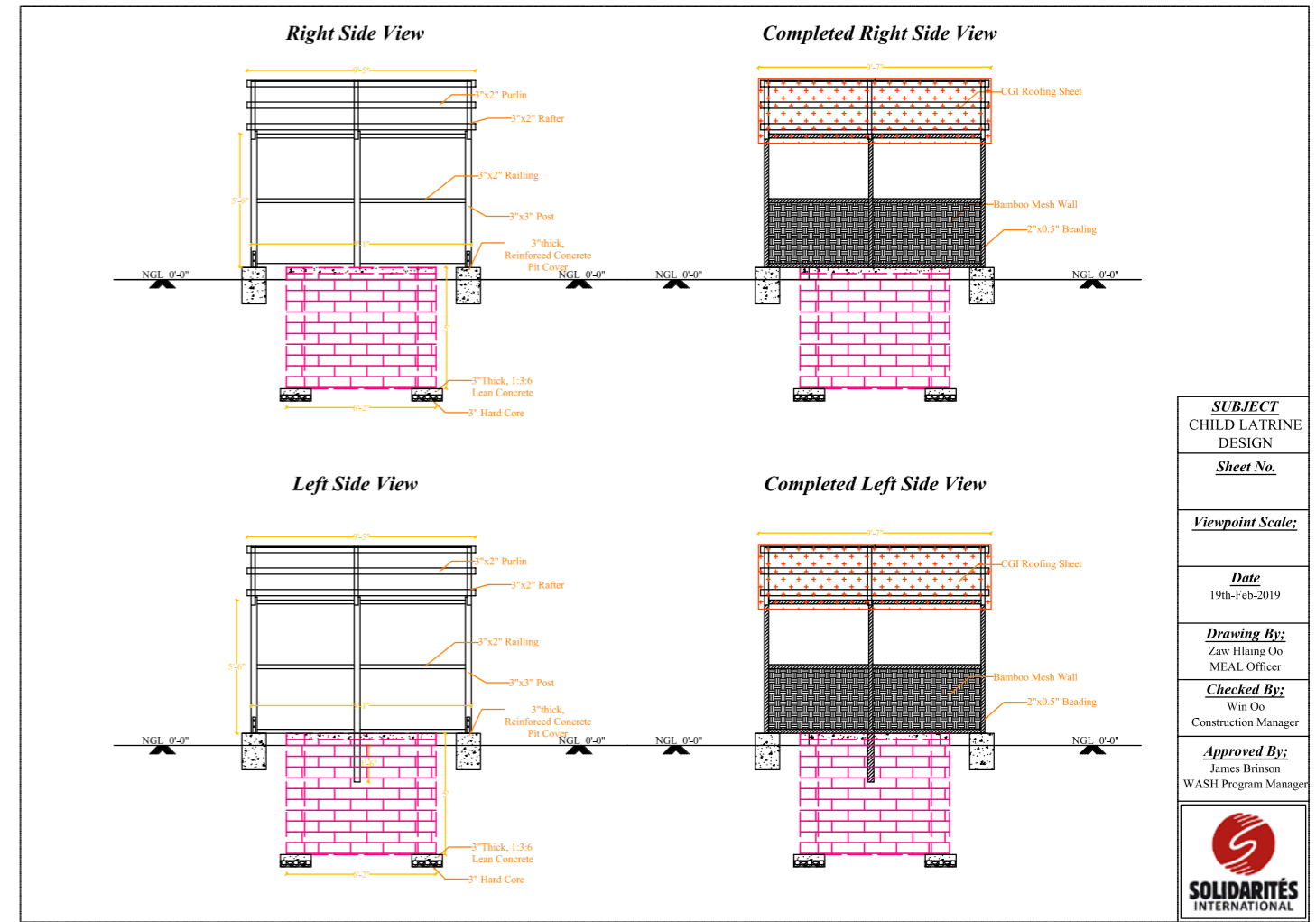
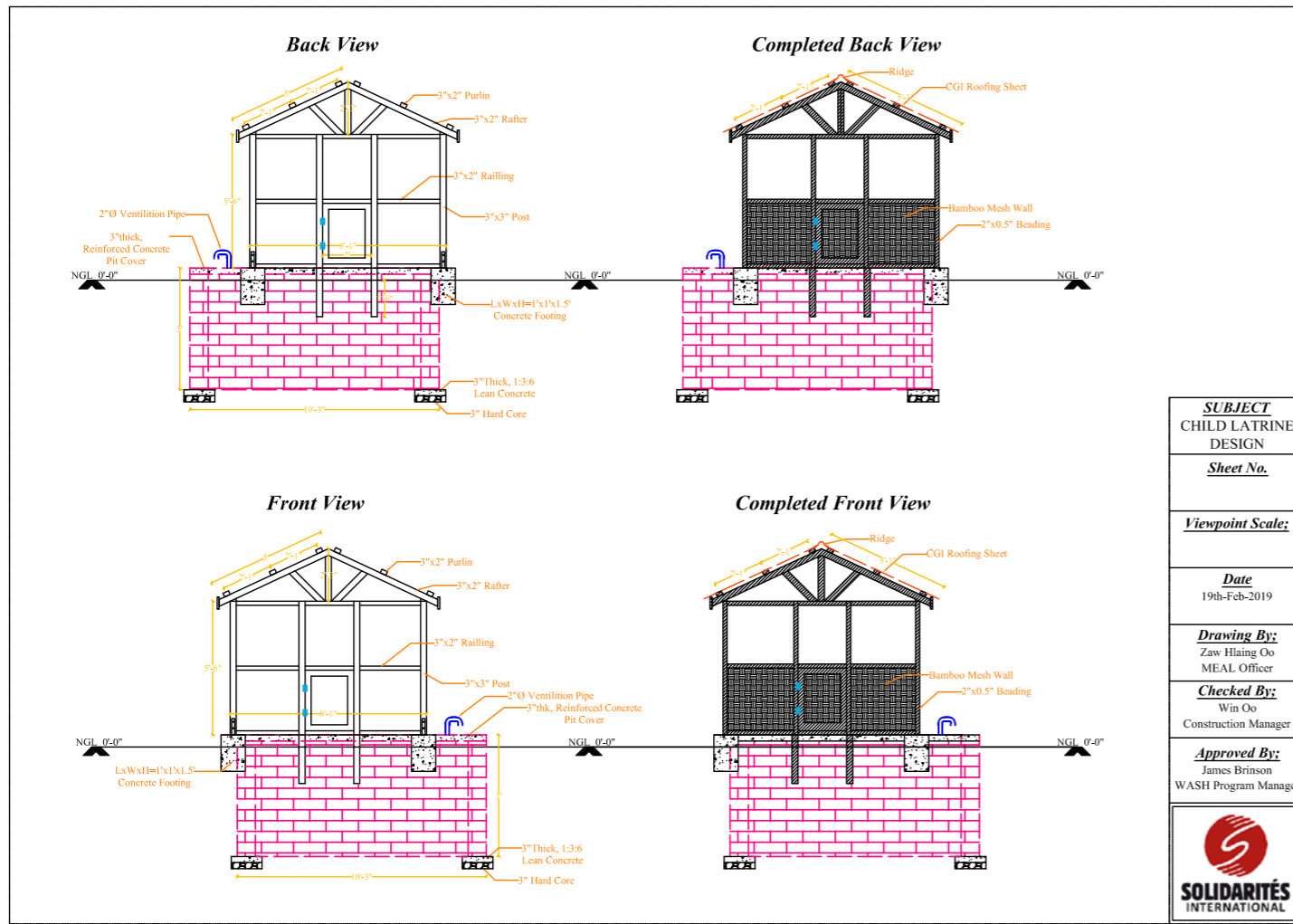
- Provide all materials and tools needed for the construction of the family latrine;
- Provide the technical support all along the building process (digging, bamboo pit reinforcement design, superstructure guidelines).

MATERIALS GIVEN FOR FAMILY LATRINE CONSTRUCTION

H-wood-3"x3"x12'	Pcs	4
H-wood-3"x2"x12'	Pcs	7
H-wood-4"x2"x12'	Pcs	1
H-wood-6"x1"x12'	pcs	6.0
H-wood-3"x1"x15'	Pcs	2
H-wood-2"x1/2"x12'	Pcs	9
2" D Bamboo-15'	Pcs	50
2" D Wooden Pole-12'	Pcs	3
2' x 6' CGI Roofing Sheet-STAR BRAND	Sheet	4
4'x100' CGI plain Sheet,28 G Blue Colour	Sheet	33
1.5 "-Wire Nail	Viss	0.25
2 "-Wire Nail	Viss	0.25
2.5 "-Wire Nail	Viss	0.25
3.5 "-Wire Nail	Viss	0.25
2.5"-Roofing Nail with washers	Viss	0.25
6" Tower Bolt with Screw-ALUMINIUM	Pcs	1
4" Butt & Hinge with Screw-ALUMINIUM	Pcs	3
4" Hand Staple with Screw-ALUMINIUM	Set	1
6" Door Handle with Screw-ALUMINIUM	Pcs	2
Plastic Latrine Pan	Pcs	1
3" D PVC Pipe x4' -8.5 CLASS	Ft	4
6'x6' -36 Sft- Tarpaulin (Pit Cover)	Pcs	1

LATRINE HANDOVER

Name	Signature
From household:	
From OXSI:	



PROJECT -- CFL CONSTRUCTION

LOCATION -- SITTWE

Bill Of Quantity For Pit (10.6.2019)

No.	Description	Qty	Unit	Rate (MMK)	Amount (MMK)
Materials					
1	Brick	1695	No	140	237,300
2	Cement	9	bags	8000	72,000
3	Sand	0.4	suds	26500	10,600
4	Gravel	0.1	suds	85000	8,500
Total Materials Costs					328,400
Labours					
1	Workers	11	No	5000	55,000
2	Masons	6	No	7000	42,000
Total Labours Costs					97,000
Materials + Labours Costs for Pit					425,400

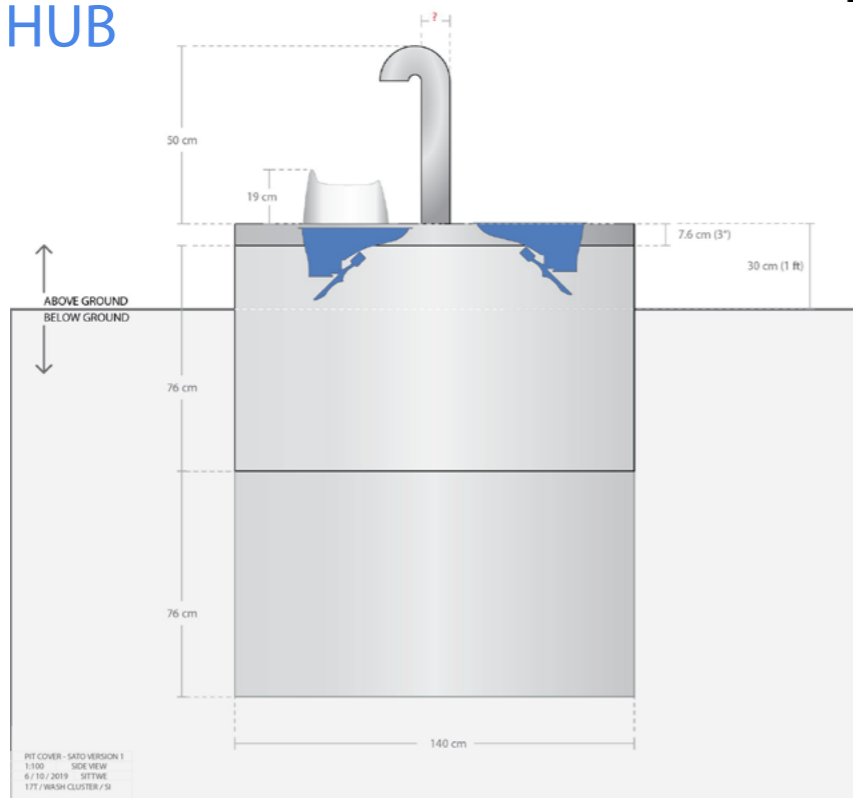
Bill Of Quantity For RC-Slab(Pit Cover) and Structure- (26.6.2019)

No.	Description	Qty	Unit	Rate (MMK)	Amount (MMK)
Materials					
1	CGI Plain Sheet 4'x80'x28 Gates	0.1	roll	98000	9,800
2	CGI Sheet for roofing(2'x6'x28 Gates)	12	Shts	3800	45,600
3	Nail 1.5"	0.25	viss	3000	750
4	Nail 2"	0.5	viss	2500	1,250
5	Nail 3"	0.5	viss	2500	1,250
6	Roofing Nail 2.5"	0.25	viss	3500	875
7	Twist Flat	15	Nos	200	3,000
8	Plastic Latrine Pan	4	Nos	1800	7,200
9	2" D PVC Elbow-45	2	Nos	500	1,000
10	2" D PVC Elbow-90	2	Nos	500	1,000
11	Hinge-4"	4	Nos	600	2,400
12	Handle-6"	4	Nos	600	2,400
13	Locker(medium size)with adapted padlock	2	Nos	3000	6,000
14	Bolt Nut 8-arnner-4" with washers	8	Set	600	4,800
15	Hasp Stapl	2	Set	700	1,400
16	Bolt Tower	2	Set	600	1,200
17	2" Square mesh 3mm D(x6'x100')	0.3	roll	130000	39,000
18	Hard wood first class-3"x3"x15'	5	viss	13000	65,000
19	Hard wood first class-3"x2"x15'	12	viss	8000	96,000
20	Hard wood first class-3"x1"x12'	3	No	3500	10,500
21	Hard wood first class-6"x1"x12'	14	No	6500	91,000
22	Hard wood first class -2"x.5"x12'	17	No	1600	27,200
23	Ready Made Concrete Footing-2'	4	Set	17000	68,000
24	Bamboo Post	100	Posts	350	35,000
25	Cement	6	bags	8000	48,000
26	Sand	0.2	suds	26000	5,200
27	Gravel	0.4	suds	90000	36,000
28	12 mm Rebar(11'-13Nos,6'-23Nos)	281.0	Ft	350	98,350
29	Binding Wire 18G	0.5	viss	3500	1,750
Total Materials Costs					710,925

No.	Description	Qty	Unit	Rate (MMK)	Amount (MMK)
Labours					
1	Workers	8	No	5000	40,000
2	Masons	1	No	7000	7,000
3	Carpenter	3	No	7000	21,000
4	Steel Fixer	2	No	7000	14,000
Total Labours Costs					82,000
Materials + Labours Costs for structure					792,925
Materials + Labours Costs for Pit+Structure					1,218,325

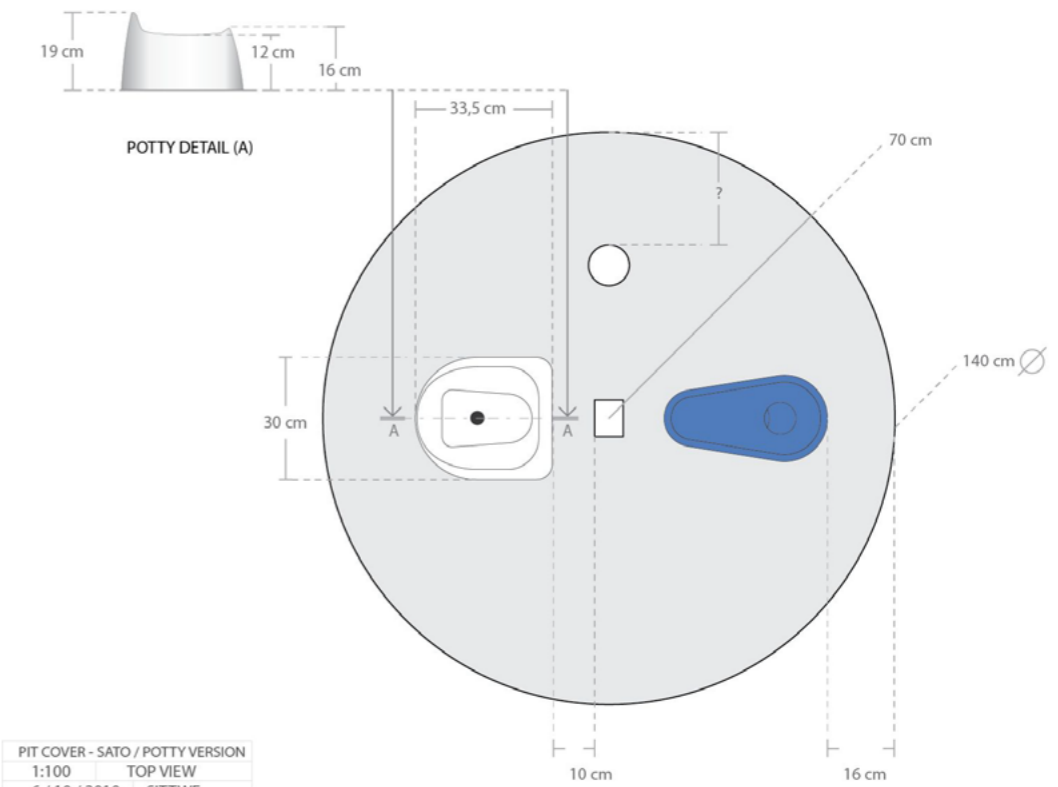
POTTY HUB

Build 3 to install in STMG



PIT COVER - SATO VERSION 1	
1/100	SIDE VIEW
6 / 10 / 2019	SITTWE
17T / WASH CLUSTER / SI	

POTTY HUB



PIT COVER - SATO / POTTY VERSION	
1:100	TOP VIEW
6 / 10 / 2019	SITTWE
17T / WASH CLUSTER / SI	



Standard Operating Procedure for Desludging in Sittwe Camps

Updated March 2021

Table of Contents

1.	Introduction	1
2.	Overview of Procedure	2
3.	Worker Safety	3
3.1	Exposure to Dangerous Substances	3
4.	Preparation	4
4.1	Preparing Materials.....	4
4.2	Schedules	5
5.	Standard Operating Procedure for Regular Desludging	6
5.1	Team	6
5.2	Materials	6
5.3	Procedure.....	7
6.	Standard Operating Procedure for Regular Desludging without a Tractor	9
6.1	Team	9
6.2	Materials	9
6.3	Procedure.....	10
7.	Standard Operating Procedure for Manual Desludging	13
7.1	Team	13
7.2	Materials	13
7.3	Procedure.....	14
8.	Handling Spills	16
9.	Record Keeping	16
10.	Conclusion.....	16



1. Introduction

Solidarités International (SI) is in charge of sanitation activities, which include desludging of pit latrines and wastewater transportation and treatment, for 13 camps in Sittwe Township. The purpose of this document is to provide guidance on desludging operations, with wastewater treatment covered in a separate document.

In the 13 camps, there are 4,000+ latrines and even more pits (the number of pits is larger than the number of latrines because some latrine pits are connected to soakaway pits) that must be desludged regularly. In villages inside the restricted area, latrines are not desludged; instead, families are responsible for covering their latrine pit when it is full and moving the latrine superstructure over a new pit. While providing materials for latrine construction to villages, SI focuses most sanitation activities in camps, where approximately 20 people share one latrine.

Crowded living conditions, a long rainy season, and a high water table are a few factors that make desludging challenging and unpredictable in the camps. In addition, latrine pits are of different sizes and thus have different desludging rates, and the desludging tractors cannot access all pits, requiring labourers to push carts by hand to access certain areas. Finally, the Sludge Treatment Site (STS) is operating at capacity, which means desludging rates cannot be increased, even while camp population grows (an upgrade of the STS is planned in 2021).

SI has developed solutions to these problems with a combination of different desludging approaches. “Regular desludging”, using a tractor and a pump, is used to desludge the majority of pits. When tractors cannot access certain pits, sanitation 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, “manual desludging” with shovels is done to remove and bury the hard sludge layer. These different approaches are explained in this document, with detailed guidance for implementing staff.

2. Overview of Procedure

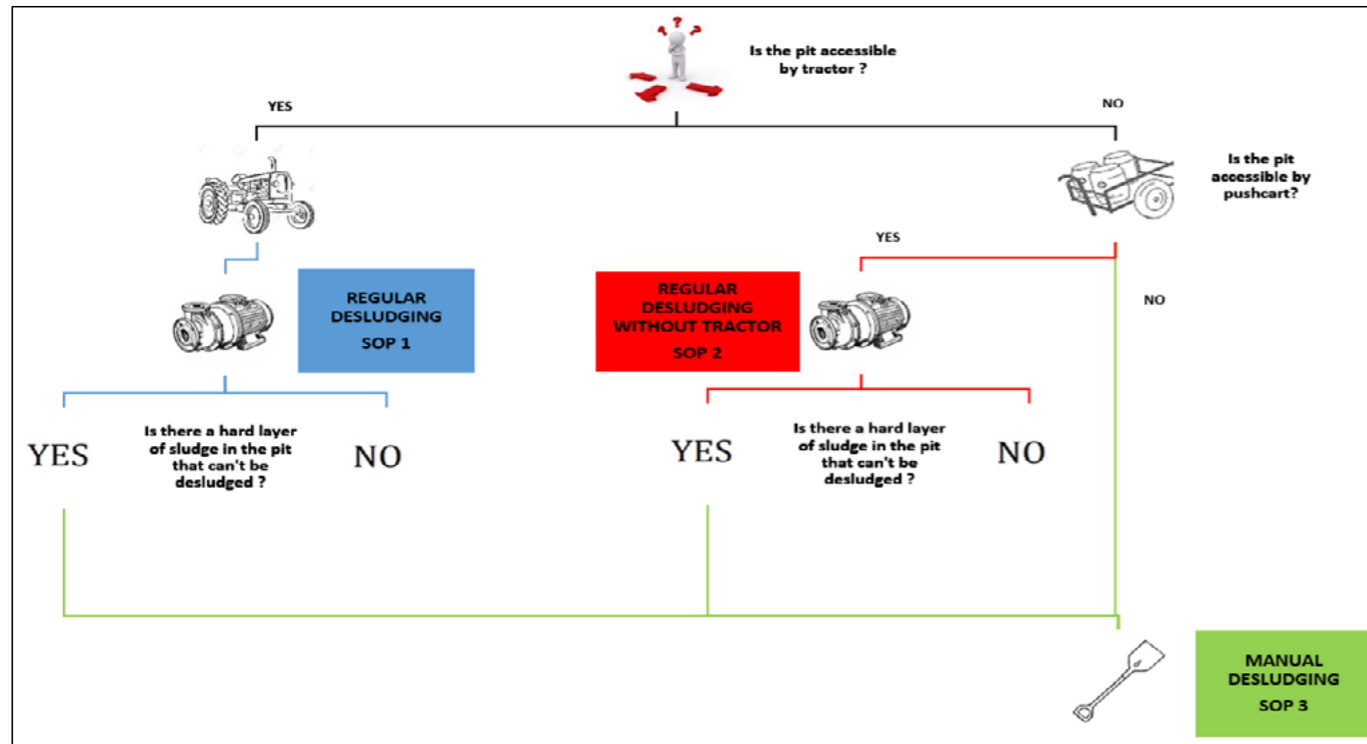


Figure 1 Overview of desludging procedure

3. Worker Safety

In order to minimize or fully eliminate contact with sludge and with chemicals, workers must follow strict protocols while desludging. Agents are responsible for enforcing the rules, and daily workers must follow the agent's instructions. Every person working on desludging should receive training on hygiene and on these standard operating procedures for desludging prior to beginning work. The training should cover the principles of transmission and prevention of faecal-related diseases, as well as how to handle dangerous substances like sludge, chlorine, and lime.

Personal Protective Equipment (PPE): The mandatory PPE includes boots, gloves, glasses, shorts, T-shirt, and face mask. Boiler suit, raincoat, makala (bamboo hat), and cap are optional for regular desludging, but a boiler suit is mandatory for manual desludging (with and without a pump). All PPE items can be re-used by one worker each day, except for the face mask, which is disposable and a new one must be used each day.

- Remove PPE before eating, drinking, or smoking.
- Do not wear PPE at home or outside the work environment.
- Boots, gloves, glasses, and masks can be removed between two tractor trips.

All desludging workers are provided with:

1. Work clothes and PPE (2 shorts, 2 makalas, 1 boiler suit, boots, gloves, glasses, masks), which should be used only during the desludging process.
2. 1 bar body soap per month
3. 1 bar laundry soap per month
4. Raincoat (provided to all OXSI staff)

For each person on the tractor (usually 2 people), if they do not provide it themselves, the following is provided: 2 boiler suits, face mask, gloves, and boots.



Figure 1: PPE -- boiler suit, glasses, gloves, boots, and mask. Raincoat optional.

3.1 Exposure to Dangerous Substances

During and after work:

- Wash hands thoroughly with soap and water after removing gloves.
- If you have any wounds, cover them with clean, dry, and waterproof bandages.
- Smoking, chewing betel, tobacco, or gum during working time is forbidden.
- Avoid touching your face, mouth, eyes, ears, nose, open sores, or cuts.
- Wash hands with soap and water before eating and drinking.
- Eat in areas away from desludging activities.
- After each working day, take a shower at the STS before changing into your home clothes.

The table below shows brief instructions for actions to take if someone is exposed to sludge, chlorine, or lime. All desludging workers should be familiar with the actions to take.

Table 1 : Instructions in case of exposure to dangerous substances.

If...	Sludge	Chlorine	Lime
<i>Skin is exposed to...</i>	Remove contaminated clothing and shoes. Wash the skin thoroughly with soap and water.	Flush with water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical assistance if skin irritation continues.	Brush off the lime and wash exposed skin with large amounts of water. If skin burns occur, administer first aid and seek medical assistance.
<i>Eyes are exposed to...</i>	Rinse the eye with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical assistance if eye irritation continues.		
<i>Lungs are exposed to...</i>	Immediately get into fresh air and rest. Seek medical assistance. Apply artificial respiration if breathing has stopped.		
<i>Substance is ingested...</i>	Clean mouth with water and drink a lot of water. Do not induce vomiting. Seek medical assistance.	Drink water or milk immediately. Seek medical assistance.	Clean mouth with water and drink a lot of water. Do not induce vomiting. Seek medical assistance.
<i>Clothes are exposed to...</i>	Change clothes and take a shower. Wash clothes with water and laundry soap.		

4. Preparation

4.1 Preparing Materials

- Refer to each separate SOP for a full list of materials needed.
- All the materials needed should be kept together in a designated location at the STS.
- All desludging workers must change into their work clothes and PPE prior to beginning work.
- To prepare the chlorine solution (responsibility of sanitation agents):
 - o Make fresh chlorine solution every day.
 - o Work in a well-ventilated room, or preferably, outside in the shade and protected from the wind.
 - o Wear proper PPE (boots, gloves, glasses, shorts, T-shirt, and face mask).
 - o Pour the water into the backpack sprayer, then add the chlorine (not the other way around), making sure the water does not splash out as you do so.
 - o Mix well using a stirrer that is clean and used only for this purpose.
 - o Close the backpack sprayer tightly.
 - o Label the container with the concentration (eg. "0.5% chlorine solution").
 - o Try to keep the backpack sprayer out of the sun as much as possible.

Table 2 : Preparation of chlorine solution

To make...	Chlorine powder (65% active chlorine)	Aquatab powder (50% active chlorine)
<i>0.5% chlorine solution (for disinfecting tools and contaminated surfaces)</i>	Add 11 spoonfuls (~150g) chlorine powder into the 18L backpack sprayer.	Add 13 spoonfuls (~180g) Aquatab powder into the 18L backpack sprayer.
<i>0.05% chlorine solution (for disinfecting clothes and PPE)</i>	Add a little less than 1 spoonful (~11g) into the 14L bucket	Add 1 spoonful (~14g) into the 14L bucket

4.2 Schedules

- A monthly plan is made to identify desludging priority locations based on the monthly functionality check and service requests in OXSI camps. In non-OXSI camps, a plan for desludging is given to SI to be incorporated into the overall monthly plan.
- Regular desludging without a tractor is done when the tractor is not able to access the latrine pits in the schedule.
- Manual desludging is planned separately, upon request from sanitation workers or the households who are using the latrine.
- Pits to be desludged each day are assigned by the sanitation agents.
- The date of desludging is communicated to the community by the Community Mobilization team prior to desludging.
- Desludging is a critical activity and happens 6 days a week, almost every week of the year except for a few holidays

SOP 1: Standard Operating Procedure for Regular Desludging

5. Standard Operating Procedure for Regular Desludging

“Regular desludging” is the method used to desludge the majority of pits, using a pump and a tractor. A team of sanitation workers pumps sludge to a large tank on the tractor, which is then taken to the STS to be emptied. This is the preferred method for desludging because it is faster and limits exposure of workers to sludge. This chapter explains in detail the full procedure for this method of desludging.

5.1 Team

Each desludging team is comprised of at least 5 people (per pump):

- 1 pump operator
- 3 labourers for handling the pump and hose (1 dedicated operator of the chlorine sprayer)
- 1 tractor driver

5.2 Materials

Item	No. needed per team	Description
Desludging pump	1	Manual diaphragm pump with hose, foot valve, and strainer
Sludge transportation tank	1	1.5 m3 tank secured onto the tractor
Tractor	1	Tractors are used to transport the sludge to the STS
Crow bar	1	To open the manhole and/or pit cover
Hammer	1	To open the manhole and/or pit cover
Shovel	1	To clean up spills
Personal Protective Equipment (PPE)	For each staff	Reusable PPE: boots, shorts, makala, heavy-duty rubber gloves, safety glasses, rain coat (for rainy season) Disposable PPE: face mask
Chlorine sprayer	1	For disinfecting around the latrine after desludging, and for disinfecting tools after use
Chlorine	1	Chlorine solution is used for disinfecting around the latrine after desludging, and for disinfecting tools and clothes
Stirrer	1	Used to mix the chlorine and water (can be a bamboo stick)
Permanent marker	1	To label the chlorine sprayer and to label PPE with workers' names
Water bucket	2	14 L buckets filled with water, to be used for cleaning equipment and washing hands
Soap bar	1	For washing hands during and after work
Mortar	~ 1 kg	To seal the manhole cover after desludging (about 250g cement, 1kg sand per day)
Lime	~ 1 kg	Hydrated lime can be used to cover accidental spillage of sludge
Water		Collected at nearby hand pumps in the buckets, for washing hands and rinsing equipment
Body soap		For all sanitation workers to shower after each work day
Laundry soap		For all sanitation workers to wash clothes after each work day

SOP 1: Standard Operating Procedure for Regular Desludging

5.3 Procedure

1. Ensure there are no children in the desludging area for the entire day and that no one is using the latrine connected to the pit to be desludged.
2. Ensure all workers are wearing the proper PPE: boots, gloves, glasses, and face mask.
3. Evaluate the pit to see if there are any broken or cracked parts. Fix any minor repairs directly, with assistance from construction supervisors if needed. If major repairs are needed, report to the construction team to arrange the repair.
4. Evaluate the pit to see if it is overflowing. If so, record in the database that the pit is overflowing, and try to identify the reason (step 13: check for hard layer of sludge; and step 14c: check if pipe is blocked) and report to the necessary team for follow up (arrange for manual desludging, ask construction team to carry out repairs, etc.)
5. Prime the pump, if needed.
6. If the pit cover has a manhole, then open it to access the pit. If an opening is not present, remove the entire pit cover by breaking the mortar seal with a crowbar and hammer. It may also be possible to remove the ventilation pipe and insert the desludging hose into the pit through the ventilation pipe hole. Inform your line manager if the pit cover is broken.
7. Place the end of the hose for the desludging pump with the strainer inside the pit. Make sure to place the foot valve of the pump at the bottom of the pit when pumping.
8. Connect the end of the hose from the pump to the pipe leading to the tank on the tractor.
9. The pump operator should start the pump at normal speed.
10. Add water to the pit to decrease the viscosity of the sludge for easier pumping (only do if needed as this creates more sludge that needs to be treated).
11. Desludge the latrine pit as much as you can.
12. When you finish with one pit, stop the pump.
13. If there is a hard layer of sludge at the bottom of the pit that can't be pumped out and takes up more than a quarter of the pit, report to a sanitation agent that the pit needs manual desludging. Refer to Standard Operating Procedure for Manual Desludging.
14. If a soakaway pit is present:
 - a. Check if it has a manhole cover – if yes, check if the soakaway pit also needs to be desludged and report to the sanitation agent. The sanitation agent will call another tractor if needed.
 - b. If there is no manhole on the soakaway pit, no further action is needed, unless there is liquid coming into the main pit from the soakaway pit — in which case, fully desludge the soakaway pit as well by removing the pit cover. The sanitation agent will call another tractor if needed.
 - c. Check the pipe between the main pit and the soakaway pit to ensure it is not clogged and unclog with a bamboo stick, if needed.
15. Clean the foot valve with water (without chlorine) over the pit manhole between each pit desludged.
16. Replace the manhole cover or the pit cover and seal it shut with plaster. * If the ventilation pipe has been removed, replace and seal it.

SOP 1: Standard Operating Procedure for Regular Desludging

17. After sealing the pit opening, cover any spilled sludge around the pit with 0.5% chlorine solution. Anyone handling chlorine **must** wear gloves, goggles, and a mask. A 2-inch layer of soil can also be used to cover sludge spills. For large spills, see Section 8. Handling Spills.
18. Spray the top of the pit cover with 0.5% chlorine solution. Anyone handling chlorine **must** wear gloves, goggles, and a mask. If there is any sludge on the tractor, clean it with the chlorine solution as well.
19. Make sure no chlorine gets inside the pit, to not kill any active bacteria in the pit.
20. Once the tank on the tractor is full, transport the tank to the STS.
21. The tractor and tank should be sprayed at the STS with 0.5% chlorine solution so that all elements which may have been in contact with sludge are disinfected.

* Note: if there are multiple pits next to each other that need to be desludged, you can simply replace the manhole cover or pit cover, move to the next pit, and seal and disinfect the area *after* the tank on the tractor is full and the tractor leaves to the STS. This allows the team to make one large batch of plaster for all the pits. However, make sure that no one enters the area where you are working, and that you are close enough to see the pits that have been desludged and not yet sealed and disinfected.

22. At the end of the day:
 - a. Empty the sludge inside the pipes into the last pit of the day by pouring water through the pipes.
 - b. Bring back all of the materials to the specified location (either field office or STS), depending on where you are working.
 - c. Clean all the tools, the pump foot valve, and the pipes with 0.5% chlorine solution, leave for 10 minutes, and then rinse with water before storing.
 - d. All workers must clean all their PPE after each working day: soak boots, gloves, and glasses in 0.05% chlorine solution for 10 minutes and then rinse with water on the concrete slab provided at the field offices or STS.
 - e. Take a shower at the field office or STS before putting on different clothes that you will wear home.
 - f. Soak the t-shirts and shorts for 10 minutes in 0.05% chlorine solution and then wash with water and laundry soap.
 - g. Dry and store all PPE properly at the field office or STS.
 - h. Throw away disposable face masks in the designated bin.
 - i. Report any damaged equipment immediately (agents should ensure replacement of damaged parts).
 - j. After cleaning the PPE and tools, clean the slab at the field office or STS with 0.5% chlorine solution.

SOP 2: Standard Operating Procedure for Regular Desludging without a Tractor

Standard Operating Procedure for Regular Desludging without a Tractor

For areas that are not accessible to a tractor, a method called “regular desludging without a tractor” has been developed. This desludging process is similar to regular desludging, but instead of pumping sludge to a tank on the tractor, the team pumps sludge to barrels that sit on a pushcart. The pushcart is then wheeled to the nearest location accessible to the tractor, where the sludge is transferred from the barrels to the tank on the tractor. In rare cases, the pit is also not accessible to a pushcart, in which case, the sludge is pumped into a nearby freshly-dug pit and backfilled with soil. This chapter explains in detail the full procedure for this method of desludging.

6.1 Team

Each desludging team is comprised of at least 6 people (per pump):

- 1 pump operator
- 3 labourers for handling the pump and hose (1 dedicated operator of the chlorine sprayer)
- 1 pushcart operator
- 1 tractor driver

6.2 Materials

Item	No. needed per team	Description
Desludging pump	1	Manual diaphragm pump with hose, foot valve, and strainer
Pushcarts	1 - 3	When needed
Blue sludge barrels	2 per pushcart	Plastic 40-gallon barrels with sealed lids
Sludge transportation tank	1	1.5 m3 tank secured onto the tractor
Tractor	1	Tractors are used to transport the sludge to the STS
Sludge bucket	1-2	14L buckets to transfer sludge from blue barrels to tractor tank
Crow bar	1	To open the manhole and/or pit cover
Hammer	1	To open the manhole and/or pit cover
Shovel	1	To clean up spills
Personal Protective Equipment (PPE)	For each staff	Reusable PPE: boiler suit, makala, heavy-duty rubber gloves, safety glasses, boots, rain coat (for rainy season) Disposable PPE: face mask
Chlorine sprayer	1	For disinfecting around the latrine after desludging, and for disinfecting tools after use
Chlorine	1	Chlorine solution is used for disinfecting around the latrine after desludging, and for disinfecting tools and clothes
Stirrer	1	Used to mix the chlorine and water (can be a bamboo stick)
Permanent marker	1	To label the chlorine sprayer and to label PPE with workers' names
Water bucket	2	14 L buckets filled with water, to be used for cleaning equipment and washing hands
Soap bar	1	For washing hands during and after work
Mortar	~ 1 kg	To seal the manhole cover after desludging (about 250g cement, 1kg sand)

SOP 2: Standard Operating Procedure for Regular Desludging without a Tractor

		per day)
Lime	~ 1-2 kg	Hydrated lime can be used to cover accidental spillage of sludge
Water		Collected at nearby hand pumps in the buckets, for washing hands and rinsing equipment
Body soap		For all sanitation workers to shower after each work day
Laundry soap		For all sanitation workers to wash clothes after each work day

6.3 Procedure

1. Ensure there are no children in the desludging area for the entire day and that no one is using the latrine connected to the pit to be desludged.
2. Ensure all workers are wearing the proper PPE: boiler suit, boots, gloves, glasses, face mask.
3. Evaluate the pit to see if there are any broken or cracked parts. Fix any minor repairs directly, with assistance from construction supervisors if needed. If major repairs are needed, report to the construction team to arrange the repair.
4. Evaluate the pit to see if it is overflowing. If so, record in the database that the pit is overflowing, and try to identify the reason (step 14: check for hard layer of sludge; and step 15c: check if pipe is blocked) and report to the necessary team for follow up (arrange for manual desludging, ask construction team to carry out repairs, etc.)
5. Prime the pump, if needed.
6. If the pit cover has a manhole, open it to access the pit. If an opening is not present, remove the entire pit cover by breaking the mortar seal with a crowbar and hammer. It may also be possible to remove the ventilation pipe and insert the desludging hose into the pit through the ventilation pipe hole. Inform your line manager if the pit cover is broken.
7. Place the end of the hose for the desludging pump with the strainer inside the pit. Make sure to place the foot valve of the pump at the bottom of the pit when pumping.
8. Connect the end of the hose from the pump to a blue barrel on the pushcart.
9. The pump operator should start the pump at normal speed.
10. Add water to the pit to decrease the viscosity of the sludge for easier pumping (only do if needed as this creates more sludge that needs to be treated).
11. When one barrel is full and you need to move to the next barrel, slow down the pump to minimize spills. It is advised not to fill all the barrels to the top, or the pushcart will be too heavy to move.
12. Desludge the latrine pit as much as you can.
13. When you finish with one pit or all the barrels are full, stop the pump.
14. If there is a hard layer of sludge at the bottom of the pit that can't be pumped out and takes up more than a quarter of the pit, report to a sanitation agent that the pit needs manual desludging. Refer to Standard Operating Procedure for Manual Desludging.

SOP 2: Standard Operating Procedure for Regular Desludging without a Tractor

15. If a soakaway pit is present:
 - a. Check if it has a manhole cover – if yes, check if the soakaway pit also needs to be desludged and report to the sanitation agent.
 - b. If there is no manhole on the soakaway pit, no further action is needed, unless there is liquid coming into the main pit from the soakaway pit — in which case, fully desludge the soakaway pit as well by removing the pit cover.
 - c. Check the pipe between the main pit and the soakaway pit to ensure it is not clogged and unclog with a bamboo stick, if needed.
16. Clean the foot valve with water (without chlorine) over the pit manhole between each pit desludged.
17. Replace the manhole cover or the pit cover and seal it shut with plaster. * If the ventilation pipe has been removed, replace and seal it.
18. After sealing the pit opening, cover any spilled sludge around the pit with 0.5% chlorine solution. Anyone handling chlorine **must** wear gloves, goggles, and a mask. A 2-inch layer of soil can also be used to cover sludge spills. For large spills, see Section 8. Handling Spills.
19. Spray the top of the pit cover with 0.5% chlorine solution. Anyone handling chlorine **must** wear gloves, goggles, and a mask. If there is any sludge on the tractor, clean it with the chlorine solution as well.
20. Make sure no chlorine gets inside the pit, to not kill any active bacteria in the pit.
21. Once the barrels on the pushcart are full, make sure the barrel lids are closed tightly and take the pushcart to meet the tractor at the nearest accessible location. If there are access issues preventing the use of a pushcart, go to Step 25.
22. To transfer sludge from the blue barrels: use buckets to scoop out sludge from the barrels into the tank on the tractor. Make sure the buckets are designated specifically for this purpose and not used for anything else. Once the barrels are light enough to lift, empty the sludge directly from the barrels into the tank on the tractor.
23. Transport the tank to the STS.
24. The tractor, tank, pushcart, and barrels should be sprayed with 0.5% chlorine solution so that all elements which may have been in contact with sludge are disinfected.
25. If the use of a pushcart is not possible:
 - a. Dig a pit (4' deep maximum) next to the latrine. The location should be well chosen—if not possible to do it right next to the latrines that are being emptied, then dig the pit with special attention to the boreholes around, ensuring there is a minimum of 30 meters (100 feet) distance from the new pit to any boreholes.
 - b. Dump the sludge from the blue barrels into the dug pit, or pump directly from the pit into the dug pit. Never fill the dug pit more than half full.
 - c. Spread 20 Kg of lime for every 4,000 L of sludge in the dug pit. Volume of one 4.5' internal diameter by 2.5' high pit ring is 1,126, therefore 5.63 kg of lime should be added for every pit ring of sludge removed. Estimate how many pit rings of sludge are contained in the dug pit and add the correct amount of lime based on this estimation. Anyone handling lime **must** wear gloves, goggles, and a mask.
 - d. Mix the lime thoroughly with the sludge in the pit.

SOP 2: Standard Operating Procedure for Regular Desludging without a Tractor

- e. Close the dug pit by backfilling with soil.

* Note: if there are multiple pits next to each other that need to be desludged, you can simply replace the manhole cover or pit cover, move to the next pit, and seal and disinfect the area at the end of your work in that area. This allows the team to make one large batch of plaster for all the pits. However, make sure that no one enters the area where you are working, and that you are close enough to see the pits that have been desludged and not yet sealed and disinfected.

26. At the end of the day:

- Empty the sludge inside the pipes into the last pit of the day by pouring water through the pipes.
- Bring back all of the materials to the specified location (either field office or STS), depending on where you are working.
- Clean all the tools, the pump foot valve, and the pipes with 0.5% chlorine solution, leave for 10 minutes, and then rinse with water before storing.
- All workers must clean all their PPE after each working day: soak boots, gloves, and glasses in 0.05% chlorine solution for 10 minutes and then rinse with water on the concrete slab provided at the field offices or STS.
- Take a shower at the field office or STS before putting on different clothes that you will wear home.
- Soak the boiler suits for 10 minutes in 0.05% chlorine solution and then wash with water and laundry soap.
- Dry and store all PPE properly at the field office or STS.
- Throw away disposable face masks in the designated bin.
- Report any damaged equipment immediately (agents should ensure replacement of damaged parts).
- After cleaning the PPE and tools, clean the slab at the field office or STS with 0.5% chlorine solution.

SOP 3: Standard Operating Procedure for Manual Desludging

6. Standard Operating Procedure for Manual Desludging

“Manual desludging” is done when a pit accumulates a layer of hard sludge that a pump is not able to remove, which decreases the usable volume in the pit and causes the pit to need more frequent desludging. Manual desludging is done rarely, representing only about 1-2% of total desludging, and is only carried out during the dry season. The desludging team digs a hole near the pit and manually transfers the hard sludge from the latrine pit to the hole, then backfills with soil. This chapter explains in detail the full procedure for this method of desludging.

7.1 Team

Each desludging team is comprised of at least 5 people for taking off the pit cover, digging the hole, and shovelling sludge into the hole (1 of these is a dedicated operator of the chlorine sprayer).

7.2 Materials

Item	No. needed per team	Description
Rake	2	To spread/mix lime with sludge
Mattock	2	To break up the hard sludge
Sludge bucket & rope/sticks	2	14L buckets to transfer sludge into dug pit. Rope or sticks used to lift the buckets out of the pit.
Crow bar	1	To open the manhole and/or pit cover
Hammer	1	To open the manhole and/or pit cover
Shovel	4	To break up and shovel hard sludge into the buckets
Personal Protective Equipment (PPE)	For each staff	Reusable PPE: boiler suit, makala, heavy-duty rubber gloves, safety glasses, boots, rain coat (for rainy season) Disposable PPE: face mask
Chlorine sprayer	1	For disinfecting around the latrine after desludging, and for disinfecting tools after use
Chlorine	1	Chlorine solution is used for disinfecting around the latrine after desludging, and for disinfecting tools and clothes
Stirrer	1	Used to mix the chlorine and water (can be a bamboo stick)
Permanent marker	1	To label the chlorine sprayer and to label PPE with workers' names.
Water bucket	2	14 L buckets filled with water, to be used for cleaning equipment and washing hands
Soap bar	1	For washing hands during and after work.
Mortar	~ 1 kg	To seal the manhole cover after desludging (about 250g cement, 1kg sand per day)
Lime	~ 6 kg / pit ring of sludge removed	Hydrated lime is mixed with sludge in the dug pit and also used to cover accidental spillage of sludge
Water		Collected at nearby hand pumps in the buckets, for washing hands and rinsing equipment
Body soap		For all sanitation workers to shower after each work day
Laundry soap		For all sanitation workers to wash clothes after each work day

SOP 3: Standard Operating Procedure for Manual Desludging

7.3 Procedure

1. Ensure there are no children in the desludging area for the entire day and that no one is using the latrine connected to the pit to be desludged.
 2. Ensure all workers are wearing the proper PPE: boiler suit, boots, gloves, glasses, face mask.
 3. Evaluate the pit to see if there are any broken or cracked parts. Fix any minor repairs directly, with assistance from construction supervisors if needed. If major repairs are needed, report to the construction team to arrange the repair.
 4. Remove the entire pit cover by breaking the mortar seal with a crowbar and hammer. Inform your line manager if the pit cover is broken.
 5. Follow the protocols outlined in Sections 5.3 or 6.3 to remove any liquid sludge that has accumulated inside the pit since the last desludging with a pump and a tractor, if available and accessible.
 6. Dig a pit (4' deep maximum) next to the latrine. This pit is for burying the sludge. The location should be well chosen—if not possible to do it right next to the latrines that are being emptied, then dig the pit with special attention to the boreholes around, ensuring there is a minimum of 30 meters (100 feet) distance from the new pit to any boreholes.
 7. Using shovels and buckets, move the dry sludge from the latrine pit to the dug pit. Never fill the dug pit more than half full.
 - a. Spread 20 Kg of lime for every 4,000 L of sludge in the dug pit. Volume of one 4.5' internal diameter by 2.5' high pit ring is 1,126, therefore 5.63 kg of lime should be added for every pit ring of sludge removed. Estimate how many pit rings of sludge are contained in the dug pit and add the correct amount of lime based on this estimation. Anyone handling lime **must** wear gloves, goggles, and a mask.
 8. Mix the lime thoroughly with the sludge in the pit.
 9. Close the dug pit by backfilling with soil.
 10. Replace the pit cover onto the latrine pit, leaving the manhole open.
 11. Clean the tools with water above the manhole so the water goes in the pit.
 12. Plaster shut the latrine pit cover and manhole cover. *
 13. Spray the top of the pit cover with 0.5% chlorine solution. Anyone handling chlorine **must** wear gloves, goggles, and a mask. Make sure not to spray chlorine on any areas that have lime. **Do not mix lime and chlorine!**
 14. Spray chlorine or cover with soil any sludge that has dripped between the dug pit and latrine pit.
- * Note: if you are desludging multiple pits next to each other, you can simply replace the manhole cover or pit cover, move to the next pit, and seal and disinfect the area at the end of your work in that area. This allows the team to make one large batch of plaster for all the pits. However, make sure that no one enters the area where you are working, and that you are close enough to see the pits that have been desludged and not yet sealed and disinfected.
15. At the end of the day:
 - a. Bring back all of the materials to the specified location (either field office or STS),

SOP 3: Standard Operating Procedure for Manual Desludging

- depending on where you are working.
- b. Clean all the tools with 0.5% chlorine solution, leave for 10 minutes, and then rinse with water before storing.
- c. All workers must clean all their PPE after each working day: soak boots, gloves, and glasses in 0.05% chlorine solution for 10 minutes and then rinse with water on the concrete slab provided at the field offices or STS.
- d. Take a shower at the field office or STS before putting on different clothes that you will wear home.
- e. Soak the boiler suits for 10 minutes in 0.05% chlorine solution and then wash with water and laundry soap.
- f. Dry and store all PPE properly at the field office or STS.
- g. Throw away disposable face masks in the designated bin.
- h. Report any damaged equipment immediately (agents should ensure replacement of damaged parts).
- i. After cleaning the PPE and tools, clean the slab at the field office or STS with 0.5% chlorine solution

7. Handling Spills

If sludge spills at the worksite, desludging workers are responsible to take care of it as described above (using chlorine or soil). If a spill happens on the way to the STS, drivers or those pushing pushcarts are responsible for taking immediate action. Drivers should receive training about actions to be taken in case of spillage.

Instructions for drivers:

1. In the tractor, always carry the following:
 - a. 2 bags (25kg/bag) of lime
 - b. 1 shovel
2. Cover the spilled excreta with a 2-inch layer of soil or lime. While handling lime, you **must** wear gloves, goggles, and a mask.

8. Record Keeping

Desludging teams should keep records of the following information:

1. Date
2. Camp name
3. Tractor number (if desludging with tractors)
4. Pit reference
5. Overflowing pits
6. Quantity of sludge removed (number of tanks or barrels, or approx. volume of the pit)

9. Conclusion

In the crowded Sittwe camps, safe excreta disposal is critical to reduce public health risks, especially diarrheal disease among children. Although there are many challenges to desludging and transportation, these guidelines present solutions to desludge thousands of latrines while keeping workers and the public healthy and safe.

For more information on what happens next, refer to the Sludge Treatment Site Operations Manual.

Operator's Manual

Sludge Treatment Site (STS) – Sittwe camp

This document will be reviewed after each upgrade and any changes in the operation of the STS

Last revision: 09/2020



1 Contents

2	Abbreviations	4
3	STS history	5
4	Technical description	9
4.1	Overview of the STS	9
4.2	FAECES LINE MODULES	12
4.2.1	Dumping station	12
4.2.2	Hopper Bottom Tank	14
4.3	LIQUID LINE MODULES	15
4.3.1	Anaerobic Baffled Reactor	15
4.3.2	Constructed wetlands 1	16
4.3.3	Maturation ponds	17
4.3.4	Infiltration basins	17
4.4	SLUDGE LINE (SOLID)	18
4.4.1	Drying beds	18
4.4.2	Dried sludge storage	19
4.4.3	Incinerator	19
4.5	SLUDGE LINE (LIQUID)	20
4.5.1	Secondary constructed wetland	20
4.5.2	Infiltration trenches 2	20
5	Operation	21
5.1	General	21
5.2	Operation and maintenance procedures	22
5.2.1	Dumping station	23
5.2.2	Hopper Bottom tank	24
5.2.3	Anaerobic Baffled Reactor	26
5.2.4	Constructed wetlands 1	27
5.2.5	Maturation ponds	28

5.2.6	Infiltration basins.....	29
5.2.7	Drying beds	30
5.2.8	Secondary constructed wetland.....	33
5.2.9	Infiltration trenches.....	34
5.2.10	Dried sludge storage.....	34
5.2.11	Incineration.....	35
6	Monitoring plan	36
6.1	Analysis planning	36
6.2	Sampling instructions.....	37
6.3	Other data monitored.....	37
7	Health and Safety.....	39
7.1	Health and safety measures.....	39
7.2	Security measures	40

2 Abbreviations

ABR: Anaerobic Baffled Reactor

AM: Activity Manager

ERF: Emergency Response Fund

HARP: Humanitarian Aid and Rescue Project

HBT: Hopper Bottom Tank

IDP: Internally Displaced People

OCHA: United Nations Office for the Coordination of Humanitarian Affairs

PM: Program Manager

RAT: Rapid Assessment Team

SI: Solidarités International

STS: Sludge Treatment Site

WASH: Water, Sanitation, and Hygiene

TS: Total Solids

TSS: Total Suspended Solids

COD: Chemical Oxygen Demand

NO3: Nitrate

NH4: Ammonium

P: Phosphorus

3 STS history

The construction of the STS was done under the supervision of John Fitzgerald, WASH PM. The site was found in September 2013, and the total size of the land is 120 000 ft² (see document STS-Survey-Site 5.docx).

The land renters were compensated for the loss of agriculture up to 620,000 MMK (half the total amount going to each of the two land renters). The contract remains active for the complete period that the Sludge Treatment Site is operating, and the payment covers the total losses with no further legal or financial obligations from Solidarités International (See document Land Compensation Agreement – STS vu JF).

The construction of the STS started in late December 2013 and was completed in March 2014. A contractor made it (contract MYA/HMSF/WAS/037/SIT/13 - supplier name Ko Mr. Ko Tin Hlaing), for 80,000,000 MMK (approx. 64,000 Euros). The contract was signed on 17th September 2013 with a delivery period of 60 days, but was delayed due to the site approval process (See document Explanation Letter_final disposal site)

The STS started operating in March 2014, and its first operational problems appeared less than a year later.

From July to December 2015, Manuel Kraehenbuehl (WASH AM) produced several documents regarding the STS:

- 151008_STS_Assessment report_final version
- 151026 STS work safety guidelines
- 151211 Instruction on lime treatment on the STS
- 151211 Lime for disinfection
- 151212 STS wastewater analysis

In January 2016, a consultancy led by Elio de Bonis provided recommendations to improve the treatment performance and operation process (see document SI Sittwe Final Report).

Brice Pageaud (WASH PM) implemented some of the consultant's recommendations (see document 201703_STS activity form).

In 2018 and 2019, Marine Ricau (Sanitation AM) produced several documents regarding the operation of the STS:

-Activity_form_STS_June 2018_update 0419

-CW cleaning and planting SOPs

-Drying beds cleaning SOPs

-ABR cleaning SOPs

-Maturation pond desludging SOPs

In December 2018, Veolia Foundation did a mission to set up a laboratory in the STS and provided recommendations to improve the operation process (see document Technical Support Mission STS - SI Myanmar _ EBA ROV 122019).

In February 2020, the Veolia Foundation carried out a mission to support SI in the implementation of the future upgrade (see document SHARED_Field Support Mission STS - SI Myanmar _ ADSh March2020).

At the same time, Jules Gouron (Sanitation AM) implemented some of the consultant's recommendations (see document SHARED_Detailed Construction Recommendations V1_ADSh).

In 2019 and 2020, Jules Gouron (Sanitation AM) produced several documents regarding the operation of the STS and future implementation:

- Construction Workplan STS Upgrade V2 14 September 2020
- STS Operation Guideline (translated in Zawgyi and Myanmar)
- New version of maintenance task & operation task
- Map STS_Jules_new design
- **New version: ANALYSES STS AUGUST 2020 Final V**

- All the drawings for future upgrade (including Hydraulic Profile):

see: <https://drive.google.com/drive/u/1/folders/1SUXKAt2dLlupyhab3-yUABzRslit6b-d>

- Final report STS&Desludging15092020

- Methodology to sieve the sand for future Drying Beds

2014	2015	2016	2017	2018	2019 (see STS log book)	2020
Ramp access					Rehabilitation and elevation of the road access	New chain to protect the tractors against falls.
Dumping station	Installation of roof	Removing of two baffles & roof rehabilitation		Renewal of the solid sludge outlet pipe	Redesign of the reception channel & construction of a small room for data recorder & installation of wooden stairs near outlet pipes to get access to dumping station easily	Installation of a protective fence to prevent any possible falls.
Retention tank -> HBT	Rehabilitation of leaks	Construction of two brick wall in both sides as support to avoid big crack	Replacement by one HBT	Addition of a second HBT	Retention tank emptied, HBTs emptied and cleaned & installation of wooden stairs to get access to HBTs	Paint for inside the HBT & improve Scum board by adding a bord & roof rehabilitation
ABR		Cleaning all chambers		Cleaning of the gravel	Cleaning of the gravel	Increase the number of desludging in the chambers
Constructed wetlands 1	Planting of three types of plants (didn't grow)	Cleaning of gravel	Cleaning of gravel	Cleaning and sorting of gravel according to size	Rehabilitation of the Inlet & planting & adding two brick layers in brick wall to avoid liquid overflowing	Cleaning of the gravel
Maturation ponds		Planting water hyacinth			Installation of a gravel filter at the outlet (currently not used) & rehabilitation of leaks	
Infiltration trenches 1 -> Basins					Removing and installation of basins	Rehabilitation of infiltration basins to avoid landslide
Drying beds		Addition of two emergency drying beds & Lime treatment pilot with Onion Tanks	Pilot for two vertical filter planted bed Roof rehabilitation with steel structure	Installation of wooden platforms in Drying beds to carry sludge baskets easily to pushcarts	Cleaning the gravel and replacement of the sand from beds 2, 3 and 5 & Installation of wooden stairs to get access easily to drying beds.	Cleaning the gravel and replacement of the sand from beds 1, 4 and 6
Secondary Constructed wetland				Height of concrete wall was raised up to 1 foot on all four sides to prevent entry of sand in the rainy season	Cleaning and sorting of gravel according to size & planting	

2014	2015	2016	2017	2018	2019 (see STS log book)	2020
Infiltration with gravel			Replacement by infiltration trenches 2			Rehabilitation of Infiltration pipes
Dry sludge storage			Addition of two storage boxes	Rehabilitation of concrete wall and roof in old storage	Rehabilitation of one wall	Construction of 5 new rooms
Incinerator		Construction of new incinerator			Installation of Chimney extension in existing incinerator	Installation of the chimney extension and construction of a second incinerator
Water Tower		Rehabilitation with steel structure				
Warehouse				Rehabilitation of old warehouse	Construction of new warehouse & storage to keep firewood and other materials	
Shower room					Rehabilitation of the whole shower room including roof and wall	
Office					Rehabilitation of roof and bamboo wall	Rehabilitation of roof and bamboo wall
STS Compound		Fence rehabilitation of STS compound				
Laboratory				Set up		

Figure 1: Construction chronology of STS modules by year

4 Technical description

4.1 Overview of the STS

The Sludge Treatment Site (STS) is operating since 2014. It treats the faecal sludge from about 90,000 forcibly-displaced people living in Sittwe camps, six days a week. Several improvements were made over the years to reach its current functioning. The faecal sludge is pumped from the pit latrines into a 1.5m³ plastic tank, which is then transported to the STS by tractors.

At the STS, the plastic tank is emptied into the reception tank of the dumping station where the volume is measured. The sludge is then directed into two hopper bottom tanks that work in parallel. There the sludge settles and is separated between a liquid and a thicker part. The liquid part goes to the anaerobic baffled reactor, where the biodegradation of organic material happens thanks to the microorganisms contained in the settled sludge. It then goes to the horizontal flow constructed wetlands, where the particles are filtered out and the microorganisms further degrade the organics. The wastewater then goes into the maturation ponds, where it is treated by naturally-occurring processes and the influence of solar light, wind, microorganisms, and algae. It is then infiltrated into the ground through infiltration basins. The thicker sludge that has settled into the hopper bottom tanks is diverted into the drying beds, where the water is drained through the sand and gravel to the bottom of the bed, and evaporation happens at the surface of the sludge. The liquid drained then goes through a horizontal flow constructed wetland and infiltration trenches. The dried sludge remaining on top of the drying beds is removed manually and stored in storage units to further dry. It is then incinerated and the ashes are given to farmers as a soil amendment.

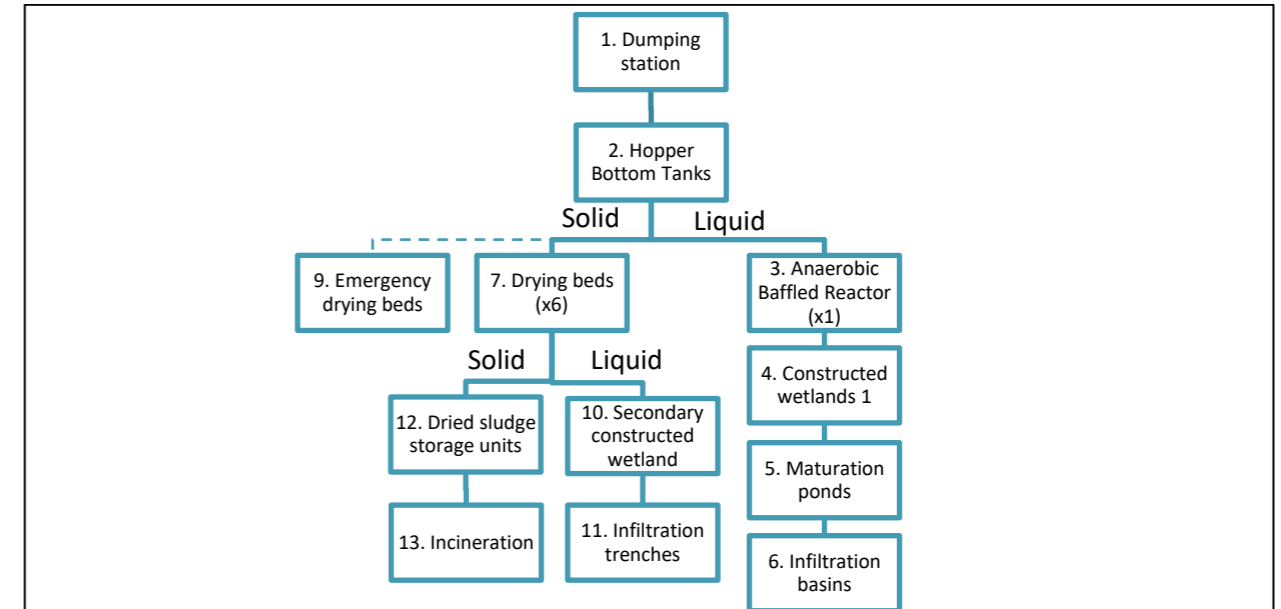


Figure 2: Current Treatment System Overview

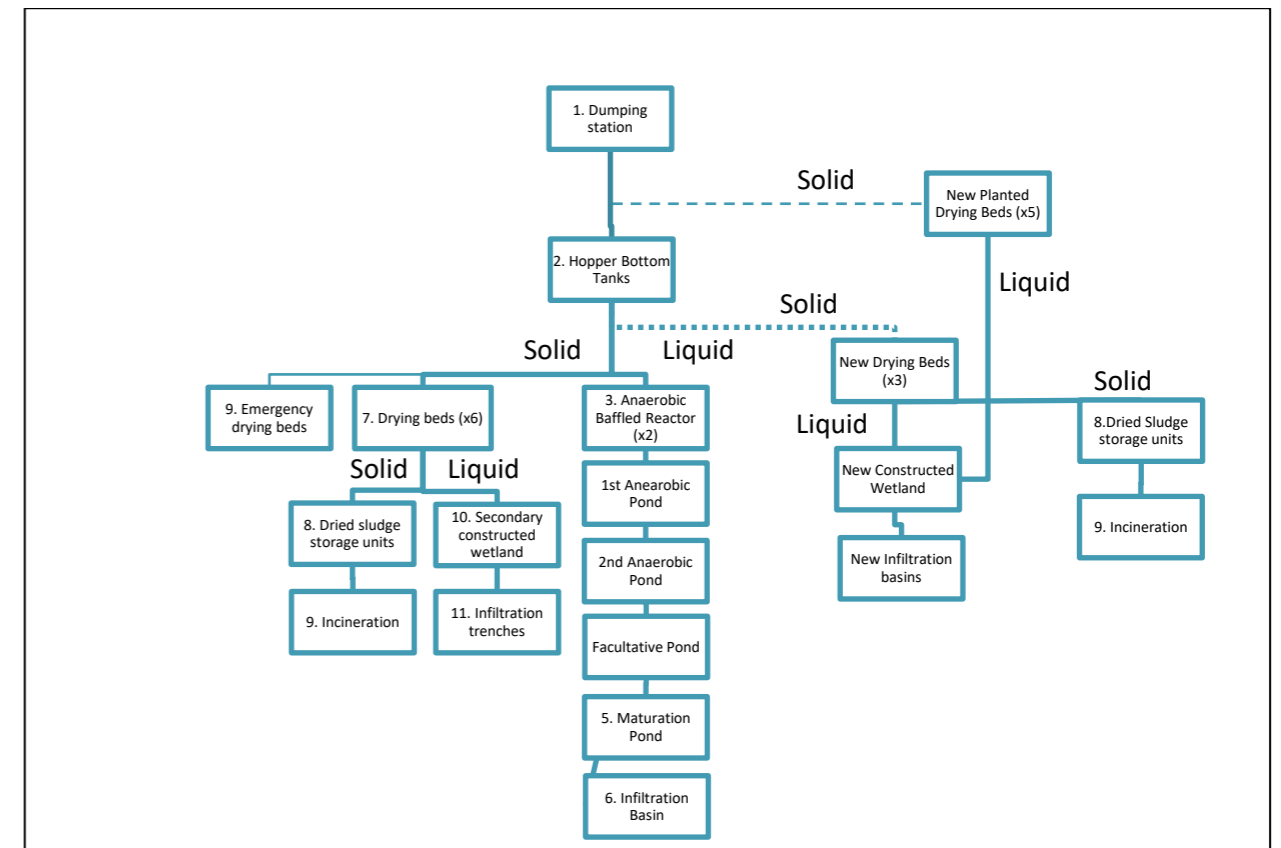
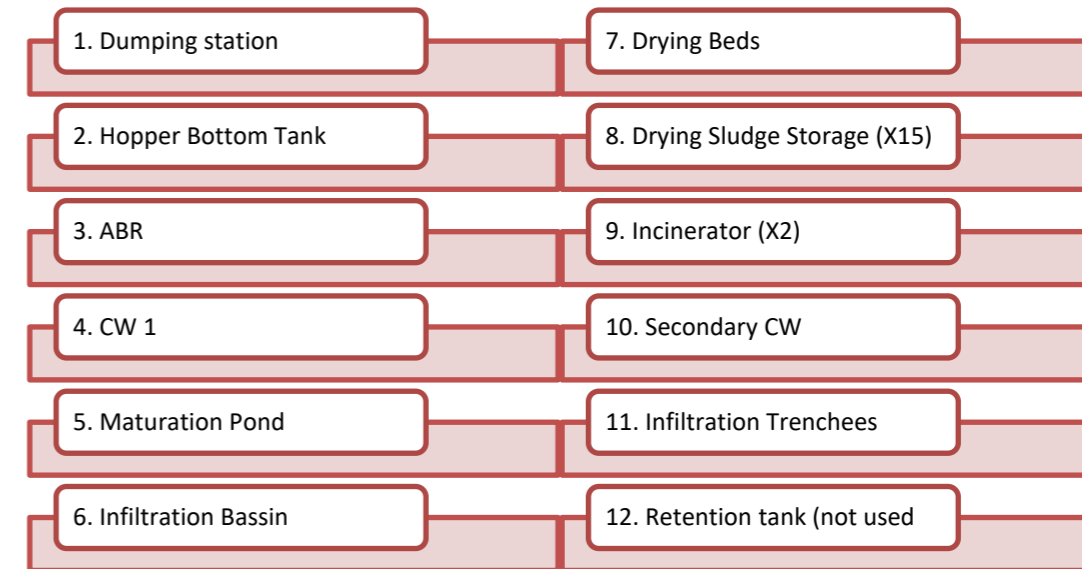


Figure 3: New Treatment System Overview



Figure 4: STS Map



4.2 FAECES LINE MODULES

4.2.1 Dumping station

The dumping station is the first module of the STS where the tractors empty the plastic tank at the rear by means of a valve at the bottom. The dumping station is composed of two emptying concrete tanks where the plastic tank is emptied, a screen to remove the solid waste, a channel, and an outlet tank where the scum is trapped. The volume dumped is measured with a wooden stick and recorded in a notebook. It is then recorded in the Weekly “SitRep” report.

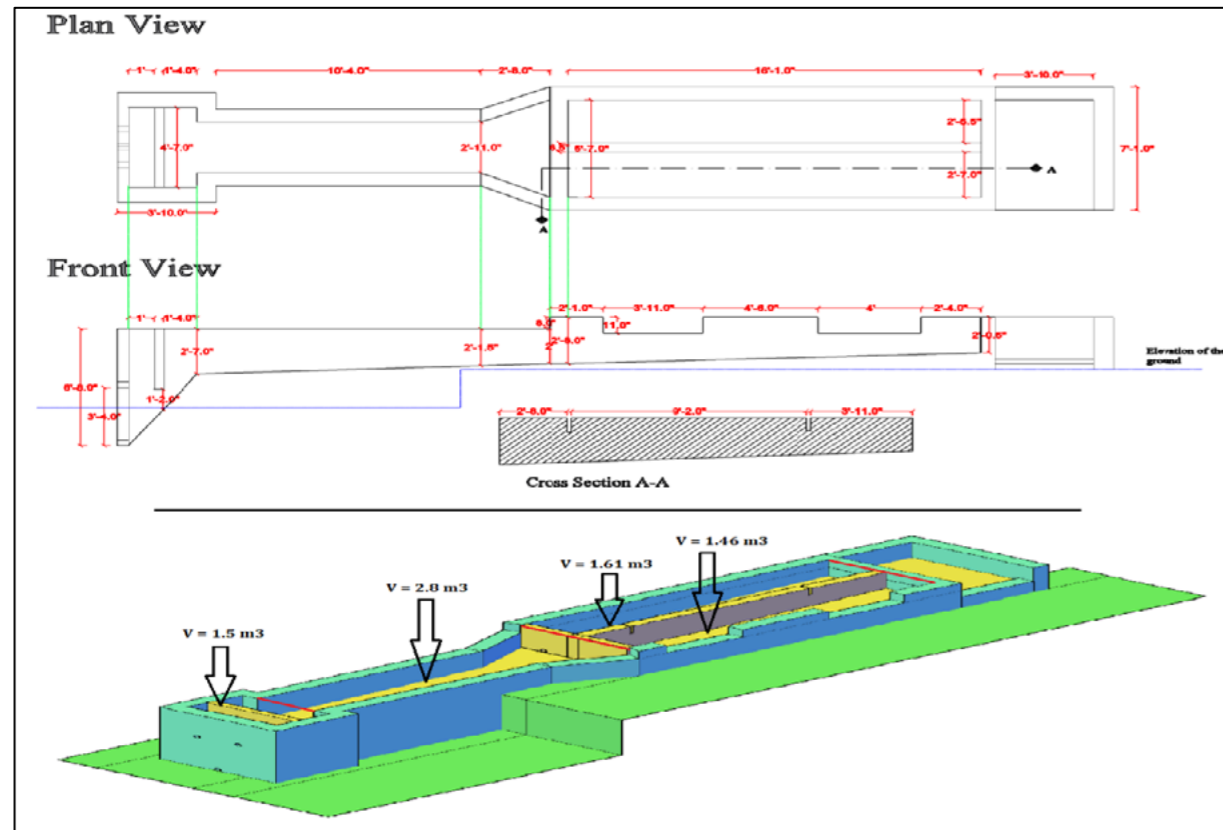
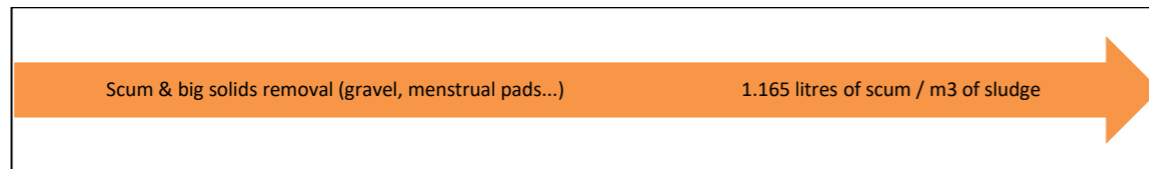


Figure 5: Design Dumping Station



Main Objective & Reduction at the Dumping Station

4.2.2 Hopper Bottom Tank

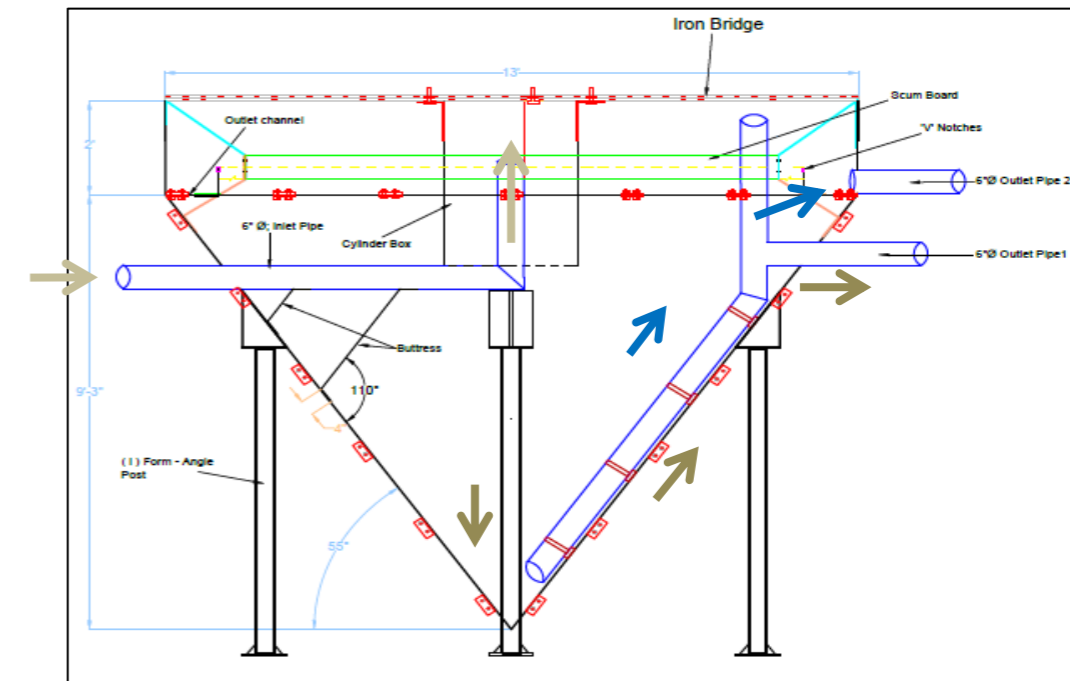
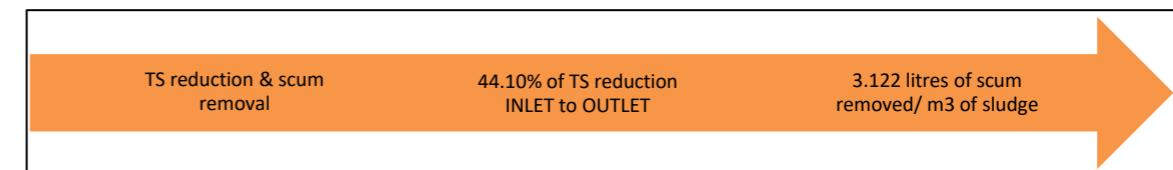


Figure 6: Drawing of the functioning of the hopper bottom tank

The Hopper Bottom Tank (HBT) is the second module of the STS. It provides mechanical primary treatment which consists mainly of sedimentation and flotation of inorganic material (biological degradation of settled solids partially occurs). The HBT is in a cone shape, with the sludge entering at the top inside a cylindrical box to prevent the disturbance of the scum. The solids and sludge settle and accumulate at the bottom while the scum (lightweight materials like fats and grease) rises to the surface. A scum board prevents the scum from flowing into the liquid outlet pipe. The solid outlet pipe connects at the bottom and the solids flow out with hydraulic pressure.

The aim of the HBT is to reduce the Total Solids (TS) content from the faeces in order to dry it on Drying Beds. Note: TS is not to be confused with Total Suspended Solids (TSS).



Main Objective & Reduction in the HBT

4.3 LIQUID LINE MODULES

4.3.1 Anaerobic Baffled Reactor

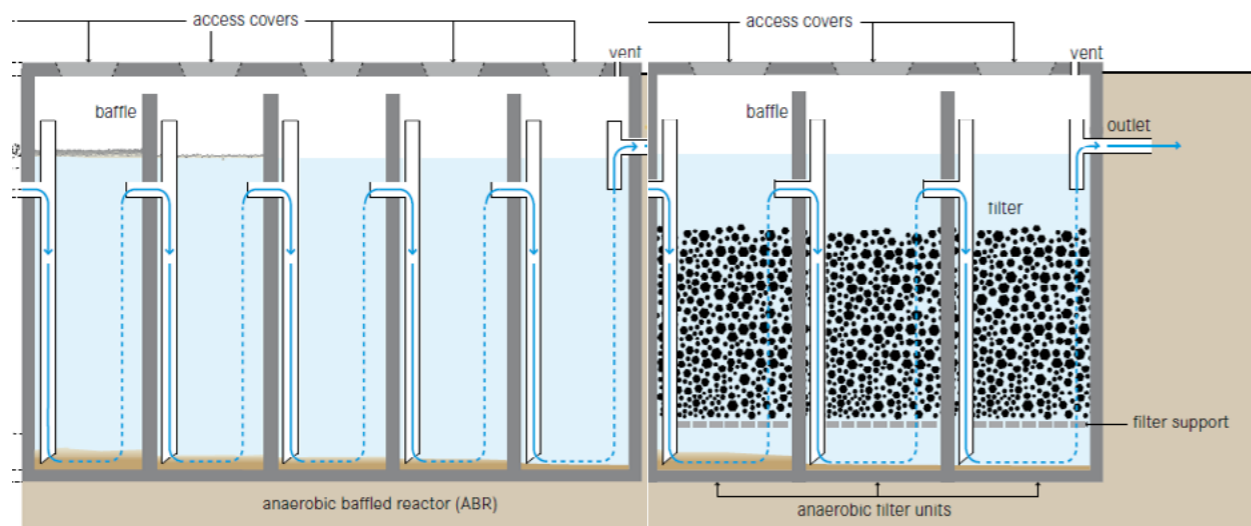
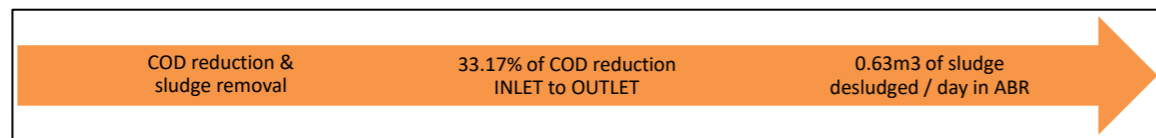


Figure 7: Drawing of the functioning of the ABR

The Anaerobic Baffled Reactor (ABR) is the first module of the STS liquid waste treatment line. It provides biological secondary treatment which is the biodegradation of organic material by the microorganisms contained in the settled sludge. The ABR is divided into four rows of 12 successive chambers each, with two common inlet chambers and one common outlet chamber. Three parallel down pipes are located at the inlet of each chamber, leading the incoming flow toward the bottom of the chamber. The inflow is forced to pass through the activated sludge where anaerobic bacteria are feeding from the organic material contained in the inflow to be treated. The last four rows of chamber contain a filter media, and thus act as an anaerobic filter, or a fixed-bed biological reactor. As liquid waste flows through the filter, particles are trapped and organic matter is degraded by the active biomass that is attached to the surface of the filter material.

The aim of this step is to reduce the Chemical Oxygen Demand (COD). Pollutants settle at the bottom and are pumped to be dried on the Drying Beds.



Main Objective & Reduction in the ABR

4.3.2 Constructed wetlands 1

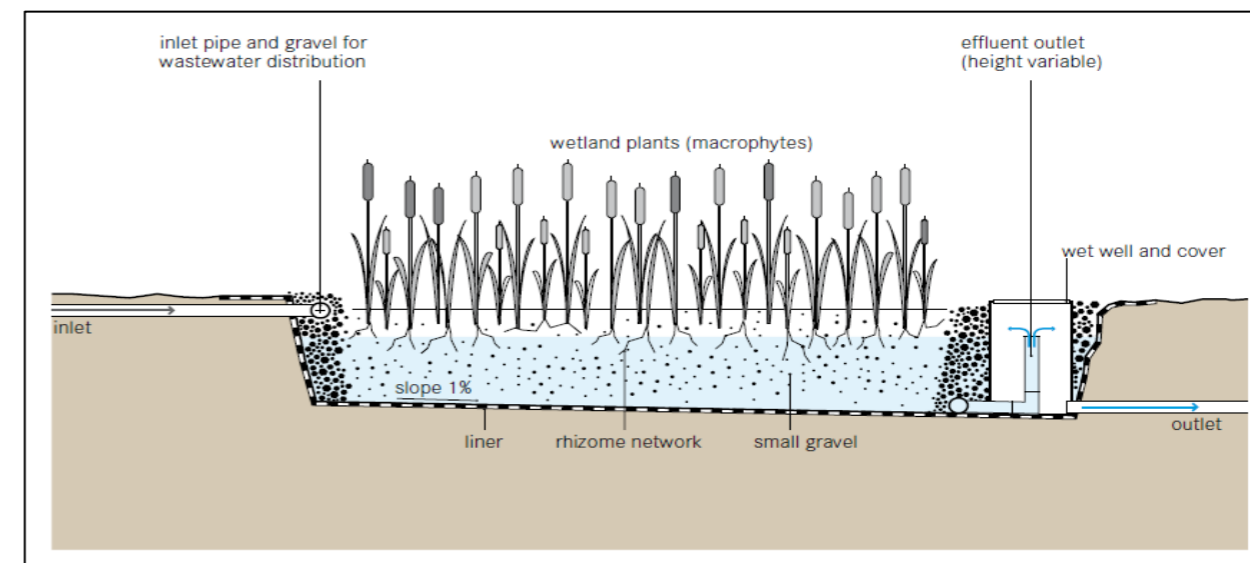


Figure 8: Drawing of the functioning of a standard constructed wetland

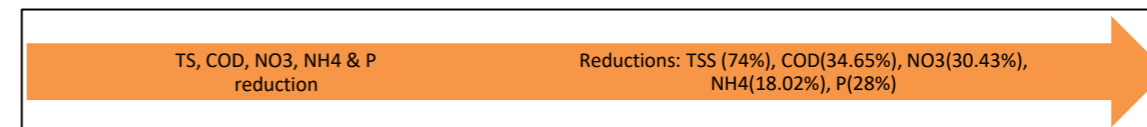
The horizontal flow constructed wetlands (HFCW) is the second module of the STS liquid waste treatment line. It consists of two large gravel and sand-filled basins that are planted with wetland vegetation. As waste flows horizontally through the basin, the filter material filters out particles and microorganisms degrade the organics. The filter media acts as:

- a filter for removing solids,
- a fixed surface upon which bacteria can attach,
- and a base for the vegetation.

Although facultative and anaerobic bacteria degrade most organics, the vegetation transfers a small amount of oxygen to the root zone so that aerobic bacteria can colonize the area and degrade organics as well. The plant roots play an important role in maintaining the permeability of the filter.

The pre-treated waste from the ABR is loaded continuously onto the surface of the HFCW through perforated pipe system. The water flows horizontally through the filter layer to the other bottom side of the bed where it is collected in a drainage pipe system. The wastewater is treated by a combination of biological and physical processes.

The aim of this step is to reduce the TSS, COD, Nutrients (NO₃; NH₄), and Phosphorus (P).



Main Objective & Reduction in the CW1

4.3.3 Maturation ponds

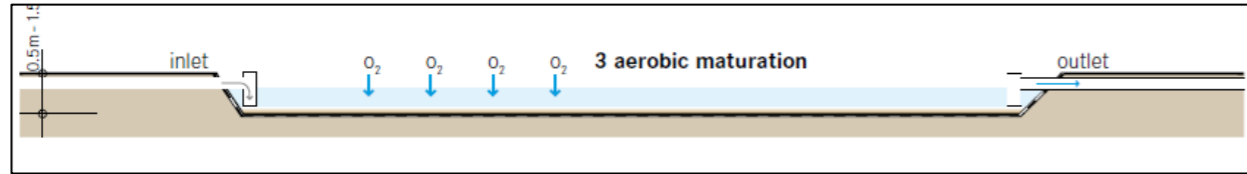
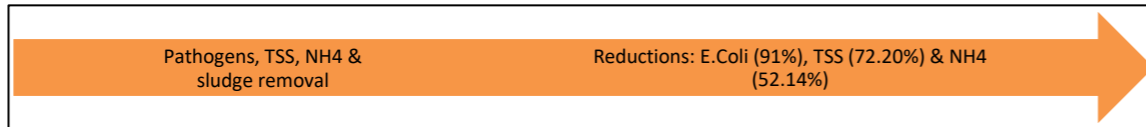


Figure 9: Drawing of the functioning of the stabilization ponds

The maturation ponds are the third module of the STS liquid waste treatment line. It consists of two large, man-made water bodies in which waste is treated by naturally-occurring processes and the influence of solar light, wind, microorganisms, and algae.

Algae growing on the surface provides the water with oxygen leading to aerobic oxidation of the organic pollutants. Due to the algal activity, pH rises leading to inactivation of some pathogens and volatilization of ammonia.

The aim of this step is the removal of pathogenic bacteria and viruses (especially *E.Coli* & Helminth eggs) as well as Ammonia. TSS is reduced as well due to sedimentation.



Main Objective & Reduction in the Maturation Pond

4.3.4 Infiltration basins

The final module of the liquid waste treatment line of the STS is infiltration basins. The waste infiltrates into the ground through two infiltration basins that are filled alternatively.

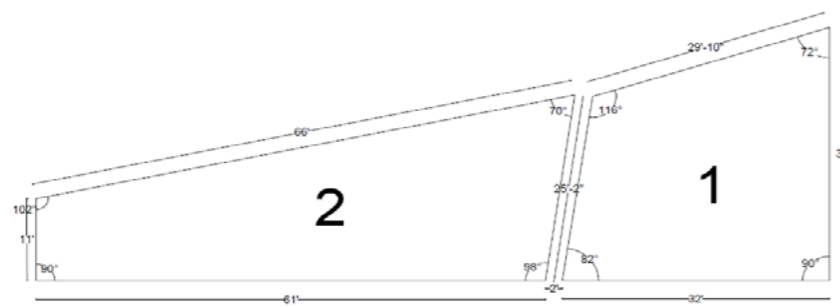


Figure 10: Design Infiltration Basins

4.4 SLUDGE LINE (SOLID)

4.4.1 Drying beds

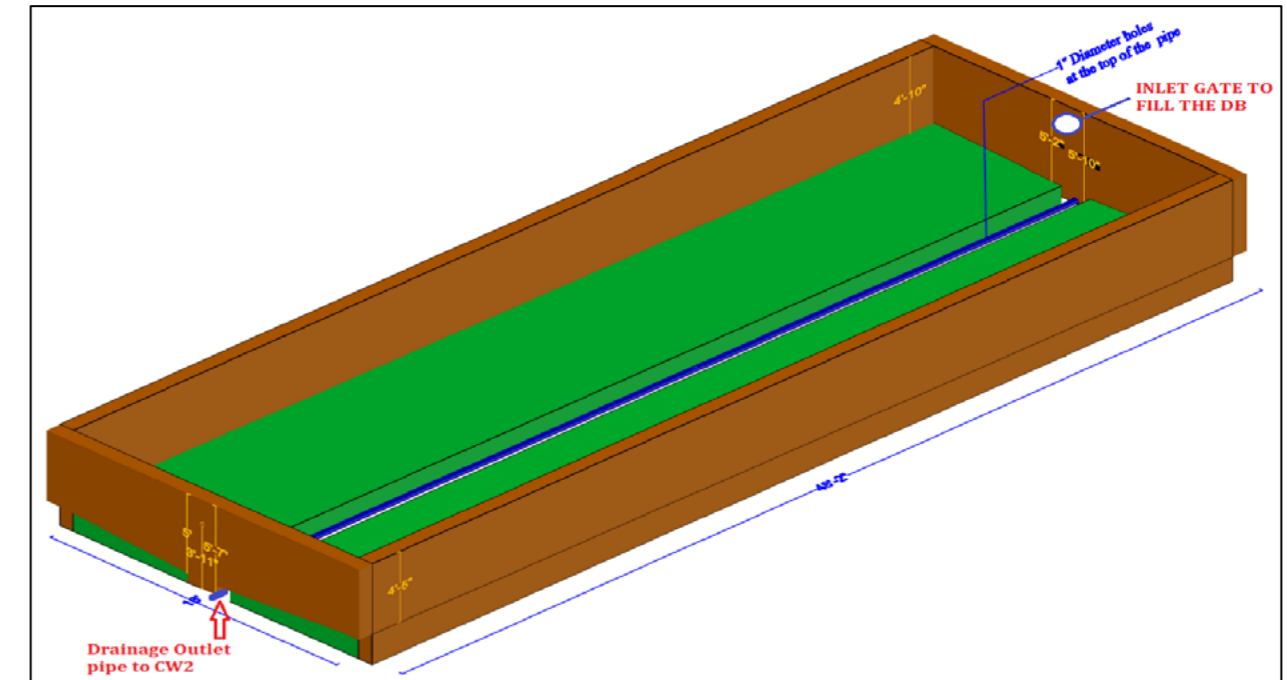


Figure 11: Drawing of the functioning of a standard drying bed (empty)

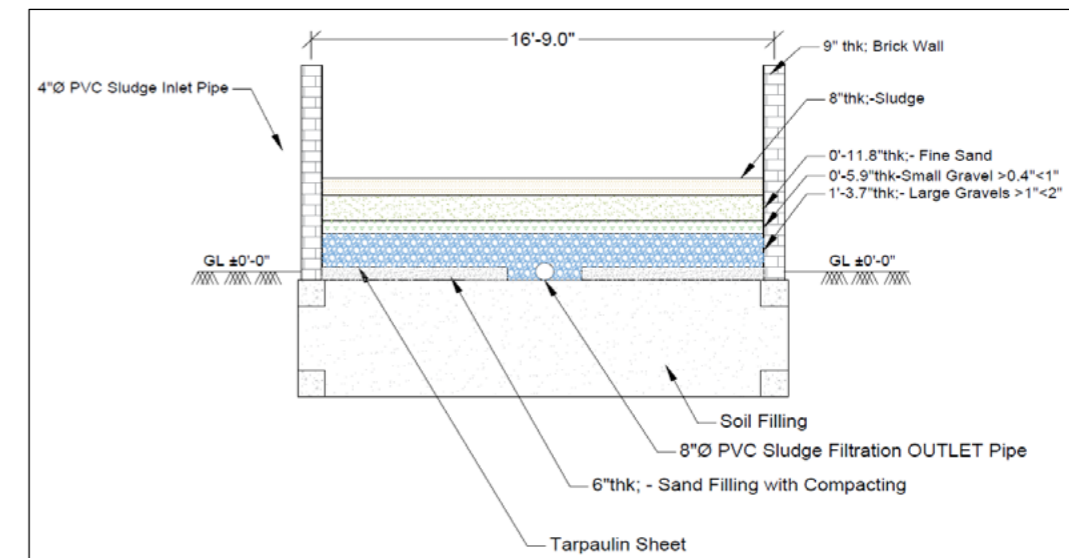


Figure 12: Drawing - Section view of a standard drying bed (Full of sludge)

The drying beds are the first module of the STS sludge treatment line. They are shallow unplanted filter beds with media consisting of sand and gravel. An underdrain pipe at the bottom of the beds collects the leachate which is conveyed to the next treatment module. Sludge from the HBT (and from other modules when they are desludged: dumping station, ABR, CW, and maturation ponds) is discharged onto the surface for dewatering. The drying process is based on the drainage of liquid through the sand and gravel to the bottom of the bed and evaporation of water from the surface of the sludge to the air. The leachate is then directed to a horizontal flow constructed wetland. After reaching the desired dryness, the sludge is removed from the bed manually.

4.4.2 Dried sludge storage

This is the fourth module of the sludge treatment line of the STS. The sludge from the drying beds is stored to dry further.

4.4.3 Incinerator

This is the fifth module of the sludge treatment line of the STS. The sludge is incinerated and the ashes are given to farmers as a soil amendment.



Figure 13: 3D View of Incinerator

4.5 SLUDGE LINE (LIQUID)

4.5.1 Secondary constructed wetland

The secondary constructed wetland is the second module of the sludge treatment line of the STS. It treats the leachate from the sludge drying beds. It is the same module as the horizontal constructed wetlands.

4.5.2 Infiltration trenches 2

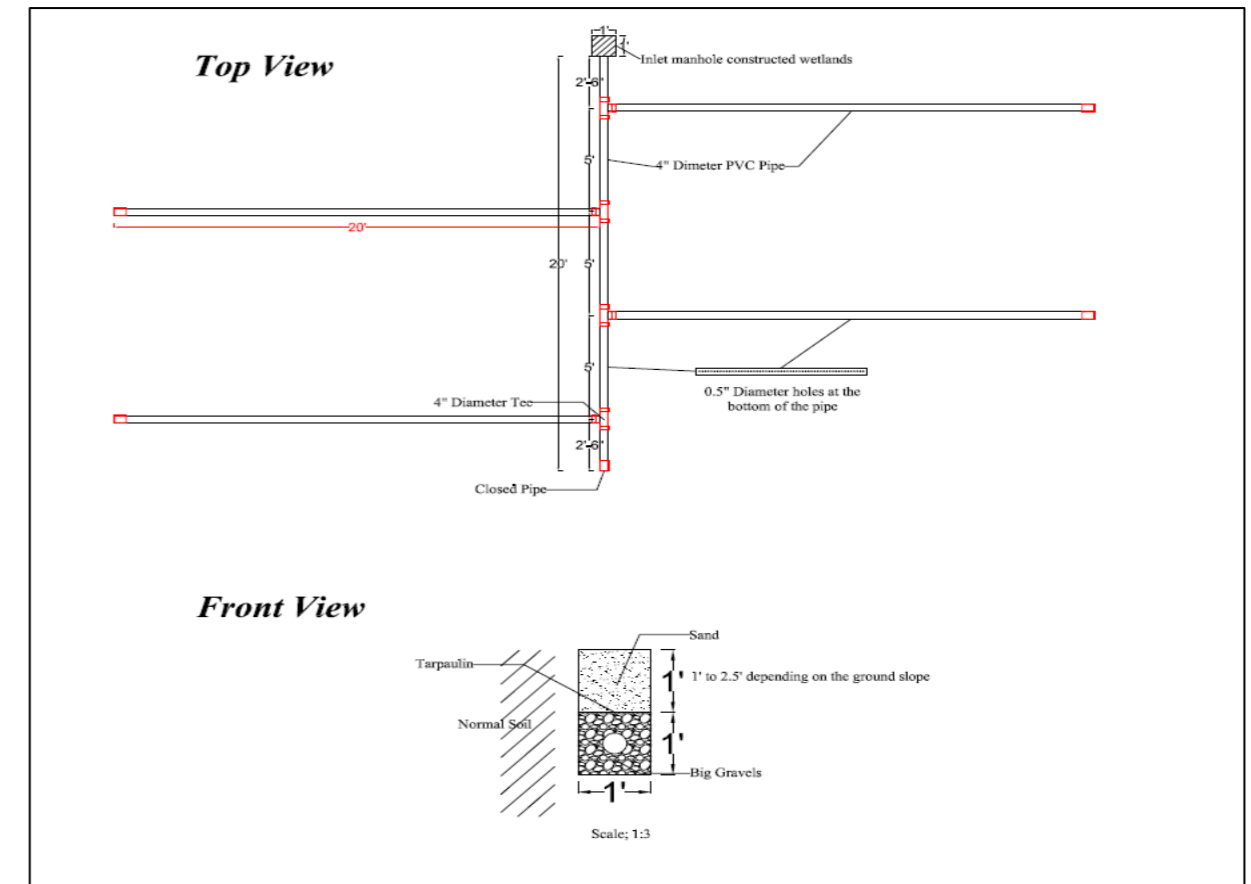


Figure 14: Drawing of the functioning of standard infiltration trenches

This is the third module of the sludge treatment line of the STS. The wastewater infiltrates into the ground through infiltration pipes settled into trenches filled with gravel.

5 Operation

5.1 General

Opening hours: 8am-5pm

Lunch break, two shifts: 12am to 1pm, and 1pm to 2pm

Human resources:

One STS agent and nine STS workers: From Monday to Thursday—one agent and nine workers; from Friday to Saturday—one agent and four or five workers.

A sanitation agent replaces the STS agent for his weekly day off.

One sanitation supervisor for supervision of the STS and desludging activities.

Watchmen day and night.

Record keeping:

A logbook used to be kept in the STS to record all maintenance and upgrade works done in the STS.

Weekly operation sheets are filled by the STS officer to record all the operation tasks done in the STS:

		OPERATION BOOK - WEEK						
DAILY	Sumera station	Remove the sludge accumulated in the tank every morning before the day starts						
	NET	Remove the sludge before opening the solid outlet Number of times the solid outlet was opened Height of sludge from solid NET						
	DN2	Remove the sludge from DN2 every day						
	DN1	Clean the solid pipes						
	DN3	Remove the sludge from DN3 every day						
	DN4	Clean the distribution channel after the opening of the NB's The NB's must be plugged on the number						
	Sludge cleaner	Turn the sludge pipes to ensure a better drying of all the sludge						
	DN5	Remove the sludge from DN5 every day						
	DN6	Clean the solid pipes						
	DN7	Quantity of sludge removed						
WEEKLY	DN8	Inspect the concrete surface and platforms or air modules Clean the outside of all the pipes						
	DN9	Clean the floor and tidy the equipment in the office Inspect around the treatment module and remove the plants and roots which might interfere and damage the infrastructure Keep the STS clean: waste removing, stock tidying, etc. Add water to the wormery twice a week						
	NET	Clean up accumulation of sludge on baffles, walls and corners Clean the outside of the net						
	DN10	Clean the inspection pits Inspect the surface of the basin to ensure water level is below the surface						
	Drying beds	Remove the weeds and plant's roots Clean the inspection pits Inspect the surface of the basin to ensure water level is below the surface						
	DN11	Inspect the pipes for any leakage Inspect the concrete parts of each treatment module and repair or report any leaks, cracks, settlement of structure, etc. Clean the roof steel structure (dumping station and drying beds)						
	DN12	Keep the STS clean: grass cutting						
	DN13	Add dried sludge to the wormery when the level is less than 6"						
	DN14	Drain the dried sludge when it has accumulated to the height of 2" in the pits						
	DN15	Remove the sludge when its thickness reaches 2" Remove the sludge when the water has reached a thickness of 2" Remove the sludge accumulated in the ponds when the level reaches 1" Remove the solid waste accumulated in the pond						
DN16	Remove the sludge from the bottom of the tanks							
DN17	Top-up the sand layer when 2" are missing from the 14" high sand layer The sludge was removed from DN1 number							
DN18	The sludge was removed from DN1 number							
DN19	Quantity of sand given to farmers (DN9, DN10)							

Figure 15: Logbook in STS

5.2 Operation and maintenance procedures

General

Time interval	Tasks
Weekly operation	<ul style="list-style-type: none"> Sweep the concrete surfaces and platforms of all modules Clean the outside of all the pipes Clean the floor and tidy the equipment in the office Inspect around the treatment modules and remove the plants and roots that might interfere and damage the infrastructure Keep the STS clean: waste removing, stock tidying, etc. Add water to the wormery twice a week
Monthly operation	<ul style="list-style-type: none"> Inspect the pipes and repair any leaks Inspect the concrete parts of each treatment module and repair or report any leaks, cracks, settlement of structure, etc. Keep the STS clean: waste removing, grass cutting Clean the roof steel structures (dumping station and drying beds)
Routine operation	<ul style="list-style-type: none"> Add dried sludge to the wormery when the level is less than 6"
Annual maintenance	<ul style="list-style-type: none"> Clean the external walls and slab of the modules either with a high pressure hose or with a brush and water Control the corrosion on the metal parts: scrap rust, paint metal surfaces, repair corroded concrete reinforcement Apply one coat of water paint and two coats of quality gloss paint on the metal parts to avoid corrosion Apply a coat of paint on the external PVC pipes to protect them from weathering

5.2.1 Dumping station

The tractors climb up the ramp backward and reach the dumping station. The tank is emptied in one of the reception tanks by opening the ball valve (Figure 16). Two tractors can be emptied in parallel in the two reception tanks. The volume of sludge transported is measured in the tank, which is then opened by a gate valve (Figure 16). The volume is recorded in “Monitoring WIDE” report and “Lab analysis”.



Figure 16: Emptying of tractors in the Dumping Station & Emptying of the reception tanks

Operation and maintenance procedures

Time interval	Tasks
Daily operation	<ul style="list-style-type: none"> Remove the scum accumulated in the tank every morning before the first tractor
Routine operation	<ul style="list-style-type: none"> Clean the screen grids from all solids accumulated: sludge is disposed of in the drying beds, solid waste is incinerated separately from the dried sludge Drain settled sludge when it has accumulated to the height of 1' in the tank

Troubleshooting

Problems	Solutions
Outlet pipes clogged	Open totally the gate valve (11 turns of the handle) Hit inside the pipe with a bamboo stick, through the Y Use the water pump to apply pressurised water
Accident with a tractor	Contact the owner to repair the damages caused in the STS

5.2.2 Hopper Bottom tank



Figure 17: Hopper Bottom Tanks

The two HBT are running in parallel. Only one HBT will be running in case of a problem or maintenance on the other one.

For each HBT, the sludge outlet pipe is opened once a day in the morning, before the first tractor has been emptied in the dumping station. Depending on the expected number of tractors coming to the STS, the sludge outlet pipe is opened again after 15, 30, and 45 tractors have arrived to the STS (see operation and maintenance procedures below).

The scum is removed manually every morning (Figure 18) and disposed of in the drying beds.



Figure 18: Scum Removal in HBT

Operation and maintenance procedures

Time interval	Tasks																															
Daily operation	<ul style="list-style-type: none"> The quantity of sludge to be extracted per day depends on the number of tractors coming to STS: <table border="1"> <thead> <tr> <th></th> <th>Morning extraction</th> <th>Extraction after 15 tractors</th> <th>Extraction after 30 tractors</th> <th>Extraction after 45 tractors</th> </tr> </thead> <tbody> <tr> <td>Less than 20 tractors</td> <td>x</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Between 20 and 35 tractors</td> <td>x</td> <td>x</td> <td></td> <td></td> </tr> <tr> <td>Between 35 and 50 tractors</td> <td>x</td> <td>x</td> <td>x</td> <td></td> </tr> <tr> <td>Between 50 and 65 tractors</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> </tr> </tbody> </table> <p>The table below gives the level to be drained in each HBT for each extraction, depending on the number of HBTs running.</p> <table border="1"> <thead> <tr> <th></th> <th>1 HBT running alone</th> <th>2 HBTs in parallel</th> </tr> </thead> <tbody> <tr> <td>Level to be drained</td> <td>7"</td> <td>4"</td> </tr> </tbody> </table> <p>Close the HBT inlet during the opening phase.</p> <ul style="list-style-type: none"> Remove the scum every morning before opening the solid outlet and dispose of it in the drying beds Clean the inlet and outlet liquid pipes 		Morning extraction	Extraction after 15 tractors	Extraction after 30 tractors	Extraction after 45 tractors	Less than 20 tractors	x				Between 20 and 35 tractors	x	x			Between 35 and 50 tractors	x	x	x		Between 50 and 65 tractors	x	x	x	x		1 HBT running alone	2 HBTs in parallel	Level to be drained	7"	4"
	Morning extraction	Extraction after 15 tractors	Extraction after 30 tractors	Extraction after 45 tractors																												
Less than 20 tractors	x																															
Between 20 and 35 tractors	x	x																														
Between 35 and 50 tractors	x	x	x																													
Between 50 and 65 tractors	x	x	x	x																												
	1 HBT running alone	2 HBTs in parallel																														
Level to be drained	7"	4"																														
Weekly operation	<ul style="list-style-type: none"> Clean up internal build-up of sludge on baffles, walls, and channels Clean the outside of the HBT Ensure the inlet flows are equal 																															

Bi-annual maintenance	<ul style="list-style-type: none"> Empty totally both HBTs Every year, paint inside the HBT with anti-corrosive paint
-----------------------	---

Troubleshooting

Problems	Solutions
It is not possible to remove the scum in the inlet cylinder box: it is not accessible because of the bridge	Not an issue. It is automatically partially removed when desludging
The solid outlet HBT pipe has no flow coming because of pipe or valve blockage	Remove and clean the valve/pipe
The inlet flow is not equal in HBT1 and HBT2	Adjust the gate valve opening by turning it

5.2.3 Anaerobic Baffled Reactor



Figure 19: Anaerobic Baffled Reactor

The liquid waste comes out of the HBT in discontinuous flow.

Operation and maintenance procedures

Time interval	Tasks
Routine operation	<ul style="list-style-type: none"> Remove the scum when its thickness reaches 2" Remove the sludge when the layer has reached a thickness of 3'6": remove all the sludge in chambers 1 and 2 (inspection twice a week), leave a minimum of 1'8" layer of sludge in chambers 3 to 10 (monthly inspection), and 1' in the other chambers without gravel

	<ul style="list-style-type: none"> Remove the sludge when water passes through the by-pass (upward)
Bi annual maintenance	<ul style="list-style-type: none"> Remove the sludge in the chambers with gravel
Every 5 years maintenance	<ul style="list-style-type: none"> Wash the filter media in the chambers with gravel (See ABR cleaning SOPs)

Troubleshooting

Problems	Solutions
Leak from the outlet pipe	Change the pipe or remake the glue connection
Pipes inside the ABR get clogged	Hit the inside of the pipe with a bamboo stick

5.2.4 Constructed wetlands 1



Figure 20: Constructed wetlands (The two beds run in parallel)

Operation and maintenance procedures

Time interval	Tasks
Daily operation	<ul style="list-style-type: none"> Ensure the inlet pipes flow is evenly distributed Clean the inlet pipes
Weekly operation	<ul style="list-style-type: none"> Clean the inspection pits

Routine operation	<ul style="list-style-type: none"> Remove the solid sludge on the surface when the flow is making a drainage
Every 5 years maintenance	<ul style="list-style-type: none"> Replace or wash the filter media when it is clogged or when efficiency is reduced (See CW cleaning and planting SOPs)

Troubleshooting

Problems	Solutions
Surface sludge	The hard part is removed by hand, the liquid part is removed by motor pump into the maturation ponds
Concrete walls leak	Plaster the leaks
Outlet pipe clogged	Use the water pump to put pressurised waste from the stabilization pond
Uneven distribution of the inlet pipes	Improve the levelling of the distribution pipes with the level measurement tool

5.2.5 Maturation ponds



Figure 21: Maturation Ponds

The two ponds are used in series. The quantity of sludge inside the ponds can be measured with the sludge measuring tool and the boat.



Figure 22: Measuring the quantity of sludge accumulated

Operation and maintenance procedures

Time interval	Tasks
Routine	<ul style="list-style-type: none"> Remove the sludge accumulated in the ponds when the level reaches 1' (See Maturation pond desludging SOPs) Remove the solid waste accumulated in the pond

Troubleshooting

Problems	Solutions
Concrete walls leak	Plaster the leaks

5.2.6 Infiltration basins

The two basins are used alternately.

Operation and maintenance procedures

Time interval	Tasks
Daily	<ul style="list-style-type: none"> Alternate the basins opening at 12:30pm and 5pm
Routine	<ul style="list-style-type: none"> Remove the solids built up at the bottom of the basins

Troubleshooting

Problems	Solutions
Overflowing	If it is the rainy season, cover the basins with tarpaulin.



Figure 23: Infiltration basins (Full)

5.2.7 Drying beds



Figure 24: Unplanted Drying Beds

The beds are alternately receiving sludge from the HBT (or from other desludging operations in the STS). The sludge goes through an open channel to the drying beds.

One bed is filled for around 5 days and then is left to dry for around 3.5 weeks (one drying cycle). The dry sludge is then manually removed by four or five workers (Figure 25), and transported to the drying area with open buckets and pushcarts (Figure 25). The leachate is collected at the bottom of the beds and diverted to the secondary constructed wetland.



Figure 25: Workers removing and transporting dry sludge to storage

Operation and maintenance procedures

Time interval	Tasks
Daily operation	• Clean the distribution channel after the opening of the HBTs
Weekly operation	• Remove the weeds and plant roots
Routine operation	<ul style="list-style-type: none"> • Select an empty bed and fill it for several consecutive days until its level reaches 8". • When the sludge is dry enough to be removed (maximum 4 weeks), remove it manually without removing sand. Report any damage/holes on the tarpaulin. • The rotation of sludge drying beds have to be managed in order to always have a bed available before the previous bed filling phase is finished. • Top-up the sand layer when 2" are missing from the 14" high sand layer. The fresh water sand has to be previously cleaned with clean water.
Bi annual maintenance	• Remove the roof after the rainy season, and put it back before the first rain
5 years maintenance	<ul style="list-style-type: none"> • Replace or wash the filter media when it is clogged or when efficiency is reduced (See Drying beds cleaning SOPs). • Patch the holes in the Drying Beds (tarpaulin) or change it if needed. Make sure the tarpaulins are correctly fixed to the walls.

Troubleshooting

Problems	Solutions

Workers are bitten by insects	Properly wear PPE Engine oil on gloves and boots (less insects but the workers are still being bitten. Mosquito repellent and using rakes didn't work)
-------------------------------	---

5.2.8 Secondary constructed wetland



Figure 26: Secondary Constructed Wetland

Operation and maintenance procedures

Time interval	Tasks
Daily operation	<ul style="list-style-type: none"> • Ensure the inlet pipes flow is evenly distributed • Clean the inlet pipes
Weekly operation	<ul style="list-style-type: none"> • Clean the inspection pits • Inspect the surface of the basin to ensure water level is below the surface (no saturation)
Every 5 years maintenance	<ul style="list-style-type: none"> • Replace or wash the filter media when it is clogged or when efficiency is reduced (See CW cleaning and planting SOPs)

Troubleshooting

Problems	Solutions

Surface sludge	The hard part is removed by hand, the liquid part is removed by motor pump
Uneven distribution of the inlet pipe	Improve the levelling of the distribution pipes with the level measurement tool

5.2.9 Infiltration trenches

No operation or maintenance performed.

Troubleshooting

Problems	Solutions
Overflowing	Inspect the trenches (pipes, tarpaulin, media) and rehabilitate if necessary

5.2.10 Dried sludge storage



Figure 27: Dried Sludge Storage Units

The dried sludge from the drying beds is stored to dry further until it can be incinerated. One unit can store dried sludge from 1 to 2 drying beds.

Operation and maintenance procedures

Time interval	Tasks
Daily operation	• Turn the sludge piles to ensure better drying of all the sludge
Routine operation	• Select an empty storage unit and fill it for several consecutive days until it is full.

5.2.11 Incineration



Figure 28: Incinerator

The ashes from the incineration of the sludge are stored nearby; they are meant to be given to the farmers but they don't accept it.

Operation and maintenance procedures

Time interval	Tasks
Routine operation	• The fire is started with broken tires, rubber, and pieces of wood. • Incineration:

	Fill the incinerator with the oldest dried sludge, for a quantity of about 40 buckets per day, 6 days/week. Remove the ashes and clean the incinerator after each operation. Store the ashes in the storage unit dedicated to it. • The rotation of storage units has to be managed in order to always have a unit available before the previous unit filling phase is finished.
--	---

6 Monitoring plan

All the information is recorded through Survey CTO and is gathered in the document Analyses STS.

6.1 Analysis planning

	TS (g/l)	TSS (mg/l)	COD (mg/l)	NH4 (mg/l)	NO3 (mg/l)	P (mg/l)	E. Coli (nb/ml)
Inlet HBT	3/week		1/week				
Outlet liquid HBT	3/week		1/week	1/week	1/week	2/month	
Outlet solid HBT (morning, 15, 30 tractors)	3/week						
Outlet ABR	2/month		2/month	2/month	2/month		
Inlet maturation ponds		2/month	2/month	2/month	2/month		
Outlet STS		1/week					2/month
Outlet STS filtered			1/week	1/week	1/week	2/month	
Inlet secondary constructed wetland		2/month	2/month	2/month	2/month		
Outlet secondary constructed wetland		1/week	1/week	1/week	1/week	2/month	2/month
Dried sludge from drying beds	When removed from a drying bed						

Dried sludge from storage (for Incineration)	1/week						
ABR sludge	When the first and second chambers of the ABR are desludged						

6.2 Sampling instructions

Collection point	Instructions
HBT inlet	Take the sample from the HBT 1, when a tractor is emptying the barrels (starting from the second tractor of the day). Let the volume trapped in the Y pipe be drained first.
HBT outlet liquid	Take the sample from the HBT 1 after 1pm. Let the volume trapped in the Y pipe be drained first.
HBT outlet solid	Take the sample from the HBT 1 during the desludging phase of the HBT. Let the volume trapped in the pipe be drained first.
Outlet ABR	Anytime, when there is flow.
Inlet maturation pond	Anytime, when there is flow.
STS outlet	Anytime, when there is flow.
STS outlet FILTERED	Anytime, when there is flow.
Inlet wetland II	Take the sample after 1 pm.
Outlet wetland II	Anytime, when there is flow. Remove the water from the pit before taking the sample.
Dried sludge from drying beds	When the dried sludge is removed from a drying bed.
Dried sludge from storage unit	Take a sample from one of the buckets incinerated.
ABR sludge	At the outlet of the pump.

E.Coli: Fill half of a one-liter sample and send it to Oxfam lab before 1pm the same day. Label the bottles with the location where the sample was collected, the date, and time.

6.3 Other data monitored

Every day:

- Tractor number
- Tractor arrival time
- Camp name
- Organization
- Volume of sludge transported
- The HBT was desludged to the bed number
- Level of sludge in the six beds: report the level of the sludge reached on the wooden measurement tool.
- Daily sum of total sludge discharged at the STS (see Analysis Lab report)

Once a week:

- Sludge quantity in the first two chambers of the ABR: to measure with the sludge measurement tool.

Once a month:

- Sludge quantity in all chambers of the ABR: to measure with the sludge measurement tool.

When necessary:

- In which bed sludge is removed
- At which incinerator chamber sludge is stored
- In general, the approximate volume of sludge (Barrel quantity for instance) which is being removed either from ABR, Maturation Pond...in order to check the volume of sludge that should be removed from HBT.

For each Sludge Drying Bed:

- The quantity/quality of sludge at the beginning and at the end of each cycle for each drying bed and duration of this cycle (see drying cycles of drying beds report).

The farmer's information is recorded and kept at the STS when ashes are taken:

STS Dry Sludge Distribution Follow Up

Date	Name of the Farmer	Camp/ Village	Which kind of Agriculture	Quantity of Dry Sludge	Signature
ရက်စွဲ	လယ်မား အမည်	စခန်း/ ရွာ	စိုက်ပျိုးရေး အမျိုးအစား	မစင်္ကြံချခါးပမာဏ	လက်မှတ်

7 Health and Safety

7.1 Health and safety measures

- 1) Wearing boots, gloves, glasses, boiler suits and masks is mandatory during work activities at the STS
- 2) The STS officer should report any damaged equipment and ensure its replacement
- 3) Wounds should be covered with clean, dry, waterproof bandages
- 4) Boots, gloves, and glasses have to be cleaned with chlorine after the end of the working day
- 5) Boiler suits should be soaked for 10 minutes in chlorine solution, before being washed with water and laundry soap, once a week
- 6) Masks have to be thrown away after one week of use
- 7) All protective equipment has to be properly dried and stored in the shower house
- 8) It is forbidden to wear the protective equipment outside the work environment
- 9) It is forbidden to smoke, chew betel, tobacco, or gum during working time
- 10) Eating on the dumping station is forbidden
- 11) The gloves should be cleaned with chlorine and water between tractors
- 12) In case of contact with sludge, the skin should be washed thoroughly with soap and water, and the eyes flushed thoroughly
- 13) In case of getting sprayed or soaked down with sludge, the clothes have to be changed and the skin cleaned with soap and water – a shower should be taken if necessary
- 14) The hands should be thoroughly washed with soap and water after removing the PPE, and before eating, drinking and smoking

- 15) A shower with soap must be taken and clothes must be changed before leaving work - before lunch and at the end of the day
- 16) The safety harness has to be worn when operating on Hopper Bottom Tanks
- 17) The mask with particle filter has to be used during the incineration process
- 18) The STS workers shouldn't enter the incinerator when starting the fire

7.2 Security measures

- 1) Only the following employees are **authorized to enter the STS office**:
 - a. SI agents
 - b. SI officers
 - c. SI supervisors
 - d. SI activity managers
 - e. SI managers
 - f. SI field coordinator
 - g. SI human resources and finance department employees
- 2) The following persons are **not authorized to enter the office**, unless expressively asked by a manager, and always in the presence of the person in charge of the office at the moment:
 - a. SI STS workers
 - b. SI watchman
 - c. SI daily workers
 - d. Employees from other organizations
 - e. Visitors
- 3) The STS office has to be systematically locked (doors and windows) when the STS agent (or sanitation agent in case of absence of the STS agent) leaves the office.

- 4) The STS officer is responsible for the office key management and has to inform his line manager in case of any issue.
- 5) Any employee who witnesses a breaking of the rules has to inform one of SI managers directly.

In case of non-respect of these rules, disciplinary measures will be taken.



Action from Community Engagement (ACE)

Introduction	2
Activities.....	2
Activities Step by Step	2
Facilitator Training	2
Community Meeting	3
Recruitment	3
Group Induction Meeting.....	4
Community Mapping.....	4
Photovoice	5
Problem Tree.....	8
Action Plan & Timeline	9
Budget	9
Indicators & Monitoring Plan	10
Implementation of Campaign	10
Debrief	11
Appendix	12
Appendix A: Reporting Format	12
Appendix B: Photovoice Consent Form.....	12
Appendix C: ACE Completion Certificate	12



Introduction

A major focus of the HARP WASH programme in Sittwe is to transition to community-led WASH service provision through effective two-way communication, community engagement, and community mobilisation. Although the project aims to mainstream community engagement concepts and principles throughout all project activities, it also includes “standalone community engagement” activities. These activities are being implemented under the project name of “Action from Community Engagement (ACE)”.

The ACE process uses tried and tested tools with small groups, who identify and break down major issues and then design and implement a campaign to tackle the identified WASH issue. The objectives of ACE are to build trust and teamwork, actively listen, increase problem solving skills, increase sense of community and ownership, foster two-way communication, and engage women, men, girls and boys, including elderly and people living with disabilities in the creation of WASH campaigns. The end goal of each ACE process is a campaign led by the ACE group to solve a WASH issue identified by the group.

Activities

The activities in ACE are designed to be completed by the same group in the order specified because they build upon each other. The first three activities the group does together—Community Mapping, Photovoice, and Problem Tree—are “needs-identification” activities, which help the group explore, prioritize, and break down WASH issues in their community. The second phase of ACE is the “campaign-building” phase and includes Action Plan and Timeline, Budget, and Indicators and Monitoring Plan, activities which help the group plan the campaign to tackle one of the WASH problems identified earlier. Below is the list of activities outlined in this manual. The reporting format is attached in Appendix A: Reporting Format.

Phase I:

- Facilitator Training
- Community Meeting
- Recruitment
- Group Induction Meeting

Phase II:

- Community Mapping
- Photovoice
- Problem Tree
- Action Plan and Timeline
- Budget
- Indicators and Monitoring Plan
- Implementation of Campaign
- Debrief

Activities Step by Step

Facilitator Training

Please note, this guidance document is designed to accompany the ACE facilitator training.

All the activities in the ACE process should be led at the community level, by camp-based staff. Take the time to train at least two male and two female facilitators to lead each ACE group. The training can be done in three sessions:



- Photovoice facilitator training
- Training on needs-identification tools
- Training on campaign-building tools

Photovoice training should be conducted by someone who is trained in and familiar with the tool, and the training requires more time to cover sensitive issues like consent, story-telling, and freedom of expression. The other ACE tools can be taught using the information in this guide by facilitators with experience using the tools who can also share more examples, pictures, and stories from conducting ACE.

Community Meeting

The community meeting is designed to introduce and inform the larger community about the start of the ACE project. The details of each activity do not need to be explained, but it's important to ensure that community leaders are aware of the goals and steps of ACE and know how to contact OXSI if they have any questions.

- Who should join? CMC, religious leaders, shelter leaders, etc.

Content of meeting:

- Introduce yourself
- Explain the purpose of ACE: to engage small groups in a series of activities to identify needs and design and implement a WASH campaign of their choice, through building trust, confidence, and teamwork.
- Explain the steps of ACE: needs-identification activities (community mapping, photovoice, problem tree), campaign-building activities (action plan and timeline, budget, monitoring and evaluation plan, indicators), and finally campaign implementation by the ACE group.
- Encourage the leaders to spread the word about ACE to people who may be interested to join. ACE is not meant for people in positions of power, because their presence may jeopardize the involvement and comfort of other participants; however, they can spread the word to others to join the induction session to learn more details about the ACE process. Men, women, youth, elderly, and people with disabilities are all encouraged to join ACE, and to join the induction session to learn more details. Give information about when and where the induction session will occur. Emphasise that ACE primarily focuses on WASH issues, but other issues can be explored as well.
- Allow time for people to ask questions and give recommendations, giving the opportunity also to people that usually are not heard in these meetings.
- Thank people for participating, and provide refreshments.

Recruitment

Each ACE group can be comprised of different people – in the past, there have been ACE groups of men from a specific area in one camp, of women of all ages or of younger women, of men and women mixed, etc. It's important for the group of participants to have things in common and to feel comfortable with each other, which is why it's recommended to focus the group recruitment by age, gender, location, etc.

In addition to the community meeting, to recruit participants, reach out through normal channels (through community facilitators during routine hygiene promotion activities, community leaders, CMC meetings, etc.) and invite people to learn more at the group induction meeting.

ACE groups should not be more than 15 people, because it is difficult to facilitate a large group.



Group Induction Meeting

In the induction meeting, the purpose is to provide more detailed information of the entire ACE process for those who may be interested to join. After the meeting, each individual can decide if he/she would like to participate. Participation in ACE is completely voluntary and participants can leave the group at any time. Remind people that this is a longer time commitment than most OXSI activities and that there is no payment involved. Be very clear about the incentives provided.

Incentives

- Incentives are there not to create participation but to reward it. Therefore, incentives are small enough to thank people for their time and not to be the sole reason that people join activities.
- Each individual session: tea/coffee break + snack
- Photovoice: any photographs that individuals would like to keep can be printed and gifted
- After Needs Identification sessions complete (Community Mapping, Photovoice, Problem Tree): small gift
- After Campaign Planning sessions complete (Action Plan and Timeline, Budget, M&E and indicators): small gift

The ACE groups will be made depending on the preferences of the group. For example, they can be sex-segregated or not; mixed ages or split by youth and adults; split by geographical area of the camp, etc. If there are more than 15 people interested and/or if they prefer split groups, more than one ACE group is formed per camp. For the attendees who are interested to join, agree on a date and time for the meetings. The group should try to have one meeting per week (1-2 hours long) but can also meet more frequently if they want.

Community Mapping

Introduction

- Mapping has been historically done by those in power who disregard needs/perspectives of local people.
- Community mapping represents the spatial knowledge of local communities.
- Local inhabitants possess expert knowledge of their local environments.
- Maps created by local communities represent the place in which they live, showing those elements that communities themselves perceive as important.

Objectives

- Produce a map that depicts local knowledge and information.
- Understand which services are accessible to the ACE group and which have been interrupted.
- Identify areas which expose the ACE group (or other community members) to a risk.
- Improve understanding of community dynamics through mapping and discussion of important places, services, and interactions.
- Understand areas and issues that are important to this group of participants.

Steps

The following steps can help the ACE group to create their map:

- The group agrees on symbols which can represent places.
- The group decides on scale—how much of the camp to include in their map. (Create borders first, such as roads, fields)

- The group discusses and draws/writes the places that are important to them. They could include schools, mosques, houses, distribution sites, health clinics and/or pharmacies, traditional healers, markets, etc. *Note: The map doesn't have to be "perfect" in scale or proportion.*
- The group includes WASH facilities or areas that are important to them: latrines, handpumps, open defecation areas, solid waste areas, stagnant pools, drainage channels, etc.
- The group indicates whether each place is accessible and if the facilities are destroyed or functioning.
- *Note: It's not only about mapping what is visible. The group can include potential resources, challenges, safe and unsafe areas, important areas for socializing, etc.*
- The group decides where to keep the map and how to best share this information with the wider community, if they want to.

Discussion

The following questions can be asked to facilitate discussion after the mapping is done. Feel free to add or change the questions, and allow the group to share other ideas and thoughts they had during the activity.

- Are there groups of people living in specific locations?
- Discuss any community groups – where do they normally meet? Who are they?
- Are there major gaps in terms of WASH?
- What type of support is needed to address these gaps (eg. latrines, water)?
- What are the challenges that you face to solving the problems by yourselves?
- What types of resources are available in the community (eg. skills, knowledge, material, time, motivation) to fix these problems?

Notes for facilitator

- Make sure that everyone in the group has a chance to contribute to this activity. Some places may be important or accessible to some participants and not to others, which is natural. Every participant's experience can be mapped on the same map.
- After the map is finished, ask the ACE group to agree on a title for the map and write it at the top, and write the date on the bottom or back of the map.
- Hang up the map and take a picture together with participants, if permission is granted.

Photovoice

Note: The photovoice activity requires more than one session, typically three. A separate training for the facilitators of photovoice needs to be conducted prior to beginning this activity; the below guidelines are just instructions for guidance during the sessions.

Introduction

- Photovoice is a method that allows people to represent their community and life through photography.
- Photography is a flexible tool that crosses cultural and linguistic barriers.
- Photos describe realities, communicate perspectives, and raise awareness of issues that may not be easily communicated otherwise.
- In the ACE process, photovoice is used as a visual aid to help participants identify and discuss the issues they see, and to prioritize one issue to work on in their campaign.

Objectives:

- Learn photography skills

- Tell stories and share ideas
- Visualise needs and prioritise issues

Session 1

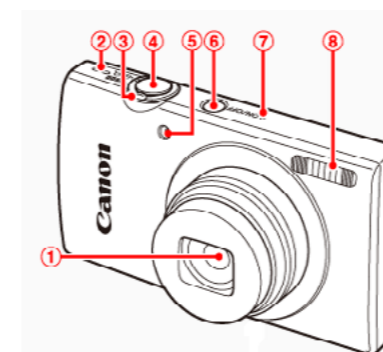
Steps for facilitator:

- Explain the purpose of the activity
- Ask if everyone wants to participate; explain consent form
- Give each person who wants to participate a camera
- Explain how to use the cameras and allow everyone to practice
- Explain important instructions for using cameras in the camp (see below)
- Explain the theme: take pictures of what best represents *attitudes and practices around water and sanitation that influence health in the community*
- Explain when to return the cameras
- Explain the next session

How to use the camera

Guide the ACE group to practice the following:

- How to turn the camera on/off
- How to zoom in/out
- How to focus
- How to take a picture
- How to see the gallery
- How to delete a picture



1. Lens
2. Speaker
3. Zoom lever
4. Shutter button (to take picture)
5. Lamp
6. Power button
7. Microphone
8. Flash

Important instructions

Make sure the group understands these important instructions for taking pictures in the camps:

- Be discreet taking pictures
- Don't take pictures of policemen, checkpoints, or sensitive areas
- If someone asks you about the camera, explain that you are photographing WASH needs in the camp
- Ask permission to photograph someone
- Do not take pictures of small children who cannot consent
- Do not give the camera to anyone else; you are responsible for returning it
- Take a lot of pictures!



Notes for facilitator:

- Have people sign out the cameras with signature or fingerprint.
- People can return cameras every evening to the office if they don't want to be responsible for them overnight.

Session 2

Preparation

Before session 2, the facilitator needs to transfer the photographs from each camera to a laptop. Create a folder for each participant and move all their photographs there. Delete the photographs from the camera SD card.

Resources needed for Session 2:

- People: 1-2 facilitators, 2-3 assistants, 1 note taker
- Papers and pens
- Four laptops

Steps

- Split the ACE group and facilitators into four groups: 2-4 participants, 1 facilitator or assistant, and 1 laptop per group.
- Each participant looks at his/her photos on the laptop.
- Each participant chooses 2-3 photos that best represent his/her views on the theme (attitudes and practices around water and sanitation that influence health in the community)
- Each participant adds a "photostory" for ONE of his/her pictures. The assistant can write it for them if needed.
 - Ask the participant to think about the following questions to help write:
 - What do you see happening here? (Describe)
 - What is actually happening here? (What is the unseen story behind the picture?)
- *Note: writing a photostory may require a separate session if participants took many pictures and choosing pictures takes an entire session.*
- The facilitator should ask each participant if they are okay with sharing the 2-3 pictures they chose and their photostory.
- Have ALL participants sign the consent form (Appendix B: Photovoice Consent Form). The consent form allows each participant to choose with whom each of their photos and photostories is shared with. Even if they don't want to share their pictures, they should indicate this in the consent form.

Notes for facilitators and assistants:

- Help participants who are not able or comfortable to write a photostory. They can also record a photostory on a phone to ensure it is transcribed correctly.
- If helping a participant, make sure you read what you have written down back to them and that they agree with the way you have written down the photostory.

Session 3

Preparation:

- For those who have given consent, print the photos in Sittwe office (by Sittwe staff)

Sharing Photos & Discussion

Each participant who wants to can share his/her pictures with the other ACE group members and OXSI facilitators.



Below are some discussion questions to ask the group after the sharing. This discussion is geared toward helping the group prioritise the issues they saw in the pictures and to reach consensus on one issue they would like to work on as a group.

- What are your reactions to the pictures that people shared?
- What issues/ideas do you see in the most pictures? Make a list.
- Prioritise the problems in the list, starting with the one that you feel is most important to you and the one that you most want to work on together.

Explain that the most important issue identified is the one the group will focus on for the next activity, the Problem Tree, and make sure everyone agrees.

Problem Tree

Introduction

- Big problems are difficult to tackle because they often have several root causes.
- The Problem Tree activity helps to break down and see the causes and consequences of one big problem.
- After this activity, the group can focus their campaign on one of the causes of the problem where they have influence.

Objectives

- See all the causes of the problem
- Identify which causes you (the ACE group) can overcome, and which ones are out of your control
- See all the effects of a problem
- Come to an agreement about which cause you as a group want to work on

Steps

The following steps will help the ACE group create their Problem Tree:

- The group draws a large tree and writes/draws the chosen problem on the trunk.
- The group identifies all the main causes of the problem, and writes/draws these along large roots of the tree, indicating that they are 'root' problems.
- The group selects one of the main causes and asks, 'Why does this happen?' This question will help identify the 'secondary' causes. The group draws or writes the 'secondary' causes as small roots coming off the larger root of the tree. Repeat this process for each of the other main causes.
- The group identifies the main effects of the problem, and writes/draws each effect as a large branch of the tree.
- The group selects one of the main effects and asks, 'Why does this happen?' to identify the 'secondary' effects. The group writes/draws the 'secondary' effects as small branches coming off the larger branch of the tree. Repeat this process for the other main effects.

Discussion

Ask the group the below questions to facilitate discussion and to reach consensus on their WASH campaign.

- Did you learn a cause or effect of this problem that you had not considered before?
- Does this exercise help you think about possible solutions to this problem?



- Look at the main roots of the problem. Which ones are you able to control and influence? Which roots do you need support with addressing?
- With the root(s) that you can control, what are the steps needed to solve the issue? These steps will help you in the next activity, the Action Plan.

Notes for facilitator:

The group can repeat the Problem Tree activity for another problem if they would like to explore other campaign ideas. Sometimes a group will do this if they feel they don't have enough control over any of the causes identified by the Problem Tree, or if they are not interested or excited about creating a campaign focused on one of the causes.

Action Plan & Timeline

Introduction

- Now that the group has chosen the issue they want to work on and identified a cause of the issue where they have some influence, it's time to plan their WASH campaign to work on the issue, starting with an action plan and timeline.
- An action plan provides a detailed outline of the tasks required to accomplish the goal.
- The timeline puts in place deadlines to accomplish each of the steps in the action plan.
- The action plan and timeline can be written down or agreed on verbally. The facilitator can help to take notes to remind each participant about their agreed-on tasks.

Steps

- Start from the end: What is your goal? (Make it specific)
- The group lists the action steps needed to reach the goal.
- The group chooses action steps that are concrete, measurable, and attainable.
- The group should include the step of informing community leaders and getting permission to carry out the campaign.
- The group identifies who is responsible for each action step and who will be supporting them.
- The group provides a clear schedule for completing action steps (start and end dates).
- The group lists the resources necessary for accomplishing action steps (tools, support, time, skills).

Budget

Introduction

- The budget must be created to purchase anything needed for the campaign.
- If the group is constructing something for their campaign, get the support of the construction technical staff for this activity.
- Labour costs can be included in the budget if specialists are needed (eg. technical supervision) but for unskilled labour tasks, encourage ACE members to contribute and to get volunteers from the community to help as well.
- The budget made by the ACE group is not final; it will need to be approved by managers and may be altered.
- This is an activity that requires writing; if needed, the OXSI facilitator should help the ACE group to write down their budget in order to get it approved. As the facilitator, make sure to read back the budget items and check for approval from the group frequently.



Steps

If the group needs help to make a budget, provide a template and go through the following steps:

- Make a table with 5 columns: "Item", "Quantity", "Unit", "Unit Price", and "Total Price" (see example below).
- The group creates a list of materials needed for the campaign in the "Item" column, and indicates the number of each item needed in the "Quantity" column.
- In the "Unit" column, the group decides how to count each item. For example, for cement you could write "bag", and for a broom, "piece" or "each".
- With the help of the technical staff if needed, the group finds out the unit price for each item and writes it in the "Unit Price" column.
- The group multiplies the "Unit Price" by the "Quantity" column and writes the result in the "Total Price" column.
- The group submits the budget to the manager to check and order the items.

Example budget line:

Item	Quantity	Unit	Unit Price MMK	Total Price MMK
Packaged snack	75	Piece	100	7,500

Indicators & Monitoring Plan

Introduction

- Indicators are clues, signs, or markers that show how close a program is to its desired path and outcome.
- Indicators are developed by the group to measure the process or impact of their campaign; therefore, they are specific to each campaign.
- The group decides when and how to monitor their indicators.
- The indicators need to be shared to OXSI managers, but will not be checked by OXSI; it is up to the group to monitor them.

Steps

- Discuss as a group – in the future, how will you know if you made progress or if your campaign improved the problem you were trying to solve?
- The group agrees on 2-3 indicators, things they will measure to assess their progress.
- The group agrees on how often to measure/monitor the indicators (This can change over time – for example, once a week for 3 months, then once a month after that).
- The group agrees on who will measure it (eg. specific individuals or the whole group) and how the information will be shared among the group.

Implementation of Campaign

Once the group has completed their action plan and timeline, budget, indicators, and monitoring plan, they are ready to start their campaign. Each campaign is different and may require different levels of support from facilitators, logistics, the larger community, and technical staff. Encourage the group to meet during and after the campaign to check in and get support if needed.



Debrief

Introduction

After the campaign is over, arrange one more meeting to have a conversation with the group about the entire experience. The objective of the debrief is to share experiences and get feedback.

Discussion

First, give a refresher of the activities that were accomplished together. Explain that this meeting is for having an informal conversation about what the participants learned and how ACE can be improved next time. Ask people to be honest and open about their feedback.

Some questions to ask may include:

- How was your experience with the ACE activities?
- Did you feel that the ACE activities were different than other Oxfam/SI activities? If yes, how?
- What did you like? What did you dislike?
- Did you achieve what you wanted to in your campaign? (Discuss indicators of success for each campaign)
- What did you learn through participating in ACE?
- Would you be interested in continuing to meet as a group to discuss other issues with each other and OXSI?

After the discussion, distribute the gifts and the ACE certificates (Appendix C: ACE Completion Certificate), and thank people for participating!



Appendix

[Appendix A: Reporting Format](#)

[Appendix B: Photovoice Consent Form](#)

[Appendix C: ACE Completion Certificate](#)



Action from Community Engagement (ACE) Report Template

Camp Name:

Name of group:

Community Meeting

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Introduce yourself
- Explain the purpose of ACE
- Explain the steps of ACE
- Allow time for people to ask questions and give recommendations

Notes from discussion:

Feedback/lessons learned:

Photo of session (optional):



Group Induction Meeting

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Give an overview of the entire ACE process
- Decide on specific days and times for activities each week
- Explain about incentives:
 - Each individual session: tea/coffee break + snack
 - Photovoice: any photographs that individuals would like to keep can be printed and gifted
 - After Needs Identification sessions complete (Community Mapping, Photovoice, Problem Tree): small gift
 - After Campaign Planning sessions complete (Action Plan and Timeline, Budget, M&E and indicators): small gift

Notes from discussion:

Feedback/lessons learned:

Photo of session (optional):



Community Mapping

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Produce a map that depicts local knowledge and information.
- Understand which services are accessible to the ACE group and which have been interrupted.
- Identify areas which expose the ACE group (or other community members) to a risk.
- Improve understanding of community dynamics through mapping and discussion of important places, services, and interactions.
- Understand areas and issues that are important to this group of participants.

Notes from discussion:

Feedback/lessons learned:

Photo of map:

Photovoice (session I)

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Explain the purpose of the activity
- Ask if everyone wants to participate; explain consent form
- Give each person who wants to participate a camera
- Explain how to use the cameras and allow everyone to practice
- Explain important instructions for using cameras in the camp (see below)
- Explain the theme: take pictures of what best represents *attitudes and practices around water and sanitation that influence health in the community*
- Explain when to return the cameras
- Explain the next session

Notes from discussion:

Feedback/lessons learned:

Photo of session (optional):



Photovoice (session 2)

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Each participant will look at his/her photos on the laptop and choose 2-3 photos that best represent his/her views on the theme
- Each participant will create a “photostory” for ONE of his/her pictures.
- *Note: writing a photostory may require a separate session if participants took many pictures and choosing pictures takes an entire session.*
- ALL participants will sign the consent form. Even if they don’t want to share their pictures, they should indicate this in the consent form.

Notes from discussion:

Feedback/lessons learned:

Photo of session (optional):

Attach consent forms



Photovoice (session 3)

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Each participant who wants to can share his/her pictures with the group.
- Discuss what issues/ideas you see in the most pictures, make a list.
- Prioritize the problems, starting with the one that is most important and the one that the group most wants to work on together.

Notes from discussion:

Feedback/lessons learned:

Photo of session (optional):

Attach powerpoint with photos and photostories if participants consented to share



Problem Tree

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Taking the problem selected from the last photovoice session, see all the causes of the problem
- Identify which causes you (the ACE group) can overcome, and which ones are out of your control
- See all the effects of the problem
- Come to an agreement about which cause you as a group want to work on

Notes from discussion:

Feedback/lessons learned:

Photo of problem tree:

Action Plan and Timeline

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Develop an action plan: Main steps needed to achieve your goal
- Develop a timeline: When will you do each of the steps?
- Write down any support needed

Action Plan and Timeline, notes from discussion*

Action step	Who is responsible	Resources needed	Due Date	Remarks

**add more rows or columns as needed*

Feedback/lessons learned:

Photo of session (optional):



Budget

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Create a budget for the campaign, to be submitted for approval

Budget and notes from discussion*

Item	Unit	Unit cost	Quantity needed	Total cost (Unit cost x Quantity)

**add more rows or columns as needed*

Feedback/lessons learned:

Photo of session (optional):



Monitoring Plan and Indicators

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Decide how to monitor the success of the campaign (2-3 indicators of success)
- Decide the frequency of monitoring your indicators and for how long (example: once a month for 6 months)
- Decide who will monitor the indicators

Monitoring plan and indicators, notes from discussion*

Indicator	Frequency of monitoring	Who will measure?

**add more rows or columns as needed*

Feedback/lessons learned:

Photo of session (optional):



Debrief after campaign

Date:

Number of participants:

Facilitators:

Participant List (attach or paste):

Objective of meeting:

- Give a refresher of the activities that we accomplished together
- Have an informal conversation about what the participants learned and how we can improve ACE next time. Ask people to be honest and open about their feedback.

Notes from discussion:

Feedback/lessons learned:

Photo of session (optional):



CONSENT FORM

သဘောတူညီမှုပုံစံ

COPYRIGHT

မူပိုင်ခွင့်

I am taking part in the Action from Community Engagement (ACE) photovoice project and understand that, as part of the project, I may produce photographs and captions/photo stories (my "Work"). I understand that I retain copyright in my Work and I give permission for Oxfam and Solidarites International (SI) to keep copies of my Work for use **as agreed below.**

ကျွန်တော်/မ သည် စေ့စပ်ညှိနှိုင်းခြင်းဖြင့် လူထုဦးဆောင်ပါဝင်သော အကောင်အထည်ဖော်ဆောင်ရွက်ခြင်း လုပ်ငန်းစဉ် (ACE) ခါတ်ပုံထဲကစကားသံ (Photovoice) တွင်ပါဝင်နေသူတစ်ဦး ဖြစ်ပြီး ယခုလုပ်ငန်းသည် ACE ၏ အစိတ်အပိုင်း တစ်ရပ်ဖြစ်ကြောင်း သေချာစွာ နားလည်ပါသည်။ ကျွန်တော်/မသည် ခါတ်ပုံ အချို့ကို ရိုက်ယူပြီး ခါတ်ပုံကိုအခြေခံ၍ ကျွန်တော်/မ တို့နှင့်သက်ဆိုင်သော ပုံပြင်များအား ရေးသားပါမည်။ ခါတ်ပုံများနှင့် ခါတ်ပုံမှ အခြေခံသော ပုံပြင်များ၏ မူပိုင်ခွင့်များအား ကျွန်တော်/မ မှ ထိန်းသိမ်းထားမည်ဖြစ်ပြီး Oxfam နှင့် SI အဖွဲ့အား ကူးယူခွင့်ပြုရန် အောက်ဖော်ပြပါ အချက်များအတိုင်း သဘောတူပါသည်။

I understand that my Work will be credited like this when used:
 ခါတ်ပုံများနှင့် ခါတ်ပုံမှ အခြေခံသော ပုံပြင်များအားအသုံးပြုသောအခါ ကျွန်တော်/မ၏ ကြိုးပမ်းအားထုတ်ထားမှုအပေါ် ကျွန်တော်/မ၏ အမည်အား အသိအမှတ်ပြု ဖော်ပြရမည် ဖြစ်သည်။

<Participant Name/Pseudonym>
 အမည်မှန်/ကလောင်အမည်

<Date>
 ရက်စွဲ

Oxfam and Solidarites International
 Oxfam နှင့် SI အဖွဲ့

Action from Community Engagement Project
 စေ့စပ်ညှိနှိုင်းခြင်းဖြင့် လူထုဦးဆောင်ပါဝင်သော အကောင်အထည်ဖော်ဆောင်ရွက်ခြင်းလုပ်ငန်းစဉ်

- I want my Work to be shown with my real name:
- ခါတ်ပုံများနှင့် ခါတ်ပုံမှ အခြေခံသော ပုံပြင်များအားအသုံးပြုသောအခါကျွန်တော်/မ၏အမည်မှန် အား အသုံးပြုစေချင်ပါသည်။
- I want my Work to be shown with a nickname:
- ခါတ်ပုံများနှင့် ခါတ်ပုံမှ အခြေခံသော ပုံပြင်များအားအသုံးပြုသောအခါ ကျွန်တော်/မ၏ ကလောင်အမည်ဖြင့်သာ အသုံးပြုစေလိုပါသည်။



CONSENT

သဘောတူညီချက်

I am happy for Oxfam and SI to use my Work and agreed quotes (audio/text):

အောက်တွင်ဖော်ပြပါရှိသော သဘောတူညီချက်များအရ ကျွန်တော်/မ၏ ဓါတ်ပုံများနှင့် ဓါတ်ပုံမှ အခြေခံသောပုံပြင်များကို Oxfam နှင့် SI အဖွဲ့ သို့ (အသံ/စာသား/ရုပ်ပုံ) များအား ကူးယူရန် ကျေနပ်စွာခွင့်ပြုပါသည်။



<p><input type="checkbox"/> I do not want these photos shared with anyone</p> <p><input type="checkbox"/> ကျွန်တော်/မ၏ဓါတ်ပုံများ နှင့်ဓါတ်ပုံမှ အခြေခံသော ပုံပြင်များအားမည်သူ့ကိုမှ မမျှဝေ စေလိုပါ။</p>	<p><input type="checkbox"/> to discuss WASH issues between Oxfam and SI staff only</p> <p><input type="checkbox"/> ကျွန်တော်/မ၏ဓါတ်ပုံများနှင့်ဓါတ်ပုံမှ အခြေခံသော ပုံပြင် များအား Oxfam နှင့် SI အဖွဲ့ အား ရေနှင့်ပတ်ဝန်းကျင် သန့်ရှင်းရေး ဆိုင်ရာ လုပ်ငန်းအတွက် အသုံးပြုရန်အတွက်သာခွင့်ပြုပါသည်။</p>	<p><input type="checkbox"/> to discuss WASH issues with service providers in the camp and donors, as long as they do not publish any of the information on public platforms (only internal use)</p> <p><input type="checkbox"/> ရေနှင့်ပတ်ဝန်းကျင် သန့်ရှင်းရေး ဆိုင်ရာ လုပ်ငန်းအတွက် ကျွန်တော်/မ၏ ဓါတ်ပုံများနှင့်ဓါတ်ပုံမှ အခြေခံ သောပုံပြင်များ အား စခန်းအတွင်း အခြားသောအဖွဲ့အစည်းများနှင့်အလှူရှင် များ၊ လူထုများ ဥပမာ စခန်းနေလူများ အတွက် လုပ်ငန်းဆောင်ရွက်မှုဆိုင်ရွက်နိုင်ရန်အဖွဲ့ အစည်းအတွင်းသာ ခွင့်ပြုပါသည်။ ကျယ်ကျယ်ပြန့်ပြန့် ဖြန့်ဝေ ထုတ်ဝေခြင်းကို ခွင့်မပြုပါ။</p>	<p><input type="checkbox"/> between the larger community; including on blogs and in printed material like leaflets and posters</p> <p><input type="checkbox"/> လူထုအတွင်းကျယ်ပြန့်စွာဖြန့်ဝေခြင်း၊ သတင်းစာ၊ ဖီဒီယာများနှင့်ဘလော့များတွင်ဖြန့်ဝေခြင်း၊ လက်ကမ်းစာစောင်များနှင့်ပိုစတာများတွင်ဖော်ပြခြင်း အစရှိသည့် လုပ်ငန်းအားလုံးအတွက် ခွင့်ပြုပါသည်။</p>



- I also give permission for Oxfam and Solidarites International to combine my Work with other images, text and graphics.
- ကျွန်တော်/မ၏ ဓါတ်ပုံများနှင့် ဓါတ်ပုံမှ အခြေခံသော ပုံပြင်များအား ကူးယူခွင့်ပြုပြီး အခြားသော ရုပ်ပုံများနှင့် စာသားများ ထည့်သွင်းအသုံးပြုခြင်းအား Oxfam နှင့် SI အဖွဲ့အတွက်သာ ခွင့်ပြုပါသည်။

The above consent applies for the following photos and photo stories (please include name or number of photograph here):

အောက်တွင်ဖော်ပြပါရှိသော ကျွန်တော်/မ၏ ဓါတ်ပုံများနှင့် ဓါတ်ပုံမှ အခြေခံသော ပုံပြင်များအား အထက်တွင် ဖော်ပြထားသော သဘောတူညီချက်များအတိုင်း လိုက်နာပြီး အသုံးပြုရန် သဘောတူပါသည်။ (ဓါတ်ပုံများ၊ ပုံပြင်များ၏ အမည်များနှင့် အရေအတွက်တို့ကို ကျေးဇူးပြု၍ အောက်တွင်သေချာစွာဖော်ပြပေးပါ။)

.....

.....

Name:

Witness:

အမည်

သက်သေ

Signed:

Date:

လက်မှတ်

နေ့စွဲ



Certificate of Completion

This is to certify that



has successfully completed the



လူထု အခြေပြု မြေပုံ၊ ဓါတ်ပုံ ထဲမှ စကားသံ၊ အခက်အခဲများ ကို သစ်ပင်အဖြစ် ရေးဆွဲခြင်း၊ အခက်အခဲများကို ဖြေရှင်းရန် အစီအစဉ်ရေးဆွဲခြင်း ၊ လူထုဦးဆောင်သော လှုပ်ရှား မှုများ နှင့် အကောင်အထည်ဖော် ဆောင်ရွက်ခြင်း များကို Oxfam & SI တို့ နှင့်ပူးပေါင်း ဆောင်ရွက်သည်။

လက်မှတ်

ရက်စွဲ

CONTENTS
INTRODUCTION
WATER
SANITATION
HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT
SOLAR LIGHTING
SOLID WASTE MANAGEMENT
MONITORING, EVALUATION, ACCOUNTABILITY, AND LEARNING
EMERGENCY RESPONSE: COVID-19
APPENDIX

Menstrual Hygiene Management – Guideline

Table of Contents

- 1. Introduction
 - 1.1 Menstrual Health Matters
 - 1.2 What is the OXSI MHM Project?
- 2. Guidelines
 - 2.1 MHM peer-to-peer groups
 - 2.1.1 Recruitment of trainers
 - 2.1.2 Training of trainers
 - 2.1.3 Peer-to-peer MHM sessions
 - 2.1.4 Trainers' monthly meeting/refresher training
 - 2.2 Sanitary Pad Disposal Boxes/Incinerators
- Appendix 1: Booklet for Trainers
- Appendix 2: Frequently Asked Questions
- Appendix 3: Myths and Facts
- Appendix 4: Examples of Sanitary Products
- Appendix 5: Guidelines for trainers for peer-to-peer sessions
- Appendix 6: IEC for peer-to-peer sessions
- Appendix 7: Trainers' Monthly Meeting
- Appendix 8: FGD guidelines for participatory design and implementation of MHM boxes
- Appendix 9: Sanitary pad disposal incinerator box designs

1. Introduction

1.1 Menstrual Health Matters

Appropriate menstrual hygiene management (MHM) requires women and girls to have access to water and soap, clean material to absorb or collect menstrual blood, privacy to change sanitary cloths or pads, and facilities for safely disposing of used materials or a place to dry them if reusable. Men, women, boys, and girls also need greater awareness of menstrual hygiene to dispel myths and break taboos around menstruation. Although MHM primarily refers to the logistical components of managing menstruation, the issue has numerous medical, educational, economical, and cultural implications.

Gender inequality is one of the main reasons why menstrual hygiene has been neglected. Unequal power relations between men and women result in women's and girls' voices not being heard in decision-making platforms, and have led to restrictive cultural taboos, stigma, and shame around menstruation. Addressing both the practical and strategic needs of women and girls related to menstruation and menstrual hygiene requires comprehensive programmes that target women and girls and men and boys.

1.2 What is the OXSI MHM Project?

To improve MHM in camps, OXSI has two goals that are implemented in parallel:

1. Encourage women in the camp to meet and discuss any issues as a self-help group, led by women trained by OXSI to pass on accurate information about healthy menstrual practices.
2. Provide access to safe and dignified disposal of sanitary pads in a participatory design and implementation process to increase community ownership and applicability.

Although the programme is currently geared toward women and girls to ensure they feel knowledgeable and comfortable to speak openly about MHM, the programme will add on a component to create sessions for men and boys to be trained and to have discussions on MHM, WASH, and gender. Men and boys can contribute significantly towards changing cultural norms and taboos around menstruation and are often involved in decisions relating to women's menstrual hygiene needs. It might be difficult at first to talk with men about MHM due to reluctance, prejudices, myths, and misconceptions surrounding the issue, but through regular meetings and communication, things will change.

2. Guidelines

2.1 MHM peer-to-peer groups

The peer-to-peer awareness raising model is built on the beliefs that people living in camps know their needs and can be agents of change among their peers. The leaders of the groups take the initiative to pass on information to empower others, build relationships, and inspire collective problem-solving and self-reliance. The peer-to-peer model allows communities to learn from their peers in a safe and comfortable environment and allows trainers to reach a huge number of women with awareness sessions.

MHM trainers receive special training to conduct MHM peer-to-peer sessions. The goals of the training are to provide clear information on menstruation; to help women recognize symptoms and learn about ways to alleviate them; to recommend healthy hygiene practices specific to menstruation time; to suggest healthy practices to maintain well-being during menstruation; and to recommend ways to properly dispose of sanitary protection materials. The trainers are also given IEC and other resources to use during their peer-to-peer sessions.

2.1.1 Recruitment of trainers

The trainers who lead MHM groups are volunteers. Recruit trainers by inviting women to an **informational session** to learn more about the program.

Key messages for the informational session:

- OXSI is looking primarily for female volunteers to lead meetings with other women to discuss menstrual hygiene management and other hygiene issues.
- As a leader, you will be trained on important messages on menstrual health by the OXSI team.
- You can organize your own group, in your own time, in any location that is convenient for you.
- You will hold 1-2 small meetings per month with 5-10 participants. The participants do not receive anything from OXSI for attending the meetings, they are voluntary.
- During each group meeting, you can discuss the topics suggested by OXSI, and you can also discuss other topics of interest to you and the group.
- You will give feedback about your sessions to OXSI staff, including the number of sessions and the number of participants. You can also choose to share any issues or concerns that came up during the meetings.
- This is not a paid position.
- OXSI will hold monthly refresher meetings/trainings, where you can learn new information, discuss any issues that came up during your sessions, and receive support from OXSI staff and from other trainers.
- If you're interested, please join the first training (give date and time of training).

2.1.2 Training of trainers

Arrange trainings for leaders to learn about MHM. This can be covered in one full day or split up into several trainings. The training(s) should cover:

1. Overview of OXSI MHM groups (structure, meetings, etc)
2. The basics of menstruation
3. Menstruation and health
4. Menstruation, taboos, and myths, and impact on women and girls
5. Sanitary protection materials and disposal (including a discussion about safe and dignified options for changing and washing)

The powerpoint for the trainers is included in Appendix A. Additional informational handouts prepared by WaterAid are provided in Appendix B. Frequently Asked Questions and answers are provided in Appendix C, and Myths and Facts in Appendix D—both of these can be added to by the facilitators or participants if other questions or myths arise. Some sanitary products and pictures are included in Appendix E. All of this information should be shared with the trainers over time, but not in the first training session, to increase retention of information.

2.1.3 Peer-to-peer MHM sessions

Make sure trainers feel comfortable to carry out sessions after the training. Offer to have OXSI staff accompany new trainers for their first session, if they request additional support. One idea is to have two trainers do their first two or three sessions together, so they can support each other until they feel comfortable leading a session alone.

Guidelines for trainers to conduct peer-to-peer sessions are included in Appendix F, and IEC to accompany the sessions is included in Appendix G.

It's important to emphasize that although the focus is on MHM, other topics can also be discussed during these meetings.

2.1.4 Trainers' monthly meeting/refresher training

Ensure that the women trainers feel supported and encouraged by holding **monthly meetings** in OXSI camp offices. These meetings should be used to share feedback about the sessions, answer any questions, and for the trainers to foster relationships and connections to one another. The monthly meetings can also be used as a chance to conduct refresher trainings when needed. The planning of sessions for the month ahead should also be done during the monthly meetings, with support from OXSI staff.

Some ideas of questions to ask and games to play during these meetings are included in Appendix H.

2.2 Sanitary Pad Disposal Boxes/Incinerators

In parallel with the establishment of MHM peer-to-peer groups, a proper sanitary pad disposal method needs to be developed with participation from women and girls. In the past, women have preferred to bury or burn used sanitary pads, because if they dispose of them with the other solid waste materials, men who work at the incinerators will see their used sanitary products, and this can cause embarrassment or shame. Burying is not a preferred option in the camps due to the high water table, so OXSI is attempting to scale up the small incinerator box design that was piloted in STMG Camp. With this design, small boxes are placed near latrines, and a female environmental cleaner checks the boxes and burns the contents directly inside the incinerator box when it is full. This method has been working well in several camps but needs to be scaled up to all camps. In some locations, women are still either unaware of the MHM incinerator boxes, or do not use them because they are too far from their latrine.

To introduce incinerator MHM boxes in a new camp, it is advised to have MHM group lead the process, either by making decisions between themselves or by opening the conversation with their peer-to-peer groups. A questionnaire (Appendix I) can be used to decide the preferences women and girls have, and several designs from Sittwe camps (Appendix J) suggested for women to choose from (they can also make changes or create an entirely new design).



အမျိုးသမီးများ ဓမ္မတာလာခြင်းဆိုင်ရာ စီမံခန့်ခွဲခြင်း



အမျိုးသမီး များ ဓမ္မတာ လာခြင်းဆိုင်ရာ
တစ်ကိုယ်ရည် သန့် ရှင်းရေးနှင့်
အသိပညာမြှင့်တင်ရေး နေ့



အမျိုးသမီးများ ဓမ္မတာလာခြင်း ဆိုင်ရာ ဗဟုသုတ

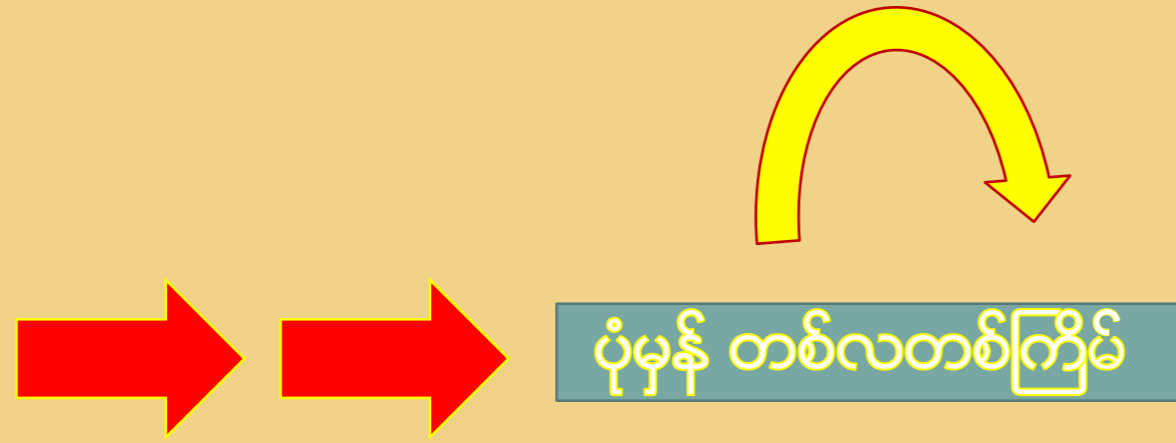
-မိန်းကလေးတစ်ဦးတွင် သားအိမ်တစ်ခုပါရှိပြီး သားအိမ် ၏ တစ်ဖက် တစ်ချက်တွင် သားဥအိမ်တစ်ခုစီ ပါရှိပါသည်။ ၎င်းသားဥအိမ်မှ မမျိုးဥများကို လစဉ်ထုတ်ပေးပါသည်။ ထိုမမျိုးဥများသည် ဖိုမျိုးစေ့များနှင့်တွေ့ပြီး သန္ဓေတည်နိုင်ရန် အတွက် သားအိမ်နံရံတွင် အလွှာပါးတစ်ခု ဖြစ်ပေါ်လာပါသည်။

- အကယ်၍ သန္ဓေမတည်ပါက သားအိမ်အတွင်းနံရံမှ အလွှာပါးများ ပြိုကျပြီး မွေးလမ်းကြောင်းမှတစ်ဆင့် အပြင်သို့ သွေးနှင့်ရော၍ ဆင်းလာခြင်းကို ဓမ္မတာလာခြင်း ဟုခေါ်ပါသည်။ မိန်းကလေးတစ်ဦးတွင် ဓမ္မတာ ၈ ၍ လာခြင်းသည် အပျိုဖော် ဝင်ခြင်းလည်း ဖြစ်ပါသည်။

သားအိမ် နှင့် ဓမ္မတာလာခြင်း



ဓမ္မတာလာသည့်အကြိမ်



-အများသောအားဖြင့် (၂၈) ရက်ဝန်းကျင်
နှင့် (၂၁ ရက်မှ ၃၅ ရက်အတွင်း) ခြားပြီး၍
လည်းလာနိုင်ပါသည်။

ဓမ္မတာ က

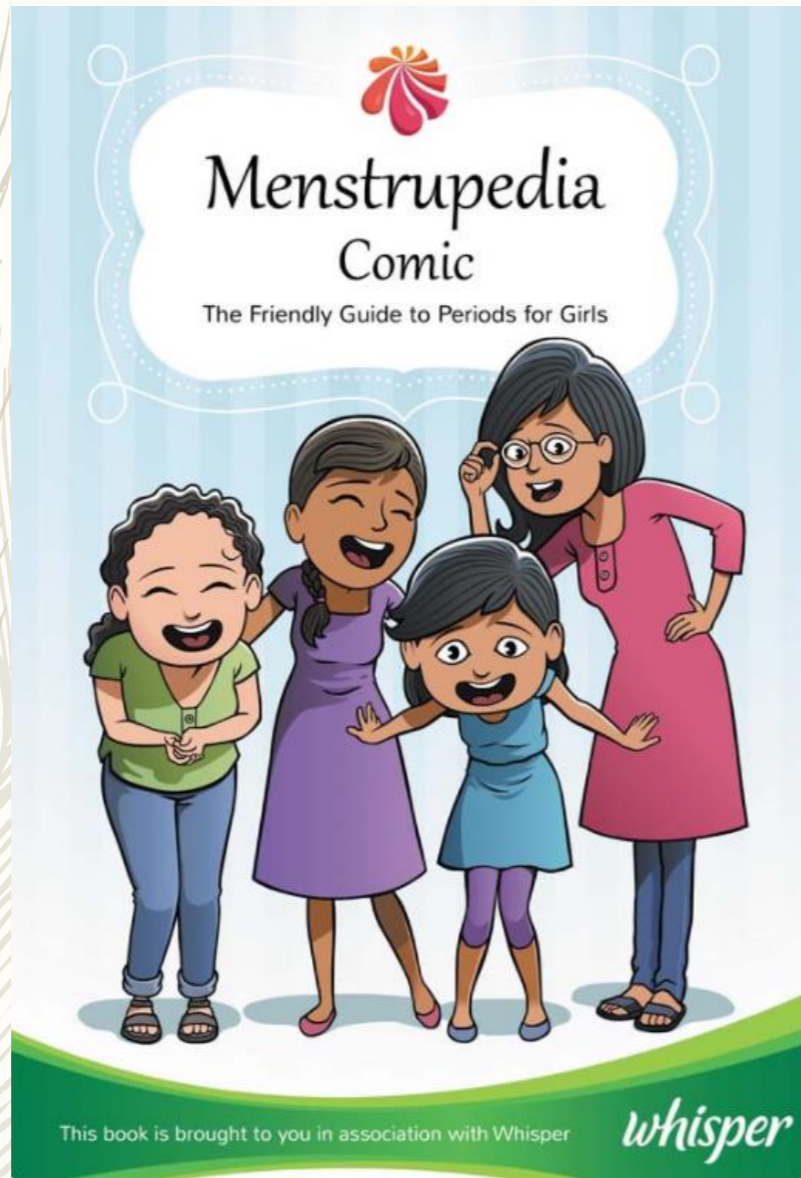
ဘယ်လောက်ကြာကြာလာနိုင်သလဲ ?

၃ ရက်မှ ၅ ရက်အထိ ၊ အချို့ (၇)
ရက်ထိကြာတတ်ပါသည်။



wikiHow to Track Your Menstrual Cycle

မေ့တာလာသည့် အသက်အရွယ် အပိုင်းအခြားက ဘာတွေလဲ ?



အသက် ၁၁ နှစ်ဝန်းကျင်မှ ၅၀ နှစ်ဝန်းကျင်အတွင်း ဖြစ်ပေါ်လေ့ရှိပါသည်။

မေ့တာလာစဉ်အတွင်းခံစားရသောလက္ခဏာများ
 ဝမ်းဗိုက်နှင့် ခါးနာကျင်ခြင်း ။ ခေါင်းကိုက်ခြင်း ။
 မျက်နှာပေါ်တွင် မဲ့ခြောက်နှင့် အစက်
 အပြောက်များထွက်ခြင်း။ ပျို့အန်ခြင်း ။ ခန္ဓာကိုယ်အပူချိန်
 အနည်းငယ်တက်ခြင်း ။ အညိုရောင် သွေးဆင်းခြင်း ။
 ဝမ်းပျော့ခြင်း။ စိုးရိမ် ရှက်ကြောက်ခြင်း။



ရာသီလာချိန်တွင် တစ်ကိုယ်ရည်သန့်ရှင်းရေးနှင့် ပတ်သက်၍ ဂရုပြုရန် အချက်များ


- ဓမ္မတာလာချိန်တွင်မွေးလမ်းကြောင်းအတွင်းသို့ ပြင်ပမှ ရောဂါပိုးများ အလွယ်တကူ ဝင် ရောက် နိုင်ပါသည်။ ထို့ကြောင့် ၎င်းကာလတွင် တစ်ကိုယ်ရည်သန့်ရှင်းရေးကို အထူး ဂရုပြုရန်လိုအပ်ပါသည်။
- ဓမ္မတာ လာချိန်တွင် အသုံးပြုမည်ပစ္စည်းများနှင့် အသုံးအဆောင်များအားသန့်ရှင်းစွာထားရှိသုံးစွဲရန်နှင့် စနစ်တကျစွန့်ပစ်ရန် အထူးအရေးကြီး ပါသည်။

ဓမ္မတာလာခြင်းသည် ပုံမှန်ဖြစ်စဉ်တစ်ခုလား?

- ဓမ္မတာလာခြင်းသည် ပုံမှန်ဖြစ်စဉ် တစ်ခုဖြစ်ပြီး အမျိုးသမီးများ၏ မျိုးပွားခြင်းဆိုင်ရာ ဖြစ်စဉ်နှင့် ဆက်စပ်နေပါသည်။ ၎င်းသည် ယုတ်နိမ့်သော ဖြစ်ရပ် တစ်ခု မဟုတ်သကဲ့သို့ ဖျားနာခြင်းလည်း မဟုတ်ပါ။ သို့သော် သင့်တော်သော စီမံဆောင်ရွက်မှုမျိုး မပြုလုပ်ခဲ့ လျှင် ကျန်းမာရေး ထိခိုက်နိုင်သောအခြေအနေသို့ ဦးတည် နိုင်ပြီး ဒေသ၏ လူမှုရေး ၊ ဓလေ့ထုံးတမ်းများနှင့်ဘာသာရေး ဆိုင်ရာ ကိစ္စရပ်များ သို့ ဆက်စပ်လာနိုင်ပါသည်။



ဓမ္မတာလာခြင်းဆိုင်ရာ ဒေသအလိုက်လက်ခံယုံကြည်မှုများ

- ပထမ ၃ ရက်အတွင်း ရေချိုးခြင်း အား ရှောင်ရှား ခြင်း (သို့) လျှော့ခြင်း များပြုလုပ်ရမည်။
 - ယုတ်ညံ့သော ကာလဖြစ်၍ အစားအစာများအား ကိုင်တွယ်ချက်ပြုတ်ခြင်း များပြုလုပ်ရပါ။
 - ရာသီလာချိန်တွင် ချဉ်သော ငံသော၊ ဖန်သော အစားအသောက်များအား မစားရပါ။
 - အလေး အပင် မ မရ။
 - ဘုရားစာမရွတ်ရ။
 - မြင့် မြတ်သော အရာများအား မကိုင်တွယ်ရ။
 - အိမ်ထောင်ရှိ အမျိုးသမီးများ အိမ်ထောင်ရှင်ယောက်ျားနှင့် အတူမနေရ။
-  အထက်ပါ လက်ခံမှုများ သည် ဒေသအလိုက် ယုံကြည်မှုများသာဖြစ်သည်။ လိုက်နာရန်သတ်မှတ်ထားခြင်းများမဟုတ်ပါ။

ဓမ္မတာလာခြင်းဆိုင်ရာ ဒေသအလိုက် လွှဲမှားသော ယုံကြည်မှုများ

စုန်းကိုင်ခြင်း

နတ်ကိုင်ခြင်း



ဘုရားဝတ်မပြုရ



ရောဂါများ ပျံ့နှံ့ခြင်း



အမျိုးသားများလက်နှင့် မထိရ။



ကိုယ်ဝန်ရနိုင်ခြင်း



အမျိုးသမီး လစဉ်သုံး ပစ္စည်း သုံးခြင်းနှင့် ပတ်သက်၍ ဆောင်ရန်အချက်များ



အမျိုးသမီး လစဉ်သုံး ပစ္စည်း သုံးခြင်းနှင့် ပတ်သက်၍ ဆောင်ရန်အချက်များ

- သန့်ရှင်းသော အမျိုးသမီး လစဉ်သုံး ပစ္စည်းကို သုံးစွဲပါ။ (တစ်ခါသုံး/ ပြန်လည်သုံး)
- အမျိုးသမီး လစဉ်သုံး ပစ္စည်း အား ၂ နာရီ ခြား တစ်ကြိမ် လဲပါ။
- ပြန်သုံးနိုင်သော လစဉ်သုံး ပစ္စည်းများအတွက် အသုံးပြု ပြီးနောက် ဆပ်ပြာဖြင့် သေချာစွာ လျှော်ဖွပ် ပြီး နေရောင်အောက်တွင် သေချာစွာခြောက်သွေ့အောင် လှန်းရမည်။
- ရာသီလာစဉ်အတွင်း ရေခဲအိုးကို အသုံးပြုပါ။
- အသုံးပြုပြီးသော လစဉ်သုံးပစ္စည်းများအား စနစ်တကျ စွန့်ပစ်ပါ။
- လစဉ်သုံးပစ္စည်းများအား အသစ်လဲလှယ်ပြီးနောက် (သို့) စွန့်ပစ်ပြီးနောက် လက်ကိုဆပ်ပြာဖြင့်သေချာစွာဆေးကြောပါ။
- ကျန်းမာရေးအလေ့အထ ကောင်းမွန်ရေးအတွက် သန့်ရှင်းသော အတွင်းခံဘောင်းဘီ ဝတ်ဆင်ပါ။ အခြားသူများနှင့် လှဲလှယ်မဝတ်ဆင်ရ။

တစ်ကိုယ်ရည်ကျန်းမာရေးအတွက်နောက်ဆက်တွဲ လိုက်နာရမည့်အချက်များ

ရာသီလာချိန်တွင်အစိမ်းရောင်ရှိသော
အသီးအရွက်များနှင့် ပရိုတင်းနှင့်
သံဓါတ်ပါဝင်သော အစားအသောက်
များလည်း ပါဝင်အောင် မျှတစွာစားပါ။



ချဉ်သော ငံသော ကဖင်းဓါတ်ပါဝင်သော
အစားအသောက်များ
တတ်နိုင်သလောက် လျော့စားပါ (သို့)
ရှောင်ပါ။

တစ်ကိုယ်ရည်သန့်ရှင်းရေးကို ဂရုစိုက်ပါ။



လွတ်လပ်ပေါ့ပါးစွာနေပါ။



တစ်ကိုယ်ရည်ကျန်းမာရေးအတွက်နောက်ဆက်တွဲ လိုက်နာရမည့်အချက်များ

- ဆက်လက်ကိုက်ခဲနေလျှင်
မိခင်၊ အစ်မ၊ အခြားယုံကြည်ရသော
ဒေသတွင်းရှိ (ဆရာဝန်၊ သူနာပြုဆရာမ)
အစရှိသော အမျိုးသမီးများ နှင့်တိုင်ပင်ပါ။



ရာသီလာစဉ်အတွင်း ကိုက်ခဲလျှင်
ဝမ်းဗိုက်နှင့်ကျောကုန်းအား
အပူဖြင့်အုပ်ပေးပါ။

ဆရာဝန်၏ ညွှန်ကြားချက်အတိုင်း
အကိုက်အခဲပျောက်ဆေးများ
အားသောက်ပါ။



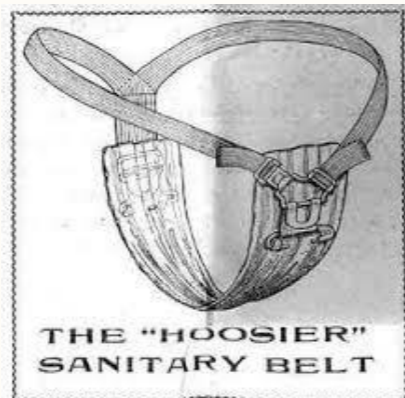
ပေါ့ပေါ့သောအားကစားလုပ်ပါ။

အမျိုးသမီး လစဉ်သုံး ပစ္စည်း အမျိုးမျိုး

တစ်ခါသုံးပစ္စည်း



ပြန်လည်အသုံးပြုနိုင်သောပစ္စည်းများ

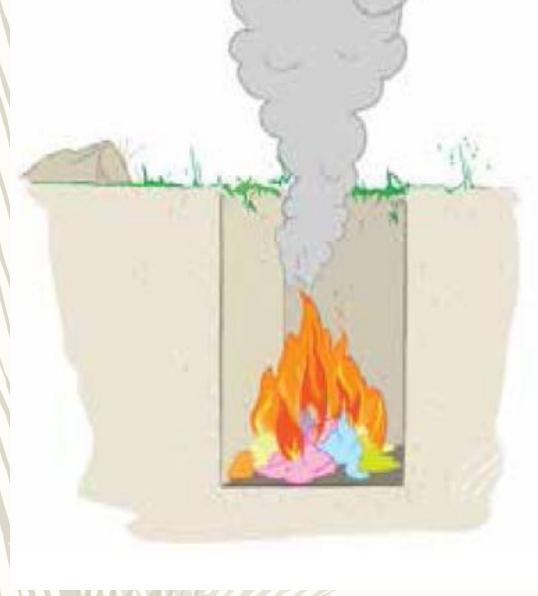


လစဉ်သုံးပစ္စည်းများ ၏ အားသာချက်နှင့်အားနည်းချက်များ

လစဉ်သုံး ပစ္စည်း	အားသာချက်	အားနည်းချက်
ပြန်သုံး ပစ္စည်း	<ul style="list-style-type: none"> ဒေသတွင်းရေမူလွယ်ကူ ဈေးနှုန်း သက်သာသည်။ ပတ်ဝန်းကျင်နှင့် သဟဇာတဖြစ်သည်။ 	<ul style="list-style-type: none"> ပစ္စည်းအသုံးပြုရန်နှင့် ပြန်လည်ဆေးကြောရန် ပိုမိုလုံခြုံသော နေရာရှိရန်လိုအပ်သည်။ ရောဂါပိုး အလွယ်တကူဝင်ရောက်နိုင်သည်။ လုံလောက်ပြီးစုပ်ယူမှု အားကောင်းခြင်းမရှိ
တစ်ခါသုံး ပစ္စည်း	<ul style="list-style-type: none"> ဝေးလံခေါင်သီ ဒေသမှ အပ ရရှိမှုလွယ်ကူသည်။ လိုအပ်သော အရွယ်အစား၊ တံဆိပ်အားမေးမြန်ဝယ်ယူနိုင်သည်။ ကောင်းမွန်တိကျသော တံဆိပ်နှင့် ထုတ်ပိုးမှုများ ကြောင့်ပြန်ရှာရလွယ်ကူသည်။ 	<ul style="list-style-type: none"> အသုံးပြုသူမှ ငွေ ကြေးကုန်ကျမှု ပိုရှိ စနစ်တကျ စွန့်ပစ်ရန် လိုအပ်သည်။ သို့မဟုတ်ပါက ပတ်ဝန်းကျင်နှင့် သဟဇာတ ဖြစ်မှုနည်းပါးနိုင်သည်။

လစဉ်သုံးပစ္စည်းများအားစွန့်ပစ်သည့်နည်းလမ်းများ

– စနစ်ကျသောစွန့်ပစ်ခြင်း



စနစ်မကျသောစွန့်ပစ်ခြင်း



လစဉ်သုံးပစ္စည်းများအား စနစ်တကျ မစွန့်ပစ်သည့်ဆိုးကျိုးများ



- ကျန်းမာရေး ဆိုင်ရာ ဆိုးကျိုးများ
- ပတ်ဝန်းကျင် ကို ညစ်ညမ်းစေမှုများ
- လူမှုရေး ဆိုင်ရာ အခက်အခဲများ
- ဘာသာရေး ဆိုင်ရာ လွှဲမှားမှုများ
- ဓလေ့ထုံးစံ များ အားထိခိုက်နိုင်မှုများ

စနစ်တကျစီမံဆောင်ရွက်မှုမရှိလျှင် နောက်ဆက်တွဲဖြစ်လာနိုင်သည့် အကျိုးဆက်များ

စနစ်မကျသောအလေ့အကျင့်	ဖြစ်လာနိုင်သောအန္တရာယ်
လစဉ်သုံးပစ္စည်းသန့်ရှင်းမှုမရှိခြင်း	ဘက်တီးရီးယား ပိုးများပြန့်ပွားနိုင်ပြီး မွေးလမ်းကြောင်းမှ တဆင့် သားအိမ်အတွင်းပိုင်းထိရောက်ရှိနိုင်ပါသည်။
လစဉ်သုံးပစ္စည်းအားပုံမှန်မလဲလှယ်ခြင်း	စိုထိုင်း၍ အရေပြားယားယံမှုများ ဖြစ်ပေါ်စေပြီး ပေါက်ပြဲ နေသော နေရာများရှိပါက ရောဂါပိုးဝင်ရောက်နိုင်ပါသည်။
မသန့်ရှင်းသော ပစ္စည်းများအား အမျိုးသမီးအင်္ကျီအတွင်းသို့ထည့်ခြင်း	ဘက်တီးရီးယား ပိုးများပြန့်ပွားနိုင်ပြီး မွေးလမ်းကြောင်းမှ တဆင့် သားအိမ်အတွင်းပိုင်းထိရောက်ရှိနိုင်ပါသည်။
ရာသီသွေး နည်းသော ကာလတွင် အလွန်စုပ်အား ကောင်းသော လစဉ်သုံးပစ္စည်းအားအသုံးပြုခြင်း	သွေးထိတ်လန့်ခြင်းဖြစ်ပေါ်နိုင်ပါသည်။
စအိုဘက်မှ နေ၍ အမျိုးသမီးအင်္ကျီ ဘက်သို့ ဆေးကြောခြင်း (နောက်မှ ရှေ့သို့)	စအိုမှ ရောဂါပိုးများ အမျိုးသမီး အင်္ကျီအတွင်းသို့ ဝင်ရောက်နိုင်ပါသည်။
ရာသီသွေးမလာဘဲ လစဉ်သုံးပစ္စည်းအား အသုံးပြုခြင်း	အင်္ကျီယားယံနိုင်ပြီး ပုံမှန် မဟုတ်သော အရည်များဆင်းနိုင်
အကာအကွယ်မဲ့လိင်ဆက်ဆံခြင်း	လိင်ဆက်ဆံရာမှ ရောဂါကူးစက်မှုများနိုင်ပါသည်။
လစဉ်သုံးပစ္စည်းအား စနစ်တကျ မစွန့်ပစ်ခြင်း	အိပ်(ချ်)အိုင်စွဲ၊ အသည်းရောင်အသားဝါအပါအဝင် အခြား သွေးမှတဆင့်ကူးစက်တတ်သော ရောဂါများရနိုင်ခြင်း။
အမျိုးသမီးအင်္ကျီအား မလိုအပ်ပဲ မကြာခဏ ဆေးကြောခြင်းနှင့် ရေဖြင့်အားနှင့်ဆေးခြင်း	သားအိမ်အတွင်းပိုင်း အားရောဂါပိုးဝင်ရောက်နိုင်ပါသည်။
လစဉ်သုံးပစ္စည်းအားစွန့်ပစ်ပြီးနောက် လက်မဆေးခြင်း	အိပ်(ချ်)အိုင်စွဲ၊ အသည်းရောင်အသားဝါအပါအဝင် အခြား သွေးမှတဆင့်ကူးစက်တတ်သော ရောဂါများရနိုင်ခြင်း။

အမျိုးသားများ၏အခန်းကဏ္ဍ



- အမျိုးသမီး များ၏ ရာသီလာခြင်းအား သဘာဝဖြစ်စဉ် ဟု နားလည်လက်ခံ ပေးပါ။ ဤ ကာလအတွင်း ရုပ်ပိုင်းဆိုင်ရာ နှင့် စိတ်ပိုင်းဆိုင်ရာ ခံစားမှုများ ပြောင်းလဲတတ်သည်ကို လက်ခံပေးပါ။
- စိတ်လွတ်လပ်ပေါ့ပါးစေရန် ကူညီပေးပါ။
- သည်းခံပြီး နားလည်ပေးပါ။
- စိတ်ထိခိုက်ရှုလွယ်သော အကြောင်းအရာများ ဆွေးနွေးခြင်းမှ ရှောင်ကြည်ပါ။
- ငြင်းခုံခြင်း ၊ အဆုံးအဖြတ်ပေးခြင်းများပြုလုပ်ပါနှင့်။
- မစနောက်ပါနှင့်။
- ရာသီလာစဉ်ခံစားရသည့် လက္ခဏာများအပေါ် နားလည်လက်ခံကြောင်းပြသပါ။

အမျိုးသမီး များ ဓမ္မတာလာခြင်းအပေါ် ရှက်စရာအဖြစ် နှိမ့်ချဆက်ဆံခြင်း ကို အတူတကွ အဆုံးသတ်ကြပါစို့။ ။



Appendix 2: Frequently Asked Questions

Question	Answer
What is puberty and adolescence?	<ul style="list-style-type: none"> • Between the ages of 10-14, most girls and boys notice changes in their bodies. • These physical and emotional changes are called 'puberty' or 'adolescence' and take place over several years. • At this age, girls and boys are often called 'adolescents'.
What happens to a girl's body when she reaches puberty?	<ul style="list-style-type: none"> • Puberty starts when extra amounts of hormones begin to be produced in the body. These hormones lead to changes in the body. Apart from causing physical changes, they cause emotional changes too. So a growing girl may feel happy one moment, and angry, sad, or confused the next moment. • Puberty is the time when girls begin to produce eggs and boys begin to produce sperm. It is the time when children develop into young women and men, and their bodies start maturing so that one day they can have children and start their own families. However, this does not mean that adolescent girls are ready to have children, because other changes will still be happening in their bodies. If a young woman's body is not ready for childbirth, it can cause many health problems for her and her baby. • A girl's breasts start to grow and her hips get rounder. Hair starts to grow under her arms and between her legs. She starts to menstruate (also known as a monthly period). • Menstruation means that a girl's body is growing up and is preparing for the future when she might want to get pregnant and have a baby. During menstruation, the lining of the uterus comes out along with blood through the vagina. • Hormone changes can also cause an increase in spots and pimples just before or during a girl's monthly period.
When does a girl get her first period?	<ul style="list-style-type: none"> • Changes take place in girls and boys at different times. Generally, changes start later for boys than girls. Some people start puberty before the age of 10, sometimes as young as 8, while others start after 17. • For some, changes may take place in a year or less. For others, they can take as long as 6 years.
Do boys get periods?	<ul style="list-style-type: none"> • No, boys do not get periods. This is because boys' bodies are different inside to girls', and they cannot become pregnant.
What is the monthly cycle?	<ul style="list-style-type: none"> • The monthly cycle from the first day of a girl's menstrual period is usually 28 days (one month) but can vary between 21 to 35 days. • For many years after a girl starts having her period, it is normal to not get it every month. • In the middle of the cycle, one of a girl's ovaries releases an egg – a process called 'ovulation'. The egg moves into the uterus through the fallopian tube. At the same time, body tissues and blood cells

	start lining the walls of the girl's uterus, all of which the girl will not feel happening. If the girl was to have sex at this time, and sperm from the man fertilised the egg, the girl could become pregnant. However, if the egg is not fertilised, the uterus lining gently dissolves and leaves the girl's body through her vagina.
How long should a girl's period last?	<ul style="list-style-type: none"> All girls are different – one girl might have a 3-day period, another might have a period which lasts 7 days. The length of time might change over the first few months as it takes a while for the body to get used to this change.
Can anyone tell when a girl gets her period?	<ul style="list-style-type: none"> No, not unless she tells someone. When a girl gets her first period, she should tell her mother (or sister or another adult she can trust), so that somebody can answer the questions she may have.
How much blood does a girl lose during her period?	<ul style="list-style-type: none"> Although it may look like a lot of blood, it ranges from only a few teaspoons to a third of a cup of blood each month.
What does it mean if a girl misses her period one month?	<ul style="list-style-type: none"> If a girl who menstruates every month misses a period, and she has had sexual intercourse, it may mean she is pregnant. But girls can also miss periods if they are feeling stressed, if they become too thin or they have been travelling. It is also possible when girls' bodies are developing that their period may not be regular at first and can skip months.
Does having a period hurt?	<ul style="list-style-type: none"> Some girls feel no pain at all when they have their period, some have slight pains below their naval and in their lower back, and some have a lot of pain and may need to take pain relieving medicine. Usually, any pain is not bad and does not last long. Cramps are caused by the muscles of the uterus contracting. It is this contraction that pushes out the lining of the uterus each month.
What is PMS?	<ul style="list-style-type: none"> PMS is short for pre-menstrual syndrome. Not all girls get this, but many do for a few days before they start their period. This is because changes in the levels of hormones in a girl's body can affect her mood or increase her sensitivity to emotions. Some feel sad, while others feel irritable and get angry for no real reason. Some girls' breasts feel swollen and sore. This is natural and should not be a worry.
Can I get pregnant during my period?	<ul style="list-style-type: none"> Yes, you can. Make sure to use protection if having sex.
What should I do when I get my first period?	<ul style="list-style-type: none"> Talk to other girls and women, such as your mother, sister, aunt, grandmother, female friend, or an older woman in your community. Don't be afraid. It can be scary to see blood, but it is normal and natural. If you are at school, tell a female teacher or a fellow student. Feel proud! Your body is developing into that of a young woman.
How often should I change my sanitary protection?	<ul style="list-style-type: none"> It depends on what material you are using and the heaviness of your flow, which can change each day. Change the cloth, pad, cotton, or tissue every 2-6 hours or more frequently if you feel that the flow is getting heavy.

How should I capture the blood?	<ul style="list-style-type: none"> Place a cloth, pad, cotton, or tissue on your underwear. Never insert the material inside your vagina.
How should I dispose of sanitary protection material?	<ul style="list-style-type: none"> If you are re-using a cloth, put it into a plastic bag until you can wash it with hot water and soap and then dry it in the sunshine or iron it. If you are using a pad, tissue or cotton, or want to dispose of your cloth, wrap it in paper to make a clean package and put it in the bin so it can be burned later. Do not drop pads or cloth in the latrine pit as this can cause problems with emptying the pit.
How should I keep myself clean during my period?	<ul style="list-style-type: none"> Every day (morning and evening if possible) wash your genitals with soap and water. Keep unused cloths and pads clean (wrapped in tissue or plastic bag) for future use. Pat the area dry with a cloth, and put a fresh cloth, pad, cotton, or tissue on your underwear. If using toilet paper, always wipe from front to back after defecation.

Appendix 3: Myths and Facts

Myth	True or False?	Fact
Menstruation is something that should not be talked about	False	Menstruation is normal and a natural part of the reproductive cycle of women and girls. There is no reason to feel shame when talking about menstruation!
Menstruating girls and women are unclean because the blood is dirty or rotten	False	Menstrual blood is healthy and clean, and menstruating girls/women can stay clean by maintaining proper hygienic practices and avoiding infections during menstruation.
Improper disposal of used sanitary materials make a girl menstruate continuously for life	False	A girl cannot menstruate continuously for life. However, girls should ensure that used sanitary materials are disposed of in a proper and hygienic manner.
Disposal of used sanitary materials by burning or burying leads to infertility	False	Disposal of used sanitary materials by burning or burying is safe and hygienic. When burying, make sure sanitary materials are buried deep enough to avoid being dug up by animals and sufficiently far away from water sources.
Menstruating girls should not eat certain foods	False	Menstruating girls can eat normally. They should try to get more iron-rich foods such as tofu, lentils, green leafy vegetables, and cashews to replace iron losses due to bleeding.
You should not shower, bathe, or wash your hair during menstruation	False	Bathing during your period is necessary. It prevents a girl from infection. There is no reason not to wash your hair during menstruation.
A woman or girl should sleep separately during her menstrual period	False	There is no reason why a woman or girl should sleep separately during her menstrual period.
A woman or girl should not cook during her menstrual period	False	A woman can continue to cook during her menstrual period, as well as do all other normal activities. She should ensure good personal hygiene as usual.
Starting menstruation means you are ready to marry	False	Menstruation is an important stage in a girl's maturation, but it does not mean a girl is ready for marriage.
A woman or girl should not look at her reflection during menstruation	False	There is no reason why a woman or girl should not look at her reflection during menstruation.
A girl can get pregnant by sitting next to a boy or by a boy touching her longyi	False	Pregnancy happens when a man's sperm fertilizes a woman's egg, which most commonly happens during sexual intercourse. A girl cannot get pregnant just from sitting next to a boy or by a boy touching her longyi.
If a menstruating girl touches a certain plant, it will die	False	There is no reason for any plants to die just from being touched by a menstruating girl.
Menstruation is a kind of illness	False	Menstruation is completely natural and is NOT an illness.

An evil spirit causes the symptoms that women and girls experience during menstruation	False	Symptoms are caused by hormonal changes and other changes in the body that happen right before and during menstruation.
All women and girls should have the same symptoms	False	Many women and girls experience different symptoms during menstruation.
If a boy or man sees blood on a used sanitary pad, something bad will happen to him	False	Nothing bad will happen just because a boy/man sees a used sanitary pad, and nothing bad will happen to the girl/woman who the pad belongs to.

Appendix 4: Some examples of sanitary products

Strips of cloth, tissues, towels	
	<p>Strips of cloth and other locally available materials are often used as sanitary protection. They are re-usable but need to be cleaned and dried well (preferably in the sun) to ensure they remain hygienic. Tissues are also sometimes used but fall apart when wet and are difficult to hold in place.</p>
Disposable sanitary pads	
	<p>There is a wide range of commercially-available disposable sanitary pads, with options for light or heavy flow days, as well as day or night use. Most commercial pads have a sticky backing that sticks to underwear and keeps them from bunching up or moving out of place. Some varieties come with “wings” (to wrap around underwear) or without. These are designed to be used once and then disposed.</p>
Re-usable sanitary pads	
	<p>Re-usable pads come in different shapes and colors, and usually have a button or snap to hold them in place around the underwear. Some come with a waterproof bag for soiled pads, or with extra cloths that can be inserted into the pad holder, the number depending on how heavy the flow is. As with cloth, these need to be cleaned and dried well to remain hygienic.</p>

Appendix 5: Guidelines for trainers for peer-to-peer sessions

Congratulations! You’ve finished the training and you’re ready to lead your own MHM peer-to-peer session. Here are some guidelines to help you get started.

Step 1: Collect the materials you’ll need

- Optional: Reference handbook that you received during your training (Appendix 1)
- Optional: FAQ list (Appendix 2) and Myths/Facts list (Appendix 3)
- Optional: These guidelines
- Examples of sanitary protection materials (Appendix 4)
- IEC booklets to distribute to all participants (Appendix 6)
- Empty participant list
- Tally sticks

Step 2: Find a place to hold the meeting. It can be at your house, at a friend’s house, outside, or in a more public place. If you’d like to use an OXSI office for your meeting, just ask an OXSI staff.

Step 3: Recruit 5-10 women or girls to join your session.

Step 4: Inform OXSI staff about the time and location of your session

Step 5: Start the session! Here are some ideas for how to structure your session:

Introduction

- Introduce yourself and have others introduce themselves. Ask people to say something about themselves, like their favorite food or how they’re feeling at the moment.
- Explain the purpose of the session – to talk about menstrual hygiene, answer any questions, and to learn what is true and what is a myth.
- Mention that other topics can be raised, as well.
- Explain that you will give the information to OXSI staff only about the number and gender of participants that are present at the session, unless people give you permission to share about other issues that are raised.
- Ask if any participants can fill the participant list. If not, use the tally sticks to count the number of participants.

Give information

- Follow the handouts that you received in your training: start by explaining what menstruation is, the female reproductive system, and the menstrual cycle. Explain what MHM is, then explain how to stay healthy during menstruation and different health risks during menstruation. Lastly, review different sanitary protection materials and how to dispose of them properly.
- If sanitary pad disposal boxes/incinerators have been built in your area, encourage participants to use them. Collect any feedback about repairs needed or reasons why women and girls are not using the bins, if applicable. If the boxes/incinerators have not yet been built, encourage participants to join FGDs organized by OXSI to give feedback on the design and locations of the boxes to be installed.

Facilitated discussion

- Open up the conversation to questions, feedback, and experience sharing from participants. Refer to the Frequently Asked Questions page that you received during your training if you don't know the answer to a question.
- Here are some questions to ask participants to encourage discussion:
 - o Share your experience of your first menstrual period. How did you feel?
 - o What are some myths that you have heard about menstruation?
 - o What kind of sanitary products do you use, and what would you prefer to use? Where do you change sanitary products and what are your challenges with changing? Where do you wash yourself during menstruation, and what are your challenges with washing?
- Encourage participants if they want to discuss other topics outside of MHM.
- Collect information about the date, location, number and gender of participants to give to OXSI staff later.
- Ask participants to share the most important piece of information they learned.
- Thank everyone for coming and close the session.

Step 5: Share the participant list with OXSI staff, as well as the most important piece of information learned, and any other feedback received during the session that participants consented for you to share with OXSI staff.

Appendix 6: IEC for peer-to-peer sessions



A brochure which explains the basics of MHM and is provided by OXSI staff to trainers to use during peer-to-peer sessions.

Appendix 7: Trainers' Monthly Meeting

It's important to frequently check in with MHM trainers to ensure they feel supported, valued, and motivated. People will lose interest if they feel they are not learning anything new or providing information of value. We recommend setting up a monthly meeting for trainers. The goals of the meeting include:

- Share feedback on sessions and get questions answered
- Plan for sessions in the coming month and brainstorm new ideas
- Connect with other women
- Have fun!

The following information should be collected and recorded:

- Date, time, and location of session
- Names of participants (participant list)
- Notes from the discussion

Questions to facilitate discussion:

- Share your experience about conducting peer-to-peer session(s) this month. Who attended? Where did you hold the session? What went well and what was challenging?
- Is there anything that came up in your sessions that you didn't know how to answer?
- Is there any topic you would like to know more about?
- What do you plan to do next month? Is there anything you will do differently?

Appendix 8: FGD guidelines for participatory design and implementation of MHM boxes

Camp Name		Date	
Facilitator		Note Taker	
Total Participants		Place	

Sr.	Question	Answer
1	How many women and girls of menstruating age are in your household?	
2	What kind of materials do you use for menstrual hygiene management in your family monthly?	
3	How many do you use?	
4	What kind of materials do you like for menstrual hygiene management? Why?	
5	Do you know how to use the materials you have?	
6	Where do you dispose used materials?	
7	Do you dispose in the latrine? If yes, why?	
8	Do you dispose in the public MHM Box?	
9	If not, why?	
10	Do you know the disadvantage of disposing into the latrine?	
11	What is the main challenge you face in disposing used materials?	
12	Where do you want to dispose used materials?	
13	Where do your female household members dispose used materials?	
14	Do you explain to your female household members how to dispose used materials?	
15	If not, why?	
16	How can you help your family members and neighbours with disposing used materials?	

17	What kind of support do you need?	
18	Have you ever seen an MHM Box before? Do you like it and do you think it is useful?	
19	What suggestion do you want to give in terms of the MHM box design?	
20	Would you like to see MHM box design from OXSI? Please select the pictures you like most.	
21	How do you propose to empty used materials inside MHM boxes?	
22	Can you suggest the locations where MHM Boxes should be installed?	

Extra comments and suggestions:

Appendix 9: Sanitary pad disposal incinerator box designs

The pilot in STMG tested three sanitary pad disposal box designs, pictured below.



Figure 1. A bin where disposed sanitary pads must be collected (bottom) and taken to the incinerator by environmental cleaners. This wasn't ideal because the workers at the incinerator were all men and would see the disposed sanitary products.



Figure 3. An incinerator bin built using a recycled oil barrel. Sanitary protection materials can be directly burnt inside by female environmental cleaners.



Figure 2. A smaller incinerator bin, only 1' x 1' x 3'.



Figure 4. A bin (not an incinerator) built by CDN in OTC and KDK1 camps.



Figure 5. A cylindrical incinerator bin designed by an ACE group in TKP



Figure 6. A rectangular incinerator bin designed by an ACE group in TKP

OXSI Hygiene Kit Distribution Standard Operating procedures in the context of the COVID19 outbreak- March 2020

As the Novel Coronavirus (COVID-19) continues to spread in an unpredictable manner, it presents a growing risk to OXSI personnel and beneficiaries, particularly during Hygiene Kit (HK) distributions.

This document aims to guide the revision of HK distribution Standard Operating Procedures (SOPs) in the COVID-19 context in OXSI WASH program operation, to minimize the risk of exposure of staff and beneficiaries. Adjustments to existing HK distribution SOPs should be in alignment with country-specific guidance shared by the relevant health authorities and partners (e.g. Ministry of Health, WHO), where available.

The following recommendations will go into effect immediately as preventative measures, even when no cases of COVID19 have been confirmed in camps.

RECOMMENDED ACTIONS BEFORE AND DURING HK DISTRIBUTION

- **Cluster shelters in a group;**
 - Group two longhouses into one group (maximum 20 head of HHs)
 - Allocate different times for each group of shelters.
 - Prepare normal HK voucher/coupon
 - Distribute the voucher (coupon) to each household ahead of the date of the distribution and inform each household to come to the distribution site at their allocated time.
- **Organize and clearly mark the allocated spaces at the distribution site or OXSI office compound (see Annex 1: Sample site plan for HK distribution sites in the COVID-19 environment)**
 - Identify and mark with tape/rope and signs the entrance, area for handwashing, the temperature check, covered area for those with fever, waiting area, HK collection point, and exit.
 - The allocated area should be spacious enough to allow beneficiaries to sit/stand at least one meter apart from each other. Thus, mark the standing/sitting points in one-meter increments.
 - Set up hand washing area with adequate supply of water and soap.
 - **Optional:** Allocate areas for body temperature checks by health personnel. *This must be agreed with Camp Management Agencies and health actors operating in the camp.*
 - **Optional:** Establish sheltered/covered area with chairs for beneficiaries that do not receive clearance at the body temperature check point. *The people identified with high fever will then be managed by the health staff at the distribution site.*
 - Ensure that there are clearly marked entrance and exit points in the distribution area.
- **Inform staff about the new HK distribution protocol**
 - Inform staff about the protocol and ensure that everyone is aware of his/her responsibility at the distribution site.
 - Ensure **at least 4** staff are present at the distribution site: 1 person directing people at the entrance to the hand washing stand; 1 person taking temperatures; 1 person checking vouchers and getting a signature/thumb print on the distribution list; 1 person handing out HKs.
- **Do not allow crowding around the distribution point**
 - At the entrance, one staff should check vouchers against the schedule to ensure that people have come at their designated time to collect HKs. If they have come at the wrong time, ask them to return at their designated time. If they say they are not able to come at their

designated time, be flexible and let them collect their HK if the distribution area is not too crowded.

- Instruct beneficiaries to maintain a distance of one meter from each other throughout the distribution process.
- Using rope or tape, cordon off a one-meter area around the desk at the collection point to ensure that the collection point is accessible to only one beneficiary at a time.

➤ Manage the flow of traffic at the distribution site

- Upon arrival at the distribution site, direct beneficiaries to the hand washing area and then to the temperature check area to have their body temperature assessed using a noninvasive thermometer (*Optional as stated above*).
- If a beneficiary has a fever (38°C or above), they should be directed to the specified sheltered/covered area for a follow up by health personnel at the distribution site (*Optional as stated above*).
- Beneficiaries cleared at the temperature check area are to be directed to the verification checkpoint.
- Beneficiaries should not pass through the distribution point more than once.

➤ Consider hygiene measures

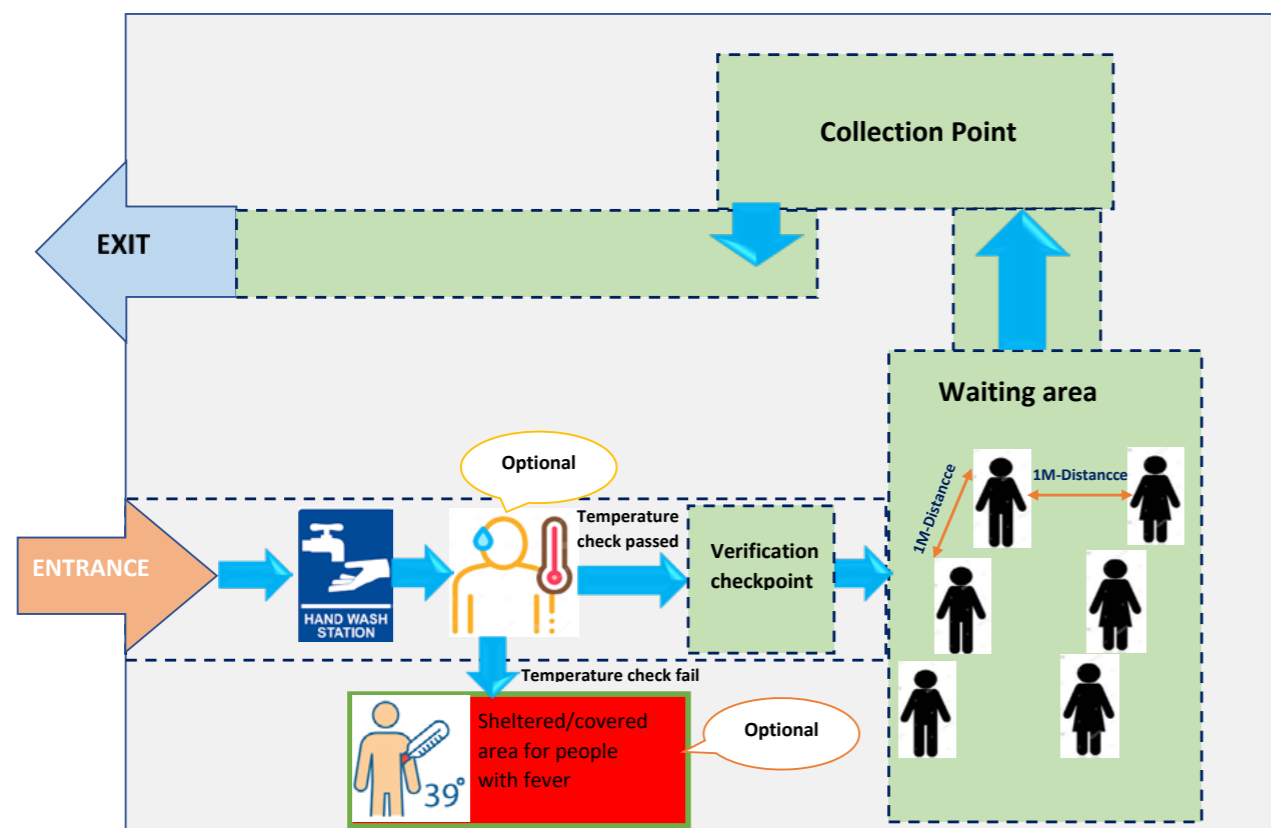
- There should be no physical contact between people at the distribution site.
- OXSI staffs/distributor at the collection point should place the HK items on the tarpaulin/table at the distribution point and step back, permitting the beneficiary to collect the HK.
- Following the collection of the HK, beneficiaries are to be directed to exit the collection site and encouraged to depart the distribution site.

SPECIFIC INSTRUCTIONS FOR STAFF AT THE DISTRIBUTION SITES

- Monitor the entry of beneficiaries into the distribution point channel.
- Instruct beneficiaries to maintain a distance of one-meter at all points during distributions.
- Ensure that the hand washing point is supplied with appropriate quantities of handwash solution
- Ensure that all beneficiaries wash their hands at the hand washing point and (if available) body temperature checks before approaching the verification checkpoint.
- If a beneficiary presents high temperature (38°C or above), they must be directed to the sheltered/covered area and referred to the relevant health authorities.
- Oversee and assist with organizing HKs before distributions are scheduled to start.
- Step back from the HK and direct the beneficiary to collect the HK and leave via the marked exit route.
- Instruct the beneficiaries to leave the distribution site immediately after the collection of HK.
- On completion of distribution, ensure that the distribution point (room/ area/ tarpaulin) is swept clean and spray the table or tarpaulin with disinfectant (0.2% chlorine solution). See Annex 2 for instructions on how to make disinfectant.
- Remove all tapes, ropes, signage.
- Remove and store the hand wash station in the office.
- It is mandatory that all staff at the distribution site follow good hygiene practices: wash hands with soap and water, cough/sneeze into elbow or a tissue, leave space between yourself and others when possible.



Important Note: All OXSI staff are responsible for complying with all aspects of the SOPs identified at the country level. If any individual (OXSI staff) demonstrates symptoms of COVID-19, they should avoid contact with others and not be present at the distribution sites.



Annex 2: Instructions for making disinfectant solution (0.2% bleach solution) from liquid bleach

Disinfectant solution (0.2% chlorine solution) can be made from a variety of chlorine bases available in the market. All washing and disinfecting solutions must be prepared at the OXSI offices prior to dispatching to the distribution point and marked clearly.

Use for: Floors, surfaces, materials, aprons, boots, dishes (after cleaning)

If you have...	Add...	To...	Then...	Remarks
Sodium dichloroisocyanurate (NaDCC) granules, 55% active chlorine	4 level 20 ml measuring spoons	20 litres water	Mix for 10 seconds and wait 30 minutes before use	72 grams in 20 litres 430 grams in 120 litres
Sodium dichloroisocyanurate (NaDCC) tablet, 1 g of active chlorine/tablet	40 tablets	20 litres water	Mix for 10 seconds and wait 30 minutes before use	2 tablets per litre
Calcium hypochlorite (HTH[®]) granules, 65-70% active chlorine	4 level 20 ml measuring spoons	20 litres water	Mix for 10 seconds and wait 30 minutes before use	60 grams in 20 litres 360 g in 120 litres of water

Notes: Do not prepare too much solution at a time (to avoid wasting unused solution). Make new solution each day.



Cautionary Note: Concentrated chlorine and bleach are highly toxic substances that can cause irritation and inflammation to eyes, throat and nose. When mixing and using 0.2% disinfecting solution, appropriate PPE (including impermeable coverall, apron, N95 mask, goggles and double glove ie. inner disposable latex gloves and outer heavy-duty latex gloves) must be worn.

Dignity Kit Distributions SOP

Introduction:

OXSI received an opportunity to conduct a one-time distribution of items to benefit women and girls in camps. These dignity kits consist of (per household): 4 female underwear, 2 packs of sanitary pads, and 1 nail clipper.

Typically, distributions are done at camp offices, where someone from each household (typically male) picks up items. To allow women and girls to participate comfortably, ask questions, and to choose colors and sizes that they prefer, OXSI is piloting a new way of distributing items at the household level.

Sessions will be held with groups of 8-10 households at a time (either one shelter or one side of two shelters and session held in between), women and girls only, led by female Community Facilitators. Each session will take approximately 30 min.

We will also be collecting information on sizes to have a more accurate order for the next round of distributions.

Preparation:

- Staff training on the process and to coordinate logistics.
- Create a schedule for each camp: how many sessions per day? Who will lead sessions?
- Communicate this schedule to communities (get support from CMAs)
- Create a box for each session: 2 packs of sanitary pads/household; 1 nail clipper/household; 120 underwear (12 packs: 4-5 packs of L, 2-3 packs XL, 2-3 packs of XXL).
 - Underwear comes in packs of 10, and we ordered 3 sizes. To give 10 HHs the chance to have 4 underwear of any size, we need to take $3 \times 4 \times 10 = 120$ for each distribution. Take 4-5 packs of L and 2-3 packs of both XL and XXL, for a total of 12 packs. You will return 80 to the box for longhouses with 10 households or 88 for longhouses with 8 households.
 - Toward the end of the underwear supply, not everyone will get the size of her choice; write down the preferred size for the next distribution.
- Make sure that someone is responsible to check boxes out and back in into the office using the format provided.
- Print distribution lists (include the household and shelter number, how many women and girls over 12 years old live in each household, the sizes preferred and the sizes received, as well as signature/fingerprint for items received).

Session:

- Facilitator to take box from office, count items with one other person present (both sign/fingerprint).
- Take box to shelter, assemble group.
- Introduce yourself, explain the distribution process.
- Explain how to use sanitary pads.
- Explain about future MHM project (except in STMG): Oxfam and SI will be having consultations with women about the design of MHM Boxes, which will be placed near latrines for women to dispose of sanitary pads. We will also be organizing peer-to-peer MHM groups, which will be conducted at shelter-level, like this distribution. In the MHM groups, we can discuss the use of

sanitary pads, disposal of pads, symptoms of menstruation, hygiene during menstruation, and any questions that women or girls have about menstruation. It is also a platform to discuss any other issues around women's health and hygiene.

- Distribute items and have participants sign the list (see example below).
- Write down the preferred size for the next distribution.
- Answer any questions from participants.
- Return box to office, count any extra items with the receiver in the office and write them down on the form (both sign/fingerprint).



Dignity Kit Distribution Log

Location:

Date:

Before-session count:

____ L ____ XL ____ XXL underwear

____ nail clippers ____ sanitary pad packs

Name of receiver (facilitator):

Name of witness:

Signature/fingerprint:

Signature/fingerprint:

Facilitator:

Number of participants:

Barrack #	Room #	Head of Household Name	Items received									Signature/fingerprint
			Underwear Requested			Underwear Received			Nail clippers	Sanitary pads		
			L	X	XX	L	X	XXL				
200	2		4	0	0	2	2	0	1	2		

Notes:

After-session count:

____ L ____ XL ____ XXL underwear

____ nail clippers ____ sanitary pad packs

Name of facilitator:

Name of receiver at office:

Signature/fingerprint:

Signature/fingerprint:

Community Transect Walk

Introduction

A Community Transect Walk is a participative tool for observing and discussing with communities any resources, problems, land use, and features in an area of the community. It was popularized as one of the tools of the Community-Led Total Sanitation (CLTS) approach. The activity involves some WASH staff and community members walking through specific areas to identify WASH issues and opportunities. The issues identified are split into two categories: those that the community can solve without help, and those where support from the WASH agency is needed. Lastly, the group develops a community action plan to solve the issues identified during the Transect Walk, with tasks assigned to community members or the WASH agency.

Objectives:

- Observe the current conditions in the community
- Identify WASH issues
- Make a plan to manage the issues properly

Preparation

1. Identify the area to walk: cover an area around 3-5 shelters, and plan a path so that you are moving in one direction (eg. east to west or south to north), but the path can change depending on the needs seen in the community and the suggestions of participants.
2. Set a time of 1 to 1.5 hours for each session.
3. Get any materials ready (eg. attendance sheet, paper for notes).
4. Inform the community in the area that will be covered. Invite volunteers in advance to participate in the activity. Identify the location and time to meet.
5. Ensure two facilitators are available for the activity: one for facilitation and one for taking notes.

Steps

1. Upon meeting the participants at the start location, explain the activity in detail.
2. Provide note paper and pens to participants if they want to take notes of any issues they see. Participants can also raise concerns verbally during the Transect Walk (for the note taker to write down).
3. Walk together along the planned path and observe latrines, handpumps, drainage channels, waste collection points, and anything else along the way.
4. The facilitator should ask questions to engage the participants in spotting any issues and to ask how they feel. For example, if some garbage is spotted on the ground, a facilitator could ask, "Is this a good place to throw garbage from the household? What should be done with it?"
5. Facilitators should give time for the group to stay in areas that generate more interest and discussion; it is not necessary to finish the planned route, so take your time!
6. After finishing the walk, collect any notes from participants and combine them with the notes from the note taker.
7. Read out loud the observations from the notes, and write down the issues that need to be solved.

8. Ask the participants for their input on the action plan based on the issues identified together. The action plan is for both communities (to solve community-level problems) and for the WASH agency (to follow up with issues the community cannot solve alone). The action plan should have steps to take for each issue, who is responsible, and a deadline to finish each step (see template below).
9. Read out loud the plan.
10. Make an agreement for how to follow up on the steps of the action plan (next Transect Walk to check progress, feedback from complaints made to OXSI, etc.)
11. Collect participant list, including name, household number, shelter number, and male/female.
12. If relevant, announce the date and time of any other upcoming activities (awareness sessions, cleaning campaigns, etc.)

Note: If an issue is observed during the Transect Walk that is resulting from one or two households only, the facilitator should arrange a separate, private household visit at another time (or directly after the Transect Walk). Individuals or specific households should not be shamed for "bad behaviour". Use IEC to facilitate discussion on positive hygiene behaviours.

Note: Children should be encouraged to participate in Community Transect Walks. Children can give valuable feedback and assist with identifying any issues, just like adults.

Action Plan Template

No	Action point	Deadline to response	Led by	Participants	Support required from OXSI

Balancing WASH SOP

Note: this SOP is designed to accompany an in-person training on the Balancing WASH activity as well as gender training.

Aim: The overall objective of the activity is to encourage more gender equality in WASH related activities. Specifically, the activity will aim to raise awareness on the inequitable distribution of labour in WASH related work.

Recruitment:

- Participants need to be recruited and informed ahead of time about the time, date, and location of the activity. Participation in the activity is always voluntary and people can leave at any time.
- Male and female participants (maximum 16 people total).
- Encourage partners (husband/wife) to join session together.

Materials needed:

- Flip chart paper (at least 2 pages per activity)
- Markers, tape
- IEC for the activity (activity icons and household members icons), flipchart of good/bad WASH behaviours
- Attendance sheet
- Refreshment (maximum 1000MMK per person)

Description:

Balancing WASH is a participatory exercise using IEC materials and will involve a group of men and women (from the same household or extended family if possible). Below are the steps of the activity:

1. The facilitators will introduce themselves and explain the activity briefly – tell the participants that they will split into two groups (men and women). You don't have to explain that the activity will look at WASH tasks or gender roles, as this may cause the participants to change the way they complete the time-use assessment.
2. Ask for permission to take notes and pictures and allow participants to ask any questions before you begin.
3. Clarify the difference between two types of IECs: Pictures of people represent family members and pictures of the activities represent the daily tasks of the household. Facilitators need to make the pictures of the WASH activities clear one by one.
4. Explain the actual activity here: Each group looks at who in the household completes which activity. So, firstly, fix the icons representing family members person by person on the top of the flip chart and then place the icons representing activities under the pictures of the family member that is responsible for that activity. Here, facilitators need to clarify that an activity has to be decided as his/her work only if he/she always or usually does that activity in their family or

- household. To indicate the time spent on each activity, make a mark for each hour spent next to the activity each day.
5. Facilitators need to mobilise and encourage all people to participate actively in their respective groupwork discussion.
 6. Give at least 45 minutes for group-work discussion.
 7. Once they have finished their charts, the two groups will come together to discuss the similarities and differences in their charts. The facilitator will use this exercise to lead a discussion around the gender division of labour in the household. If appropriate, this may include a discussion on decision-making relevant to the daily tasks, and extend to how the nature of their daily activities can impact on their leisure, getting information, participation in their community management works, etc.
 8. Discussion questions (if needed):
 - a. Women's group, did the men's group accurately depict the activities that you do each day? If not, what should be different? Do you accept the time they indicated for each activity? Why?
 - b. Men's group, did the women's group accurately depict the activities that you do each day? If not, what should be different? Do you accept the time they indicated for each activity? Why?
 - c. Is there anything surprising you see in the activities that women do compared to the activities that men do?
 - d. Do you think the division of tasks is fair between all members of the household? If not, what could be changed?
 - e. Who decides which member of the household does which task? Does this decision-making make sense or could it be changed?
 - f. Are there any activities that you do that you wish others would help you with? How can you encourage this change?
 - g. By seeing the nature of your respective daily activities and counting the time taken, who has more leisure time? Who can get access to information and news on current issues? Who is able to be involved in their community management activities? Why?
 - h. What should we do? How can the activities and time be more balanced between household members, so that everyone can enjoy more leisure time?
 9. Participants will then look specifically at the WASH activities in the daily tasks. The facilitator will use the flipchart of good/bad WASH behaviours to communicate the key messages around good hygiene practices associated with each WASH activity (for example, water collection, transportation, and storage, cleanliness of the house, etc.)

To close: The facilitator should collect information for the attendance sheet and take a picture of the two charts. Thank everyone for coming!

Activity: Solar Light Installation					
No	Item	Unit	No. of units	Unit cost (MMK)	Amount (MMK)
A Material					
1	Broken brick	Sud	0.01	80,000	MMK 1,091
2	Cement	Bag	0.87	8,500	MMK 7,409
3	Sand	Sud	0.37	26,500	MMK 9,706
4	Gravel	Sud	0.05	90,000	MMK 4,573
5	5 ply plywood - 8' length × 4' width	No.	0.50	15,500	MMK 7,750
6	Hard wood first class - 3" × 1.5" × 9'	No.	4.00	6,800	MMK 27,200
7	2" nail	Viss	0.25	2,600	MMK 650
8	12 mm dia rebar	Ft	9.66	350	MMK 3,381
9	8mm dia rebar (stirrup)	Ft	22.50	200	MMK 4,500
10	Binding wire 18 G	Viss	0.07	3,000	MMK 198
11	Red oxide paint	Gal	0.19	12,000	MMK 2,280
12	GI solar pole, base plate and anchor bolts - 5 m high, 88.5 mm dia, 3 mm thick	No.	1	123,000	MMK 123,000
13	Solar light and mounting bracket (CS Solar, model SH1402)	No.	1	349,000	MMK 349,000
A Sub material costs					MMK 540,739
B Labour charges					
1	Unskilled daily workers	DW	4	4,800	MMK 19,200
2	Skilled daily workers	DW	2	6,200	MMK 12,400
B Sub labor costs					MMK 31,600
TOTAL AMOUNT					MMK 572,339
UNIT COST					MMK 572,339

Activity: Solar Light Installation					
No	Item	Unit	No. of units	Unit cost (MMK)	Amount (MMK)
A Material					
1	Broken brick	Sud	0.01	80,000	MMK 1,091
2	Cement	Bag	0.87	8,500	MMK 7,409
3	Sand	Sud	0.37	26,500	MMK 9,706
4	Gravel	Sud	0.05	90,000	MMK 4,573
5	5 ply plywood - 8' length × 4' width	No.	0.50	15,500	MMK 7,750
6	Hard wood first class - 3" × 1.5" × 9'	No.	4.00	6,800	MMK 27,200
7	2" nail	Viss	0.25	2,600	MMK 650
8	12 mm dia rebar	Ft	9.66	350	MMK 3,381
9	8mm dia rebar (stirrup)	Ft	22.50	200	MMK 4,500
10	Binding wire 18 G	Viss	0.07	3,000	MMK 198
11	Red oxide paint	Gal	0.19	12,000	MMK 2,280
12	GI solar pole, base plate and anchor bolts - 5 m high, 88.5 mm dia, 3 mm thick	No.	1	123,000	MMK 123,000
13	Solar light and mounting bracket (CS Solar, model SH1402)	No.	1	349,000	MMK 349,000
A Sub material costs					MMK 540,739
B Labour charges					
1	Unskilled daily workers	DW	4	4,800	MMK 19,200
2	Skilled daily workers	DW	2	6,200	MMK 12,400
B Sub labor costs					MMK 31,600
TOTAL AMOUNT					MMK 572,339
UNIT COST					MMK 572,339

SOLAR LIGHT SYSTEM HANDOVER CERTIFICATE - OXSI

Camp Name	Date of Handover
.....
of Solar Point

A copy of the file is needed for:

Representative:	<input checked="" type="checkbox"/>	Solidarites International + Oxfam (OXSI) :	<input checked="" type="checkbox"/>
-----------------	-------------------------------------	--	-------------------------------------

This document gives all the information regarding the donation of solar system materials after the complete installation is done by the organisation.

Camp representatives designated below agree to:

- Take responsibility for all materials included in the solar system mentioned below.
- Take responsibility to inform OXSI in case of material looting and/ or damage.
- Take responsibility for relevant action in case of solar material looting or destruction.
- Assume the ownership of the solar system materials and take responsibility to get back the materials in case of looting and inform OXSI for required technical support to return the looted materials in the original place.
- Take the responsibility to inform OXSI in any case of non-functioning of the solar lights.
- Regularly check to see if the solar lights are functioning.
- Take care of the overall security of the solar system.

Oxfam + Solidarites International (OXSI) agree to:

- Provide fully installed stand-alone integrated solar systems for latrines with functioning lights in the pre-identified area.
- Provide regular technical supervision of the solar system and technical support whenever it is needed.
- Replace damaged materials (but if the materials are stolen, they will not be replaced).

LIST OF MATERIALS GIVEN FOR SOLAR SYSTEM HANDOVER

Solar System BOQ and Specifications

- Integrated Solar Unit
- Bracket to Attach Integrated Solar Units to GI Pole
- GI Pole, 5 m high, 88.5 mm diameter, 3 mm thick
- Concrete Footing for Solar Pole

Integrated Solar Unit Detailed Specifications

Integrated solar unit components	LED Street Light 40W/ 12V Solar Panel 50W/ 18V Storage Battery 24Ah/ 12.8V MPPT Solar Controller Housing for Components Assorted Accessories
Rainy and cloudy days backup	2 days
Daily lighting hours	From dusk to dawn. Brightness = 1,500 lumens for the entire night
Installation	Hanging on pole 5 m from soil

SIGNATORY FOR SOLAR SYSTEM MANAGEMENT

Representative Person
(Men Group)

Representative Person
(Women Group)

Name	
Shelter No.	
Room No.	

Name	
Shelter No.	
Room No.	

Men Group			Women Group		
Name	Signature	Shelter no. /Room no.	Name	Signature	Shelter no. /Room no.
OXSI Representative	Name: Position: Signature:				

Managing Health Care Waste Disposal

Guidelines on How to Construct, Use,
and Maintain a Waste Disposal Unit



September 2004

Prepared with the assistance of the World Health Organization, Africa Region, Harare, Zimbabwe; and IT Power India, Pvt. Ltd., Pondicherry, India

Funded by PATH, Seattle, Washington, USA

Guidelines

How to
Construct,
Use, and Maintain a
Waste Disposal Unit

Table of Contents for the Guidelines

Acknowledgements

Introduction

Section I: The Waste Disposal Unit: Using the De Montfort Incinerator

Section II: Installation

(For consulting engineers, contractors, and procurement officers)

Section III: Training Plan

(For training operators of the De Montfort incinerators)

Section IV: Maintenance and Planning

(For ministry of health managers, maintenance contractors, and personnel)

Appendices: Construction Drawings

Acknowledgements

This document was prepared by IT Power India Private Limited (ITPI), in Pondicherry, India, for PATH's Children's Vaccine Program (CVP). The main authors of the document are Mr. Terry Hart and Dr. Nitant Mate of ITPI. ITPI would like to acknowledge the help provided by several experts from the world over for their constructive criticism during the development of the Waste Disposal Unit (WDU) as well as for preparation of this document. The guidelines were prepared in collaboration with field logisticians Mr. Adama Sawadogo and Mr. Emmanuel Taylor of the Africa Region Office of World Health Organization (WHO). We are thankful to all those who contributed comments, in particular Dr. Yves Chartier of WHO/Geneva.

The incinerator is based on the DeMontfort model VIII. PATH conducted field trials of the DeMontfort in Kenya, Burkina Faso, and Senegal, and collected some data from Indonesia. This data and experience have informed the current "Best Practices" for a WDU, and are reflected in these guidelines. The dimensions of the incinerator were fixed after extensive experimentation at ITPI; however, the basic design features and the approximate dimensions of the DeMontfort incinerator were retained from the original. We would like to acknowledge the solid foundation provided by the work of Professor Jim Picken and his team at the DeMontfort University in the United Kingdom.

We are also thankful to the management at the Pondicherry Institute of Medical Sciences (PIMS), Pondicherry, India, for allowing the use of their campus to build a WDU. The assistance extended by the staff at PIMS for collecting the syringes required for trial runs is also appreciated.

Mr. John Lloyd, associate director at PATH's CVP, provided oversight to the project. ITPI's Ms. Padmini Menon and PATH's Ms. Laura Cooley and Ms. Lora Wentzel provided editorial assistance. Graphic designs were done by Mr. Emanuele Scanziani from the Sukwati Community in Auroville, India.

For more information, or to comment on this document, please contact:

IT Power India Private Limited
6-8 Romain Rolland Street, Pondicherry 605001, India
Tel: +91 413 222-7811 / 234-2488 Fax: +91 413 234-0723
Email: tjh@itpi.co.in
<http://www.itpi.co.in>

Mr. John Lloyd
Associate Director
Children's Vaccine Program
PATH
Bâtiment Avant Centre - 13 chemin du Levant
F-01210 Ferney Voltaire, France
Tel: +33 450 28 08 11 Fax: +33 450 28 04 07
Email: jlloyd@path.org
<http://www.path.org> and <http://www.childredivaccine.org/>

Modibo Dicko
Coordinator, Immunization System Support
Vaccine Preventable Disease Unit
DDC/AFRO
P.O. Box BE 773, Harare, Zimbabwe
Tel: +263 746011 Fax: +263 746127
Email: dickom@afro.who.int
<http://www.afro.who.int>

Introduction

Health care waste is considered the second most hazardous waste, after radioactive waste in the United Nations listing (i.e., the Basel Convention). Health care waste is a by-product of health care. Although most of this waste is not more dangerous than regular household waste, certain types of health care waste represent a higher risk to health. These include infectious waste (15 percent to 25 percent of total health care waste), of which sharp waste constitutes 1 percent, body part waste 1 percent, chemical or pharmaceutical wastes 3 percent, and radioactive, cytotoxic or broken thermometers less than 1 percent.¹

It is estimated that the Southeast Asian countries produce approximately 1,000 tons of health care waste daily.² At the annual meeting of the Safe Injections Global Network (SIGN) in 2004, the International Association of Safe Injection Technology provided an estimate of 30 billion syringes used worldwide each year. Though the quantities of health care waste have increased exponentially, the waste disposal facilities have not kept pace. In fact, in many countries they are grossly inadequate. In 1999, the World Health Organization (WHO) estimated that the proportion of health care facilities that do not use proper waste disposal methods ranges from 18 percent to 64 percent worldwide.

Further, the composition of medical waste has changed since the 1950s from mostly cellulose waste (gauze, swabs, paper, etc.) to more heterogeneous waste streams with larger percentages of disposable materials, resulting in a significant increase in the use of plastics and composite materials. The percentage of hazardous materials like mercury and other heavy metals in medical waste has also increased. The change in the content of health care waste necessitates a review of the methods used in their treatment.

Mismanagement of healthcare waste puts the community, the patients and healthcare workers at risk, both in terms of the risks from inadequate storage, transportation and disposal of infectious waste, and from the environmental risks arising from hazardous burning in open pits, or badly maintained incineration equipment.

In less developed and transitional countries where resources are limited, a recent WHO policy paper notes that “small-scale incinerators are used as an interim solution.”³ Incineration, when used according to “Best Practices,” can be a cheap and comparatively less hazardous way of disposing of health care waste. It must be borne in mind too that the costs of not having a waste disposal system are much higher than having one, even if it is still inadequate.

The De Montfort incinerator was developed by Professor Jim Picken at De Montfort University in the United Kingdom in the Nineties. Early laboratory and field trials took place in 1999. More than 800 De Montfort incinerators were constructed from 2001 to 2004, many

¹ "Safe management of wastes from healthcare activities"; Edited by A. Prüss, E. Giroult and P. Rushbrook, 1999, WHO, ISBN 92 4 154525 9

² Alex Hildebrand, *The Work of WHO in the South East Asian Region, Report of the Regional Director, 2003-2004*, WHO/SEARO, New Delhi, India. June 2004: pp. 77.

³ “WHO Health-care Waste Management Policy Paper,” WHO. September 2004.

to destroy large quantities of sharps produced during measles campaigns. Evaluations of the technical performance of these incinerators in several countries reveal shortcomings arising generally from inconsistencies in dimensional and construction quality. These experiences also demonstrate the importance of an integrated waste disposal solution rather than simply adopting a single new gadget. It also demonstrates the need for an entire health care waste management system for long-term results.

This set of guidelines addresses dimensional and construction quality inconsistencies by providing clear technical specifications and engineering drawings for each component of the De Montfort. It also presents an integrated solution where waste and burned waste storage provision, along with shelter, security, starting fuel, tools, protective clothing and record-keeping, are a part of the Waste Disposal Unit (WDU). The guidelines have kept in mind the limitations at different locations when suggesting solutions. For instance, in some countries, refractory materials may not be available and local capacity to manufacture these materials may be limited. Such countries can make use of an imported kit. In developing these guidelines, controlled testing field trials were conducted and relevant outcomes examined to incorporate design improvements.

The guidelines focus on the product specification, installation, operation, and maintenance of a WDU, principally the De Montfort incinerator. These can be supplemented by an *Operator's Manual*, which are distributed to all the trainee technicians, and “Trainer Presentation” materials, which are used by the training instructors.⁴

The guidelines are divided into four sections. Section I provides an overview of the waste disposal management and how to use the De Montfort incinerator. The overview is intended for anyone interested in the principles of operation, environmental considerations, management and economics of the WDU. Section II covers installation, including technical specifications of components, the construction process, tendering and quality control issues, and is intended for consulting engineers, contractors and procurement officers. Section III is a training manual intended for trainers of waste disposal unit (WDU) operators and offers a plan for training programs. Section IV addresses maintenance and planning and other procedures, and is intended for ministry of health managers, maintenance contractors, and other relevant personnel.

To inform these guidelines, data was collected from field trials of the De Montfort. Rapid assessments were conducted in Kenya, Burkina Faso, and Senegal, and some data was also collected in Indonesia. This data and experience have informed the current “Best Practices” for a WDU, and are reflected in these guidelines.

⁴ The *Operator's Manual* and training instructor presentation materials may be obtained from PATH.

Section I

The Waste Disposal Unit: Using the De Montfort Incinerator

Table of Contents

1.1	HEALTH CARE WASTE MANAGEMENT	1
1.2	COMPONENTS OF AN HCWM SYSTEM	1
1.3	PURPOSE OF HCWM SYSTEMS FOR PRIMARY HEALTH FACILITIES	1
1.4	FOCUS OF THE CURRENT GUIDELINES	2
1.5	THE WDU AND ITS COMPONENTS	2
1.6	HOW THE DE MONTFORT WORKS	4
1.7	OPERATING PRINCIPLES	4
1.7.1	<i>The burning cycle</i>	5
1.7.2	<i>Operating temperatures</i>	5
1.8	DESTRUCTION CAPACITY	5
1.8.1	<i>Types of waste</i>	5
1.8.2	<i>Waste in safety boxes</i>	6
1.8.3	<i>Mixed waste</i>	6
1.8.4	<i>Rate of destruction</i>	6
1.9	EMISSIONS: IMPORTANCE OF CONTROLLING THE WASTE-STREAM	7
1.9.1	<i>The World Health Organization position</i>	7
1.9.2	<i>Summary of dioxin emission estimates</i>	8
1.9.3	<i>Relative risks</i>	8
1.9.4	<i>Measures to minimize emissions</i>	9
1.10	WDU MANAGEMENT	9
1.10.1	<i>Capital expenditure</i>	9
1.10.2	<i>Operating budget and expenditures</i>	9
1.10.3	<i>Siting</i>	10
1.10.4	<i>Procurement Strategy</i>	10
1.10.5	<i>WDU operator</i>	11
1.10.6	<i>Supervision</i>	11
1.10.7	<i>Motivation</i>	12
1.10.8	<i>Maintenance</i>	12
1.11	WDU COSTS	12
1.11.1	<i>Capital costs</i>	12
1.11.2	<i>Recurrent costs</i>	13
1.11.3	<i>Cost efficiency</i>	14

List of Figures

FIGURE 1.1: COMPONENTS OF THE WDU	4
FIGURE 1.2: HOW THE DE MONTFORT FUNCTIONS	4
FIGURE 1.3: TYPES OF WASTE	6

List of Tables

TABLE 1.1: ESTIMATES OF PERCENTS OF CAPITAL COSTS FOR MANUFACTURING, CONSTRUCTION AND COMMISSIONING A WDU	13
TABLE 1.2: ESTIMATES OF PERCENTS OF DISTRIBUTION OF RECURRENT COSTS FOR CONSTRUCTION AND COMMISSIONING A WDU	13

List of Graphs

GRAPH 1.1: LEVEL OF UTILIZATION VERSUS COST OF BURNING WASTE	14
GRAPH 1.2: WDU CAPITAL COSTS VERSUS PROGRAM SIZE	14

1.1 Health care waste management

Health care waste management (HCWM) has been described as “a process to help ensure proper hospital hygiene and the safety of health care workers and communities. It includes planning and procurement, construction, staff training and behavior, proper use of tools, machines and pharmaceuticals, proper disposal methods inside and outside the hospital, and evaluation.”¹ Health care waste management systems enable health care waste to be managed responsibly, without harming the community or the environment.

1.2 Components of an HCWM system

An HCWM system is comprised of: i) hardware, including equipment such as categorized waste containers, ash and needle pits, incinerators, transport, needle cutters, etc.; ii) management personnel, to plan, direct, supervise and control; and iii) a process that systematizes the segregation and routing of waste from its point of generation to final disposal, whether through destruction, transformation or recycling.

1.3 Purpose of HCWM systems for primary health facilities

HCWM is required in primary health facilities to minimize the risk of contamination of patients, health workers and the general public through infectious waste. Recent studies indicate that as much as 33 percent of Hepatitis B virus (HBV) and 42 percent of Hepatitis C virus (HCV) infections arise from direct or indirect exposure to infectious waste². Many recent studies have reported a convincing link between unsafe injections and the transmission of hepatitis B and C, HIV, Ebola and Lassa virus infections and malaria. Five studies attributed 20 to 80 percent of all new hepatitis B infections to unsafe injections, while three implicated unsafe injections as a major mode of transmission of hepatitis C.³

Good HCWM also improves hygiene and operational efficiency in primary health facilities, in addition to reducing the environmental pollution that arises from poor waste segregation and destruction practices.

HCWM ensures:

- Safe containment of infectious and non-infectious waste at the location where the waste is produced;
- Separation of waste into categories so that it is processed appropriately;
- Safe and prompt transport of contained waste to a point of temporary storage prior to processing, and
- Proper processing of waste according to WHO-recommended practices.

A Waste Disposal Unit is only one element of an HCWM system, and must be used as an integral part of the system for it to be effective.

¹ “Health Care Waste Management”, *At a Glance Series*, World Bank, June 2003.

² WHO Website, Unsafe injection practices -a plague of many health care system http://www.who.int/injection_safety/about/resources/BackInfoUnsafe/en/. Accessed on June 28, 2004.

³ *Unsafe injections in the developing world and transmission of blood borne pathogens: A Review*, L. Simonsen, A. Kane, J. Lloyd, M Zaffran and M Kane, Bulletin of WHO, 1999: 77(10):789-800.

1.4 Focus of the current guidelines

The guidelines focus upon specifications, installation, and operation and maintenance procedures of a WDU: in this case, the De Montfort incinerator.

The guidelines:

- Target those seeking a general understanding of small-scale incineration, inclusive of management, environmental and economic considerations.
- Provides specifications of materials required to construct a WDU inclusive of a De Montfort incinerator, engineering drawings of each component, options for procurement, and a step-by-step construction guide. They also detail the maintenance practices to be observed.

The guidelines include in Section III a training plan, which describes how to train De Montfort waste disposal unit operators. An *Operator’s Manual* is under development to assist with comprehensive understanding of the “Best Practices” required to ensure efficient disposal of waste.⁴

1.5 The WDU and its components

The central element of a WDU is the De Montfort incinerator. If built according to specifications, maintained properly, and operated according to “Best Practices”, the De Montfort incinerator can dispose of infectious and non-infectious waste simply, quickly and with minimal environmental consequence.

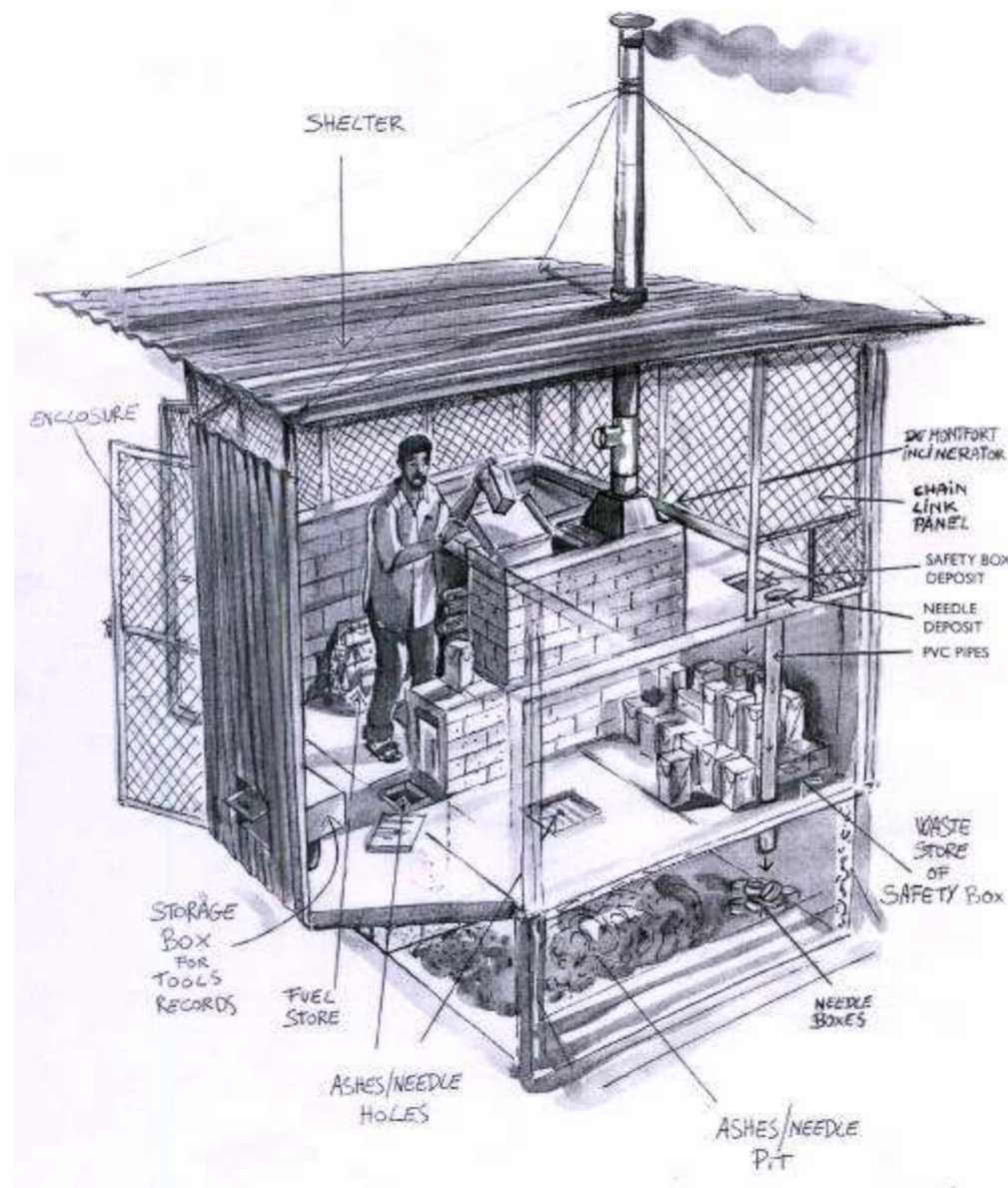
A WDU is made up of several elements, as shown in Figure 1.1, to enable trained operators to safely process and dispose of infectious waste. These elements include:

- A De Montfort incinerator to burn waste and reduce it. The De Montfort destroys 6-7 kg per hour (or 6 safety boxes per hour) if used as per recommended practices.
- An ash/needle pit, where residual ash, glass, metallic parts, including needles, are safely deposited after incineration. Needles from a needle cutter may also be deposited in the pit. The ash/needle pit is large enough to store incinerated residues for at least ten years without being emptied. Residue from one incineration session weighs approximately 0.5 kg. A pit of 3.25m³ stores ash from the burning of approximately 300 safety boxes per month over a period of twelve years.
- A shelter to protect the De Montfort incinerator, the operator and the waste being incinerated from rain. The shelter also protects the fuel, like wood or agro-residues, required to preheat the incinerator, and the operator’s tools, protective clothing and records. Moreover, it supports the chimney that is four meters in height.
- A waste store to securely accumulate waste that is to be incinerated, and where tools, records and protective equipment can be kept. The store has the capacity to stock at least 200 safety boxes, if neatly stacked.

⁴ Information on how to identify a Health Care Facility for installation of a WDU, and how waste should be collected, transported, and stored at a single location to justify the capital investment and amortisation of the equipment are provided in the training module *Safe Disposal of Syringes and Needles in the Context of Health Care Waste Management Systems*. PATH, “Safe Disposal of Syringes and Needles,” PowerPoint presentation at WHO Taskforce on Immunization (TFI), Luanda, 3-5 December 2003. http://www.afro.who.int/ddc/vpd/tfi2003/presentations/waste_management_safe.ppt (Accessed on July 8, 2004.)

- A fuel store to stock agro-residues or wood required to preheat the incinerator. The store has enough capacity to stock waste for at least five incineration sessions, both for pre-heating and supplementing medical waste.
- A storage box to keep tools, protective clothing and records.
- An enclosure with a lockable door to prevent access by children and unauthorized persons as well as scavenging animals and birds.
- A safety box deposit hole to allow the health worker to drop the safety box into the enclosed protected area when the incinerator operator is not present.
- A needle container deposit hole, which allows the health worker to empty the needles safely into the ash/needle pit when the incinerator operator is not present.

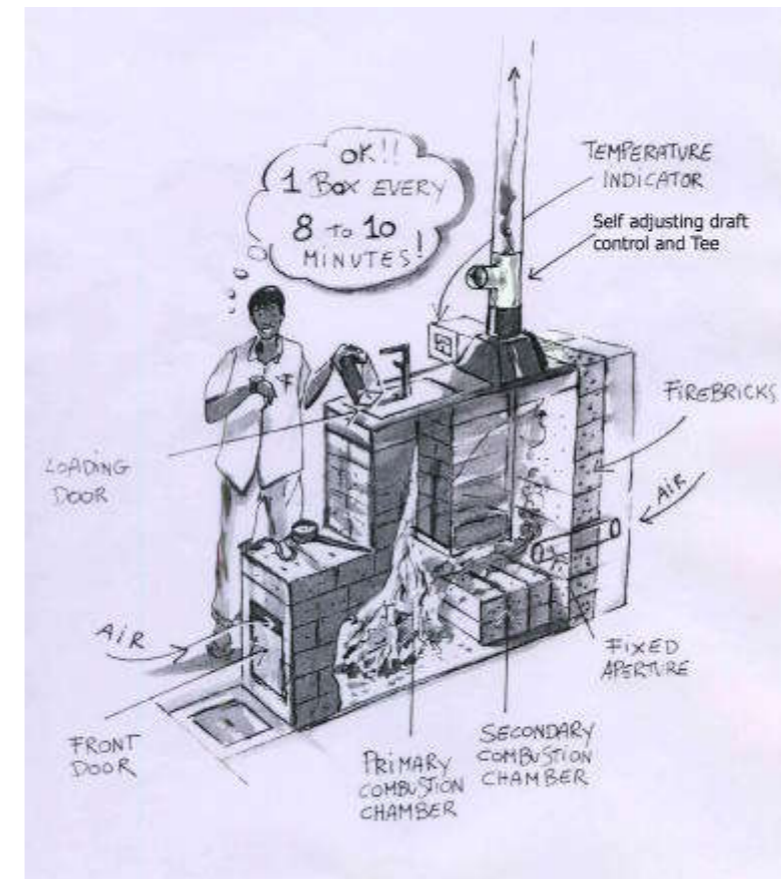
Figure 1.1 Components of the WDU



1.6 How the De Montfort works

The incinerator is made of firebricks and prefabricated metal components, which can be manufactured locally or imported. The structure is assembled and built at the site using mortar of Portland or refractory cement. No specialized tools are required.

Figure 1.2 How the De Montfort functions



time is mounted at the base of the chimney and controls the flue gases in the chimney. A stove pipe thermometer mounted at the neck of the chimney indicates when the medical waste should be loaded. A 4 meter-high chimney mounted above the secondary combustion chamber releases the flue gases into the atmosphere. (See Figure 1.2.)

1.7 Operating principles

Waste is warmed, dried and melted in the primary combustion chamber, before being burnt at the grate in the primary combustion chamber. Partially burned flue gas and particulates are drawn from this primary area into the secondary chamber, where additional air induces secondary burning before the flue gases are evacuated into the atmosphere through the chimney. All pathogens thus pass through two high temperature zones: one at the grate, and one in the secondary burning zone.

1.7.1 The burning cycle

The burning cycle contains three phases:

- 1) **Preheating period:** The primary chamber is loaded, lit and the temperature indicated on the stove pipe thermometer brought to approximately 600⁰ C in 20 to 30 minutes by burning non-medical waste, i.e., firewood, coconut shells, etc., which is supplemented by kerosene or diesel fuel as may be necessary.
- 2) **Medical waste disposal:** Once the temperature in the primary chamber has reached 600⁰ C, the safety boxes containing only syringes, or intermixed with small bags of infectious, waste, are loaded at a rate that maintains a constant and good, but not fierce, fire in the grate (approximately 6 kg/hr of safety boxes).
- 3) **Burn down/close down period:** Eight to ten minutes after the entire medical waste has been loaded, an additional 1 kg to 2 kg of non-medical waste is added to ensure that complete burning occurs.

1.7.2 Operating temperatures

The right operating temperatures should be maintained. This means:

- The temperature in the secondary chamber, which is displayed on the stove pipe thermometer, should be maintained between 600⁰ C and 900⁰ C by controlling the waste-loading rate.
- Temperatures above 900⁰ C should be avoided since this increases velocities and burning in the chimney, which induces dense black smoke and reduces gas residency time.
- Temperatures below 600⁰ C should also be avoided since toxic emissions (dioxins and furans) increase at lower temperatures.

1.8 Destruction capacity

1.8.1 Types of waste

The De Montfort incinerator has the capacity to destroy any medical or domestic waste, which is combustible. However, it should only be used to destroy the following material:

- 1) **Sharps**, including syringes with needles attached, razor blades, scalpels and any other sharp objects which may be contaminated, like glass, but excluding vials (unless open) or ampoules.
- 2) **Infectious non-sharp waste**, like tissues and materials, or equipment; which has been in contact with blood or body fluids, including swabs, bandages and any other waste; which may be contaminated.⁵
- 3) **Non-infectious waste**, which does not include polyvinyl chloride (PVC) plastic bags, may be destroyed if it cannot be transported to a municipal waste disposal facility or if no alternative environmentally sound solution for disposal is available. (One can easily distinguish between PVC and polypropylene since PVC sinks in water, while polypropylene floats. This can be demonstrated to the ward personnel responsible for placement of waste in containers.)

⁵ Auto-disable and disposable syringe bodies where a needle cutter or needle remover has removed the needles should not be incinerated if disinfection and recycling can be practiced consistently and reliably.

The De Montfort should **not be used** to destroy:

- 1) Waste containing broken thermometers, IV fluid bags, PVC plastic bags, closed glass vials⁶ and ampoules, or
- 2) Wet waste.

1.8.2 Waste in safety boxes

Used syringes in 5 (liter) WHO-approved safety boxes are the most common waste to be destroyed, especially during immunization campaigns. A safety box filled with used syringes weighs approximately 800 gm to 1400 gm. Safety boxes in primary health facilities sent for incineration typically weigh anything between 800 gm⁷ and 1000 gm⁸.

Figure 1.3 Types of Waste



1.8.3 Mixed waste

If temperatures indicated on the stove pipe thermometer are strictly adhered to, mixed waste comprising safety boxes of syringes and small sacks of infectious or non-infectious, non-sharp waste can be destroyed.

1.8.4 Rate of destruction

The Rate of Destruction is a measure of the rapidity with which waste is loaded into the incinerator. References to the rate of destruction differ considerably⁹. Average rates of destruction monitored at 14 sites in Kenya, 12 sites in Burkina Faso, which were in regular use by operators, ranged anywhere between

12kg and 9 kg of safety boxes per hour, respectively. If waste is loaded at the rate of 6-7 kg per hour, and stove pipe temperatures are maintained between 600⁰ C and 900⁰ C, then smoke emissions reduce considerably.

Recommended Rate of Destruction: 1 safety box every 8 to 10 minutes

If burning is fierce and waste is loaded rapidly, then internal temperatures increase, which may cause toxic emissions to reduce, but the levels of black smoke increase.

A careful balance between the rate of loading the incinerator and maintaining the incinerator operating temperature is required to minimize levels of visible smoke emissions and toxic emissions.

⁶ Open glass vials may be incinerated. Ref IT Power India test report, Incidence of Vial Explosions in the De Montfort Incinerator.

⁷ Average weight of 94 safety boxes measured in Burkina Faso, Rapid Assessment of the WDU, PATH, June 2003.

⁸ Average weight of 34 safety boxes measured in Kenya, Rapid Assessment of the WDU, PATH, June 2003.

⁹ An emissions test in May 2003 on a De Montfort incinerator by Professor Jim Picken concludes that optimal burning rate combining high temperature levels with low smoke levels is achieved at 6 safety boxes/hr (6 kg-7 kg per hour).

1.9 Emissions: importance of controlling the waste-stream

Incinerators can produce toxic emissions such as carbon monoxide (CO), dioxins (polychlorinated dibenzo-para-dioxins or PCDDs), and furans (polychlorinated dibenzofurans or PCDFs). Carbon monoxide is produced by poor and incomplete combustion. These emissions can be reduced by good design and good operating procedures. Dioxin and furan emissions occur through burning of chlorine-containing wastes, e.g., PVC and other plastics. In general, since exposure to dioxins and furans is mostly through food intake (WHO 2001), the emissions from incinerators should not be allowed to blow across cultivated land. Emissions are minimized by good waste segregation practices to eliminate inclusion of PVC waste, and appropriate practices for high-temperature incineration. Incinerators are, however, estimated to emit a significant fraction of the global emissions of dioxins and furans.¹⁰

1.9.1 The World Health Organization position

From an environmental perspective, incineration of health care waste is not the ideal solution for health care waste disposal. Nevertheless, it is often the most viable option for developing and transitional countries. In these countries especially, there is a significant disease burden associated with poor management of health care wastes, since options for waste disposal are limited. There is also the issue of costs. Incineration of health care wastes may therefore be the preferred interim solution for disposing of health care waste. In situations where incineration presents itself as the best option, care needs to be taken to ensure that exposure to toxic air pollutants associated with burning is reduced to the minimal. One way in which this could be done is to limit the incineration of health care and other wastes to less-densely populated areas, e.g., rural areas.¹¹ As less polluting waste disposal technologies become available and resources permit, incinerators will gradually be replaced with safer waste treatment/disposal alternatives.

The WHO has found it inappropriate to recommend acceptable limits for dioxin and furan emissions in the proximity of small-scale incinerators. This is mainly because: most small-scale incinerators, including the De Montfort, do not meet the already existing but widely diverse standards: 0.1 ng toxic equivalency (TEQ)¹² /m³N to 5 ng TEQ/m³N for new incinerators in Europe and 10 ng TEQ/m³N for incinerator facilities already in use in Japan.¹⁴ Further, there are a number of technology barriers. Small-scale incineration cannot be equipped with emission reduction and control devices, since such devices are unaffordable on a small scale. However, new generation, gas/electric-powered, small-scale incinerators for destruction of safety boxes are now commercially available.¹⁵ These meet the European Union environmental norms, but are only suited for use at locations with regular electricity and gas supply.

Until countries have access to environmentally safe options for the management of medical waste, incineration may still be seen as the main option for such disposal. To make

¹⁰ Medical waste incinerators were estimated to account for 21 percent of known sources of dioxin and furan emissions in the U.S. in 1987.

¹¹ This was a main recommendation from a WHO-organized and sponsored meeting on “Small Scale Incineration/Dioxin and Furan emissions”, 15 December 2003, WHO Geneva, Switzerland.

¹² TEQ is a calculated figured used to estimate the overall toxicity of multiple types (congeners) of dioxin-like chemicals at once.

¹³ Toxicity equivalent at 40 hours per week.

¹⁴ Source reference: Teruyoshi EHARA, Programme for the Promotion of Chemical Safety (PCS), WHO.

¹⁵ Mediburner, Oulu, Finland.

incineration as safe as possible, “Best Practice” tools should be made available and enforced (e.g., pre-heating and not overloading the incinerator, or incinerating only at temperatures above 800° C). These guidelines are one element in the effort to reinforce a process of building “Best Practices.”

WHO suggests that additional country assessments are necessary to gauge the national authorities’ capacity to cope with the problem of health care waste. Such assessments will help lead to the development of appropriate health care waste management national policies and technologies.

1.9.2 Summary of dioxin emission estimates¹⁶

The available data related to emissions relevant to small-scale incinerators (without air pollution control equipment) appear to fall into three groups:

- 1) **Best practice:** Properly operated and maintained units which utilize sufficient temperatures, afterburners (secondary combustion chambers), and other features that limit dioxin/furan production. For such units, a reasonably conservative estimate of the emission concentration is 10 ng TEQ/Nm³.¹⁷ This limit may not be conservative for small brick-type units like the De Montfort design, which has a very short (<0.2 s) and variable residence time.
Incineration for “Best Practices should not exceed 2hrs/day.
- 2) **Average practice tends to include:** Improperly designed, constructed, operated or maintained units that feature afterburners. Emissions from the SICIM Pioneer incinerator in Thailand, and United Nations Development Programme (UNDP) Class 2 tests range up to 600 ng TEQ/Nm³, though most tests show lower emissions. Using a 500 ng TEQ/Nm³ value may be conservative, however, given that the available data are admittedly scarce.
- 3) **Worst case equipment use:** Incinerators without an afterburner. The UNDP estimates an emission concentration of 4000 ng TEQ/Nm³ for this simple technology.

1.9.3 Relative risks

For persons other than those with direct occupational exposure and contact with the ash residue, and if “Best Practices” are applied and incineration usage levels for waste disposal do not exceed 2 hrs/day, emissions represent less than 1 percent of the WHO provisional intake level for adults and children. As for the safety worker, sufficient precautions must also be taken to minimize exposure to toxins through consistent use of protective clothing, face masks and gloves.

To maintain risks at a small fraction of the WHO levels considered to be acceptable when “expected practices” are applied, utilization rates should not exceed one time per month, and each use should not exceed an hour.

If there is no provision for afterburning (secondary burning) when disposing of waste through drum burning or incineration, a “worst case” situation is likely. In this case, even if

¹⁶ Batterman, Stuart. *Assessment of Small-Scale Incinerators for Health Care Waste*. Water, Sanitation and Health, Protection of the Human Environment, World Health Organization. For more information, contact S. Batterman at Environmental Health Sciences, University of Michigan, 109 Observatory Drive, Ann Arbor, MI 48109 USA

¹⁷ Taken from the 90th percentile AP42 emission factor analysis.

incineration is undertaken only once a month for an hour, it may cause unacceptable intake and risk levels.

1.9.4 Measures to minimize emissions

To reduce emissions, adhere to the following Best Practices:

- Rigorously segregate waste so that no PVC (IVs, etc.) waste is incinerated.
- Ensure that the incinerator is built according to recommended dimensions, using appropriate materials, and that it is functioning properly, and the chimney is clear of excessive soot.
- Ensure that the incinerator is preheated adequately and that supplementary fuel is added whenever necessary to maintain the burning temperature above 600⁰ C.
- Load the incinerator according to the recommended “Best Practices”.
- Minimize burning in the chimney through correct loading practices and regulation of the self-adjusting draft control in the chimney. This increases the gas residency period.
- Adopt rigid quality control measures.

1.10 WDU management

Once an appropriate location to install the WDU has been identified, the other key management issues that need attention include budgetary provision, choice of site at the location, application of a “Best Practices” approach by the WDU operator, motivation of health care waste management personnel, and an effective supervisory mechanism for HCWM. The following sections discuss the issues related to installation, sustainable operation, and maintenance of a WDU.

1.10.1 Capital expenditure

Capital expenditure of WDUs comprise materials/fabrication costs, labor costs, and costs associated with management and training. Capital expenditure is generally borne by international donor agencies or central, state or provincial governments (See paragraph 1.11.1 for more details). Managers of WDUs at primary health facilities while not usually directly involved in mobilization of resources for capital expenditure, assume responsibility for assigning and coordinating personnel for training programs, HCWM supervising, and oversight of installation.

1.10.2 Operating budget and expenditures

In addition to the capital expenditure incurring on procurement and installation of the equipment and training, waste processing also requires financial resources to meet recurrent costs on personnel, fuels and maintenance. Health care facility budgets must include an annual provision for recurrent costs, and the management should carefully control the disbursements. During field evaluations it was observed that the absence of financial resources for recurrent costs is one of the most common reasons for failure of waste management programs. Some HCWM programs have successfully introduced a “burning fee” to offset or finance recurrent costs.

1.10.3 Siting

Siting is the process to determine where the WDU should be placed at a primary health facility. The location of the WDU can significantly affect the dispersion of smoke and particulates from the chimney, and the resultant exposure of workers and the public to toxins. Siting must also address issues of permission, ownership, access and convenience. A Best Practices approach should be adopted to find a location that, “to the maximum extent practicable, minimizes potential risks to public health and the environment.”¹⁸

Experience with the De Montfort incinerators highlights the importance of good siting, and the importance of involving stakeholders, including medical personnel, nearby residents and incinerator operators, in the process of selecting the most appropriate site.

The following strategy should be adopted when selecting a site for the WDU:

- Involve individuals responsible for HCWM at the primary health facility in siting decisions.
- Involve health workers and members of the local community in the decision process.
- Respect national policies and regulations.
- Take guidance from a person or organization experienced in siting waste disposal units. This is mandatory.

The WDU should be built at a location where:

- It is convenient to use.
- It is NOT close to patients’ wards and other occupied or planned buildings.
- There is low public presence/passage.
- Flooding does not occur.
- No flammable roofs or inflammable materials are stored within a radius of 30 meters.
- Prevailing winds blow smoke away from buildings and NOT across cultivated land.
- Security risk is minimized.

1.10.4 Procurement Strategy

The guidelines propose two options for procurement: a locally built WDU, where all the raw materials are sourced and manufactured locally, transported to the site, and assembled. (Such would be the case in India and South Africa). The other option is the “imported kit” option, where the parts are prefabricated, integrated with materials which may not be locally available (e.g., refractory brick and refractory cement), and imported as a pre-packaged kit which is then assembled at the site. Whatever option is adopted is an important management decision and will have substantial impact upon capital costs, workload of the local implementing agency, and—above all—good operational performance. Criteria for a decision making process to select the most appropriate option are listed in Section II, Paragraph 2.5.4.

¹⁸ The US Environmental Protection Agency regulates the burning of hazardous waste in incinerators under 40 CFR Part 264/265, and in boilers and industrial furnaces under 40 CFR Part 266. U.S. Environmental Protection Agency, “Draft: Technical Support Document for HWC MACT Standards,” February 1996, http://www.epa.gov/epaoswer/hazwaste/combust/tech/tsd_v2.pdf (Accessed July 7, 2004).

1.10.5 WDU operator

Several rapid assessments in 2003¹⁹ of waste management practices and incinerator performance highlight management and incinerator operator constraints as critical factors in good HCWM. Major constraints identified were inconsistent design standard, inadequate quality control during installation, and inadequate operator training and motivation. The following operator-related measures should be adopted to ensure good WDU performance:

- Only a trained, qualified and equipped operator should operate the incinerator.
- The operator must be on-site while the incinerator is functioning.
- The operator must be motivated to follow “Best Practices.”
- The WDU should be operated according to Best Practices to minimize emissions and other risks.
- Operators must have long-term contracts or be permanent hires.

Long-term or permanent operator contracts are the often the most difficult of the above points to address. WDU operation is usually not a full-time job, and frequently WDUs are operated by casual labor responsible for grounds maintenance. At some sites, casual laborers are rotated periodically in compliance with labor laws. This approach is strongly discouraged since training efficient operators is time-consuming and expensive; and operator knowledge and commitment are essential for good incineration practices. Operators should be contracted for longer terms or be on permanent payrolls.

In some instances, district-based cold chain maintenance technicians manage the WDUs. This practice is to be encouraged since cold chain technicians have a technical profile, habitually maintain records, and can recognize maintenance needs.

1.10.6 Supervision

Even if operators are well-trained, supervision is essential. Supervision provides quality control and recourse to improve other aspects of waste management, in particular segregation and disposal practices.

Every country should have a collaborative mechanism for developing a regulatory framework for HCWM, such as a national HCWM committee to develop and underpin national policies for handling, processing and destruction of infectious waste at all health facilities, including primary health facilities.²⁰

Each primary health facility should designate an HCWM supervisor, with operational linkages (directly or indirectly) to the HCWM Committee. The responsibilities of the HCWM supervisors at these facilities include:

- Training all primary health facility staff in HCWM practices;
- Ensuring good waste segregation practices;
- Coordination and supervision of waste transportation, packaging, storage and handling;

¹⁹ Based on studies of Burkina Faso, Kenya, Senegal, Benin, and Nigeria, and the Rapid Assessment of the WDU, PATH, June 2003.

²⁰ Recommendation offered to the Task Force on Immunisation (TFI) in an overview of GAVI/ITF workshops, Luanda, Angola 3-5 December 2003.

- Monitoring of waste processing at the WDU and other appropriate locations (municipal facilities);
- Supervision of the WDU operator; and
- Reporting.

1.10.7 Motivation

One of the key barriers to good HCWM is the absence of motivated operators and HCWM supervisors and the lack of effort to motivate them. Waste management, handling, and disposal are not generally considered ennobling tasks, hence special efforts need to be made to motivate personnel involved. One way of motivating the personnel is through schemes offering financial incentives for good performance. Good training and creating awareness in the community of the importance of good waste management can also improve motivation levels. (Training of operators is discussed in Section III.)

1.10.8 Maintenance

Maintenance is required for all processes that entail the use of technology. Maintenance of WDUs is no exception. (Issues of maintenance and planning are discussed in detail in Section IV.)

Supervision and control of maintenance quality are a management responsibility and are just as much a part of WDU management responsibility as budgetary provision. Usually, maintenance responsibility is outsourced under an Annual Maintenance Contract (AMC), in which case there is scope to include performance guarantees in the contract agreements for services. In some countries, the maintenance responsibility is assumed directly by the maintenance infrastructure of the ministries of health. Operating policies will determine the approach adopted. Economic and quality of service considerations should be the primary factors in selecting a maintenance option.

1.11 WDU Costs

In reviewing De Montfort economics, costs directly relating to the WDU and its operation are considered, and not the costs of transport, packaging and management which are part of general HCWM costs and not specific to WDUs.

1.11.1 Capital costs

The capital cost of a WDU will vary from location to location, depending on the following factors:

- Whether the “Local Build” or the “Imported Kit” (which comprises prefabricated metallic components and other materials not readily available in many countries) option is chosen
- Material and labor costs and the profit margin required by the equipment manufacturer.
- The number of WDUs to be installed.
- The remoteness and accessibility of sites.
- The type of contractual approach adopted.
- The scope of services (maintenance contracts, performance bonds, etc.) defined in the supply agreement.

Table 1.1 provides indicative distribution of capital costs of WDUs for programs ranging from 5 to 100 WDUs.

Table 1.1 Estimated percentage of capital costs for manufacturing, constructing, and commissioning a WDU

Cost components	5 WDUs	100 WDUs
Materials/Fabrication	33%	47%
Labor	13%	25%
Management/Training	54%	28%

This distribution is based upon actual cost estimates obtained in India in 2004, where the total capital costs were USD 950 per WDU when 100 WDUs had to be constructed, and USD1800/WDU when only 5 WDUs had to be constructed. The economies of scale are due primarily to the management/training component; the materials and fabrication costs reduce by only 25 percent with large-scale production.

1.11.2 Recurrent costs

The WDU equipment is designed to operate for 10 years before total replacement. Financial provision to cover the recurrent costs of WDUs over a ten-year period should be made when planning a HCWM system. Typical recurrent costs include:

- Wood, coconut shell, or kerosene needed to preheat the incinerator and supplement burning of medical waste at each burn cycle. For one complete cycle (i.e. preheating, incineration, and cool down), about 8 kg of wood is required. It is assumed the wood is dry.
- Salaries, social benefits and performance incentives of the WDU operator and supervisor.
- Replacement of labor and worn out parts.

Retraining and quality assurance are necessary. Table 1.2 provides indicative percentage distributions of annual recurrent costs of WDUs for the first year when retraining occurs, and for other years over a 10-year life cycle. Figures presented assume a level of utilization of 120 safety boxes per month.²¹

Table 1.2 Estimated percentage distribution of recurrent costs for construction and commissioning a WDU

Cost components	First year recurrent costs		Second to tenth year annual recurrent costs	
	5 WDUs	100WDUs	5 WDUs	100WDUs
Parts and maintenance	14%	14%	20%	17%
Fuel	23%	30%	33%	34%
Salaries/benefits	34%	42%	47%	49%
Retraining	29%	14%	(offered annually)	(offered annually)

²¹ The average utilization rate observed in Kenya was 58 safety boxes per month.

Recurrent costs in India are projected to be USD430/WDU per year for a HCWM program consisting of 5 WDUs in those years when retraining is conducted, and USD300 otherwise. For large programs of 100 WDUs, recurrent costs are estimated at USD 330 with retraining conducted, and USD 290 with retraining. No significant economies of scale are achieved with larger programs, except in years when retraining occurs.

1.11.3 Cost efficiency

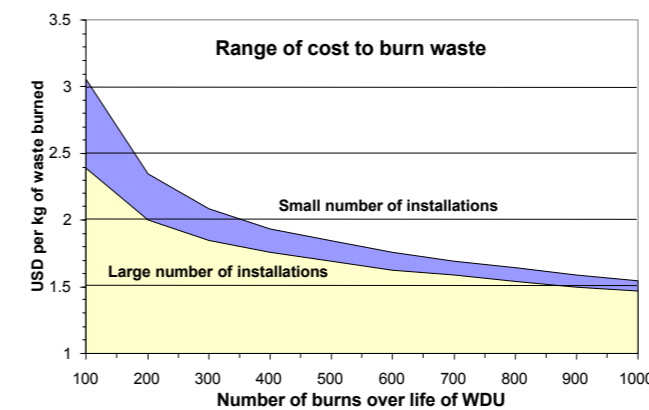
While capital and recurrent costs associated with setting up and operating a WDU are important from a budgetary perspective, it is ultimately the cost efficiency of destroying medical waste that is of greatest importance. The major factors that influence cost efficiency are:

- The level of utilization: (quantities of waste destroyed). To a large extent, this is dependent upon choosing an appropriate location for the WDU²² and the HCWM practices; in particular; management, quality control, collection and transportation.
- Capital and recurrent cost: Although contingent upon locally available material and labor costs, these costs are also determined by good contracting practices and rigorous quality control.
- Life expectancy of the WD: Its duration is largely dependent upon the engineering design, component quality, installation standards, and operator practices.

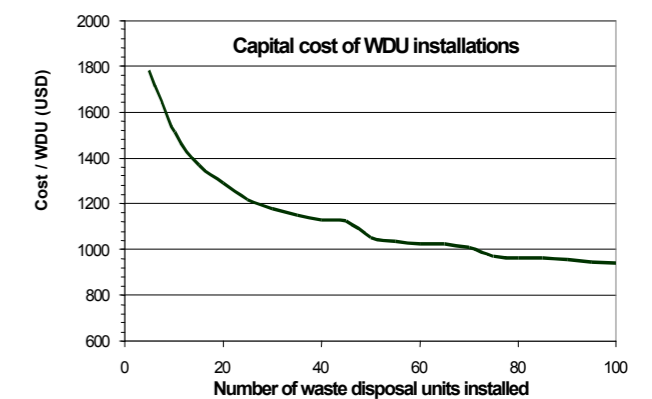
Based upon data gathered from India, Graph 1.1 and Graph 1.2 provide estimates of the:

- Link between the level of utilization of a WDU and the costs of burning waste over the operating life of the WDU; and
- Link between WDU capital cost to program size.

Graph 1.1 Level of utilization versus cost of burning waste



Graph 1.2 WDU capital costs versus program size



²² An Overview of GAVI/ITF Workshops during 2002-2003 for the WHO Task Force on Immunization (TFI), John S. Lloyd, Luanda 3-5 December 2003.

These charts provide a basis for decision-makers to estimate capital and recurrent costs, and cost efficiency of a planned WDU program. Annual maintenance costs are based upon 100 burns per year, each for a period of 2 hours, at a rate of loading of 6 boxes per hour.²³

Section II

Installation

(For consulting engineers, contractors, and procurement officers)

Table of Contents

2.1	WDU DESIGN CONCEPT AND FEATURES	1
2.2	MOTIVATION FOR OPERATOR	1
2.3	A BRIEF DESCRIPTION OF THE OPERATIONAL ASPECTS AND STORAGE CAPACITIES.....	1
2.4	CONSTRUCTION DRAWINGS.....	2
2.5	THE CONSTRUCTION PROCESS.....	8
2.5.1	<i>Tasks</i>	8
2.5.2	<i>Building timeline</i>	14
2.5.3	<i>Kit or local manufacturers' method</i>	14
2.5.4	<i>Decision process for procurement approach</i>	15
2.6	TENDER SPECIFICATION	16
2.6.1	<i>Construction</i>	16
2.6.2	<i>Training</i>	16
2.6.3	<i>Maintenance</i>	17
2.7	CONTRACTOR SELECTION	17
2.8	QUALITY CONTROL.....	18

List of Figures

FIGURE 2.1	HOLES TO DEPOSIT SAFETY BOXES AND NEEDLES.....	1
FIGURE 2.2	EXAMPLE OF PHOTO IMAGE TO ASSIST METAL WORKER	2
FIGURE 2.3	SEQUENCE OF STEPS IN CONSTRUCTION PROCESS	9
FIGURE 2.4	DWDU CONSTRUCTION SCHEDULE.....	14
FIGURE 2.5	THE DECISION TO PROCURE A FLOW DIAGRAM	15

List of Tables

TABLE 2.1	ASSEMBLY DRAWINGS AND SECTIONAL PLANS.....	3
TABLE 2.2	LOCALLY SUPPLIED MATERIALS AND COMPONENTS	3
TABLE 2.3	IMPORTED (KIT) OR LOCALLY SUPPLIED COMPONENTS	4
TABLE 2.4	MATERIALS USED TO FABRICATE METAL COMPONENTS	5
TABLE 2.5	NON-METALLIC COMPONENTS.....	5
TABLE 2.6	PAINT AND RUST PROOFING	7
TABLE 2.7	OUTSOURCED COMPONENTS.....	7
TABLE 2.8	CURING	8
TABLE 2.9	STEPS IN THE CONSTRUCTION PROCESS AND QUALITY CONTROL	8
TABLE 2.10	STEPS IN THE CONSTRUCTION PROCESS	14
TABLE 2.11	DWDU CONSTRUCTION SCHEDULE.....	14
TABLE 2.12	OPTIONS FOR PROCUREMENT AGENTS	15

²³ The financial model may be requested via email at nvm@itpi.co.in or tjh@itpi.co.in.

2.1 WDU design concept and features

The design concept groups together each of the essential elements required for waste disposal at a primary health facility and integrates them into a single Waste Disposal Unit (WDU).¹

The major advantages of a design concept are:

- **Economic:** A single shelter protects the incinerator, waste store, fuel store, records, tools, clothes, ash and needle pit. This reduces costs substantially when compared with separate locations for waste storage, incinerator protection, etc.
- **Security:** A single, locked enclosure protects the waste store, fuel store, incinerator, ash pit and needle pit.
- **Convenience of use:** Waste, fuel, records, tools, clothes and ash deposit are placed at a single protected location.
- **Minimized exposure to toxic emissions:** Minimal ash handling; chimney emissions directly into outside atmosphere; good cross ventilation; and air extraction above loading door help to minimize exposure to toxic emissions.
- **Labor saving:** Collected waste can be safely deposited for storage in the WDU without involving the operator, as there are holes for safety boxes and needle containers in the WDU.
- **Motivation for operator:** The operator has the sole rights of access to the WDU location, hence a sense of ownership which encourages good operating practices.

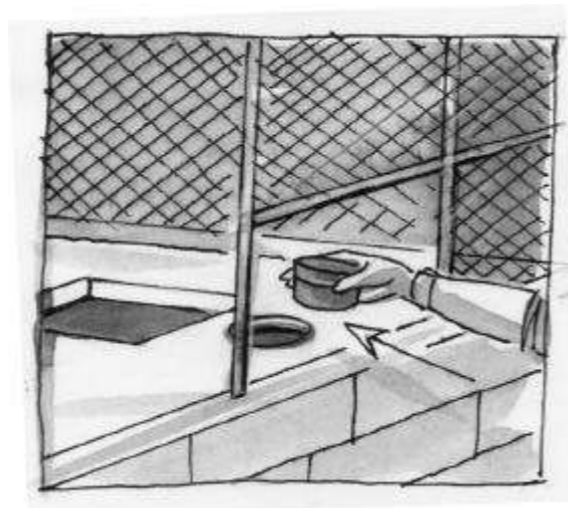
2.2 A brief description of the operational aspects and storage capacities

The WDU occupies an area of about 2.6 m x 3 m. The layout of the WDU is such that the safety boxes and other waste to be disposed are stored in a designated area at ground level adjacent to the incinerator prior to being loaded for burning through the loading door, which is at the top of the incinerator. Preheating and supplementary fuel is stored at ground level also adjacent to, but on the other side of, the incinerator before being used. The fuel is then use for lighting and preheating the incinerator by loading through the ash door at the front of the incinerator.

The incinerator can be readily accessed for purposes of cleaning, maintenance and safety. Ash from the incinerator is dragged with a rake directly into the ash pit positioned directly in front of the ash door, and does not need to be collected and moved. A convenient location is provided to store tools, protective clothing and records. A shelter with a lockable door, combined with a protective fence, protects the entire facility from the elements, and makes the facility completely secure.

A needle pit hole to deposit needles

Figure 2.1 Holes to deposit safety boxes and needles



directly into the needle pit is accessible from outside the facility. Safety boxes can also be added to the waste store through a drop-box type of arrangement, without having to open the doors of the WD, as show in Figure 2.1.

The incinerator is designed to burn 6 to 7 kg/hr of waste. If it is used for 2 hours per day for 5 days a week, the current “Best Practices”, it destroys 280 safety boxes per month.²

The ash and needle pit has a volume of 3.25 m³ (meters cube). This capacity can store ash and needles generated over a 10-year period. There will be no need to empty the pit if the incinerator is used to maximum capacity. It can, however, be readily emptied by removing the slabs at ground level that cover the ash and needle pit, should the need arise.

The waste store has the capacity to store more than 200 reasonably well-arranged five-litre size safety boxes (or 130 boxes randomly placed), in addition to soft medical wastes. This represents more than a week’s supply, assuming 12 boxes per day burned over a period of 2 hours.³ Personnel responsible for handling the waste can deposit the safety boxes and plastic containers into the secured zone through the drop-box, without having to unlock the WDU.

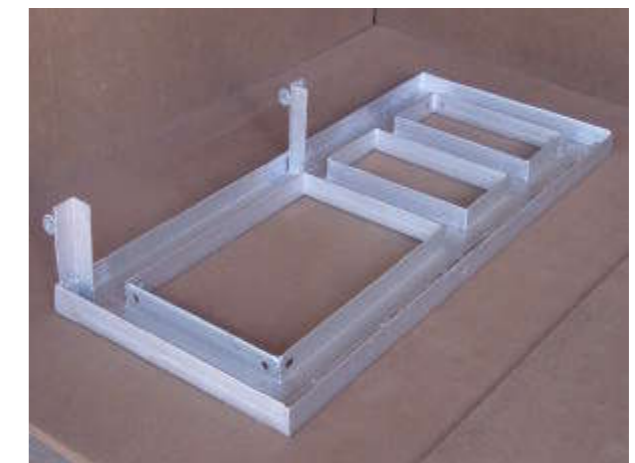
The fuel store has the capacity to store wood, coconut or other combustible agro-waste sufficient for one week, assuming daily burning sessions.

2.3 Construction drawings

The construction drawings presented here are produced according to approved civil and mechanical engineering drafting practices.⁴ Metallic and civil components are dimensioned in millimeters (mm). To assist persons less familiar with orthographic projection, each fabricated component or sub-assembly is also shown as a 3D isometric drawing or photo image (e.g., see Figure 2.2.). The WDU components and associated drawing references, where applicable, are displayed in Table 2.1, Table 2.2, and Table 2.3. When the “kit procurement option” is chosen (see paragraph 2.4.3), items identified in Table 2.3 as included in the kit are supplied as a consolidated shipment of components inclusive of refractory bricks, mortar, etc.

Each drawing of a fabricated metallic component includes a list of the component parts and the dimensions used to make the fabricated component. Tolerances (the free play between moving components) are specified where applicable. The type of finish or protective coating required for each component is also specified.

Figure 2.2 Example of photo image to assist metal worker



² Rapid assessments conducted in several countries in 2003 did not identify sites burning this quantity per month. For example, the average number in Burkina Faso was 58 safety boxes per month.

³ Burning according to “Best Practices” should not exceed these levels if it is to be in compliance with environmental norms for use of the De Montfort incinerator that are considered acceptable.

⁴ ISO 128-1:2003

¹ (See. Section I: Figure 1.2 for details.)

The complete set of construction drawings for the fabricated metallic, masonry and outsourced components are shown in the Appendices.

Table 2.1 Assembly drawings and sectional plans

Title of assembly drawing or plan	Drawing ref. No.	General description
Excavation Plan	CV/00	Dimensions of excavation plan
Foundation Plan	CV/01	Details of footing for the ash pit walls
Plan at 0.9 m Level	CV/03	Top view of the floor at the base of the incinerator
Masonry Work Details for Incinerator	CV/04	Sectional side view of the incinerator (centreline of incinerator)
Plan at 1.8 m Level	CV/05	Top view downwards from 1.8 m
Side Elevation (section AA of CV05)	CV/06	Sectional side view of the WDU (centerline of incinerator)
Roof Plan	CV/14	Top view downwards of corrugated sheets on roof trusses and rafters

Table 2.2 Locally supplied materials and components

Title of drawing or component	Drawing ref. No.	General description of components or materials	Quantity/ WDU
Pre-Cast Components	CV/02	Pre-cast slabs and item details	1 Set
Steel Column 1A-1B	CV/07	Fabricated steel column for the shed	1 Set
Steel Column 2A-2B	CV/08	Fabricated steel column for the shed	1 Set
Steel Column 3A-3B	CV/09	Fabricated steel column for the shed	1 Set
Steel Chain Link Panels and Doors	CV/10	Chain Link Doors and Panels	1 Set
Steel Horizontal Connectors	CV/11	Horizontal members	1 Set
Steel Diagonal Support, Rafters, Purlins	CV/12	Details for diagonals, rafters and purlins	1 Set
Steel Fabricated Storage Box	CV/13	Cabinet for keeping tools, tackles, records, etc. for the operators	1 Set
GI Corrugated Roof Sheet	CV/15	GI corrugated sheets with apertures for chimney	1 No.
Chimney support cables	None	4-6 mm diameter stranded corrosion resistant.	3 lengths of 6m
G I Corrugated Roof Sheet	None	= or >1.5 mm gauge, galvanized or equivalent. (sheet = 2 m x 1 m)	9
Hollow Concrete Blocks	None	Ref. Tech Spec: Table 2.5, Item 4)	115 Nos.
Portland Cement	None	Ref. Tech Spec: Table 2.5, Item 5)	2.25 tons
Sand: For Concrete Structure	None	Ref. Tech Spec: Table 2.5, Item 6)	3.95 m ³
Aggregate (Gravel): RCC and PPC	None	Ref. Tech Spec: Table 2.5, Item 7)	1.53 m ³

Table 2.3 Imported (Kit) or locally supplied components

Title of drawing or component	Drawing ref. No.	General description of component or materials	Quantity/ WDU
Fabrication Drawing for Top Frame (PART A)	ML/FAB/001	Fabrication and material details: top frame and loading door hinge	1
Fabrication Drawing for Loading Door (PART B)	ML/FAB/002	Fabrication and material details: loading door and hinge pin	1 Set
Fabrication Drawing for Front Door Frame (PART C)	ML/FAB/003	Fabrication and material details for frame of the ash door of incinerator	1 Set
Fabrication Drawing for Front Door (PART D)	ML/FAB/004	Fabrication and material details for the ash door, hinge pin and cotters	1 Set
Fabrication Drawing for Spigot (PART E)	ML/FAB/005	Fabrication and material details for the chimney spigot	1 Set
Fabrication Drawing for Grate (PART F)	ML/FAB/006	Fabrication and material details for the grate	1
Fabrication Drawing for Intermediate Bridge (PART G)	ML/FAB/007	Fabrication and material details for the frame that supports the bridge	1
Fabrication Drawing for Vertical Support (PART H)	ML/FAB/008	Fabrication and material details for the rear vertical support	2
Fabrication Drawing for Vertical Frame (PART I)	ML/FAB/009	Fabrication and material details for the front vertical support	2
Fabrication Drawing for Horizontal Supports(PART J)	ML/FAB/010	Horizontal lower support for the vertical frame	1
A Self-adjusting Draft Control and Tee for Chimney	ML/FAB/011	Fabrication details for self adjusting draft control and tee OR Tech Spec: Table 2.7 Item 0. ⁵	1 Set
Fabrication Drawing for Stove Pipe and Chimney Components OR Outsourced Components	ML/FAB/012	Fabrication and material details for chimney sections, cap and strainer cable fixing, OR (Ref. Tech Spec: Table 2.7, Item 2)	8 sections pipe. 1 set comps.
Stovepipe thermocouple and analogue dial indicator	None	Ref. Tech Spec: Table 2.7, Item 1). ⁶	1
Refractory Brick	None	Ref. Tech Spec: Table 2.5, Item 1)	180 Nos.
Refractory Cement OR Refractory Mortar	None	Cement: Tech Spec Table 2.5, Item 2). Mortar: Tech Spec: Table 2.5, Item 3)	30 kg or 110 kg
High Temperature Paint	None	Ref. Tech Spec: Table 2.6, Item 1)	2 kg
Rust Proof Primer	None	Ref. Tech Spec: Table 2.1, Item 2)	2 kg

The quantities of materials indicated in Table 2.2, 2.3, and 2.4 are estimated actual quantities. The quantities should be procured a little in excess of the suggested figures. The margin will

⁵ Source Ref: Red Hill General Store, 21 Oak Knoll Drive, Hillsville, VA 24343, USA, Phone: +1-800-251-8824, Fax: +1-276-728-5885, Email: sales@redhillgeneralstore.com

⁶ Source Ref: Source Ref: Duggal Bros, 610 Budhwarpet, Pune 411002. Tel: 0091 20 24459288. Fax 0091 20 24463726

depend upon the numbers of WDUs to be constructed by a single entrepreneur (i.e. 20 percent margin for less than 5 WDUs, and 10 percent margin for more than 5 WDUs).

Estimated quantities of metallic materials are provided in Table 2.4.

Table 2.4 Materials used to fabricate metal components

Item	Description	Quantity/WDU
MS Angle	35 mm x 35 mm x 6 mm	182 m
MS Plate	3 mm thick	2.3 m ²
MS Flat	35 mm x 3 mm	4.0 m
GI Flat Sheet	= or >1.5 mm gauge. 2 m x 1 m	2 No.
GI Corrugated Sheet	= or >1.5 mm gauge. 2 m x 1 m	,9 nos.
Chain Link Fence	40 mm mesh, 3 mm dia wire	16 m ²
Nuts, Bolts, Washers	M8 x 30 mm long	200 Sets
Nuts, Bolts, washers	M8 x 50 mm long	100 Sets
J Bolts, Washers, Tar Washers, Nuts	M8 x 125 mm long	100 Sets
Strainer Cables,	4-6 mm diameter stranded corrosion resistant.	3 lengths of 6 meters each
Strain Adjusters, End Lugs and Clamping Bolts for Strainer Cables	To fit each 4-6 mm diameter strainer cable Corrosion resistant	3 sets ⁷
Reinforcing Bar	10 mm dia mild steel, - 0.395 kg/m	50 m
	6 mm dia mild steel, -0.222 kg/m	80 m

Materials for all components are standardized to the extent possible and are specified by category in Table 2.5 to Table 2.8.

Table 2.5 Non-metallic components

1) Refractory Brick	Quantity/WDU	180 (includes 10% margin)		
Dimensions	Standard size (mm)	225	112.5	62.5
Temperature range:	Up to 1200 ⁰ C.			
	Duty cycle: 8 hrs (ambient to 1200 ⁰ C) for 3000 cycles			
Composition	Al ₂ O ₃	Fe ₂ O ₃	SiO ₂	CaO
	>40%	< 2%	<50%	<15%
Other components may include TiO ₂ , MgO, Na ₂ O, K ₂ O etc., but the total will not exceed 2%				
Thermal conductivity	Low thermal conductivity less than 0.5 W/mK			
Structural strength	Cold crushing strength not less than 40 MPa			
Porosity:	20-25%			

⁷ A set is comprised of 4 end lugs, 8 cable clamps, and 1 strain adjuster.

2) Refractory Cement	Quantity/WDU	30 kg (Includes 10% margin) ⁸		
Composition	Al ₂ O ₃	Si O ₃	Fe ₂ O ₃	CaO
	> 40%	<1%	< 2%	>2%, <40%
Curing times (min.)	Initial: 24 hours before first firing			
Temperature range:	Daily cyclic temperature range: ambient to 1200 ⁰ C			
	>3000 duty cycles			
3) Refractory Mortar	Quantity/WDU	Approx 110 kg		
Mixing ratio	Water/Mortar ratio = 0.2:1			
Curing time	Keep the surface from drying out by covering with wetted cloth or burlap if the weather is hot or dry and should be allowed to cure for at least 24 hours before firing			
Temperature range	The initial firing, known as calcining, is critical. During this time the refractory is slowly heated from room temperature to the full operating temperature. This should be done over a long time as well, to allow the moisture to escape the refractory.			
Structural strength	Cold crushing strength: Not less than 40 Mpa			
4) Hollow Concrete Blocks	Quantity/WDU	115 (includes 10% margin)		
Size/Strength	400 x 200 x 100 mm crushing strength: 50 kg/cm sq			
5) Portland Cement	Quantity/WDU	0.73 m ³ (Approx. 2226 kg)		
Grade	Ordinary Portland cement (O.P.C) 143 grade			
6) Sand: Concrete Structure	Quantity/WDU	3.05 m ³		
Sand specification	<4 percent silt or clay <2 percent mica granular size < 2 mm			
7) Aggregate (Gravel): RCC & PPC	Quantity/WDU	1.53 m ³		
Specification	5 parts < 40 mm, 2 parts < 12.5 mm, 1 part < 3.35 mm			

⁸ Frequently supplied as premixed mortar, in which case 110Kg required.

Table 2.6 Paint and rust proofing

1) High Temperature Paints	Quantity/WDU	2 kg
Specification	Silver or Black. Polymer-based, usable up to 700° C. Curing (bake) at 200° C for 1 hour. Sprayed or applied by brush. Sand surface prior to application to remove oxidation. Clean surface with Xylene or equivalent. Alternative: (1200° C) water-based paint with Al, Zn and Iron Oxide in the pigment.	
2) Rustproof Primer	Quantity/WDU	2 kg
	Weldable primer. Recommended only at welded seams	
3) External Paint	Quantity/WDU	5 kg
	Zinc-based, external grade	

Table 2.7 Outsourced components

<p>1) Stovepipe thermocouple and analogue dial indicator</p> <p>Range 0-1200 °C.</p> <p>Source Ref: Duggal Bros, 610 Budhwarpet, Pune 411002. Tel: 0091 20 24459288. Fax 0091 20 24463726</p> 	<p>3) A Self-adjusting Draft Control and Tee for Chimney</p> <p>Operating temperature: 0-800° C; 6" Draft Control; fine-threaded Adjustment Stud with balance weight on end; gives good regulation; Draft regulated by turning adjustment screw; made of 28 gauge blued steel; adjustment range: .01 in. to .12" .</p> <p>Source Ref: Red Hill General Store, 21 Oak Knoll Drive, Hillsville, VA 24343, USA, Phone: +1-800-251-8824, Fax: +1-276-728-5885, Email: sales@redhillgeneralstore.com</p>
<p>2) Chimney Pipe</p> <p>Black Stove Pipe 24" straight joint, 6" black, 6" X 24", 24 gauge; entirely self-locking; no tools needed to close seams; put together by simply inserting tongue on one edge and pressing together until it snaps. Joint can be cut to any length without destroying the lock.</p> 	

Table 2.8 Curing

1) Refractory Mortar	Initial: >24 hours before first firing First Firing: Low gentle heat NOT exceeding 250 ⁰ C for 3 hours
3) Masonry/Concrete Structure	Initial: 7 days to 50% strength Full: 28 days to full strength

2.4 The construction process

2.4.1 Tasks

Prior to starting construction, all construction materials and metallic components should be made available at the site and inspected along with the tools required for construction. The health care facility should provide a safe place to store the materials during construction. The tasks involved at each step in the construction process are detailed in Table 2.9.

Table 2.9 Steps in the construction process and quality control

Task	Sub-Task	Drawing Reference	Level of Effort (person days)
Preparation	Procure materials and manufacture or import components. Transport all WDU components and materials to site, check and store them carefully.	All items listed in Table 2.2 and Table 2.3. Figure 2.3. STEP 1.	2 days (excluding component manufacturing time)
	WDU foundation and Ash/ Needle Pit	Excavation	
	Footings to floor level	Foundation Plan: CV/01 and Figure 2.3. STEP 3	21
	PCC slab under incinerator and RCC removable slabs	Precast Components: CV/02. Plan at 0.9 m Level: CV/03 and Figure 2.3. STEP 4	
	Curing		
	<i>Inspection and Quality Control (1)</i>		
De Montfort Incinerator	Metallic frame grouted into PCC slab	Figure 2.3 STEP 5 and STEP 6	10
	<i>Inspection and Quality Control (1a)</i>		
	Lower section refractory brickwork	Masonry Work Details for Incinerator: CV/04. Figure 2.3. STEP 7 and STEP 8	
	Bridge and intermediary refractory brickwork	Figure 2.3. STEP 9	
	Upper refractory brickwork with Ash, loading door & spigot assembly	Figure 2.3. STEP 10	
	Curing		

Task	Sub-Task	Drawing Reference	Level of Effort (person days)
	<i>Inspection and Quality Control</i>		
WDU wall, roof and enclosure structure	Masonry walls, RCC removable slabs needle and safety box aperture	Plan at 1.8 m level: CV/05 and Figure 2.3. STEP 11	12
	Curing		
	Roof trusses	Side Elevation (section AA of CV05): CV/06 and STEP 12 and STEP 13	
	Roof cladding	Roof Plan: CV/14	
	Chimney, cap and draft control		
	Temperature Indicator		
	<i>Inspection and Quality Control</i>		
WDU finishing	Operator work zone		13
	External/Internal rendering of walls		
	Mesh fence, door and storage fittings	STEP 14.	
	<i>Inspection and Quality Control</i>		

To understand the construction process better, Figure 2.3 shows pictorially the sequence of each important step in the construction process.

Figure 2.3 Sequence of steps in construction process

Figure 2.3.1 All construction material available at site

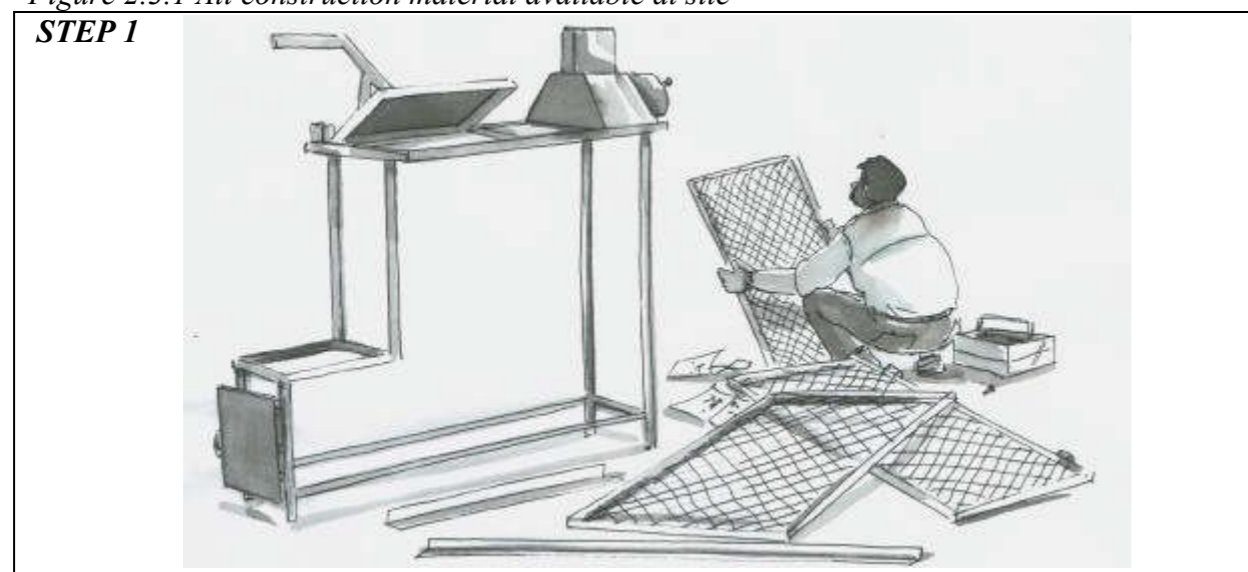


Figure 2.3.2 Digging WDU foundation and ash pit



Figure 2.3.3 Pouring incinerator slab and supporting wall

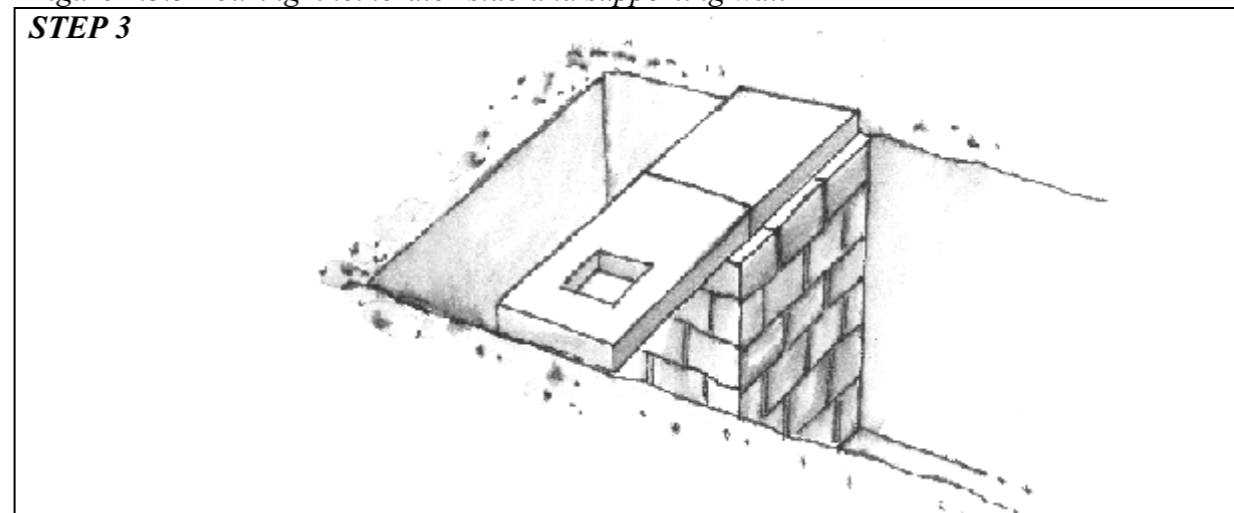


Figure 2.3.4 Placing RCC removable slabs

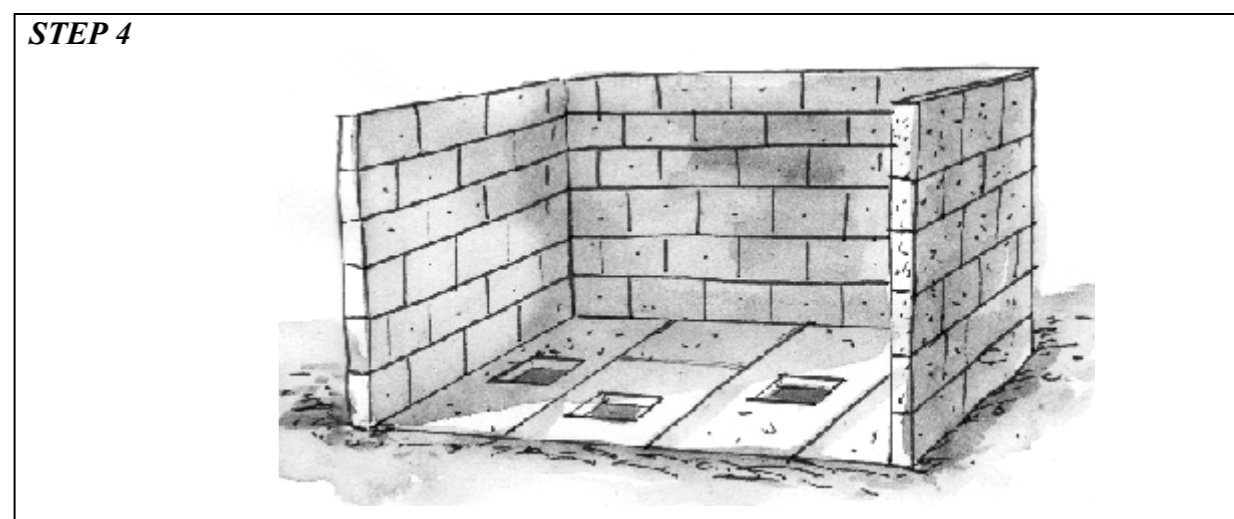


Figure 2.3.5 Placing metallic frame and grouting frame in PCC slab

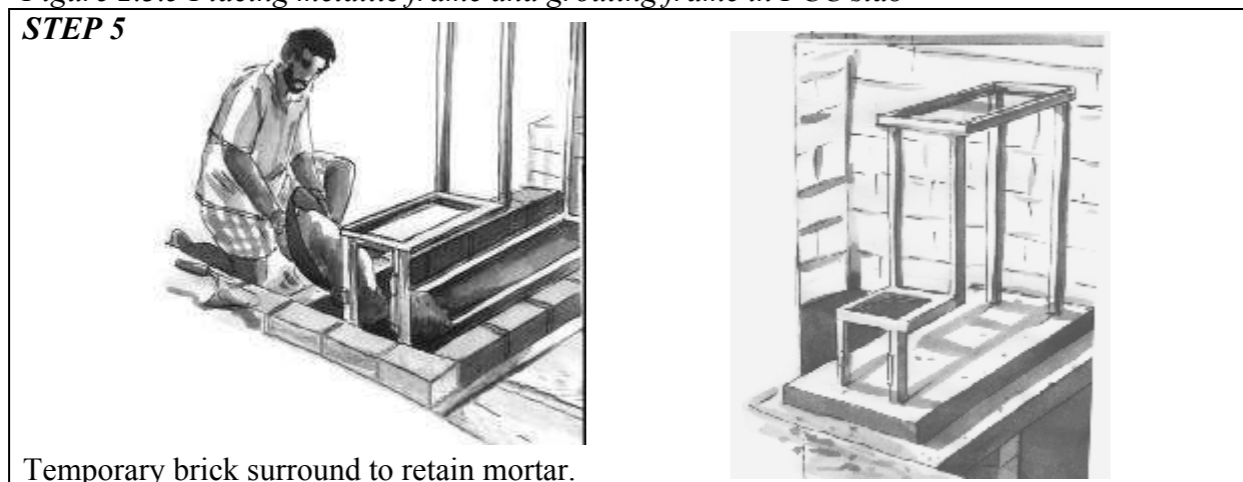


Figure 2.3.6 The metallic frame grouted in the PCC slab, ready to start refractory bricks

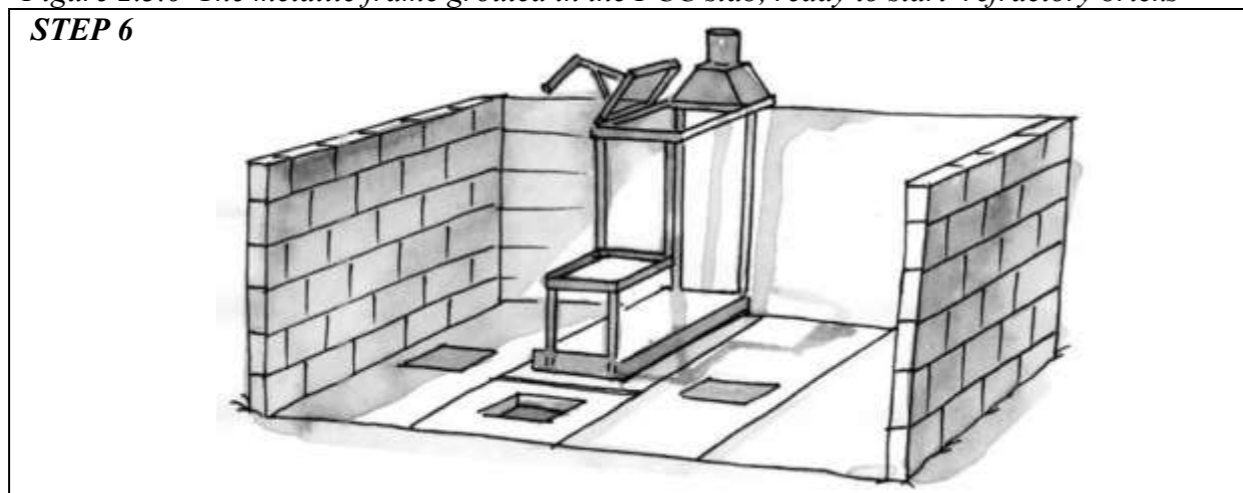


Figure 2.3.7 Mounting refractory bricks around metallic frame

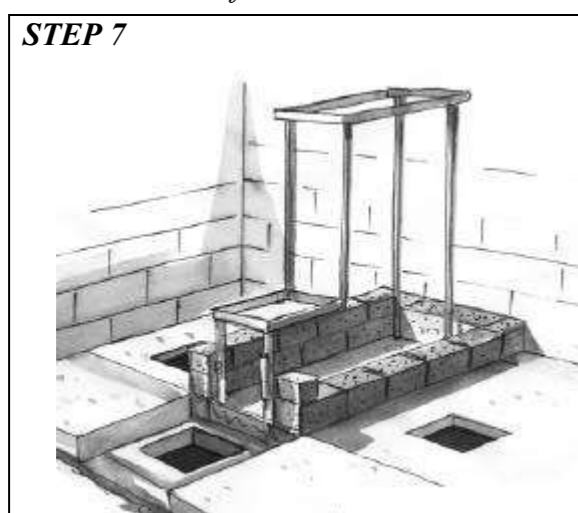


Figure 2.3.8 Building refractory bricks and positioning block of bricks in base.

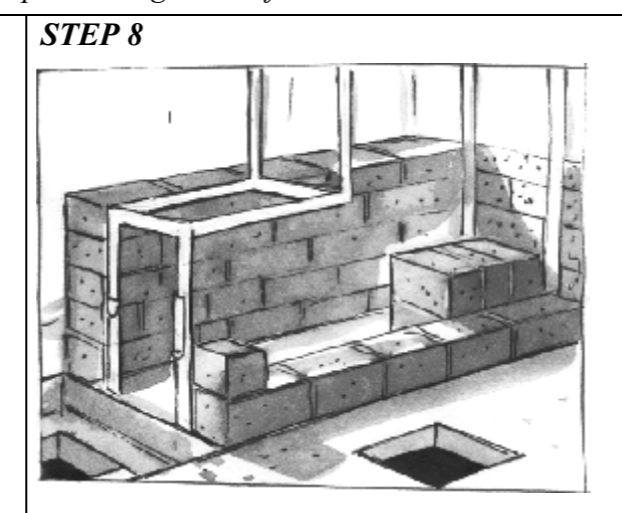


Figure 2.3.9 Adding refractory bricks around ash door and bridge

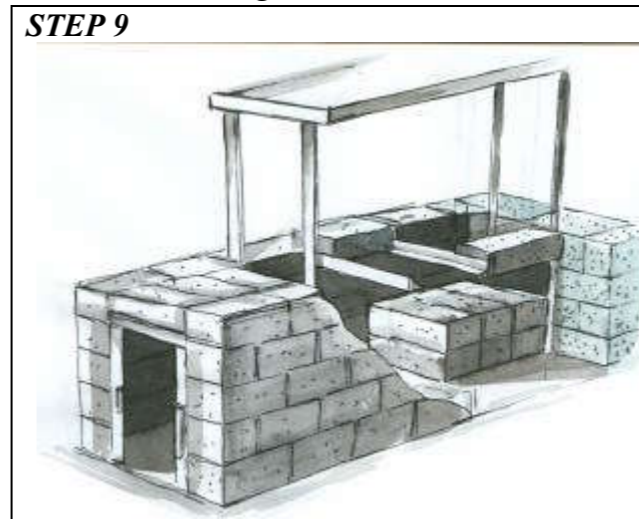


Figure 2.3.10 Finished incinerator masonry with loading door

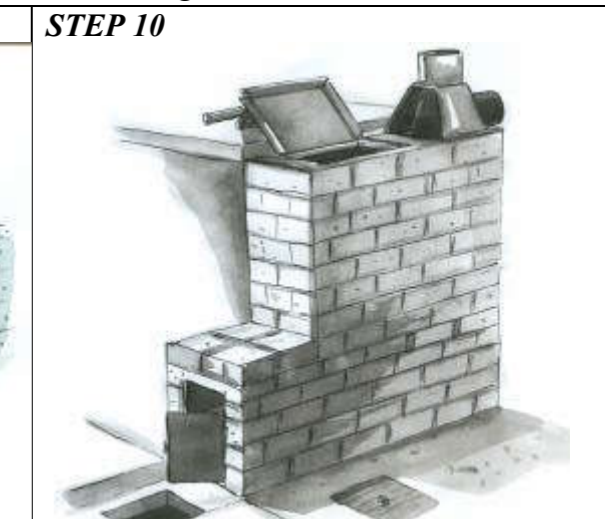


Figure 2.3.11 Placing Slabs on finished incinerator brickwork.

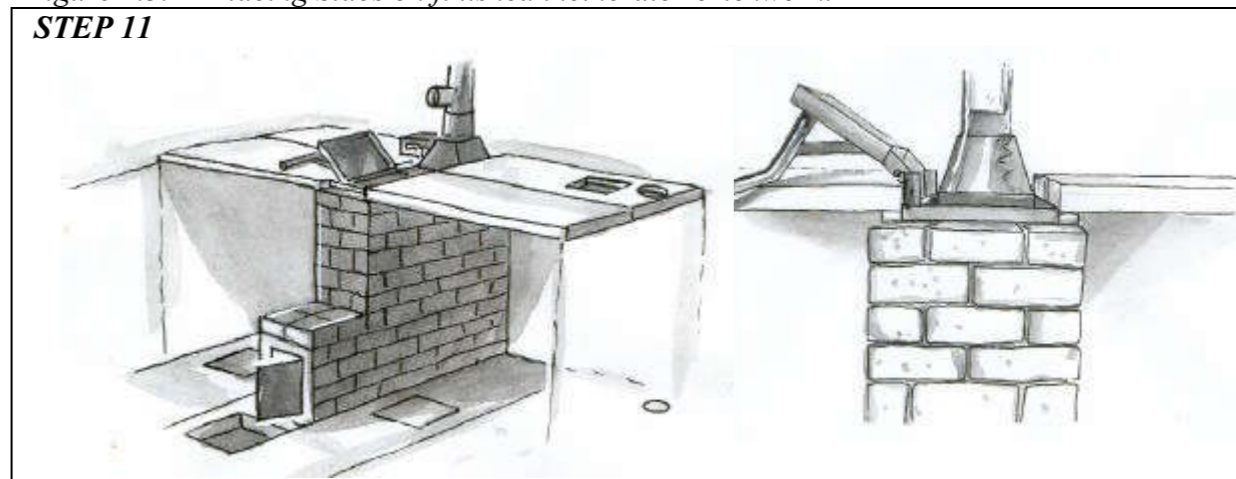


Figure 2.3.12 Shelter and enclosure support frame

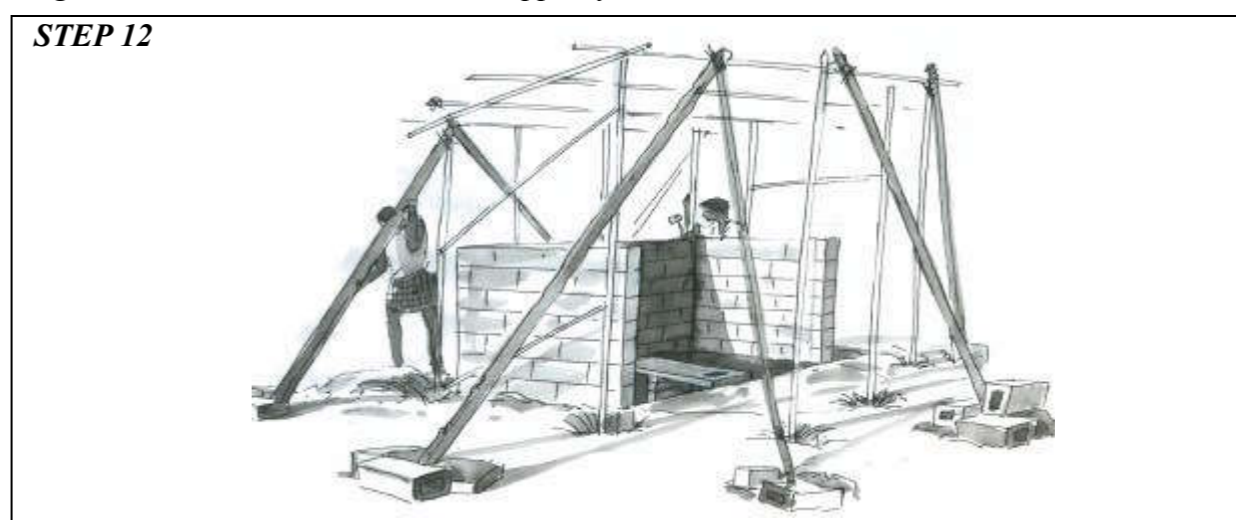


Figure 2.3.13 Roof cladding and door with safety box aperture

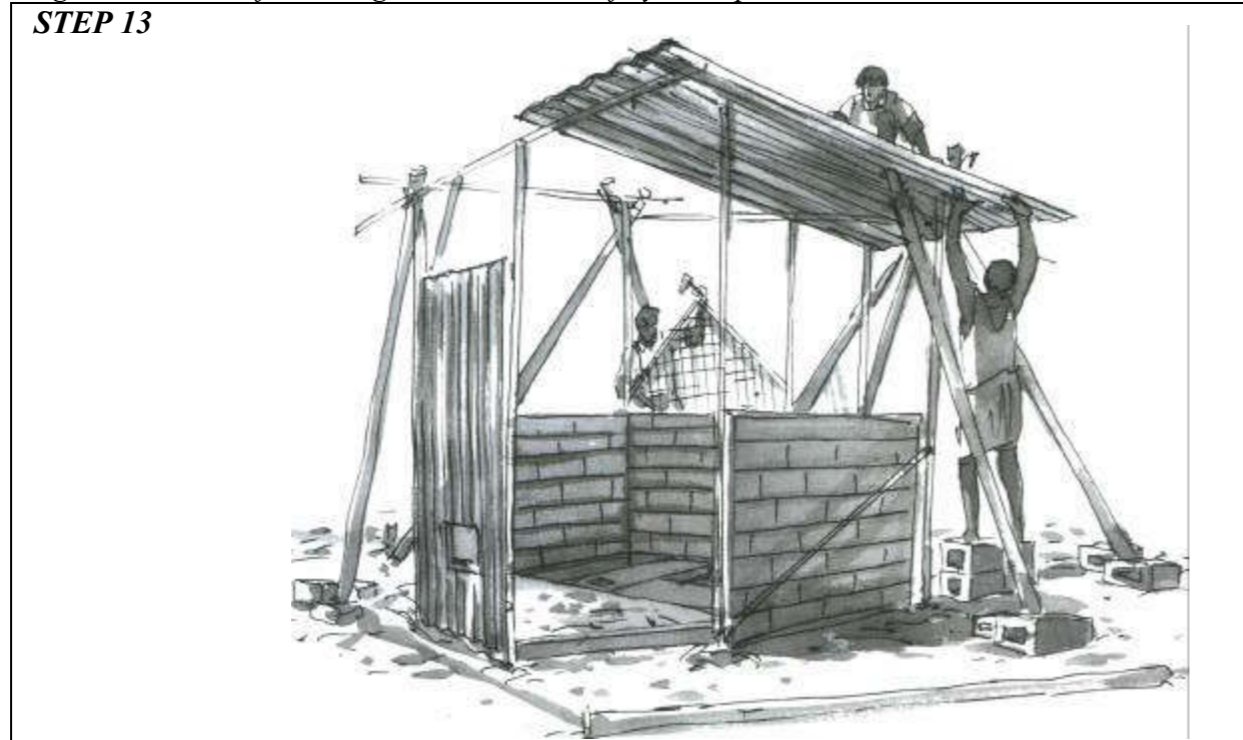


Figure 2.3.14 Finished WDU with chain link fence, spigot and ash door mounted



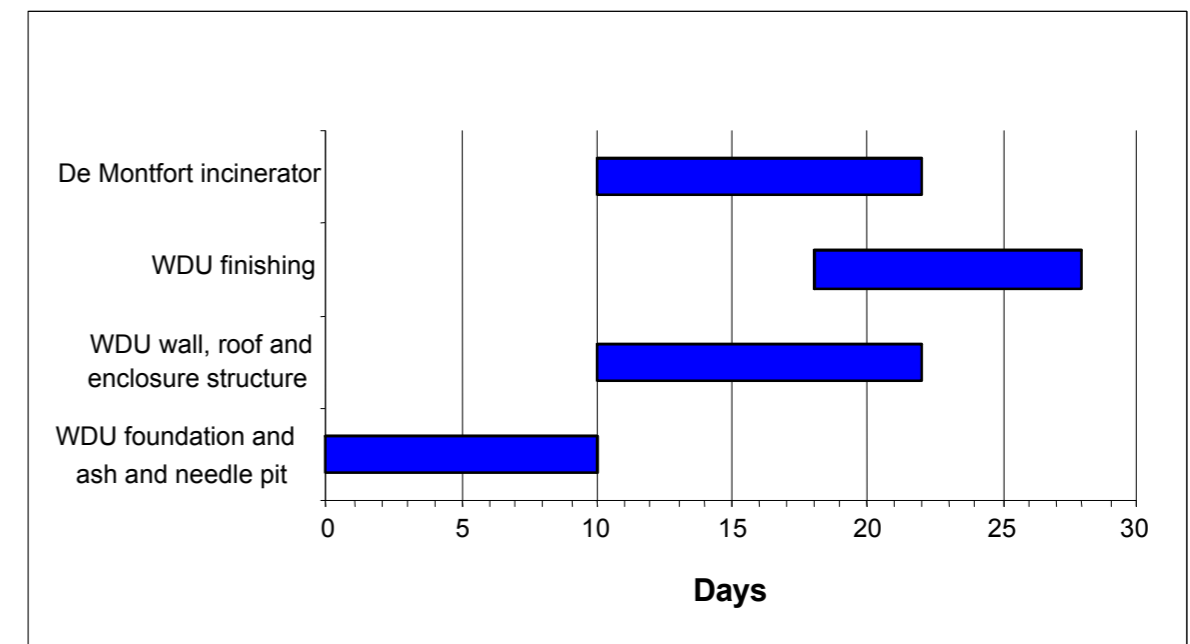
2.4.2 Construction timeline

The time required to build a WDU will depend upon workforce availability, skills and quality control. It should take approximately 1 to 4 weeks. Table 2.10 and 2.11 show the sequence and the linkages between the construction activities.

Table 2.10 Steps in the construction process

Step in the Construction Process	Start Day	Duration (No. of Days)
WDU foundation and ash/needle pit	0	9
WDU wall, roof and enclosure structure	10	12
WDU finishing	18	10
De Monfort incinerator	10	12

Figure 2.4 DWDU Construction Schedule



2.4.3 Kit or local manufacturers' method

When planning HCWM programs, two options could be considered for procuring the components and labour of the Waste Disposal Unit. Table 2.11 assists procurement agents to choose an appropriate option.

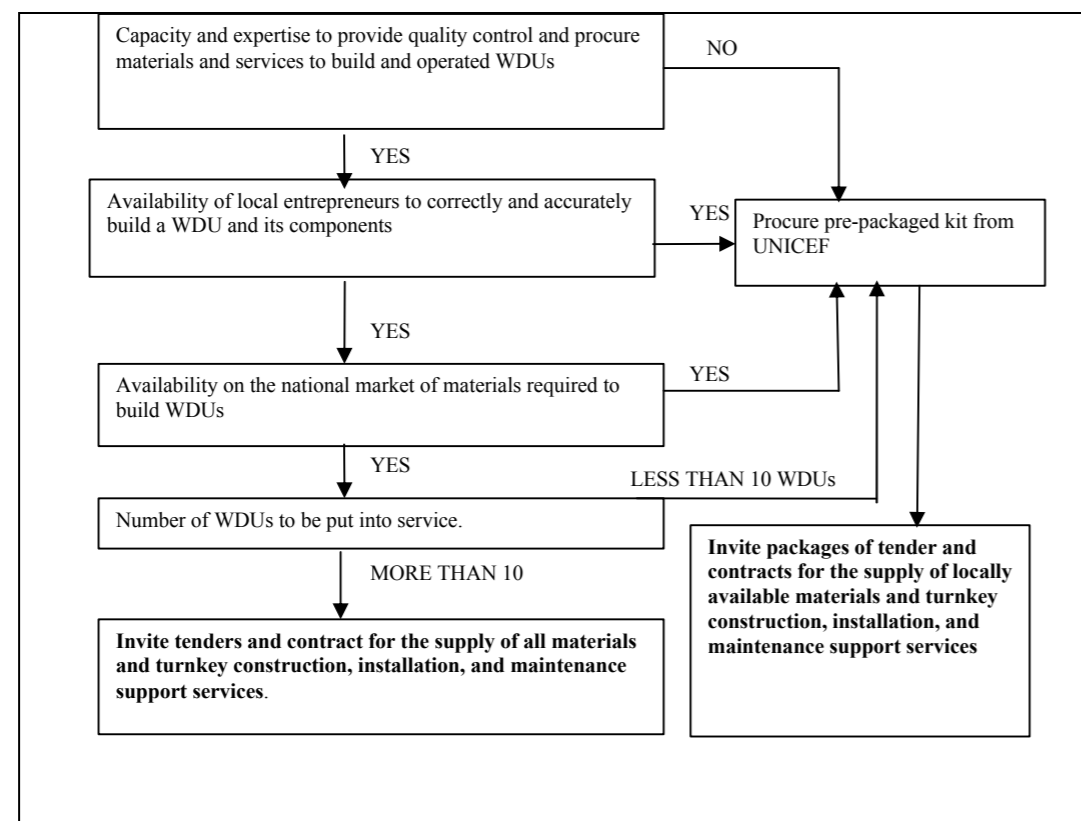
Table 2. 11 Options for procurement agents

Option 1: Imported Kit Pre-packaged/Imported components	Option 2: Local Locally sourced components
The pre-packaged kit includes everything which is listed in Table 2.3. Procure a pre-packaged kit from UNICEF (listed in Product Information Sheets PIS/PQS), which includes all the fabricated metal components and the other materials (e.g. refractory bricks/cement) not readily available in the country where the HCWM program plans to use the WDUs.	Invite tenders and contract for the supply of all materials and turnkey construction, installation, training and maintenance support services.
The kit does not contain everything that is required and some things have to be procured locally. Invite tenders and contract locally for the supply of locally available materials not included in the UNICEF kit These materials are defined in Table 2.2. Also invite tender for turnkey construction, installation, training and maintenance support services.	Provide quality control, or contract experienced consultant services.
Provide quality control, or contract experienced consultant services.	

2.4.4 Decision process for procurement approach

Figure 2.5 outlines the flow diagram for the Procurement Approach.

Figure 2.5 The decision to procure a flow diagram



2.5 Tender specification

Tender specification addresses the following main components: construction, training, and maintenance.

A limited number of entities should be invited to submit their tenders. Tendering procedures must be aligned with local practices, with clear recourse to the contractor in the event of sub-standard or non-performance. The selected contractor must deliver according to the tender specification.

The essential elements of each component are summarized below.

2.5.1 Construction

In addition to the standard provisions defined by international agencies and national governments, the tender specification should contain the following:

- Set of plans and assembly drawing as listed in Table 2.1.
- Set of drawings and quantities of locally supplied materials and components as listed in Table 2.2.
- Set of engineering drawings as listed in Table 2.3
- Specifications and estimated quantities of metallic materials as listed in Table 2.4.
- Specifications and estimated quantities of non-metallic components as listed in Table 2.5.
- Specifications and estimated quantities of paint and rust proofing, outsourced components and curing procedures as listed in Table 2.6, Table 2.7 and Table 2.8 respectively.
- A list of steps in the construction process defined in Table 2.9 according to the construction schedule in Table 2.11.
- Definition of the Quality Control process (specified by procurement agency).
- Component, provisional and final receiving report templates (specified by procurement agency).
- Terms and conditions of a performance bond or some similar arrangement to ensure that maintenance services are assured over 10 years.

2.5.2 Training

Rapid assessments of experiences operating the De Montfort incinerators highlight the importance of operator training and the impact of training on achieving “Best Practices”.

Tender specification should include provision for the following training:

- 1) Introductory training for all new WDU operators.
- 2) Retraining of WDU operators after approximately one year of operational experience.
- 3) Follow on training/retraining as deemed necessary to ensure operation of WDU as per “Best Practices”

The scope and content of each training component is provided in Section III: Training for operators of the De Montfort waste disposal unit.

An “Operator’s Manual” should be provided to each operator trained.

The training plan needs of supervisory staff assigned HCWM responsibilities at primary health facilities are not addressed in these guidelines. Supervisory staff should be familiar with these “Best Practices” for a WDU operation.

Operator training/re-training costs estimates are presented in Section I.

2.5.3 Maintenance

Feedback from evaluations of country programs clearly indicates that the invitation for tenders should not be restricted to a “construction contract”. Training and maintenance should necessarily be included to ensure quality and sustainability. Maintenance options must be carefully considered when inviting tenders. Also, success stories of local maintenance practices should be considered.

Well-known and proven maintenance practices include:

- Inclusion of an “Annual Maintenance Contract (AMC)” with a payment structure comprising an initial disbursement for installation services, subsequent annual disbursements for maintenance services, and a retainer (performance) bond payable upon successful completion of services. This approach is often difficult for funding agencies to administer since the payments extend over a long timeframe.
- Inclusion of a Maintenance Contract (MC), with a payment structure where the discounted value of maintenance over the maintenance period is paid upon fulfilling the installation and training requirements. A declining guarantee facility or performance bond deposited by the contractor is mandatory to ensure quality services are provided.⁹
- Inclusion of a Maintenance Contract, where the negotiated amount for installation and services, plus operating fee, are assigned to a bank or Non-Banking Financial Intermediary (NBFC) along with a “draw-down” agreement. The HCWM supervisor would have to certify, at each primary health facility, that the WDU has been adequately serviced and is functioning effectively. The contractor would then present signed certificates to the assigned bank or NBFC to release any payment due.

The scope and services of maintenance are outlined in Section IV. The estimated cost of maintenance is provided in Section I.

2.6 Contractor selection

The quality of services in many countries where the De Montfort incinerators have been installed has been unsatisfactory, resulting in sub-standard construction, sub-optimal performance, and dissatisfaction at the national government level.¹⁰

The poor quality is primarily an outcome of inadequate quality control and the lack of experience of entrepreneurs contracted for the services.

In programs where installation and maintenance services have to be contracted for more than 10 WDUs, the contracts should be awarded only to contractors who demonstrate technical and managerial capacity.

⁹ As the age of the equipment increases, the performance may decrease, hence the guarantee will be less as time progresses.

¹⁰ Small-Scale Incinerator Rapid Assessments in Kenya and Burkina Faso, PATH, June 2003. For more information, contact Terry Hart via email at tjh@itpi.co.in.

A potential contractor can demonstrate technical capacity by building a WDU. The WDU could either be the pre-packaged kit type or locally manufactured, depending upon the option adopted in a particular program. Agencies soliciting tenders should shortlist qualifying tenders and then invite the short-listed bidders to build a demonstration model. The bidder must supply the materials.¹¹

Contractors should satisfy the following criteria:

- Construction or supply of incinerator metallic components as defined in Table 2.3 to be 100 percent compliant with the engineering drawings provided in the Appendices. (Does not apply to kit-type WDUs.)
- Construction of WDU to be 100 percent compliant dimensionally with engineering drawings provided in the Appendices.
- All materials must meet specifications defined in Table 2.5 to Table 2.8.
- Cold crushing strength¹² of the refractory mortar used for the incinerator should not be less than 40 Mpa or Mega Pascal (N/m²).
- The installed WDU must satisfy the agency and/or representative of the national government upon visual inspection.

2.7 Quality Control

The failure of a number of HCWM programs has been attributed to poor quality control. Strict quality control is essential beginning with the program planning stage through to the construction and training stages, and throughout maintenance service.

The onus of quality control falls on the agency and/or national government responsible for the HCWM program planning and implementation. If professional resources are not available to ensure adequate quality control, then the services should be outsourced. (This is a common practice throughout construction industry.)

Quality control is required during all the phases with regard to the following:

- 1) **Planning and preparation:** Validate decisions on the mode of contracting for services and materials (kit or local procurement), specifically; inputs which determine whether to adopt the kit or local procurement approach, and choices related to tender document formulation, and bid evaluation.
- 2) **Materials reception:** Verify compliance of materials supplied with the technical and material specifications.
- 3) **Evaluation of demonstration models:** The demonstration models constructed by the short-listed tendering entrepreneurs need to be evaluated.
- 4) **Construction phase:** Verify each step as defined in the construction timeline (see Table 2.10)

¹¹ The costs of the demonstration model should be reimbursed to the bidder awarded the contract. The contract is awarded for a specific number of units. Hence, it is possible to either a) absorb the cost of the building WDU at a convenient site or b) build a demonstration unit on a site where it is required anyway. This approach helps to ensure that only serious bidders are involved, and that the quality of their work can be checked prior to giving the contract.

¹² Cold crushing strength refers to the capacity to withstand loading at ambient temperature and not the elevated (operating) temperature.

- 5) **Operator and supervisor training and certification:** Ensure training in “Best Practices” for all operators.
- 6) **Maintenance and service:** Make periodic visits to monitor post-installation maintenance and ensure service support for a 10-year period.

The quality control process should follow regular practices of reporting.

Section III
Training Plan
 (For training operators of the De Montfort waste disposal unit)

Table of Contents

3.1 TRAINING PROGRAM PLANNING AND ORGANIZATION 1

3.2 PARTICIPANTS, FACILITATORS, AND MATERIALS 1

3.3 CALENDAR FOR TRAINERS OF DWDU OPERATORS 2

3.4 TRAINING PROGRAM DESCRIPTION 3

3.5 DAY 1: AGENDA ITEMS..... 3

 3.5.1 INTRODUCTION 3

 3.5.2 HEALTH CARE WASTE MANAGEMENT 3

 3.5.3 SAFETY 3

 3.5.4 INTRODUCTION TO THE DWDU AND ITS PARTS 4

 3.5.5 MANAGEMENT OF WASTE IN THE DWDU 4

 3.5.6 INTRODUCTION TO THE *OPERATOR’S MANUAL* AND THE OPERATOR’S TASKS AND RESPONSIBILITIES 4

 3.5.7 TO BURN OR NOT TO BURN 4

 3.5.8 REVIEW 4

 3.5.9 PREPARATION 4

 3.5.10 GETTING STARTED 4

 3.5.11 LOADING AND DESTROYING MEDICAL WASTE 4

 3.5.12 BURN DOWN/COOL DOWN 5

3.6 DAY 2: AGENDA ITEMS..... 5

 3.6.1 CLEANING, ASH REMOVAL, AND OPERATOR MAINTENANCE RESPONSIBILITIES 5

 3.6.2 RECORD KEEPING AND MONTHLY REPORTING 5

 3.6.3 SECURITY 5

 3.6.4 HANDS-ON PRACTICAL EXPERIENCE: OPERATING THE DWDU 5

 3.6.5 HANDS-ON PRACTICAL EXPERIENCE: CONTINUED 5

 3.6.6 REVIEW SESSION 6

 3.6.7 MAINTENANCE PRACTICES AND SECURITY 6

 3.6.8 FEEDBACK AND TRAINEE INFORMATION SHEETS 6

3.7 RETRAINING OF DWDU OPERATORS 6

FORM 1.....7

FORM 2.....9

3.1 Training program planning and organization

A formal training program is mandatory for operators of the De Montfort waste disposal unit (DWDU). The training program should include all operators, irrespective of whether they are new or experienced.

The organization contracted to install and maintain the DWDUs, or any other organization responsible for training DWDU operators, should administer the training program, which could be held over a two-day period.

A one-day re-training program for all DWDU operators is required on a regular basis (at least once a year for one day) to ensure internalization of “Best Practices.”

Training materials include:

- *Managing Health Care Waste Disposal: Guidelines on How to Construct, Use, and Maintain the De Montfort Incinerator* which comprises Section I: The Waste Disposal Unit: Using the De Montfort Incinerator; Section II: Installation; Section III: Training Plan; and Section IV: Maintenance and Planning. Appendices with construction drawings are also included
- *An Operator’s Manual*, provided by the programme sponsor or through PATH¹, and
- Trainer presentation materials, also provided by the program sponsor or through PATH².

3.2 Participants, facilitators, and materials

Each operator training program should be limited to no more than 10 operators. All trainee operators are to be provided with an *Operator’s Manual* during the training program.

It is recommended that two facilitators conduct the Operator Training Program.

Each training program should be organized close to a location equipped with a functional DWDU built to specification, and equipped with the tools, equipment and materials required to correctly operate it. A supply of fuel, a stock of sharps as well as soft medical waste (sufficient for six burning sessions), and safety equipment should be available for demonstrations (A full list of tools and equipment is provided in the *Operator’s Manual*). It is also important to have simple classroom and projection facilities for presentation purposes.

All DWDU trainee operators attending a training program should be provided with protective clothing, an *Operator’s Manual*, which includes registers to keep records.

¹ Program for Appropriate Technology in Health (jlloyd@path.org)

² Program for Appropriate Technology in Health, for copies of the latest material, contact Mr. John Lloyd at PATH. Email jlloyd@path.org.

3.3 Calendar for trainers of DWDU operators

Table 3.1 below provides trainers with the topics and training schedule to be followed when running an operator training program.

Table 3.1 Training calendar and content

DAY 1		
Time	Topic	Location
9:00 - 9:10	Registration	Classroom
9:10 - 9:30	Introduction to training	Classroom
9:30 - 10:00	Health care waste management	Classroom and visit to health facility
10:00 - 10:20	Safety	Classroom
10:20 - 10:30	TEA	
10:30 - 11:30	Introduction to DWDU and its parts	Site visit to DWDU
11:30 - 11:45	Management of waste in DWDU	Site visit to DWDU
11:45 - 12:15	Introduction to <i>Operator’s Manual</i> and operator’s tasks and responsibilities	Classroom
12:15 - 12:35	To burn or not to burn	Classroom and site visit
12:35 - 13:00	Review	Classroom
13:00 - 14:00	Lunch	
14:00 - 14:20	Preparing to incinerate	Site visit
14:20 - 14:50	Getting started	Site visit
14:50 - 15:50	Loading and destroying medical waste	Site visit
15:50 - 16:00	TEA	
16:00 - 16:30	Loading and destroying medical waste	Site visit
16:30 - 17:00	Burn down/ cool down	Site visit
DAY 2		
9:00 - 09:20	Cleaning, ash removal and operator maintenance responsibilities	Site visit
09:20 - 09:40	Record keeping and monthly reporting	Site visit
09:40 - 09:50	Security	Site visit
09:50 - 10:00	TEA	
10:00 - 13:00	Practical experience	Site visit
13:00 - 14:00	Lunch	
14:00 - 15:30	Practical experience	Site visit
15:30 - 15:40	TEA	
15:40 - 16:40	Review session	Classroom
16:40 - 17:10	Maintenance practices and Security	Classroom and site visit
17:10 - 17:40	Feedback on course and trainee information sheets	Classroom
17:40 - 18:00	Closing remarks	

3.4 Training program description

All classroom presentations will be supported by slides, which are provided in the “*Trainer presentation materials*”.

3.5 Day 1: Agenda items

3.5.1 Introduction (20 minutes: classroom)

Twenty minutes will be devoted to the introduction. It will begin with an “ice breaker” so that participants get to know each other and feel comfortable together. The facilitator will introduce the topic and talk of best practices. The brief outline of the workshop and other logistics will be shared with the participants, and the training course materials distributed.

3.5.2 Health care waste management (30 minutes: classroom and visit around health facility)

This session will discuss how to plan Health Care Waste Management. It will examine the steps in the management process and the operator’s contribution to “responsible health care”. The following elements of waste management will be covered:

- The purpose and importance of good waste management practices.
- Mapping of waste generated within a district and collected at a waste disposal unit (WDU).
- Existing and planned waste segregation and packaging arrangements.
- Human resources and the tasks and responsibilities of the personnel with regard to waste management
- How waste is to be transported to the DWDU
- The alternative methods used to destroy waste, and the advantages and disadvantages.

3.5.3 Safety (20 minutes: classroom)

This session will cover the importance of safety measures to minimize the risks to operators, health workers, the local community, the DWDU and the environment. The topics include:

- 1) Responsible conduct of operators
- 2) Cleanliness of the work area
- 3) Possible effects of toxic emissions on:
 - DWDU operators.
 - Local communities through inhalation exposure, but mainly through consumption of contaminated food.
 - Regional global environment, through the discharge of toxic and persistent chemicals.
- 4) Procedures for dealing with suspected contaminations.
- 5) Personal safety includes vaccinations against hepatitis B, routine hygiene and regular medical examinations.

BREAK (10 minutes)

3.5.4 Introduction to the DWDU and its parts (60 minutes: site visit to DWDU)

The participants will learn about the DWDU. Each component will be defined and described. The participants will also learn about the tools and other related equipment. An experienced operator will demonstrate how to use the incinerator.

3.5.5 Management of waste in the DWDU (15 minutes, site visit to DWDU)

For safe management of incoming waste, the DWDU operators need to follow the steps outlined in the *Operator’s Manual*. The operator has to note down the type, quantity, and origin of the waste.

3.5.6 Introduction to the *Operator’s Manual* and the operator’s tasks and responsibilities (30 minutes: classroom)

All trainee operators are entitled to receive an *Operator’s Manual*. This session will outline the tasks of the operator, which include adhering to “Best Practices”, minimizing risk and maintaining records.

3.5.7 To burn or not to burn (20 minutes: classroom and site visit)

Only if the criteria listed in the *Operator’s Manual* are met should the incinerator be lit. All the safety measures must be followed. Each of the 8 topics for consideration should be reviewed and checked.

3.5.8 Review (25 minutes: classroom)

This session will cover the overall review of 1st day pre lunch sessions. The trainer will clarify the doubts and queries raised by the participants.

LUNCH BREAK (60 minutes)

3.5.9 Preparation (20 minutes, site visit including checks and weighing)

During this session, the facilitator goes through the preparatory steps inclusive of the checklist of materials that must be available at the DWDU. S/he also stresses the fact that wet health care waste should not be burned, petrol (gasoline) should not be used, and protective clothing should be worn.

3.5.10 Getting started (30 minutes: site visit group demonstration)

The trainee is taken step-by-step through the process of lighting up and stabilizing the temperature at 600°C.

3.5.11 Loading and destroying medical waste (90 minutes: site visit group demonstration)

This one-hour session examines the “Best Practices” for loading and destroying medical waste. All the do’s and don’ts with regard to the following are demonstrated:

- Rate of loading.
- Reading and sensing temperatures.

- Mixtures of waste.
- Safety and precautions.

BREAK (10 minutes)

3.5.12 Burn down/cool down (30 minutes: site visit group demonstration)

This session covers what needs to be done after the entire waste has been burned up, including the dos and don'ts and the procedures.

3.6 Day 2: Agenda items

The sessions on Day 2 are devoted to the post-burning activities, including clean-up, and the very important activity of record keeping and reporting.

3.6.1 Cleaning, ash removal, and operator maintenance responsibilities (20 minutes: site visit demonstration)

The session emphasizes the importance of wearing protective clothes, and checking procedures to ensure that all parts of the DWDU are operating correctly.

3.6.2 Record keeping and monthly reporting (20 minutes: site visit)

The session discusses the content of the three reporting registers and the procedures for reporting.

3.6.3 Security (10 minutes: site visit)

Security of the DWDU is reviewed.

BREAK (10 minutes)

3.6.4 Hands-on practical experience: Operating the DWDU (180 minutes: site visit)

- 1) Divide participants into 3 groups.
 - Group 1: Follows the procedures described in the *Operator's Manual* and operates the DWDU.
 - Group 2: Records each step of the procedure performed by Group 1 and identifies procedural errors.
 - Group 3: Records the smoke levels, gauge temperatures, loading rates, usage of fuel, and medical waste.
- 2) Reverse the roles of each group and repeat the procedures in the *Operator's Manual*.

LUNCH (60 minutes)

3.6.5 Hands-on practical experience: Continued (1.5 hours)

- 3) Reverse the roles of each group outlined above and repeat the procedures in the *Operator's Manual*.

BREAK (10 minutes)

3.6.6 Review session: (60 minutes: classroom)

Group discussion: The working groups exchange experiences with regard to

- Actual operation of the DWDU.
- Procedures.

3.6.7 Maintenance practices and security (30 minutes: classroom and site visit)

- Likely defects to look for in the DWDU.
- Security measures and procedures.

3.6.8 Feedback and trainee information sheets (30 minutes: classroom)

In this session the trainer requests all participants to complete a feedback form (Form 1) and Trainee Information sheet (Form 2).

The facilitator thanks the participants and summarizes the training modules and proceedings.

3.7 Retraining of DWDU operators

If operators are well trained, more than half the job is done. Well-trained operators will adhere to “Best Practices”, thereby reducing emissions and risk. Operators do, however, need to be re-trained periodically. Retraining has two purposes: it serves to maintain motivation levels, and helps identify—and hopefully correct—poor practices.

Retraining of DWDU operators is recommended for one day annually.

A single facilitator can run the retraining programs.

Retraining programs also provide an opportunity to integrate a small number of new operators who have not participated in the earlier training.

Topics addressed under the re-training programs should broadly cover those presented in the initial DWDU training program. There should however be greater emphasis on sharing experiences and learning. The likely content of a retraining program is outlined below:

- Review of steps in the *Operator's Manual*.
- Demonstration by operators of “Best Practices.”
- Review of DWDU faults, defects, and problems encountered.
- Review of operational shortcomings observed since previous training.

DWDU Training feedback Sheet

(DO NOT WRITE YOUR NAME ON THIS SHEET)

I. ORGANISATION

	Opinion	Comments
Directions/arrangements to reach the location/venue of the training program	<input type="checkbox"/> Clear <input type="checkbox"/> Manageable <input type="checkbox"/> Difficult	
Did the program begin at the correct time on both days?	<input type="checkbox"/> Yes <input type="checkbox"/> Yes – only on one day <input type="checkbox"/> No	
Lecture schedule was followed as planned	<input type="checkbox"/> Yes <input type="checkbox"/> Some minor changes <input type="checkbox"/> Not followed	
On site visits were followed as per schedule	<input type="checkbox"/> Yes <input type="checkbox"/> Some minor changes <input type="checkbox"/> Not followed	
Overnight accommodation provided, <u>if any</u>	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Unsatisfactory	
Arrangement for lunch, snacks, etc.	<input type="checkbox"/> Good <input type="checkbox"/> Adequate <input type="checkbox"/> Unsatisfactory	

II. FACILITIES

	Your rating	Comments
Facilities at the classroom including audiovisual aids	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Unsatisfactory	
Electricity availability during the program	<input type="checkbox"/> Always available <input type="checkbox"/> Occasional power failure <input type="checkbox"/> Frequent power failures	

III. PROGRAM CONTENT

	Your Rating	Comments
Lectures on <i>Managing Health Care Waste Disposal: Guidelines on How to Construct, Use, and Maintain the De Montfort Incinerator</i>	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Not clear	
Lecture on Introduction to Operator’s Manual and operator’s tasks & responsibilities	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Not clear	
Overhead presentation	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Not clear	
Site sessions	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Not clear	
Revision	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Not clear	
Quality of material and manuals	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Not clear	
Quality of facilitation and knowledge of the resource person	<input type="checkbox"/> Good <input type="checkbox"/> Okay <input type="checkbox"/> Poor	
Number of tools at the workshop	<input type="checkbox"/> Sufficient <input type="checkbox"/> Not sufficient	
Language for communication at the program	<input type="checkbox"/> I could easily understand <input type="checkbox"/> I had difficulty (comment) <input type="checkbox"/> Used local language	

IV. OVERALL OPINIONS

YOUR OVERALL EVALUATION OF THIS PROGRAM	<input type="checkbox"/> Excellent <input type="checkbox"/> Very Good <input type="checkbox"/> Good <input type="checkbox"/> OK <input type="checkbox"/> Poor
--	---

Your Signature:

Date:

Place:

Form 2: Trainee Information Sheet

TRAINEE INFORMATION SHEET (INFORMATION ON TRAINEE AND HEALTH CENTER)

Health facility assigned to	Position/Responsibilities	Program dates
		Place:
		Start Date: Duration:

To be filled by participant (tick ✓ wherever applicable)

Name of the participant				Optional Age (years)	
Designation	<input type="checkbox"/> Chief	<input type="checkbox"/> Supervisor	<input type="checkbox"/> Operator	<input type="checkbox"/> Staff	Gender: <input type="checkbox"/> M <input type="checkbox"/> F
Qualification	<input type="checkbox"/> Post Graduate	<input type="checkbox"/> Graduate	<input type="checkbox"/> Diploma	<input type="checkbox"/> Trained on the job	
Type of Health Facility	<input type="checkbox"/> Private Business	<input type="checkbox"/> Not for Profit NGO	<input type="checkbox"/> Government		
Contact details (Personal Address)	Number & Street				
	City/Town			District	
	State	Country		Pin <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	Telephone		Fax Number		
	Web				
Experience in Health Sector	Overall Experience in Health Sector <input type="text"/> <input type="text"/> Years				
	Type of experience <input type="checkbox"/> House keeping – Collection and disposal, <input type="checkbox"/> Management systems - waste destruction, <input type="checkbox"/> Maintenance and operation of waste destruction facilities				
Were you aware of these before this training program	<input type="checkbox"/> Effects of Dioxins <input type="checkbox"/> Best/safe practices - destruction of medical waste <input type="checkbox"/> Record keeping and monthly reporting of medical waste generated in health facility				
Practice used for medical waste destruction at your facility	<input type="checkbox"/> Open air / open pit burning		<input type="checkbox"/> Landfill		
	<input type="checkbox"/> Incinerator		<input type="checkbox"/> DeMontfort Waste Disposal Unit		
	<input type="checkbox"/> Any other methods _____				
Total medical waste generated at your facility (average annual)	<input type="checkbox"/> < 100 kg <input type="checkbox"/> 500 kg <input type="checkbox"/> 1000 kg <input type="checkbox"/> 3000 kg <input type="checkbox"/> > 5000 kg <input type="checkbox"/> Any Other number: _____				
Hazardous medical waste generated at your facility (average annual)	<input type="checkbox"/> < 10 kg <input type="checkbox"/> 50 kg <input type="checkbox"/> 100 kg <input type="checkbox"/> 1000 kg <input type="checkbox"/> > 2000 kg <input type="checkbox"/> <input type="checkbox"/> Any Other number: _____				
Is your health facility a member of any medical waste related association?	<input type="checkbox"/> Yes. <input type="checkbox"/> No. If yes, specify name of association: <input type="checkbox"/> Don't know				
Contact of others who want to attend training. (use separate sheet if required)	Name				
	Number & Street				
	City/Town			District	
	State	Country		Pin <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	Telephone		Mobile Phone		
How did you learn about this program?	<input type="checkbox"/> First information <input type="checkbox"/> IT Power India Pvt. Ltd. <input type="checkbox"/> Colleague <input type="checkbox"/> Employer <input type="checkbox"/> Other:				
In what language would you like to receive the training material?	<input type="checkbox"/> English <input type="checkbox"/> French <input type="checkbox"/> Spanish <input type="checkbox"/> Other Language:				

Section IV:

Maintenance and Planning

(For ministry of health managers, maintenance contractors, and personnel)

Table of Contents

4.1	Maintenance responsibility.....	1
4.2	Contract for maintenance services.....	1
4.3	Planning.....	1
4.4	Stock of replacement parts.....	2
4.5	Preventive maintenance.....	3
4.6	Scheduled maintenance.....	4
4.7	Unscheduled maintenance.....	4
4.8	Summary.....	4

List of Tables

TABLE 4.1:	MODEL MAINTENANCE PLAN.....	2
TABLE 4.2:	STOCK OF SPARE PARTS.....	3
TABLE 4.3:	INSPECTION OF PARTS.....	5
TABLE 4.4:	INSPECTION SCHEDULE OF TASKS (WDU STRUCTURE).....	6
TABLE 4.5:	INSPECTION SCHEDULE OF TASKS (TOOLS AND PROTECTIVE CLOTHING).....	7
TABLE 4.5:	INSPECTION SCHEDULE OF TASKS (RECORDS).....	7
TABLE 4.6:	INSPECTION SCHEDULE OF TASKS (SERVICE NEED).....	7

4.1 Maintenance responsibility

A well-constructed WDU is designed to be durable and reliable. If the WDU has been built according to the specified standards, and maintained adhering to “Best Practices”, it will function efficiently for many years.

A qualified official other than the operator should inspect the WDU once every six months. An independent assessment will ensure greater freedom for the inspecting authority and provide an impartial view of the system’s operation. It is suggested that the services of a government environmental health officer, HCWM manager, or air pollution control specialist be enlisted for the inspection.

Normal wear and tear of the unit is to be expected. But if this is coupled with poor operation and maintenance practices, the WDU’s components will deteriorate rapidly. This will result in both a decrease in combustion quality and an increase in emissions, causing potential risks to the operator and to the public. Proper operation and maintenance extend the life, effectiveness, and reliability of the equipment, but require a coherent maintenance plan.

WDUs operated according to “Best Practices” require:

- 1) Maintenance planning; i.e.: that any services contracted for construction, training or any other activity should include maintenance as a component.
- 2) Preventive maintenance (i.e. inspections and scheduled maintenance visits); and
- 3) Unscheduled maintenance (i.e. response to maintenance requests for repairs of failed components).

Various persons, including ministry of health managers, maintenance contractors, HCWM supervisors and WDU operators have a role to play in the maintenance process.

4.2 Contract for maintenance services

Maintenance services are to be included as a component of services contracted right from the planning phase of a HCWM program. (Details of this process are defined in Section II, paragraph 2.6.4)

4.3 Planning

The importance of good maintenance planning should not be underestimated. Proper planning will enable coordination of necessary maintenance actions and schedules with budget, authorizations, human resources, procurement, transport, logistics, and reporting, etc., facilitating operations and eliminating extra costs. Maintenance planning is required for every HCWM program where WDUs are to be installed. Table 4.1 outlines the chronology, tasks and schedule of a typical maintenance program.

Preparation of a similar maintenance plan chart, adapted to local conditions, is required for any HCWM program. The HCWM program manager should review and approve the plan.

Table 4.1 Model Maintenance Plan

Assumptions		2 visits/yr	
		50	2.5
5		2	Once/year
	Responsibility	Activity schedule	
		Cycle 1	Cycle 2
Inspection		Week No.	Week No.
		Proposal and inspection visit schedule	Inspector
Budget approval	HCW Prog. Mgr	2	28
Inspection (all sites)	Inspector	4-8	30-34
Inspection report	Inspector	10	36
Inspection report approval	HCW Prog. Mgr	12	38
Scheduled Maintenance			
Maintenance plan and schedule	Contractor	14	40
Budget approval	HCW Prog. Mgr	16	42
Inventory check for parts in stock	Contractor	16	42
Quotations and procurement order for parts not in stock	HCW Prog. Mgr	16	42
Withdrawal of available components from stock	Contractor	18	44
Scheduled maintenance visits (all sites)	Contractor	18-24	44-50
Maintenance report to HCWM	Contractor	26	52
Maintenance report approval (HCWM)	HCW Prog. Mgr	28	54
Financial settlement of contractor’s services	HCW Prog. Mgr	Completion of contract/cycle	Completion of contract/cycle
Unscheduled Maintenance			
Request for maintenance from primary health facility (PHF)	HCWM at PHF	Date of Demand (DD)	
Budget approval for unscheduled maintenance visit	HCW Prog. Mgr.	DD+1 day	
Acquisition of parts required for maintenance	HCW Prog. Mgr.	DD+2 days	
Unscheduled maintenance visit	Contractor	DD+2 days	
Maintenance report to HCWM	Contractor	DD+3 days	
Maintenance report approval (HCWM)	HCW Prog. Mgr.	DD+4 days	
Financial settlement of contractor’s services	HCW Prog. Mgr.	DD+6 days	

4.4 Stock of replacement parts

Budget, human resources, logistics, and parts inventory must support every maintenance plan, if it is to be effective.

Table 4.2, provides a list of the components and materials, and their required quantities, which need to be stocked at the location to ensure efficient operations. The quantities indicated are based on the assumption that 10 WDUs are included in a maintenance program. Quantities for larger or smaller programs should be adjusted on a pro-rata basis.

Table 4.2 Recommended stock of spare parts

Title of drawing or component	Drwg ref. No.	Quantity/10 WDU
Fabrication Drawing for Top Frame (PART A)	ML/FAB/001	2
Fabrication Drawing for Loading Door (PART B)	ML/FAB/002	5 Sets
Fabrication Drawing for Front Door Frame (PART C)	ML/FAB/003	5 Sets
Fabrication Drawing for Front Door (PART D)	ML/FAB/004	5 Sets
Fabrication Drawing for Spigot (PART E)	ML/FAB/005	5 Sets
Fabrication Drawing for Grate (PART F)	ML/FAB/006	10
Fabrication Drawing for Intermediate Bridge (PART G)	ML/FAB/007	5
Fabrication Drawing for Vertical Support (PART H)	ML/FAB/008	4
Fabrication Drawing for Vertical Frame (PART I)	ML/FAB/009	4
Fabrication Drawing for Horizontal Supports (PART J)	ML/FAB/010	2
Self-adjusting draft control and tee for chimney	ML/FAB/011	5 Sets
Fabrication drawing for stove pipe and chimney components OR Outsourced components	ML/FAB/012	10 Sets
Stovepipe Thermocouple	None	10
Refractory Brick	None	400 Nos.
Refractory Cement OR Refractory Mortar	None None	100 kg or 300 kg
High Temperature Paint	None	20 kg
Rust Proof Primer	None	10 kg
GI Corrugated Sheet (= or >1.5 mm gauge), 2m x 1m	None	5
Chain Link Fence (40 mm mesh, 3 mm dia wire)	None	20 m ²
Nuts, Bolts, Washers (M8 x 30 mm long)	None	100
Nuts, Bolts, Washers (M8 x 50mm long)	None	50
J Bolts, Washers, Tar Washers, Nuts (M8 x 125 long)	None	50
Strainer Cables,(4-6mm dia stranded corrosion resistant).	None	6
Strain adjusters, end lugs and clamping bolts for strainer cables	None	6

4.5 Preventive maintenance

Preventive maintenance ensures that the equipment functions efficiently and reduces the risk of equipment failure. Such maintenance ensures that:

- 1) Contaminated waste is reliably eliminated.
- 2) Equipment to destroy waste is available in good working condition.
- 3) The need for unscheduled maintenance visits is reduced.
- 4) Maintenance costs are under control—planned, scheduled maintenance is more cost-effective than unplanned, unscheduled maintenance.

A qualified official must inspect the installed WDU every six months. A complete inspection should cover the incinerator, the WDU structure, the tools and protective clothing, and the records. (These tasks are detailed in Table 4.3, Table 4.4, Table 4.6 and 4.7)

A qualified ministry of health official or program officer should conduct the inspections.

Once the WDU inspection is complete, an inspection report has to be submitted to the HCWM supervisor for review. The report should include:

- Requirements regarding repairs/replacement of parts,
- Schedule for completion of recommended actions, and
- Program budget for repairs.

Approval of the inspection report authorizes the following activities to proceed:

- 1) To draw from stock or procure the replacement parts required for the scheduled maintenance.
- 2) To embark upon a scheduled maintenance program based upon the budget and schedule provided in the inspector's report.
- 3) To contract or amend an existing contract for maintenance services.

4.6 Scheduled maintenance

Scheduled maintenance is the routine repair work carried out subsequent to the inspector's visit to each WDU in a HCWM program. Work is conducted as specified in the inspection report once approvals are given, replacement parts made available and budgets finalized.

A scheduled maintenance program reports on each maintenance task performed and documents the actions, replacement parts, and status of each WDU on completion of the scheduled maintenance visit. Scheduled maintenance is to be carried out as per an approved maintenance plan. (See, e.g., the maintenance plan provided in Table 4.1.)

4.7 Unscheduled maintenance

Unscheduled maintenance is defined by unforeseen defects that impair effective functioning of the WDU. Request for such maintenance has to be made by the person in charge of HCWM at the health facility.

Unscheduled maintenance is expensive since it requires deployment of maintenance personnel to a single location, and should only be undertaken if the requirement is urgent.

4.8 Summary

With adequate planning, resources and maintenance, operators should be able to successfully maintain a fully functional waste disposal unit.

Table 4.3 Inspection of Incinerator Parts

Responsible person:			Status of Incinerator Part					Date of inspection:				
Inspection item	Masonry & mortar	Loading door	Ash door	Top plate	Incin. frame	Stack spigot	Temp gauge	Flue valve	Inter bridge	Grate	Stack	
Response option	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
Incinerator (metallic parts)												
Hinge or hinge pin damaged												
Closing latch working, jammed or broken												
Detached from masonry												
Part warped or twisted												
Part badly corroded												
Requires repainting												
Partially or fully blocked												
Not operating correctly and affecting functioning of incinerator												
Incinerator (masonry parts)												
Major cracks												
Mortar repair required												
Bricks loose or missing												
Bricks cracked												

Note: Shaded cells do not need to be filled as other columns address these questions.

Table 4.4 Inspection schedule of tasks (WDU structure)

Responsible person:		Inspection of WDU structure						Date:	
WDU structure (metallic parts)									
Inspection item	Vertical angle iron members	Horizontal angle iron members	Stack guy lines	Chain link frames	Door	Waste hatch	Manhole covers	Tool/Clothing container	
Response option	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	
Parts badly corroded									
Part warped or twisted									
Part badly damaged									
Painting required									
Operating correctly									
WDU structure (concrete parts)									
Inspection item	Floor-level	Counter-level	Ash pit	Safety Box Store	Needle store	Enclosure			
Response option	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No			
Walls damaged									
Concrete slabs damaged									
Apertures in slabs badly damaged									
Operating correctly									

Note: Shaded cells do not need to be filled as these questions are addressed in other columns.

Table 4.5 Inspection schedule of tasks (tools and protective clothing)

Responsible person:			Inspection of tools and protective clothing					Date:		
Inspection item	Ash rake	Dustpan	Brush	Weighing scale	Sand Bucket	Fire-retardant gloves	Eye protection/ Face mask	Overall/ Protective clothing	Shovel	Lock for WDU door
Response option	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Item available										
In good condition										

Table 4.6 Inspection schedule of tasks (records)

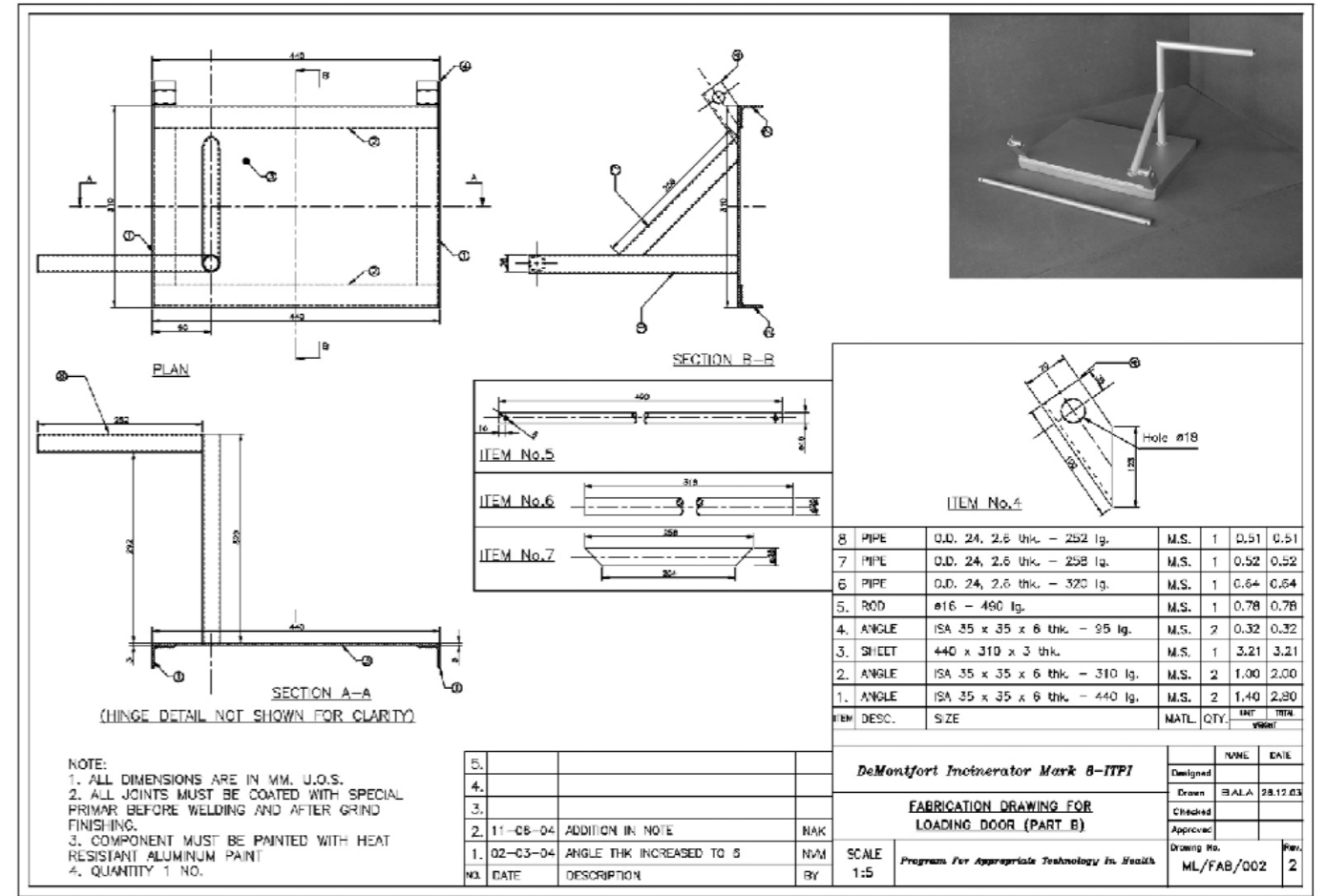
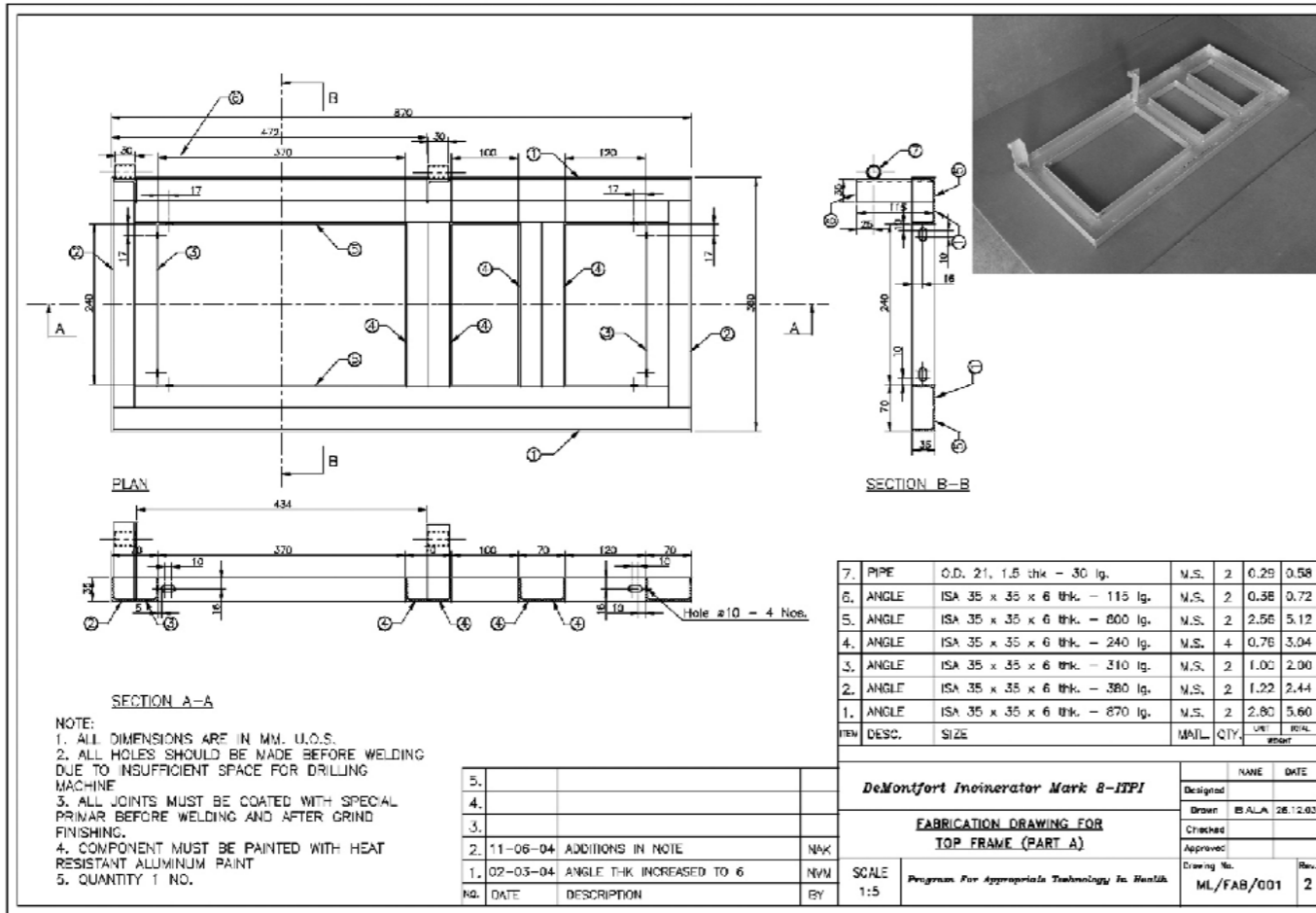
Responsible person:		Inspection of records		Date:	
Inspection item	Operator waste disposal record	Inspection and maintenance visits	Repairs and maintenance		
Response option	Yes/No	Yes/No	Yes/No		
Records available					
Records complete					

Table 4.7 Inspection schedule of tasks (service need)

Responsible person:	Inspection of service needs (Yes/No, Comments)	Date:
Excessive ash in incinerator		
Excessive soot in stack		
Excessive ash/needles in pit		
Excessive safety boxes in store		
Excessive fuel stocks in store		

Appendix I

Construction Drawings



ITEM NO.	DESCRIPTION	QTY	WEIGHT (kg)	WEIGHT (lb)
1	PIPE 60 46 x 10 43 x 10th 1/2	M.S.	1 0.57	0.57
2	SHEET 220 x 170 x 3 1/4	M.S.	1 0.69	0.69
3	SHEET 400 x 170 x 3 1/4	M.S.	1 1.00	1.00
4	SHEET 220 x 65 x 3 1/4	M.S.	2 0.33	0.56
5	PIPE 172 x 130 x 3 1/4	M.S.	1 0.69	0.56
6	SHEET 172 x 130 x 3 1/4	M.S.	1 0.69	0.56
7	PIPE 172 x 130 x 3 1/4	M.S.	1 0.69	0.56
8	SHEET 172 x 130 x 3 1/4	M.S.	1 0.69	0.56
9	SHEET 172 x 130 x 3 1/4	M.S.	1 0.69	0.56
10	SHEET 172 x 130 x 3 1/4	M.S.	1 0.69	0.56

ITEM NO.	DESCRIPTION	QTY	WEIGHT (kg)	WEIGHT (lb)
1	ANGLE 35 x 35 x 6 1/4 - 220 lg.	M.S.	2 0.74	1.48
2	ANGLE 35 x 35 x 6 1/4 - 100 lg.	M.S.	4 0.32	1.28
3	ROD 1/2" - 500 lg.	M.S.	6 0.90	5.40

PLAN

SECTION A-A

SECTION B-B

NOTE:
 1. ALL DIMENSIONS ARE IN MM, U.O.S.
 2. ALL JOINTS MUST BE COATED WITH SPECIAL PRIMER BEFORE WELDING AND AFTER GRIND FINISHING.
 3. COMPONENT MUST BE PAINTED WITH HEAT RESISTANT ALUMINUM PAINT
 4. QUANTITY 1 NO.

NO.	DATE	DESCRIPTION	BY
5.			
4.			
3.			
2.	11-06-04	ADDITIONS IN NOTE	NAK
1.	02-03-04	ANGLE THK INCREASED TO 6	NVM

2.	PLAT	25 x 3 Thk. - 236 lg.	M.S.	2	0.05	0.10
1.	ANGL	ISA 35 x 35 x 6 Thk. - 478 lg.	M.S.	2	1.22	2.44
ITEM	DESC.	SIZE	MATL.	QTY.	UNIT	WEIGHT

DeMontfort Incinerator Mark 8-ITPI		Design	NAME	DATE
FABRICATION DRAWING FOR INTERMEDIATE BRIDGE (PART G)		Drawn	ES ALA	26.12.03
		Checked		
		Approved		
SCALE		Drawing No.	Rev.	
1:5		ML/FAS/007	2	

SIDE VIEW

ELEVATION

NOTE:
 1. ALL DIMENSIONS ARE IN MM, U.O.S.
 2. ALL HOLES MUST BE COATED WITH SPECIAL PRIMER BEFORE AND AFTER DRILLING.
 3. COMPONENT MUST BE PAINTED WITH HEAT RESISTANT ALUMINUM PAINT
 4. QUANTITY 2 NO.
 5. TOTAL WEIGHT 4.00KG.

Ø10mm HOLE (TYP)

NO.	DATE	DESCRIPTION	BY
5.			
4.			
3.			
2.	11-06-04	ADDITIONS IN NOTE	NAK
1.	02-03-04	ANGLE THK INCREASED TO 6	NVM

1.	ANGL	ISA 35 x 35 x 6 Thk. - 1245 lg.	M.S.	2	4.00	8.00
ITEM	DESC.	SIZE	MATL.	QTY.	UNIT	WEIGHT

DeMontfort Incinerator Mark 8-ITPI		Design	NAME	DATE
FABRICATION DRAWING FOR VERTICAL SUPPORT (PART H)		Drawn	ES ALA	26.12.03
		Checked		
		Approved		
SCALE		Drawing No.	Rev.	
1:5		ML/FAB/008	2	

SIDE VIEW
740
16
10
10

ELEVATION
16
Hole #10 - 4 Nos.

NOTE:
1. ALL DIMENSIONS ARE IN MM. U.O.S.
2. ALL HOLES MUST BE COATED WITH SPECIAL PRIMER BEFORE AND AFTER DRILLING.
3. COMPONENT MUST BE PAINTED WITH HEAT RESISTANT ALUMINUM PAINT
4. QUANTITY 2 NO.

ITEM	DESC.	SIZE	MATL.	QTY.	UNIT	WEIGHT
1.	ANGLE	ISA 35 x 35 x 6 thk. - 740 lg.	N.S.	2	2.34	4.68

NO.	DATE	DESCRIPTION	BY	SCALE	Program For Appropriate Technology In Health	Drawing No.	Rev.
1.	02-03-04	ANGLE THK INCREASED TO 6	NVM	1:5		ML/FAB/009	2
2.	11-06-04	ADDITIONS IN NOTE	NAK				

DESIGNED	CHECKED	APPROVED	DATE

FABRICATION DRAWING FOR VERTICAL SUPPORT (PART J)

DeMontfort Incinerator Mark 8-IITPI

PLAN
1084
10
10
10
10
10
10
10
10
10

SECTION A-A
234

SECTION B-B

NOTE:
1. ALL DIMENSIONS ARE IN MM. U.O.S.
2. ALL JOINTS MUST BE COATED WITH SPECIAL PRIMER BEFORE WELDING AND AFTER GRIND FINISHING.
3. COMPONENT MUST BE PAINTED WITH HEAT RESISTANT ALUMINUM PAINT
4. QUANTITY 1 NO.

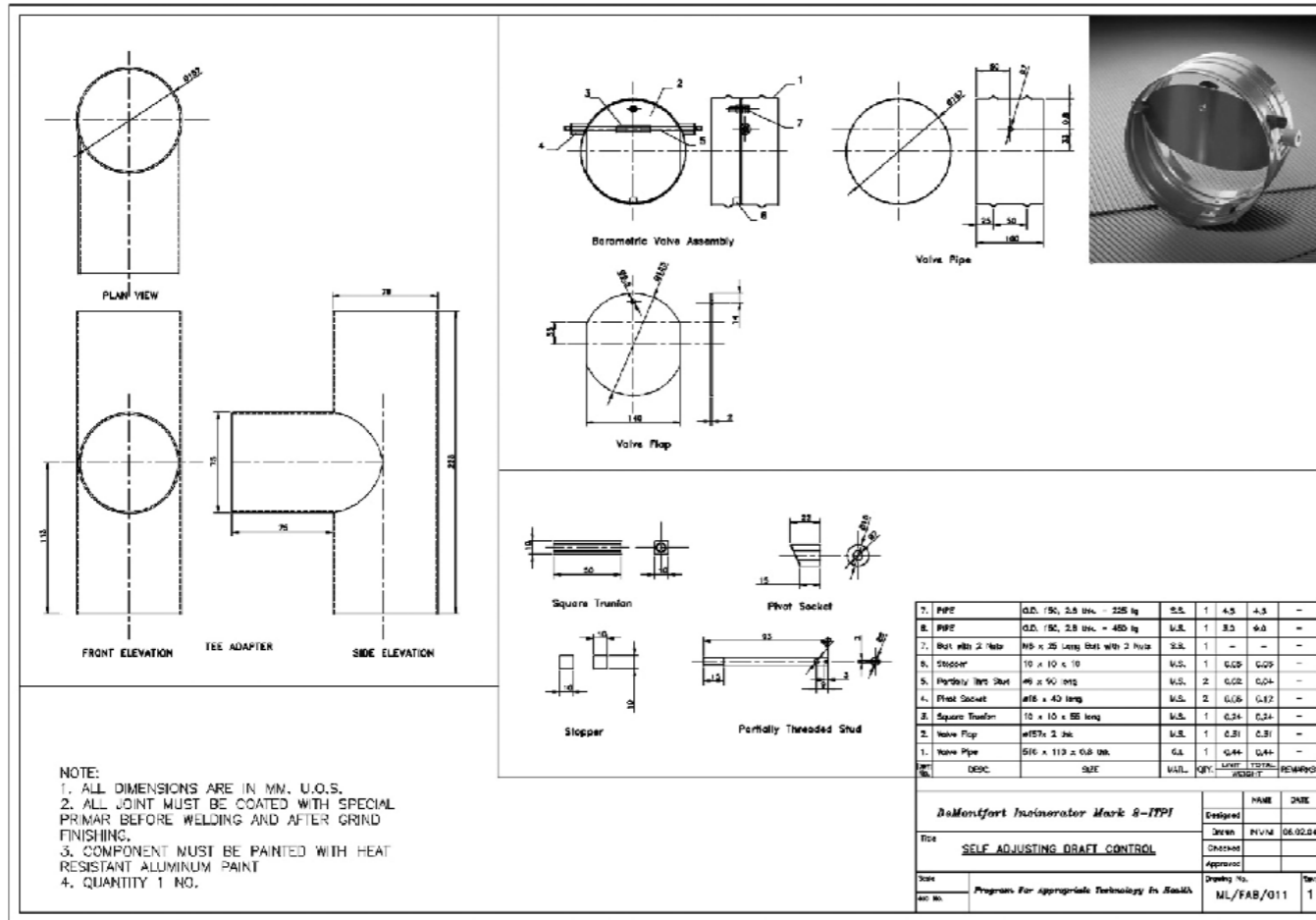
ITEM	DESC.	SIZE	MATL.	QTY.	UNIT	WEIGHT
2.	ANGLE	ISA 35 x 35 x 6 thk. - 234 lg.	M.S.	2	0.78	1.52
1.	ANGLE	ISA 35 x 35 x 6 thk. - 1084 lg.	M.S.	2	3.48	6.96

NO.	DATE	DESCRIPTION	BY	SCALE	Program For Appropriate Technology In Health	Drawing No.	Rev.
1.	02-03-04	ANGLE THK INCREASED TO 6	NVM	1:5		ML/FAB/010	2
2.	11-06-04	ADDITIONS IN NOTE	NAK				

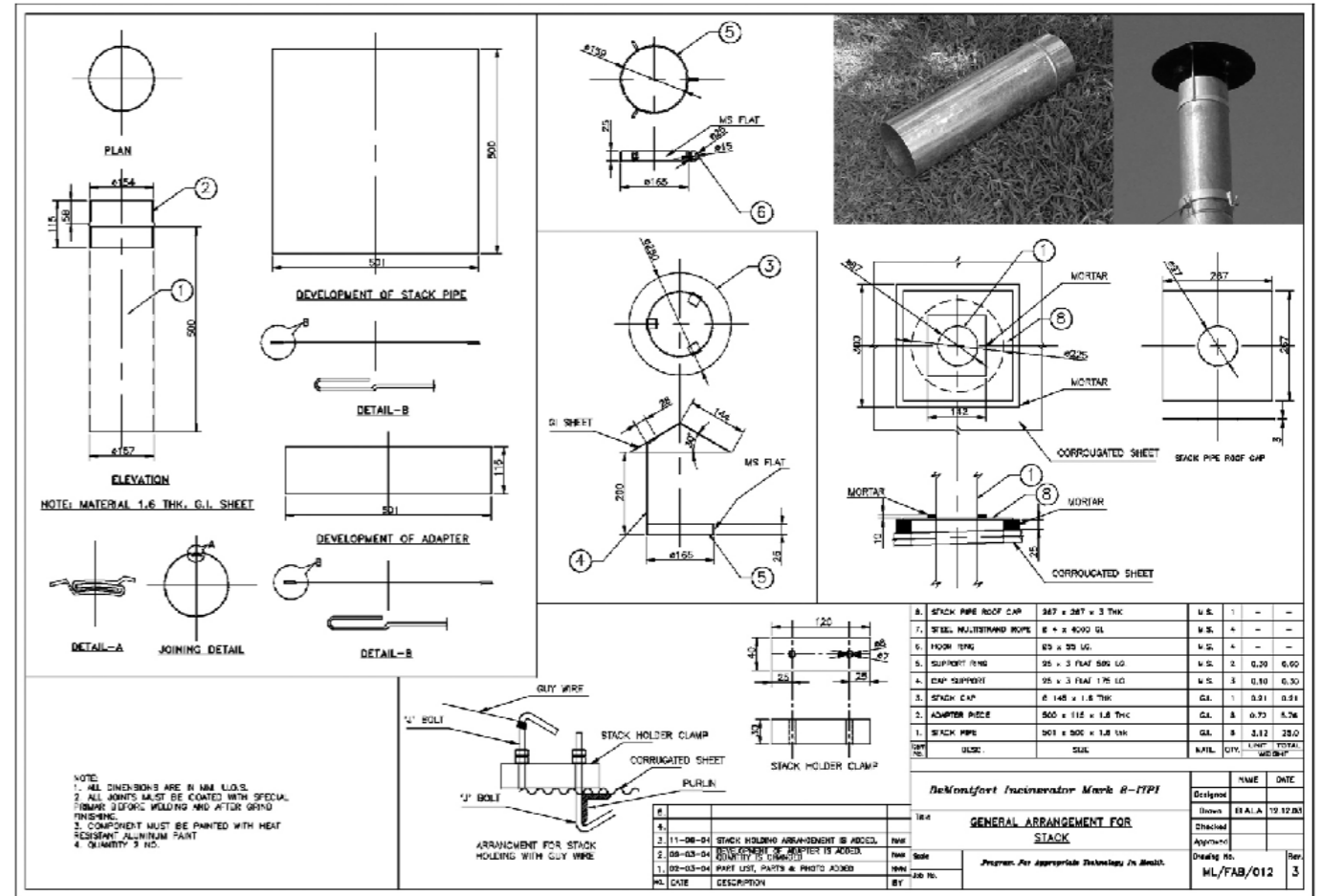
DESIGNED	CHECKED	APPROVED	DATE

FABRICATION DRAWING FOR HORIZONTAL SUPPORTS (PART J)

DeMontfort Incinerator Mark 8-IITPI

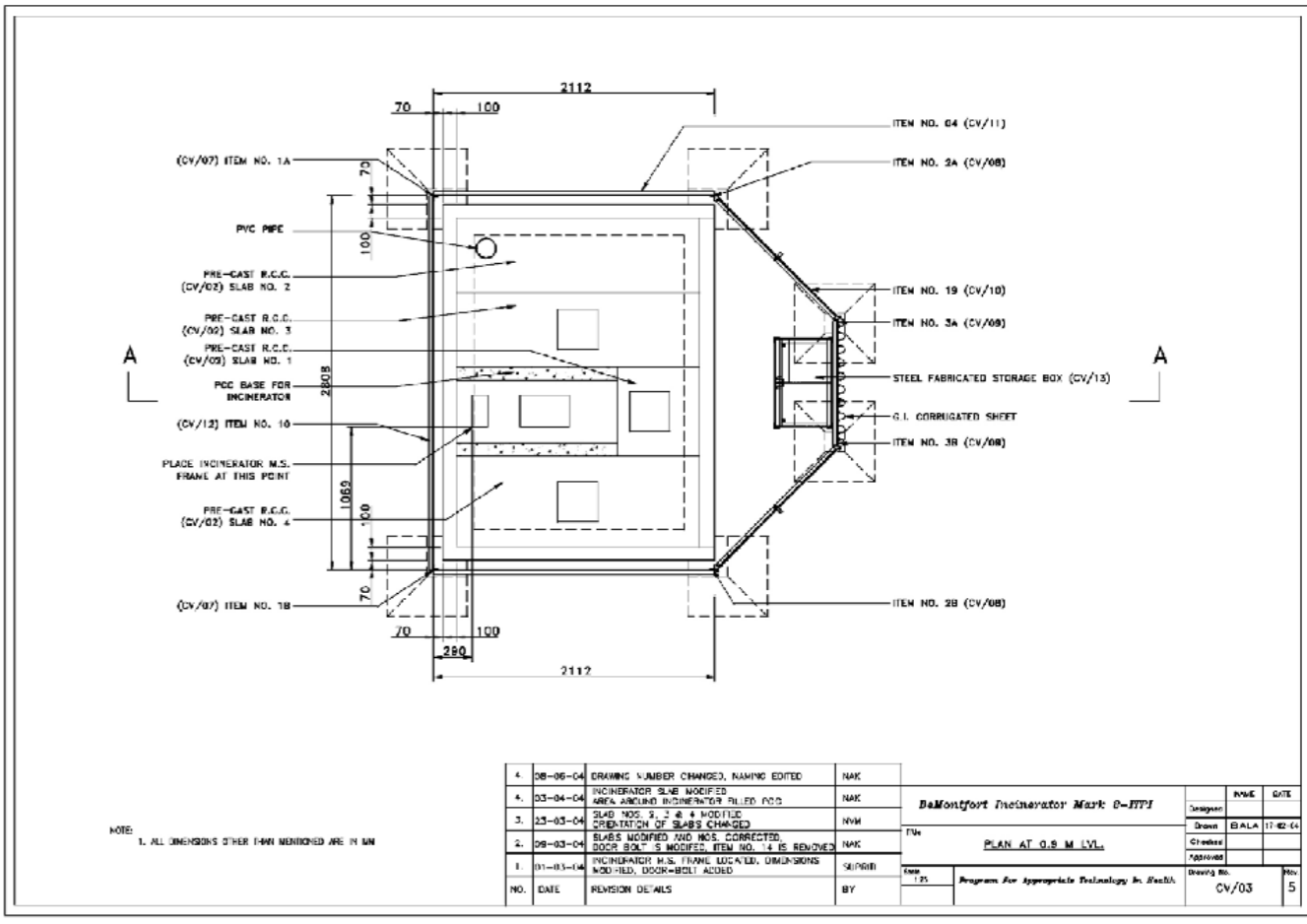
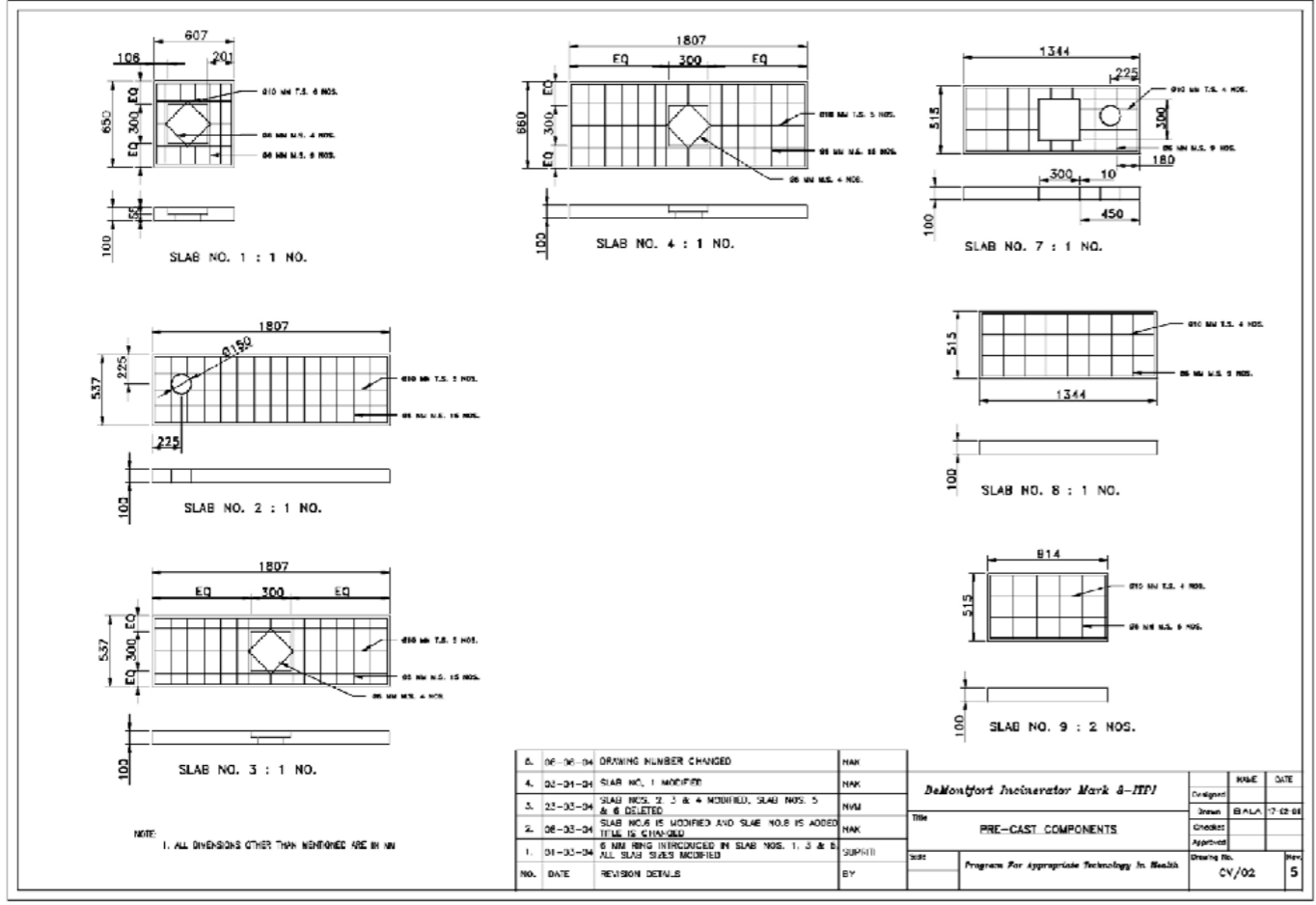


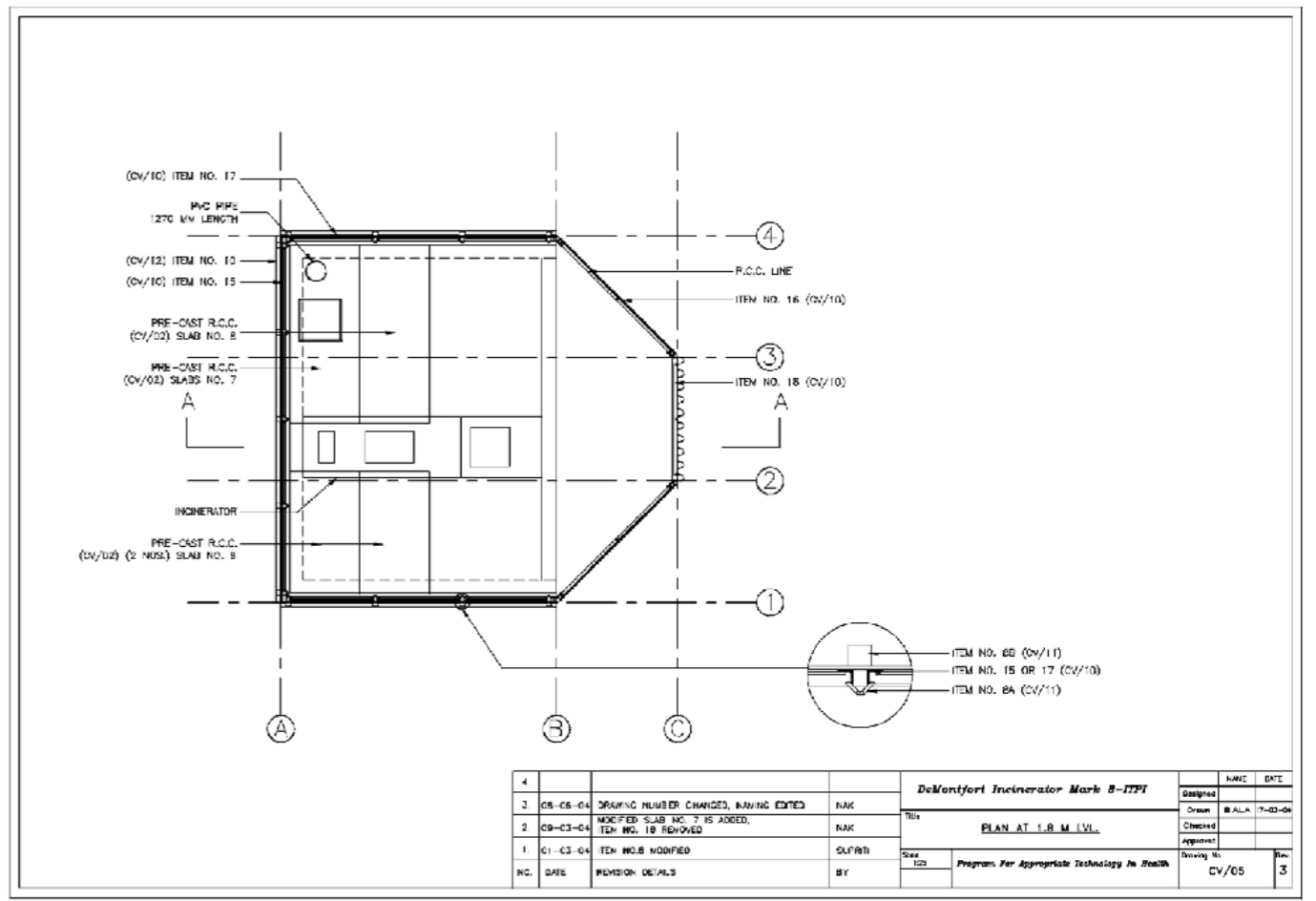
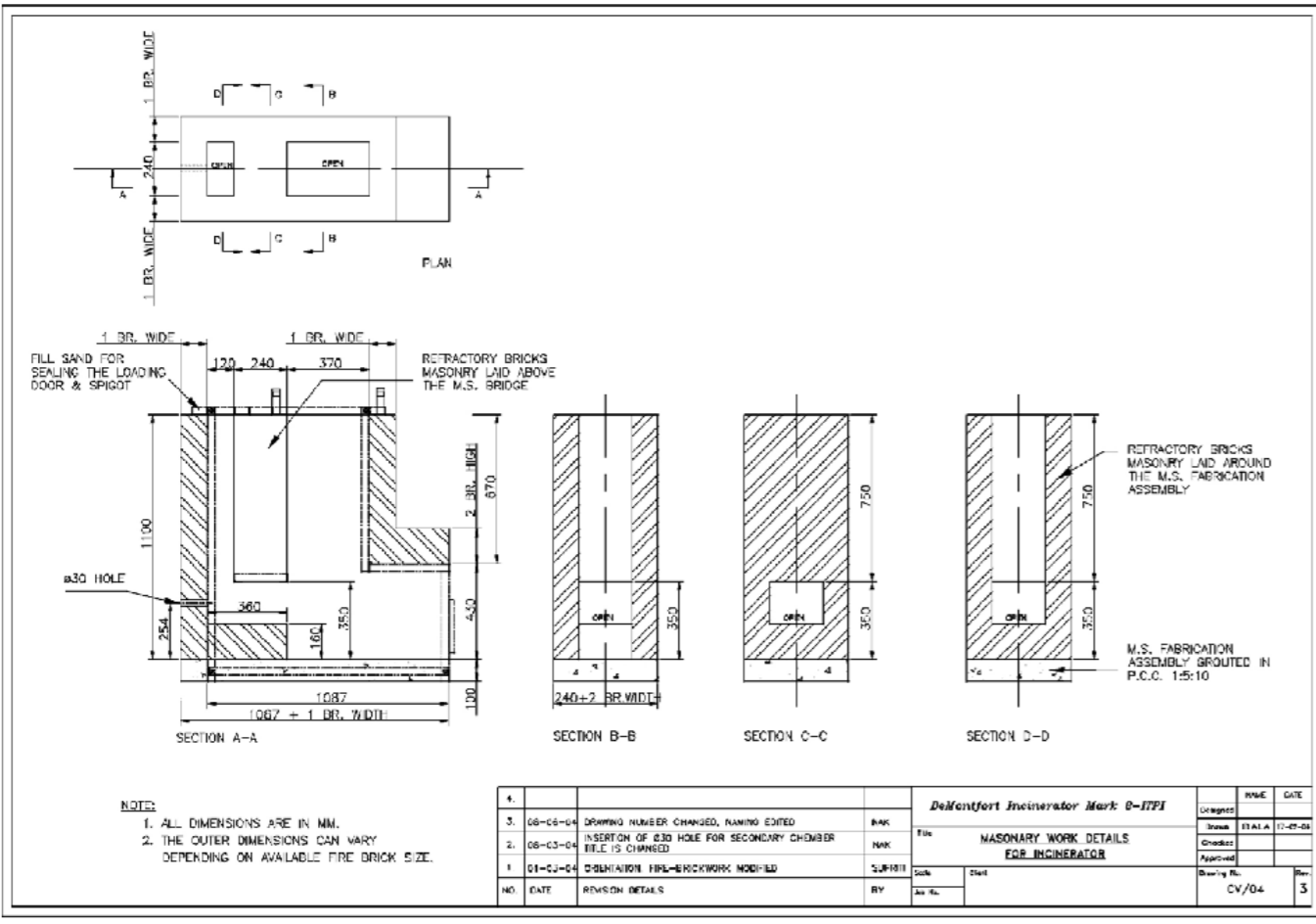
NOTE:
 1. ALL DIMENSIONS ARE IN MM. U.O.S.
 2. ALL JOINT MUST BE COATED WITH SPECIAL PRIMER BEFORE WELDING AND AFTER GRIND FINISHING.
 3. COMPONENT MUST BE PAINTED WITH HEAT RESISTANT ALUMINUM PAINT
 4. QUANTITY 1 NO.

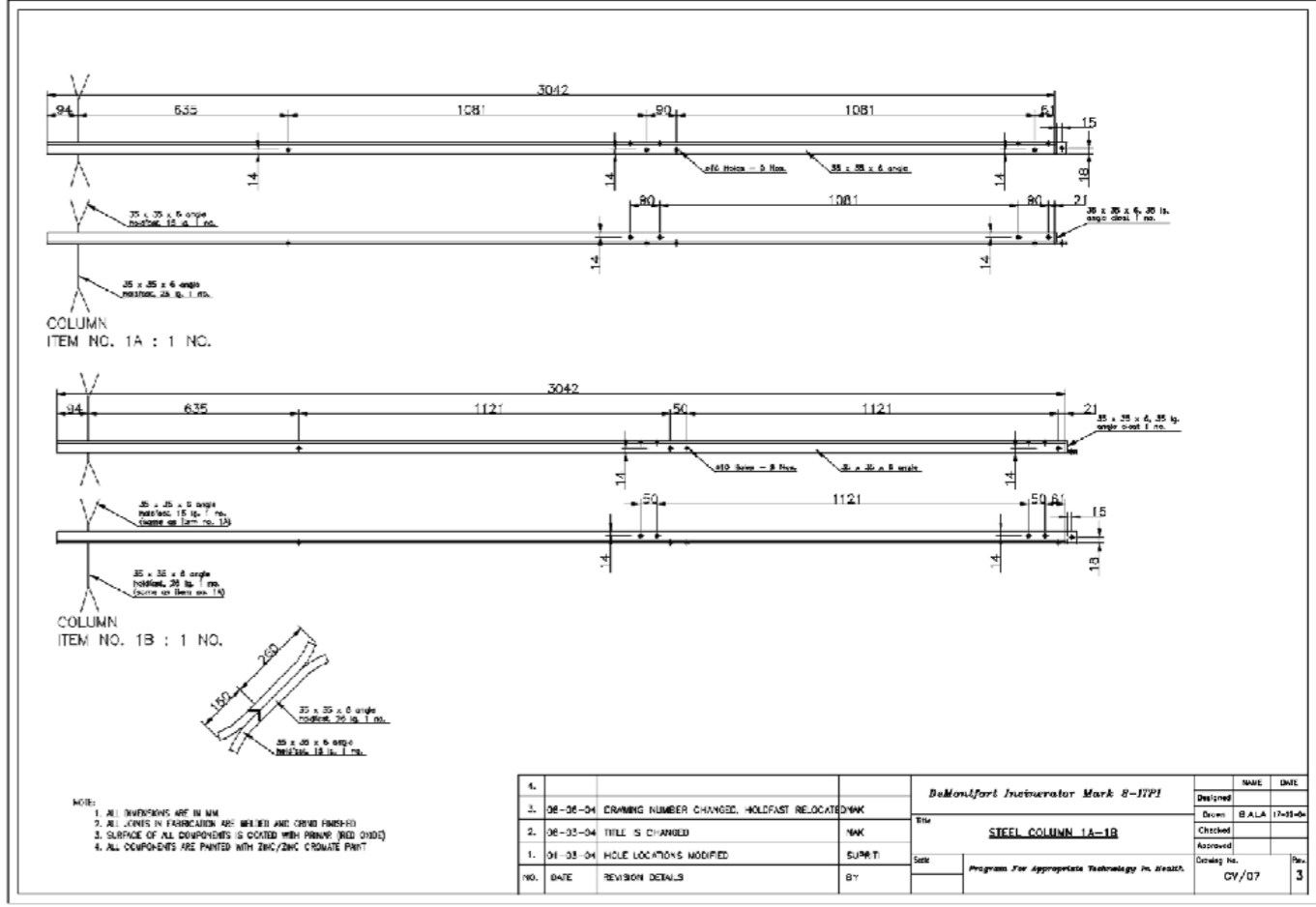
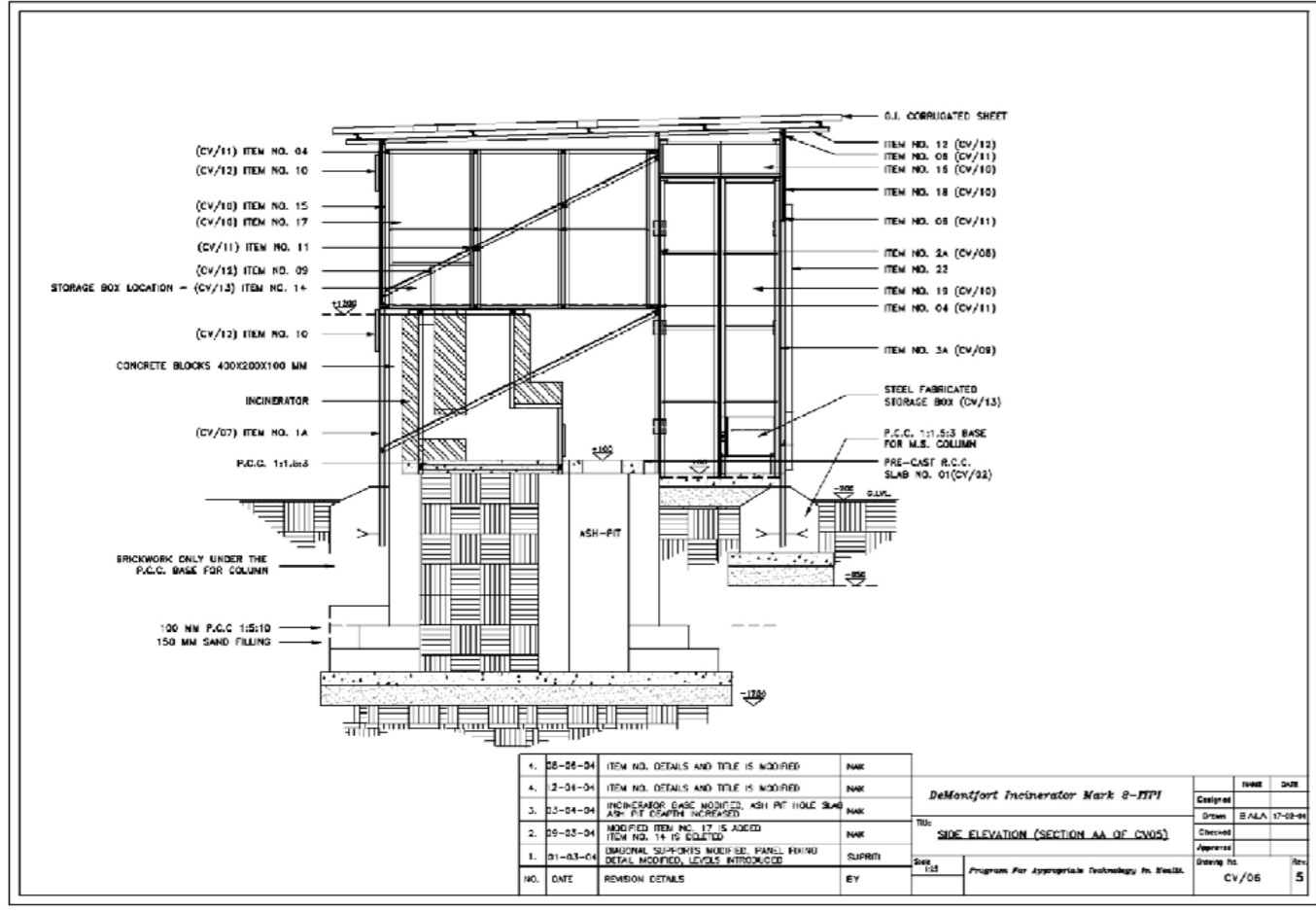


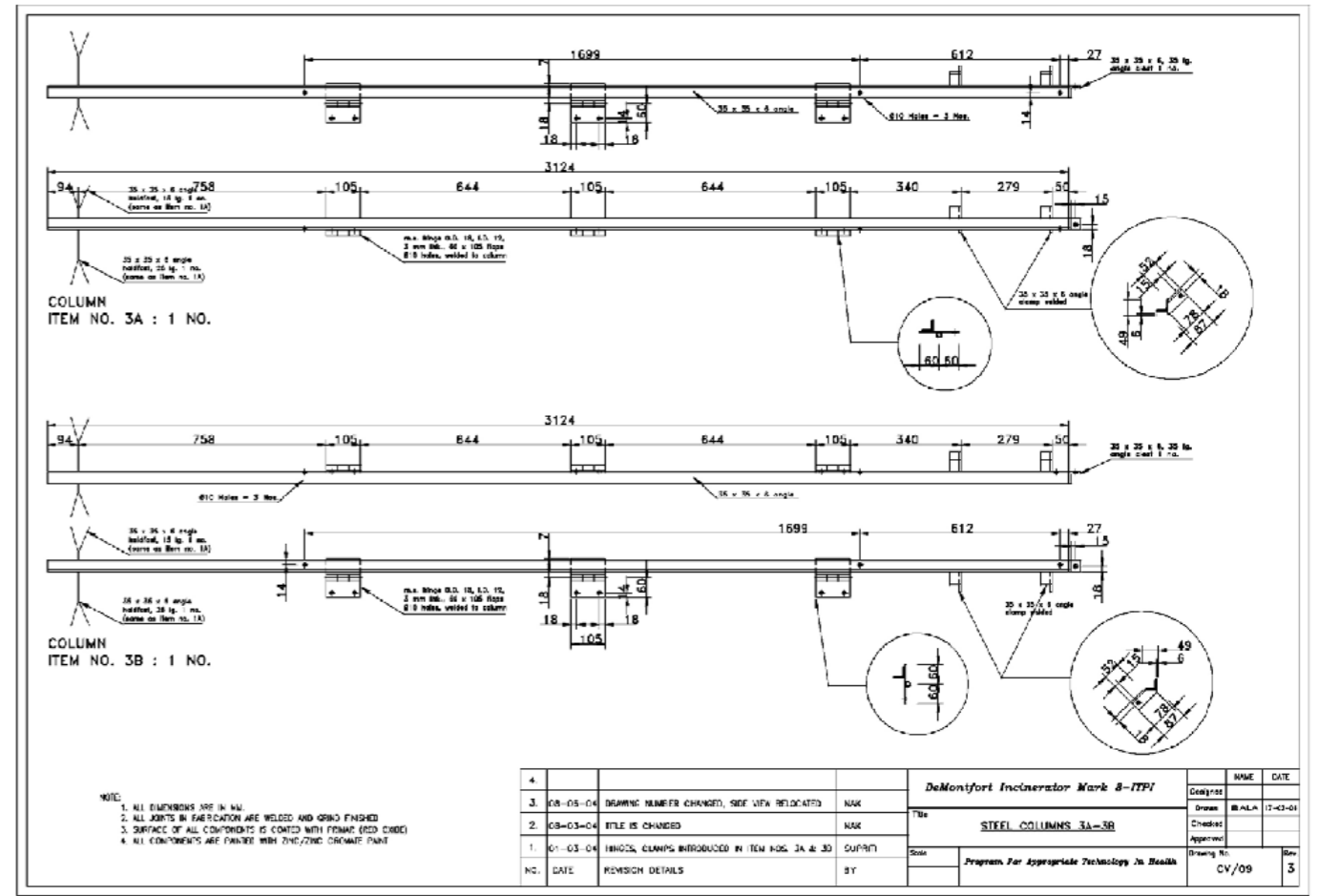
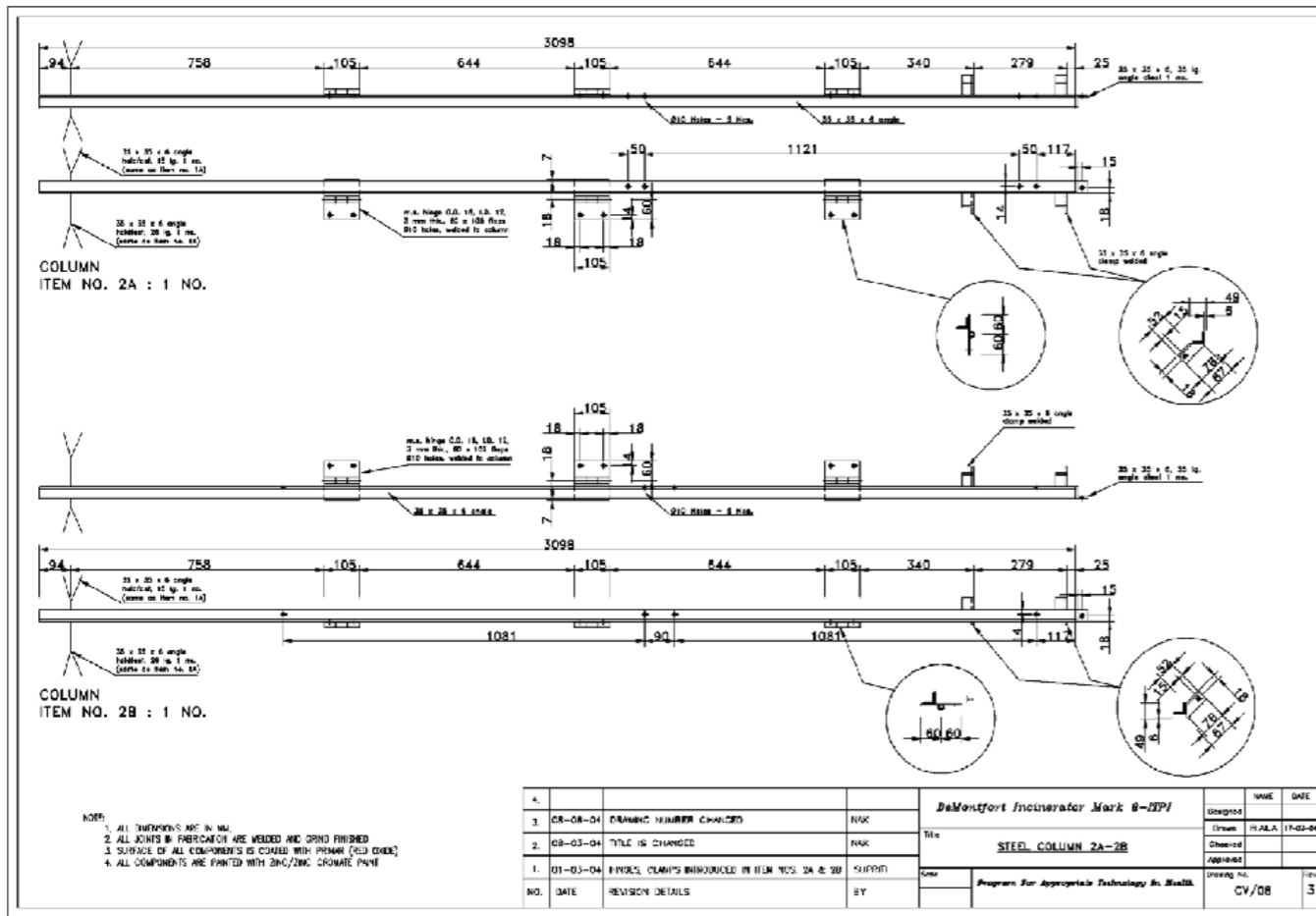
NOTE:
 1. ALL DIMENSIONS ARE IN MM. U.O.S.
 2. ALL JOINTS MUST BE COATED WITH SPECIAL PRIMER BEFORE WELDING AND AFTER GRIND FINISHING.
 3. COMPONENT MUST BE PAINTED WITH HEAT RESISTANT ALUMINUM PAINT
 4. QUANTITY 3 NO.

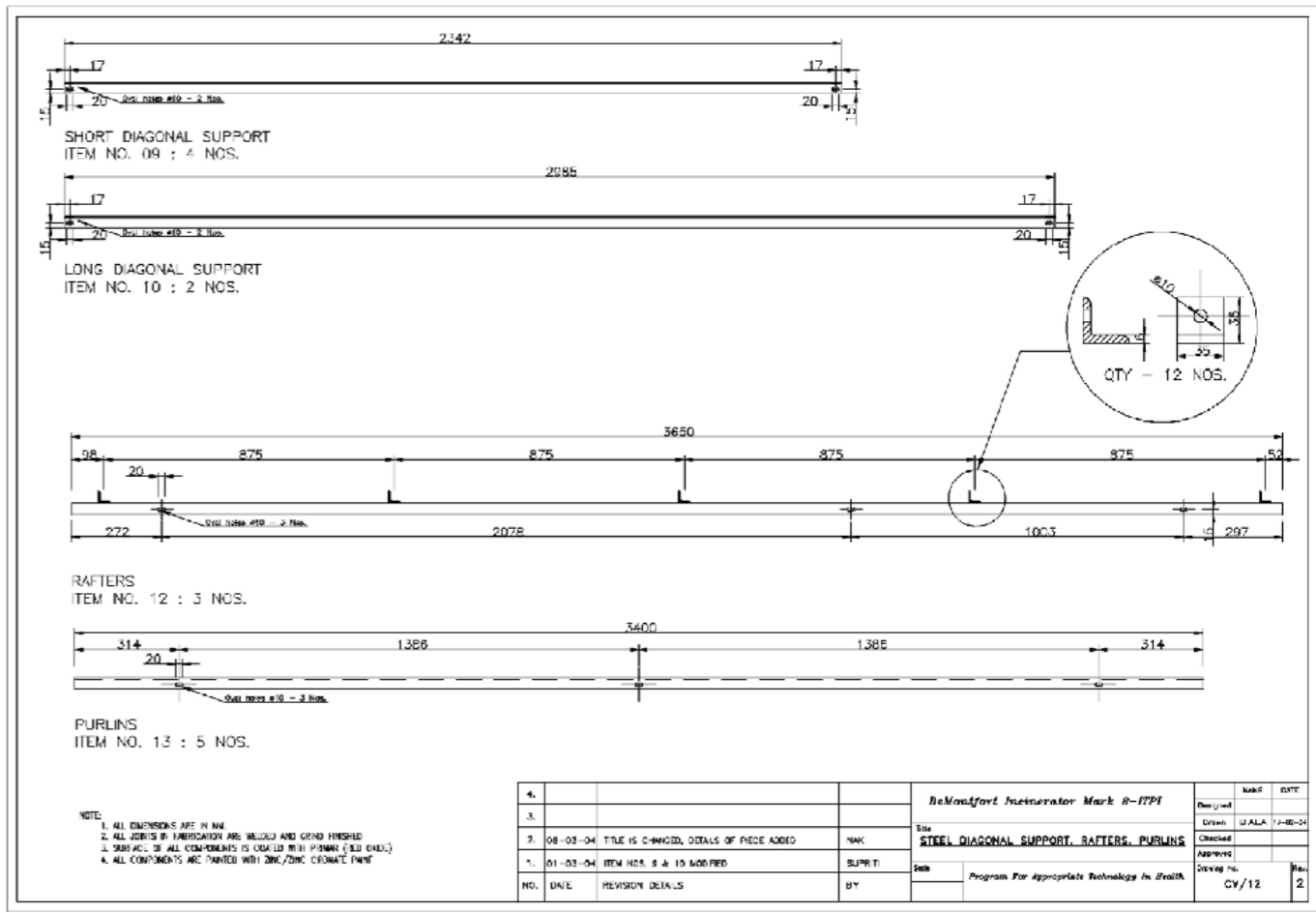
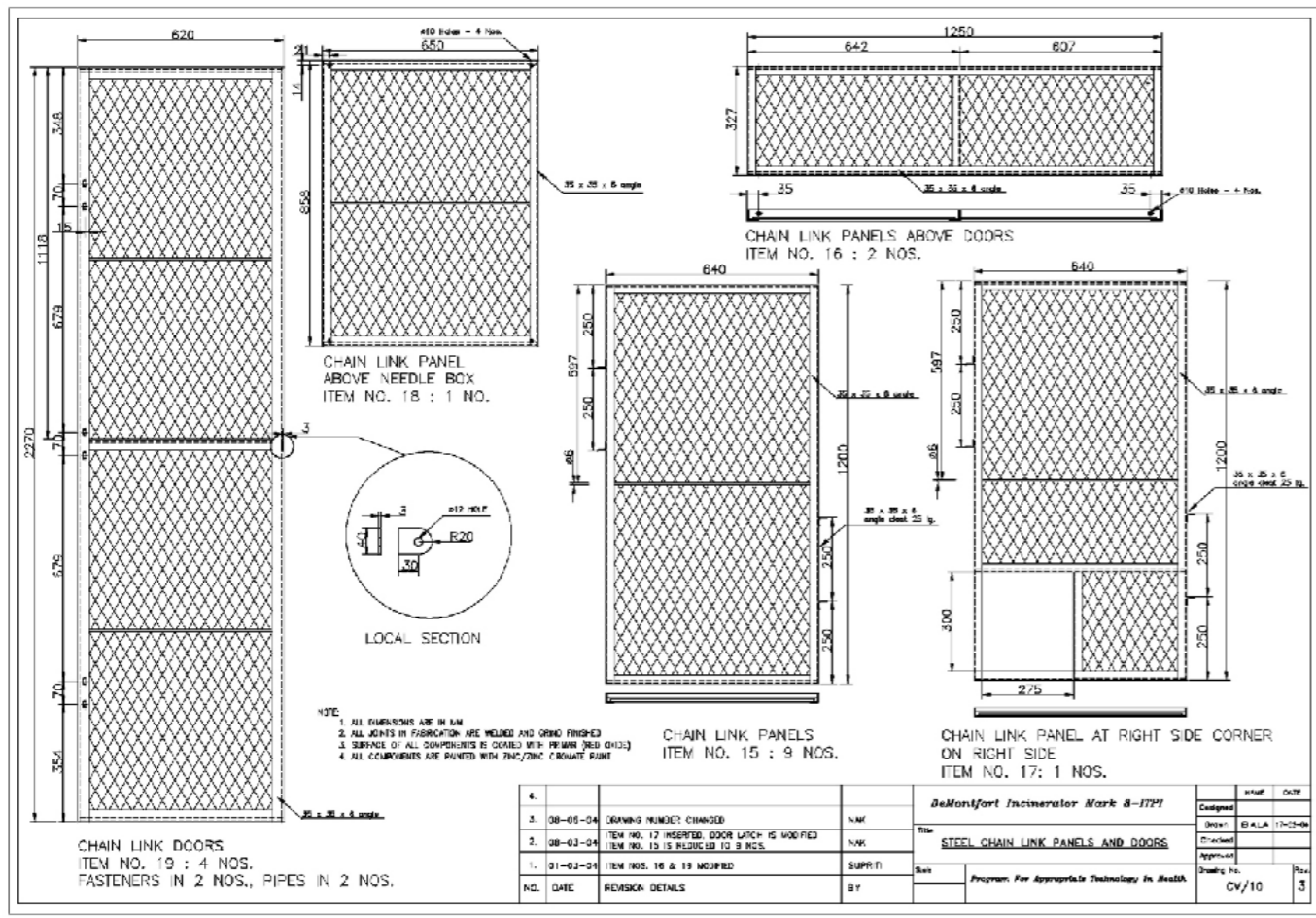
GENERAL ARRANGEMENT FOR STACK











NOTES

1. ALL DIMENSIONS ARE IN MM
2. ALL COMPONENTS OTHER THAN ROD AND PIPE ARE MADE FROM 8MM THICK PLATE
3. ALL JOINTS ARE WELDED AND GRIND FINISHED
4. TOPED BOLT OF 800 MM-100 MM IS HELD FROM INSIDE TO ONE OF THE DOORS
5. SURFACE OF ALL COMPONENTS IS COATED WITH PRIMER (SEE OVER)
6. ALL COMPONENTS ARE PAINTED WITH ZINC CHROMATE PASTE GUNDED ASSEMBLY
7. TWO SETS OF 8MM DIA. SPLIT PINS ARE USED TO FIX THE DOORS ALONG WITH PART 'A'

4.													
3.													
2.	05-06-04	REDESIGN AND REPROGRAMING	NAK										
1.	11-02-04	DESIGN AND DRAWING	NAK										
NO.	DATE	REVISION DETAILS	BY										

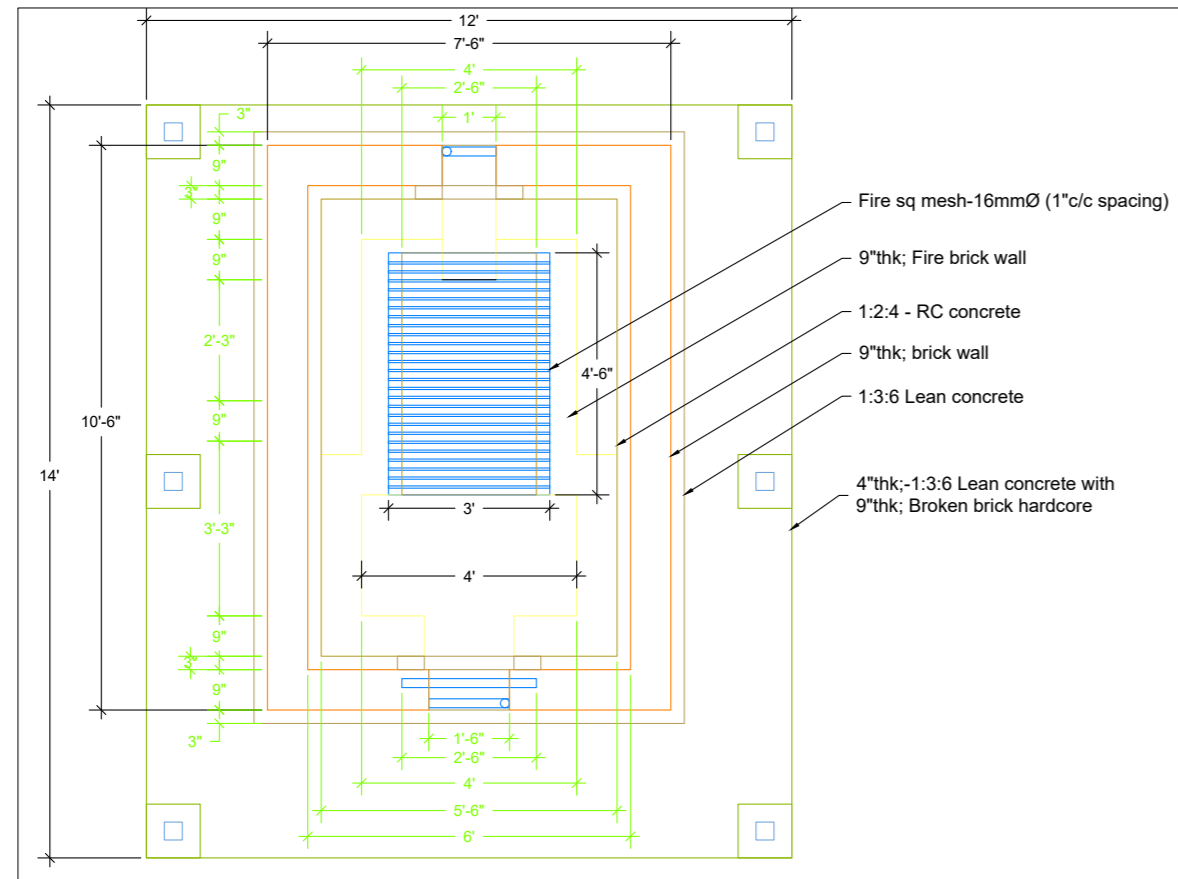
DeMansfort Incinerator Mark B-1771
 Title: STEEL FABRICATED STORAGE BOX
 Program: For Appropriate Technology In Health
 Drawing No: CV/13
 Page: 2

NOTES

1. GUY WIRE HOLDING STACKS ARE FIXED TO THE 'C' BENTS CLOSER TO BEND CONNECTIONS SHOWN IN ABOVE ROOF.
2. NOT DETAILS FOR FIXING THE GUY WIRES ARE GIVEN IN DRAWING 'NA/PA/012'

4.													
3.													
2.	08-08-04	DRAWING NUMBER CHANGED, NAMING MODIFIED	NAK										
1.	01-02-04	ITEM NO.05 MODIFIED, STACK HOLE REPOSITIONED	SUMRIN										
NO.	DATE	REVISION DETAILS	BY										

DeMansfort Incinerator Mark B-1771
 Title: ROOF PLAN
 Program: For Appropriate Technology In Health
 Drawing No: CV/14
 Page: 2



PROJECT
INCINERATOR (14'X12'X15')

SUBJECT
FOUNDATION PLAN VIEW

Sheet No. P-01

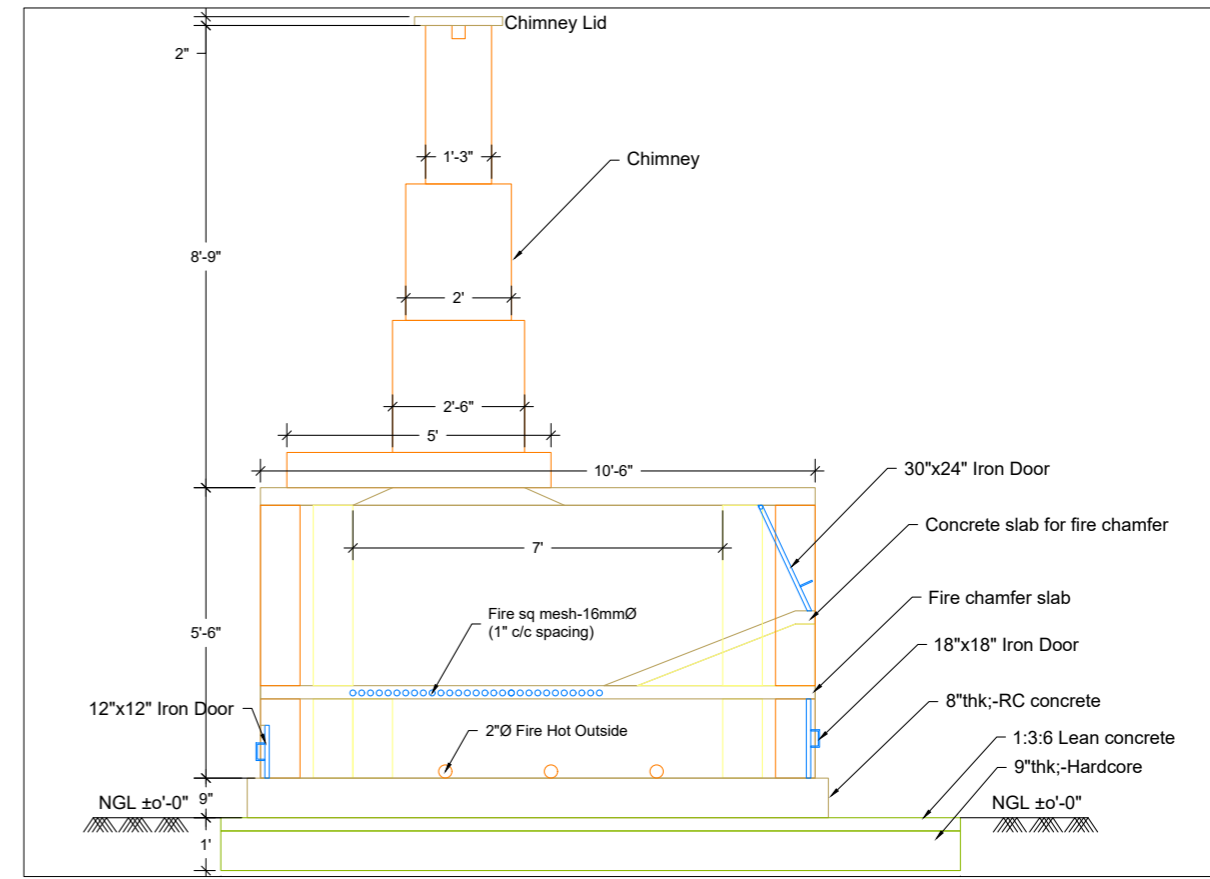
Scale Viewsprt

Date 20 AUG, 19

Drawing By; SHAR MAR

Checked By; WIN OO

Approved By;



PROJECT
INCINERATOR (14'X12'X15')

SUBJECT
SIDE VIEW

Sheet No. P-02

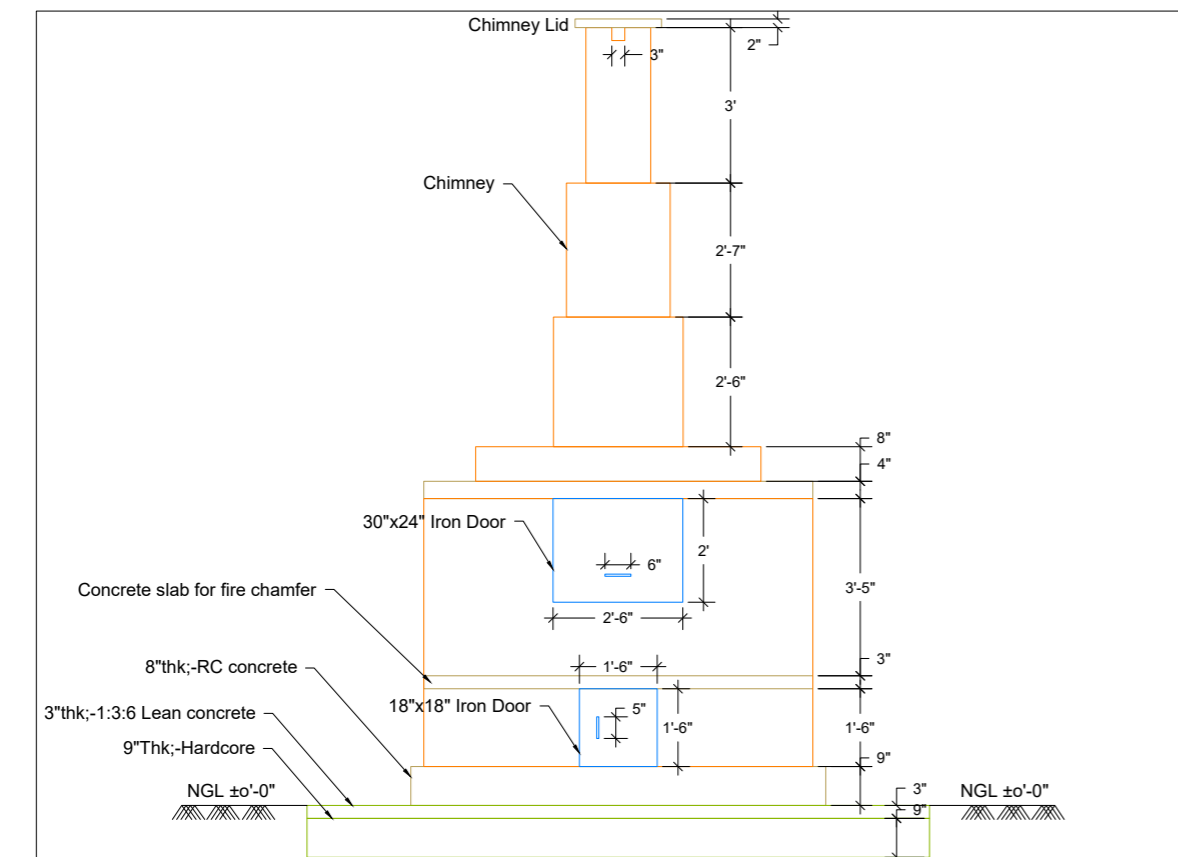
Scale Viewsprt

Date 20 AUG, 19

Drawing By; SHAR MAR

Checked By; WIN OO

Approved By;



PROJECT
INCINERATOR (14'X12'X15')

SUBJECT
FRONT VIEW

Sheet No. P-03

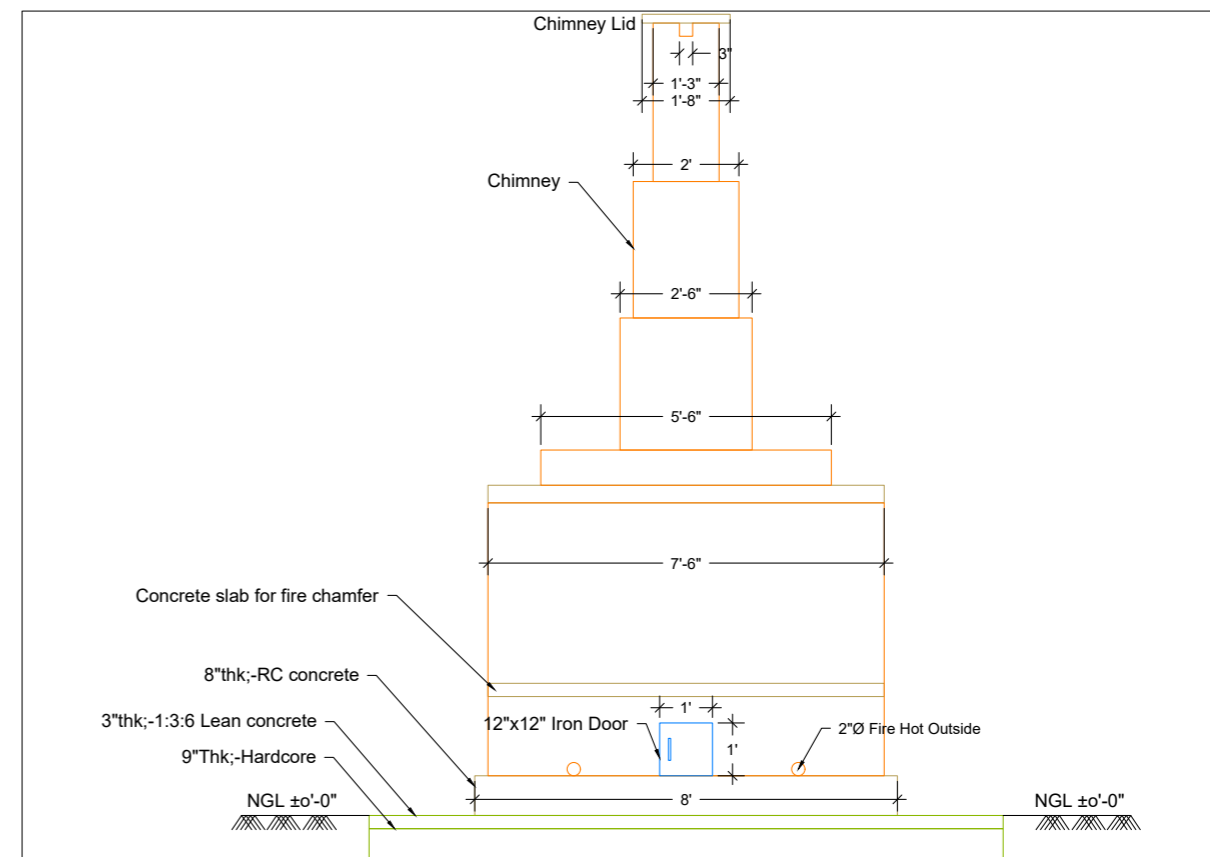
Scale Viewsprt

Date 20 AUG, 19

Drawing By; SHAR MAR

Checked By; WIN OO

Approved By;



PROJECT
INCINERATOR (14'X12'X15')

SUBJECT
BACK VIEW

Sheet No. P-03

Scale Viewsprt

Date 20 AUG, 19

Drawing By; SHAR MAR

Checked By; WIN OO

Approved By;

BILL OF QUANTITY Incinerator			SITTWE/ RAKHINE STATE		
Item No.	Materials	Unit	No.	Unit Price MMK	Total Price MMK
1	Fire Cement	Bag	7	53,000	371,000
2	Cement	Bag	45	8,500	382,500
3	Fire Brick	No.	1050	1,800	1,890,000
4	Brick	No.	3100	140	434,000
5	Sand	Sud	2.5	26,500	66,250
6	Gravel	Sud	1.5	85,000	127,500
7	Broken Brick	Sud	1.5	75,000	112,500
8	Wire Nail	Viss	2	3,000	6,000
9	Roofing Nails	Viss	2	3,000	4,500
10	Binding Wire	Viss	2	3,500	5,250
11	Plain Sheet (8'x3')	Sht	2	7,500	15,000
12	10' x 2'-3" CGI Sheet (Green or Blue Colour)	Sht	16	7,500	120,000
13	5-Plywood (8'x4')	Sht	2	20,000	40,000
14	12mmØ Bolt & Nut 6" and Washer	Set	10	600	6,000
15	12mmØ Bolt & Nut 5" and Washer	Set	15	500	7,500
16	2" x 1'-6" MS Flat 4mm thk: (2 Hole)	Pcs	6	2,000	12,000
17	16mmØ Deformed Bar x 39.5ft	No.	20	10,000	200,000
18	8mmØ Plain Bar	Cwt	1	60,000	60,000
19	12mmØ MS Rod x 39.5ft	No.	2	10,000	20,000
20	16mmØ MS Rod x 39.5ft	No.	1	12,000	12,000
21	4"x4" Timber Post 9' (Inn, Kanyin wood)	No.	4	12,000	48,000
22	4"x4" Timber Post 12' (Inn, Kanyin wood)	No.	2	12,000	24,000
23	4"x2" Wall Plate & Ridge 12' (Inn, Kanyin wood)	No.	3	6,000	18,000
24	3"x2" Rafter 12' (Inn, Kanyin wood)	No.	8	4,500	36,000
25	3"x2" Purlin 15' (Inn, Kanyin wood)	No.	6	6,875	41,250
26	6"x1" Eave 12' (Inn, Kanyin wood)	No.	6	5,500	33,000
27	30" x 24" MS Door, 2mm Thick, with Frame	No.	1	50,000	50,000
28	18" x 18" MS Door, 2mm thick, with Frame	No.	1	30,000	30,000
29	12" x 12" MS Door, 2mm thick, with Frame	No.	1	15,000	15,000
30	4" Dia x 19.5' MS Pipe (Chimney Extension)	No.	1	90,000	90,000
31	2" Dia x 8' long MS Pipe	ft	1	18,000	18,000
32	Red Oxide Paint	Gal.	1	13,000	13,000
A	SUB TOTAL MATERIAL COST				4,308,250
	Labour	Unit	Quantity	Unit Price MMK	Total Price MMK
	Skilled Labour (Mason, Carpenter, Welder, Etc.)	M.D	47	7500	352,500
	Unskilled Labour	M.D	41	5000	205,000
B	SUB TOTAL LABOUR COST				557,500
C	MATERIAL TRANSPORT				800,000
GRAND TOTAL					5,665,750

Incinerator Functionality Check - OXSI

Field	Question	Answer
date_of_survey <i>(required)</i>	Date of Survey	
enumerator_name <i>(required)</i>	Enumerator Name	
camp_name <i>(required)</i>	Camp Name	tcc TCC
		dpc DPC
		hmz HMZ
		bdc BDC
		bsr BSR
		mtn MTN
		tkp1 TKP1
		tkp2 TKP2
		kdk KDK
		otg1 OTG1
		otg3 OTG3
		otg6 OTG6
		otc OTC
		stmg STMG
sector_number	Sector Number	1 1
		2 2
		3 3
		4 4
		6 6
reference_number <i>(required)</i>	Reference Number	
Status_of_the_incinerator_fencing <i>(required)</i>	Status of the incinerator fencing	good Good (fully closed: doors, posts in correct state, fencing well attached to posts, no hole in the fences)
		to_be_maintain To be maintained (fencing partly damaged or no fencing)
Is_there_a_the_collection_pointdrying_space_inside_fencing <i>(required)</i>	Is there a the collection point/ drying space inside fencing?	yes Yes no No
If_yes_is_there_a_concrete_slab <i>(required)</i>	And If yes : is there a concrete slab for the collection point/ drying space?	yes Yes no No
If_yes_Status_of_the_collection_point <i>(required)</i>	And If yes : Status of the collection point/ drying space	good Good
		to_be_maintain To be maintained (cracked/ plastering damaged)
Is_the_incinerator_able_to_run_to_date <i>(required)</i>	Status of the Incinerator: Is the incinerator able to run to date?	yes Yes no No
If_No_write_down_the_problems <i>(required)</i>	If No, write down the problems	
Is_there_any_crack_out_side_or_on_the_incinerator <i>(required)</i>	Status of the Incinerator: Is there any crack, out side or on the incinerator?	yes Yes
		no No
Are_the_doors_of_the_oven_and_the_ash_room_in_place <i>(required)</i>	Status of the Incinerator: Are the doors of the oven and the ash room in place ?	yes Yes
		no No
Is_there_a_roof_on_the_incinerator <i>(required)</i>	Status of the Incinerator: Is there a roof on the incinerator ?	yes Yes
		no No
Status_of_the_incinerator_roofing <i>(required)</i>	And If yes : Status of the incinerator roofing	good Good (wooden carpentry and roofing in good state)
		To_be_maintain To be maintained (timber missing / roofing sheet missing)

CONTENTS

INTRODUCTION

WATER

SANITATION

HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT

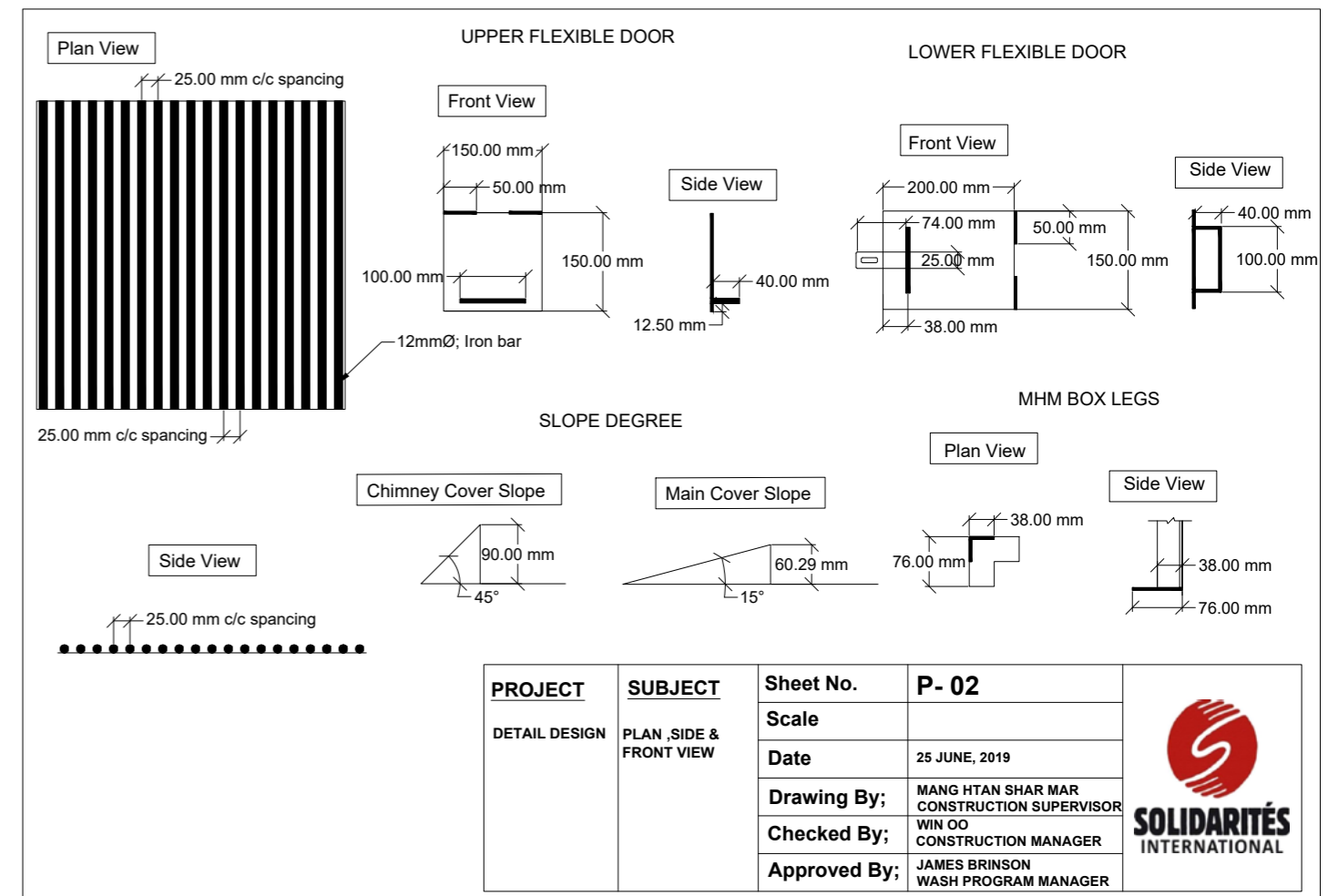
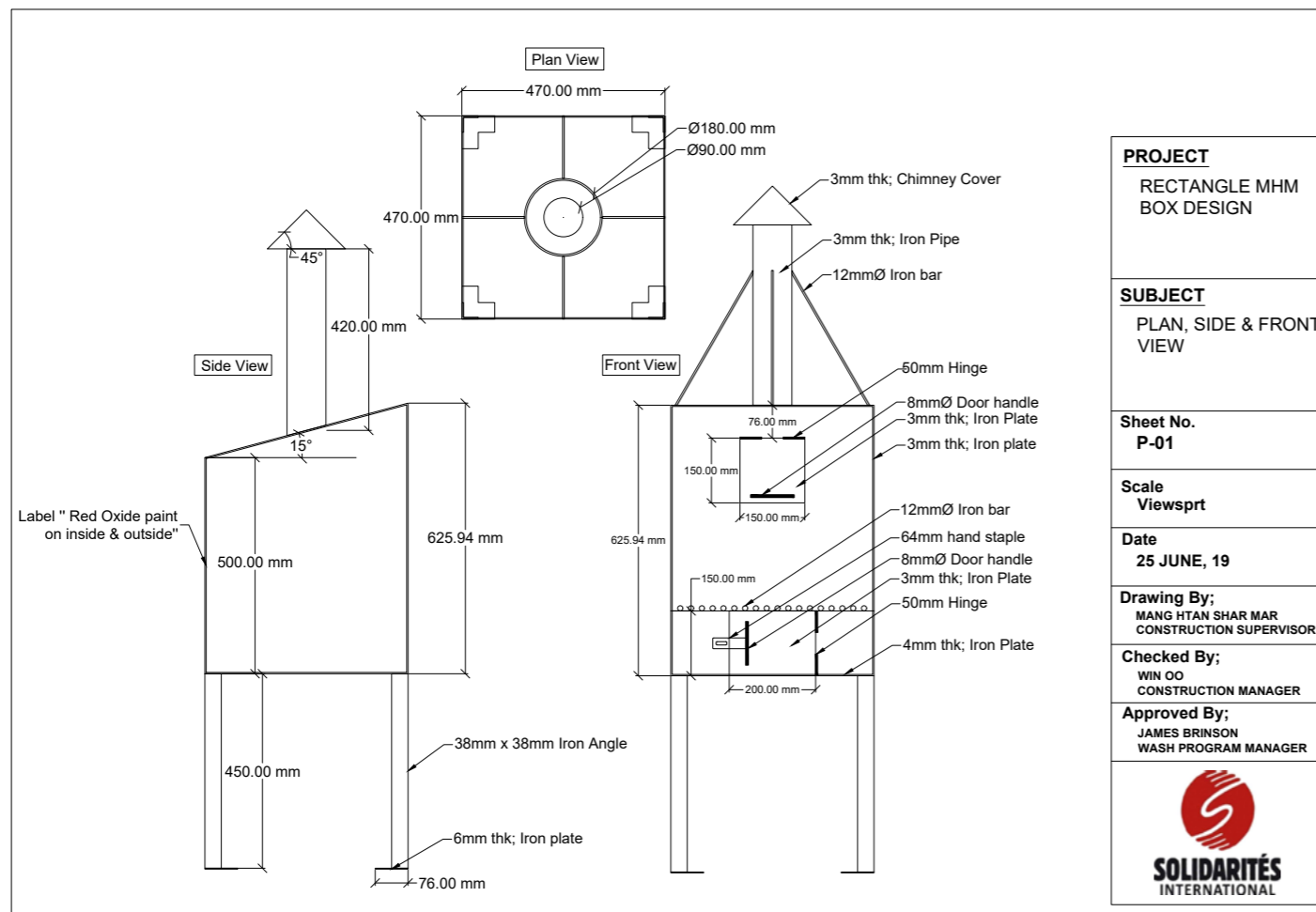
SOLAR LIGHTING

SOLID WASTE MANAGEMENT

MONITORING, EVALUATION, ACCOUNTABILITY, AND LEARNING

EMERGENCY RESPONSE: COVID-19

APPENDIX



Camp Cleaning Campaigns

Introduction

Although OXSI employs environmental cleaners to collect solid waste around the camps, the programme is also working to improve ownership and accountability of the community by organising regular camp cleaning campaigns to engage people in the cleaning process. These are weekly or bi-weekly events (depending on location and season), sometimes in collaboration with other organisations such as the Camp Management Agencies (CMAs).

The Community Mobilisation team sometimes also organizes “spontaneous” cleaning campaigns in response to a complaint, Transect Walk or Group Discussion, if there is waste around a borehole that fails a microbiological test, or after a storm to clean up debris.

Special effort is made to organise drainage cleaning campaigns in the month or two before the rainy season begins, to ensure that rainwater clears more quickly and does not cause flooding or stagnant water.

All of the cleaning campaigns aim to bring people together and inspire them to clean up and take care of their environment. This document is a guideline for both regular cleaning campaigns and drainage cleaning campaigns.

Objectives

- To clean the camp effectively and reduce the accumulation of garbage around the camp and in drainage channels.
- To reduce public health risks linked to improper disposal of solid waste and flooding.
- To ensure environmental sustainability.
- To promote environmental awareness.
- To increase community’s sense of ownership of the public spaces around their shelters.

Equipment

- Pushcarts
- Shovels, rakes, hoes, brooms, plastic bags
- Dust masks and gloves
- Attendance sheet

Standard Operating Procedure

- Decide on the location where a cleaning campaign is needed, based on requests from Community Facilitators (CFs), feedback from Transect Walks or Group Discussions, complaints, etc.
- If coordinating with another agency, come to an agreement on the date, time, and location of the cleaning campaign.

- Inform the community about the upcoming camp cleaning campaign (date, time, assigned area). For a routine weekly cleaning campaign, CFs should inform communities; for a joint cleaning campaign, CMA is also responsible for informing and inviting Camp Management Committees (CMCs).
- If planning a drainage cleaning campaign, agree with camp leaders on a dumping site for the wet waste, since it cannot be incinerated.
- CFs should recruit community members to participate in the camp cleaning campaign by informing shelter leaders about the event.
- Routine environmental cleaners should join the campaign with their pushcarts, instead of working in their assigned areas.
- For main drainage cleaning campaigns: if drainage channels are heavily blocked with sand, mud, and waste, it might be necessary to hire extra labour for the campaign. (This is handled by the SI team.)
- Distribute tools such as brooms, shovels, and rakes to the volunteers. Also distribute plastic bags or bins, dust masks, and gloves for each participant.
- For a routine solid waste cleaning campaign: environmental cleaners are responsible for taking the pushcarts full of waste to the incinerators while volunteers collect waste.
- For drainage cleaning campaigns: because waste from drainage channels is too wet to burn, environmental cleaners must take pushcarts with waste to the designated dumping place. The wet waste is buried until it dries and can be sent to the incinerator.
- At the end of the campaign, if appropriate, WASH staff can conduct an awareness session to make the link between proper waste disposal and disease reduction.
- At the end of the campaign (about 2 hours), thank participants for joining and ensure that everyone has signed the attendance sheet.
- In a joint cleaning campaign, CMAs may distribute refreshments, such as juice and cake.

SOP for OD Cleaning Campaign

Introduction:

Open defecation (OD) is commonly practiced in the IDP camps despite intensive hygiene promotion activities and construction of sanitation facilities in these camps. To involve the community in solving this issue while eliminating the public health threat of OD, the OXSI WASH team proposed to conduct an Open Defecation cleaning campaign monthly in all the targeted camps. This SOP is simple guidance on how to conduct the OD campaign in the camp.

Steps

Step 1: Organize community meeting

- Organize a community meeting to discuss the OD Cleaning Campaign. The community members can include, but are not limited to, religious leaders, shelter leaders, women's groups, and youth groups.
- In the community meeting, present the information from the most recent OD monitoring done by the MEAL team, and develop an action plan together with the community to target the areas that most need an OD cleaning campaign. The action plan can include the target areas, date and time for the campaign, needed tools from OXSI, and how participants can contribute to the campaign. (The OD campaign should be conducted in the first or second week of each month, after the monthly functionality check, so that it does not skew the functionality check OD data.)

Step 2: Prepare for the OD campaign

- Mobilize cleaning tools for the OD campaign. These could be borrowed from the existing camp cleaners or from different camps based on the availability of tools. (Cleaning materials from OXSI must be returned to OXSI after OD campaign in order to use next time.)
- Before the day of the OD campaign, confirm the date and time of the campaign with the community (as decided in the community meeting) and inform the CMA and CMC about the plan.

Step 3: During the OD campaign

- On the day of the cleaning campaign, arrange with the construction team to open the manhole covers of several pits near the OD cleaning campaign to discard OD collected into the pits.
- Right before the campaign begins, make a 0.2% chlorine solution to disinfect tools:
 - If using chlorine powder: put 4 spoonful of calcium hypochlorite (HTH) powder in 20 litres of water, stir for about 30 seconds, and then let the solution sit for 30 minutes before use.
 - If using Aquatabs: put about 5.5 spoonfuls of Aquatab powder in 20 litres of water, stir for 30 seconds, then let the solution sit for 30 minutes before use.
- Take the bucket with the chlorine solution near the latrine pits where OD will be disposed. Don't let children play in the area during the campaign.
- Provide tools, gloves and masks for participants.

- Conduct awareness-raising activities during the OD cleaning about the negative effects that OD can have on the environment and health.

Step 4: After the OD campaign

- After the campaign is over, make sure participants have signed the attendance sheet.
- Thank participants for coming and remind them to wash their hands when they get home.
- Clean the tools used in the bucket with the chlorine solution. Immerse the tools in the bucket for at least 10 minutes.
- Empty the bucket of chlorine solution on the pit covers or on the ground near the pits. Throw away gloves and masks used by participants in a proper waste bin.

Reporting, Monitoring and Evaluation:

- **Report:** the progress of the activities will be reported monthly. The reporting is compiled by the WASH officer in charge and submitted to the WASH field coordinator. The report should also include pictorial presentation as a verification of the activities.
- **Monitoring and evaluation:** Regular monitoring of the activities will be carried out by WASH coordinator, Commob PM, Commob AM and WASH field coordinator. The MEAL team will conduct the evaluation of this specific activity by conducting a mini-survey and gathering health data focusing on the incidence of diarrheal disease.

Resources required

- Cleaning tools: shovels, hoes, hard brooms
- Bucket with chlorine solution (for disinfecting tools)
- Gloves and masks for participants to wear during the campaign
- Refreshment during community meeting

Estimated Timeline

- Community meeting: **one day**
- Community mobilization: **one day**
- Preparation of tools (mobilizing cleaning tools) and IEC materials; **two days**
- Carry out OD campaign: **one day**

Remarks: Suggestions for the locations for OD campaigns will come from MEAL team data.

Result	Indicators	Method of Data Collection	Disaggregation	Frequency (Collect)	Frequency (Report)	Responsibility	
						Collect	Report
Impact	# of Pharmacies reporting significant amount of medicines sold for diarrheal diseases	Survey	By community; type of pharmaceutical distribution center; types of medicine sold	Bi-annually	Bi-annually	OXSI MEAL	OXSI Programme managers
	# of policy and procedural changes in collaboration platforms that incorporate OXSI best practices and community feedback	Advocacy Review	Per platform (Working Group, Cluster); per level (local, national); per type of change; per best practice	Bi-annually	Bi-annually	OXSI Advocacy and Programme Coordinator	OXSI Advocacy and Programme Coordinator
	Community Engagement - Community defined indicator	TBD	TBD	Bi-annually	Bi-annually	OXSI WASH Coordinator	OXSI Programme managers
Outcome I Conflict-affected populations have access to and ownership and management over the provision of safe water in their communities	Degree of participation of conflict-affected community in ensuring access to water services ¹	Participation Diagnosis Tool	Rating of participation per category of participation	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	% of households in conflict-affected communities who report access to safe and sufficient water to meet basic needs	Satisfaction Survey	By type of household (women-headed household vs non); by community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	% of conflict-affected community satisfied with the water infrastructure handovers	Post-Handover Survey	By gender; by age; by community	Per handover	Bi-annually	OXSI MEAL	OXSI MEAL
Output 1.1 Water lifecycle infrastructure is	# of functional boreholes monitored by OXSI	Borehole Functionality Survey	Per community	Monthly	Monthly	OXSI MEAL	OXSI MEAL

¹ Degree of participation defined by scale of participation in community engagement. Framework delivered by Lucy Knight, Oxfam PHP Advisor

functional and handed over to communities	# of boreholes handed over to community	Post Distribution Monitoring	Per community	Per handover	Bi-annually	OXSI MEAL	OXSI MEAL
	# of boreholes maintained/repared by OXSI	Borehole Functionality Survey	Per community	Monthly	Monthly	SI Construction	OXSI MEAL
	% of water points are clean and free of standing water	Borehole Functionality Survey	Per community	Monthly	Monthly	OXSI MEAL	OXSI MEAL
Output 1.2 Communities able to implement minor repairs and able to request major repairs from service providers	# of conflict-affected community members are trained in operation and maintenance of handpumps	Participation List	By gender; age; community	Per event	Monthly	SI Construction	OXSI MEAL
	# of community member-initiated repair requests on handpumps	Feedback mechanism	By community; major; minor	Per request	Monthly	OXSI MEAL	OXSI MEAL
	% of conflict-affected community satisfied with repairs to water infrastructure	Satisfaction Survey	By gender; by age; per community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
Output 1.3 OXSI implements water quality testing processes and remedial responses to ensure safe water	# of handpumps that receive timely and effective remedial actions	Water quality report	Per handpump; per community; type of remedial action; timeliness of action	For failed test	Weekly	Oxfam Water Quality Team	Oxfam programme manager
	% of boreholes with <10 CFU/100ml	Water quality report	Per handpump; per community	Per test	Weekly	Oxfam Water Quality Team	Oxfam programme manager
	# of remedial actions carried out	Water quality report	Per handpump; per community	Per negative test	Weekly	SI Construction; OXSI CommMob teams; Water Quality Team	Oxfam programme manager
Output 1.4 Development and piloting of water enterprises within the conflict-affected communities	# of water enterprise models designed	Document Review	Type of water enterprise model	TBD	TBD	TBD	TBD
	# of water enterprises piloted	Document Review	Type of water enterprise model piloted	TBD	TBD	TBD	TBD
	# of water enterprises functional	Document Review	Type of water enterprise model piloted	TBD	TBD	TBD	TBD

Outcome 2 Conflict-affected populations have access to and O&M over the provision of safe sanitation in their communities	Degree of participation of conflict-affected community in ensuring access of provision of sanitation services ²	Participation Diagnosis Tool	Rating of participation per category of participation	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
Outcome 2 Conflict-affected populations have access to and O&M over the provision of safe sanitation in their communities	% of conflict-affected population satisfied with the process of consultation for the repairs and upgrades of latrines	Satisfaction Survey	Per community;	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	% of households in conflict-affected communities who report access to safe and sufficient latrines at all times	Latrine Functionality Survey	Per community;	Monthly	Bi-annually	OXSI MEAL	OXSI MEAL
	# of latrines that OXSI monitors that are functional	Latrine Functionality Survey	Per community;	Monthly	Monthly	OXSI MEAL	OXSI MEAL
Output 2.1 Latrines are functional and have been handed over to communities	# of latrines handed over to the community	Post-handover survey	Per community; per	Per handover	Monthly	OXSI MEAL	OXSI MEAL
	% of community-affected population satisfied with handovers	Post-handover survey	Per community; by gender; by age	Per handover	Monthly	OXSI MEAL	OXSI MEAL
	# of latrines maintained and/or repaired by OXSI	Latrine Functionality Survey	Per community; per infrastructure	Monthly	Monthly	SI Construction	OXSI MEAL
	% of latrines that are free of faeces in the surrounding area	Latrine Functionality Survey	Per community	Monthly	Monthly	OXSI MEAL	OXSI MEAL
	# of community member-initiated repair requests on latrines	Feedback mechanism	By gender; by age; per community; per	Per request	Monthly	OXSI MEAL	OXSI MEAL
Output 2.2 Communities are able to implement minor repairs and/or able to	% of conflict-affected community members satisfied with repairs to latrines	Satisfaction Survey	By gender; by age; per community; per	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL

² Degree of participation defined by scale of participation in community engagement. Framework delivered by Lucy Knight, Oxfam PHP Advisor

request major repairs from service providers							
Output 2.3 Latrines in conflict-affected communities are regularly desludged	Volume of sludge removed and taken to Sludge Treatment Site	STS Reports	By ; by community; frequency of collection	Per desludging	Monthly	SI Sanitation	SI programme manager
	# of community-initiated requests for desludging	Feedback mechanism	By gender; by age; per community; per	Per request	Monthly	OXSI MEAL	SI programme manager
	# of overflowing latrines	Latrine Functionality Survey	By latrine; by community	Monthly	Monthly	OXSI MEAL	SI programme manager
Output 2.4 Solid waste management	# of functional Incinerators	Solid Waste Management Survey	By type of incinerator; MHM or non-MHM; by community	Monthly	Monthly	OXSI MEAL	OXSI MEAL
	# and frequency of community-led cleaning campaigns	WASH Field Report	Per community; community-led vs not; timing of campaigns	Weekly	Monthly	WASH CommMob Team	OXSI programme managers
	% of households reporting active use of solid waste management kits	Solid Waste Management Survey	Per community	Per distribution	Bi-annually	OXSI MEAL	OXSI MEAL
	% of community members reporting that they are satisfied with solid waste management kits and cleanliness of their area	Satisfaction Survey	Per community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	# of solid waste management kits distributed	Distribution list	Per community	Per distribution	Bi-annually	WASH CommMob Team	OXSI programme managers
Output 2.5 Drainage	Linear length of repairs or construction of drainage channels	Construction Report	Type of repair; type of construction; per community	Monthly	Monthly	SI Construction	SI programme manager
	# of community-initiated drainage cleaning campaigns	WASH Field Report	Per community; per	Weekly	Monthly	WASH CommMob Team	OXSI programme managers
Output 2.6 Sanitation	# of sanitation enterprise models designed	Document Review	Type of sanitation enterprise model	TBD	TBD	TBD	TBD



OXSI LOGFRAME FINAL 2018



enterprise developed	# of sanitation enterprises piloted	Document Review	Type of sanitation enterprise model piloted	TBD	TBD	TBD	TBD
	# of sanitation enterprises functional	Document Review	Type of sanitation enterprise model piloted	TBD	TBD	TBD	TBD
Outcome 3 Conflict-affected community are aware of and promoting positive hygiene practices	% of conflict-affected community members actively involved through campaigns	Participation Lists; Population projection	By gender; by age; per community	Weekly	Bi-annually	WASH Field Team; CommMob Team	OXSI programme managers
	% of conflict-affected community who report that campaigns are effective at promoting positive WASH practices in their communities	Satisfaction Survey	By gender; by age; per community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	% conflict-affected community members who can describe three measures they are taking to prevent WASH-related diseases	Satisfaction Survey	By gender; by age; per community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	Output 3.1 Implementation of targeted campaigns on issues related to public health in conflict-affected communities	# of community members participating in educational outreach sessions	WASH Field Report	By type of outreach activity ³ ; per community	Weekly	Monthly	WASH CommMob Team
	# of community members who participate in WASH events and celebrations	WASH Field Reports	By event; by gender	Weekly	Monthly	WASH CommMob Team	OXSI programme managers
	# of topics covered and addressed in educational sessions	WASH Field Reports	Type of topic covered; By type of resolution; location of distribution; per community	Weekly	Monthly	WASH CommMob Team	OXSI programme managers

³ Outreach sessions are:

- 1. WASH in Schools 2. WASH for Women 3. Menstrual Hygiene Management Sessions 4. Transect Walks 5. Targeted Home Visits 6. Meetings



OXSI LOGFRAME FINAL 2018



Output 3.2 Community-led campaigns are initiated, developed and implemented by conflict-affected communities	# of community members participating in designing community campaigns	Participation Lists; Community Engagement Report	By age; by gender; per community; per stakeholder group	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
	% of communities that have at least one campaign	Community Engagement Report	By type of campaign; per community type	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
	# of campaigns that have community-developed indicators	Community Engagement Report	By type of campaign; per community type	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
	# of community-led campaigns that have achieved the result anticipated by the community	Community Engagement Report	By type of campaign; per community type	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
Output 3.3 Community has access to basic hygiene items	# hygiene kits distributed	Distribution lists	By gender; by age; per community	Weekly	Monthly	WASH CommMob Team	OXSI programme managers
	% of community satisfied with access and type of hygiene kits distributed	Hygiene kit Post Distribution Monitoring	Per community; by gender; by age	Bi-monthly	Bi-monthly	OXSI MEAL	OXSI MEAL
Outcome 4 Increased and strengthened influencing across various platforms at the local and national levels to amplify key concerns from conflict-affected communities	# of engagement mechanisms developed by conflict affected people to ensure equitable and sustainable access to WASH services	Community Engagement Report; Document Review	Per mechanism; per locality	Monthly	Bi-annually	WASH CommMob Team	OXSI WASH Coordinator
	# of collaboration or coordination platforms actively led by OXSI	Self-assessment	Per type of platform	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI
Output 4.1 Collaboration with stakeholders at	# of best practices (learnings) presented to local, regional, and national forums	Advocacy Strategy Report	Per platform; per level	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI



OXSI LOGFRAME FINAL 2018



local, national, and international levels	# of learning products developed in platforms led by OXSI	Advocacy Strategy Report	Per platform; per level	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI
	# of collaboration events led by OXSI	Advocacy Strategy Report	Per platform; per level	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI
Output 4.2 Coordination with local, regional, national and international actors to raise and amplify the voices of displaced people through platforms they do not have access to	# of notes, policies and guidelines developed by formal coordination platforms that incorporate OXSI messages on issues facing conflict-affected communities	Advocacy Strategy Report	Per platform; per level	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI
	# of policy and research documents developed by OXSI incorporating views and feedback from conflict-affected populations	Advocacy Strategy Report	Per platform; per level	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI
	# of coordination mechanisms attended by OXSI	Advocacy Strategy Report	Per platform; per level	Monthly	Bi-annually	Advocacy and Programme Coordinator OXSI	Advocacy and Programme Coordinator OXSI
Outcome 5 A strengthened culture of accountability and transparency exists in the delivery of WASH services to affected populations	% of conflict-affected community members reporting that WASH services are delivered in a participatory manner	Satisfaction Survey	By gender; by age; per community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	% of complaints that are investigated, resolved and results fed back to the complainant within the stated timeframe	Feedback mechanism ; Document Review	By complaint type; by community	Weekly	Quarterly	OXSI MEAL	OXSI MEAL
	# of adaptations and improvements to project done by staff in response to feedback raised by communities	Learning Review		Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL



OXSI LOGFRAME FINAL 2018



Output 5.1 Short-term and systemic barriers, especially those affecting vulnerable and marginalized groups, are understood by the project	# and type of groups who participate in design, implementation, and oversight of the Community Engagement Strategy	Participation Lists; Community Engagement Report	Type of groups; by gender; by age; by community	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
	# and types of needs identified by community	Community Engagement Report	Type of groups; by thematic grouping	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
	# of community folders updated regularly with changes in maps, stakeholders, power dynamics	Community Engagement Report	Types of updates; types of documents; per community	Weekly	Monthly	WASH CommMob Team	OXSI WASH Coordinator
	Information Ecosystem Assessment analysis completed	Information Ecosystem Assessment	Per community	One time assessment		Internews	Internews
Output 5.2 An effective accountability mechanism is established receiving quality feedback from conflict-affected communities and a timely, effective response from OXSI	# of feedback received	Feedback Mechanism	By type of feedback; by community; by gender; by age	Monthly	Quarterly	OXSI MEAL	OXSI MEAL
	% of complaints that are investigated and where appropriate follow up action taken	Feedback mechanism	By type of complaint; by community; by gender; by age	Weekly	Quarterly	OXSI MEAL	OXSI MEAL
	% of conflict-affected community members, including vulnerable and marginalized groups, who are aware of complaints mechanisms established for their use	Satisfaction Survey	By age; by gender; by community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	% of conflict-affected community satisfied with response received from feedback	Satisfaction Survey	By age; by gender; by community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
Output 5.3 Clear, transparent and	% of the affected population that consider the complaints mechanisms accessible and safe	Satisfaction Survey	By age; by gender; by community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	# of information products delivered to community members	Internews Report	By community	Monthly	Quarterly	Internews	Internews

EMERGENCY RESPONSE: COVID-19

MONITORING, EVALUATION, ACCOUNTABILITY, AND LEARNING

SOLID WASTE MANAGEMENT

SOLAR LIGHTING

HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT

SANITATION

WATER

INTRODUCTION

CONTENTS

APPENDIX

consistent communication with communities ensures transparency and accountability between project and conflict-affected communities	% of conflict-affected community who consider that they have timely access to relevant and clear information	Internews Report; Satisfaction Survey	By age; by gender; by community	Bi-annually	Bi-annually	Internews	Internews
	# and type of coordination mechanism in place to ensure clear, effective referral process for feedback among other agencies	Internews Report	Type of coordination mechanism; type of referral mechanism	Monthly	Quarterly	Internews	Internews
	# and type of trainings to outreach teams to provide targeted, verified and localized information and to receive community feedback.	Internews Report	Type of training; location of training; types of trainees	Monthly	Quarterly	Internews	Internews
Outcome 6 Clear and comprehensive Gender and Protection mainstreaming throughout the project implementation	# of gender needs identified and integrated into access to WASH services	Gender Review	By type of need; by type of project modification	Monthly	Quarterly	Gender and Protection Coordinator	Gender and Protection Coordinator
	% of conflict-affected community considers WASH services to be accessible, safe, and useable by men, women, and children according to their needs	Satisfaction Survey	By gender; by age; by community	Bi-annually	Bi-annually	Gender and Protection Coordinator	Gender and Protection Coordinator
	% of conflict-affected community believe their protection issues in accessing WASH services are dealt with effectively	Satisfaction Survey	By gender; by age; by community	Bi-annually	Bi-annually	Gender and Protection Coordinator	Gender and Protection Coordinator
Output 6.1 Development and implementation of Gender and Protection strategies	# of gender and protection strategies developed	Gender and Protection Strategy		Monthly	Quarterly	Gender and Protection Coordinator	Gender and Protection Coordinator

Output 6.2 Design and implementation of Gender and Protection assessments and analyses	# of gender assessments conducted	Gender and Protection Strategy	Per community	Monthly	Quarterly	Gender and Protection Coordinator	Gender and Protection Coordinator
	# of gender and protection analyses completed	Gender and Protection Strategy	Per community	Monthly	Quarterly	Gender and Protection Coordinator	Gender and Protection Coordinator
Output 6.3 All levels of staff have knowledge and awareness of gender and protection strategy and mainstreaming	# of staff trainings conducted on gender and protection	Participation lists	per community; per staff level	Monthly	Quarterly	Gender and Protection Coordinator	Gender and Protection Coordinator
	% of staff reporting higher knowledge and awareness of gender and protection	Pre and post-assessments	per community; per staff level	Monthly	Quarterly	Gender and Protection Coordinator	Gender and Protection Coordinator
Output 6.4 Latrines have functional solar lighting for safe access for men, women, and children at all times	# of solar lights installed or repaired	Construction Report	Per community	Weekly	Monthly	SI Construction	OXSI MEAL
	% of conflict-affected community reporting solar lights are an effective method for improving safe access to latrines at night	Satisfaction Survey	By age; by gender; per community	Bi-annually	Bi-annually	OXSI MEAL	OXSI MEAL
	# of solar lights functional around OXSI latrines	Latrine Functionality Survey	Per community	Monthly	Monthly	OXSI MEAL	OXSI MEAL
Output 6.5 Women and girls have improved oversight and consultation on WASH services in conflict-affected communities	# of learning reviews developed with insights from women, girls, boys, and men and their access to WASH services	Gender Learning Review	Per community	Monthly	Bi-annually	Gender and Protection Coordinator	Gender and Protection Coordinator
	# of trainings held with community members on women's leadership	Participation Lists	By age; by gender; per community	Weekly	Monthly	Gender and Protection Coordinator	Gender and Protection Coordinator
	Type and content of WASH for Women (W4W) sessions held	Participation lists; Monthly report	By age; by gender; per community	Weekly	Monthly	WASH CommMob Team	OXSI programme managers

Outcome 7 Emergency Planning implemented and Emergency Response ready to adapt and launch	Emergency Planning sessions held	Situation Report	Per level (Sittwe; coordination bodies; camp-based)	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
	# of WASH infrastructure altered due to emergency planning considerations	Situation Report	By type of infrastructure; by community	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
Output 7.1 Needs-based preparedness outreach and awareness for conflict-affected communities	# and type of preparedness outreach sessions with conflict-affected community members	Participation lists	By age; by gender; per community	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
	# of campaigns conducted on preparedness	Document Review	By type of campaign; per community	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
	# and type of materials stockpiled	Stocklist Database	By type of material; by location; by purpose	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
Output 7.2 Emergency Response activated based on type of response	# of assessment and response teams deployed within 48 hours of emergency	Situation Report	By type of assessment; by type of response team (Surge Response Team; Emergency Response Team)	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
	% of Sittwe joint contingency plan implemented within 7 days of emergency	Contingency Plan for OXSI	By camp	As required	As required	OXSI programme managers	As per Emergency Response Mechanism
	# and types of materials distributed	Inventory and Stock Lists	By camp; by household	As required	As required	OXSI programme managers	As per Emergency Response Mechanism

Satisfaction Survey - HARP - 2

Field	Question	Answer
General Information		
Enumerator_Name <i>(required)</i>	Enumerator Name	
Date <i>(required)</i>	Date of Survey	
Agency_name <i>(required)</i>	Agency Name	Oxfam Oxfam SI SI
Oxfam_Camp <i>(required)</i>	Oxfam Camp Name	STMG Say Tha Mar Gyi Camp OTG_1 Ohn Taw Gyi (1) Camp OTG_3 Ohn Taw Gyi (3) Camp OTG_6 Ohn Taw Gyi (6) Camp MTN Maw Thin Nyar Camp TKP Thet Kay Pyin Camp OTC Ohn Taw Cha Camp KDK Kaung Doke Kar Camp
SI_Camp <i>(required)</i>	SI Camp Name	TCC Thae Chaung Camp DPC Dar Paing Camp HMZ Hmanzi Camp BDP Baw Du Pha Camp BSR Bar Ser Rar Camp
Respondeent_Name <i>(required)</i>	Respondent Name	
R_Gender <i>(required)</i>	Respondent Gender	M Male F Female
Respondent_Age <i>(required)</i>	Age of Respondent	16_40 16 - 40 Year 40_60 40 - 60 Year Over_60 Over 60 Year
HH_Head_Gender <i>(required)</i>	Gender of Household Head	M Male F Female
% of Conflict-affected population satisfied with the process of consultation for the repairs and upgrades of latrines		
Consultation <i>(required)</i>	1(a) - Have you ever been consulted about repairs or upgrades of latrine in your area?	Yes Yes No No
Frequency_Consultation <i>(required)</i>	1(b) - How often are you consulted on repairing and upgrading of latrine?	Occasionally Occassionally Often Often Always Always
Rating_Satisfaction <i>(required)</i>	1(c) - Overall, Are you satisfied with the consultation you've received on repairs/upgrades of latrines?	Dissatisfied Dissatisfied Neutral Neutral Satisfied Satisfied
% of conflict-affected community who report that campaigns are effective at promoting positive WASH practices in their communities		
Experience_HP <i>(required)</i>	2(a) - Have you joined a campaign or HP session during this project?	Yes Yes No No
Useful_HP_Act <i>(required)</i>	2(b) - What was the most useful campaign or HP session you took part in?	ECC Environmental Cleaning Campaign DCC Drainage Cleaning Campaign MHM MHM Session WASH_S WASH in School WASH_W WASH for Women Events Events HK Hygiene kit Distribution TW Transect Walk Other Other
Helped_Good_Practise <i>(required)</i>	2(c) - Do you think campaign or HP session helped people to adopt good practises?	Yes Yes No No
% conflict-affected community members who can describe three measures they are taking to prevent WASH-related diseases		
Prevention_Water_Related_Diseases <i>(required)</i>	3(a) - What is the most important practise you perform regularly and encourage your family perform to prevent diarrhoea?	HW Hand Washing with Soap Use_CW Use Clean Water Safe_Food Safe Food Using_Clean_Latrine Using Clean Latrine Using_Bin Using bin for waste Other Other

Field	Question	Answer
Make_Sure_SW <i>(required)</i>	3(b) - What do you do to make sure water to be safe and clean?	Clean_WC Clean Water Container WC_Lid Water Container with Lid Use_CC Use Clean Cup CWF Using CWF Sedi Sedimentation Boiling Boiling Use_WF Using Water Filter Use_CH Use clean handpump Using_Aqu Using Aquatab Other Other
Manage_Garbage <i>(required)</i>	3(c) - How do you manage garbage at home?	Give_Cleaner Collect at home and give to cleaner Dispose_PWB Dispose in a public waste bin Dispose_Open Dispose in the open Other Other
% of affected people who report hand washing with soap and water at key times during the reporting period		
use_to_wash_hands <i>(required)</i>	3 (d) - What do you use to wash your hands?	soap_water Soap and water water_only Water only other Other
critical_time_to_wash_hands <i>(required)</i>	3 (e) - Could you mention the critical time to wash hands with soap?	before_eating (a)-Before eating after_using_latrine (b)-After using the latrine before_preparing_food (c)-Before preparing food after_cleaning_babies_bottom (d)-After cleaning baby's bottom before_feeding_child (e)-Before feeding a child other (f)-Other
soap_present_at_house <i>(required)</i>	3 (f) - Do you have soap at your house and can you please show me?	yes Yes no No
% of conflict-affected community members reporting that WASH services are delivered in a participatory manner		
Involved_Handover_LT <i>(required)</i>	4(a) - Were you or a member of your family involved in the latrines handover process?	Yes Yes No No
Involved_LT_MR <i>(required)</i>	4(b) - Were you or a member of your family involved in minor repairing of latrine?	Yes Yes No No
Satisfied_LT_MR <i>(required)</i>	4(c) - Are you satisfied with minor repair of handed over latrine by community?	Satisfied Satisfied Neutral Neutral, Don't know Dissatisfied Dissatisfied
Involved_HO_HP <i>(required)</i>	4(d) - Were you or a member of your family involved in the handpump handover process?	Yes Yes No No
Involved_HP_MR <i>(required)</i>	4(e) - Were you or a member of your family involved in minor repairing of handpump?	Yes Yes No No
Satisfied_HP_MR <i>(required)</i>	4(f) - Are you satisfied with minor repair of handed over handpump by community?	Satisfied Satisfied Neutral Neutral, Don't know Dissatisfied Dissatisfied
Consulted_HP <i>(required)</i>	4(g) - Were you or a member of your family consulted on topics discussed during hygiene promotion session?	Yes Yes No No
% of conflict-affected community considers WASH services to be accessible, safe and useable by men, women, and children according to their needs		
Enough_Latrine <i>(required)</i>	5(a) - Do you believe there are enough latrine for everyone in your community?	Yes Yes No No
Why_Not_Enough_Latrine <i>(required)</i>	5(b) - If no, Why not enough latrine?	Away_HH Too far away from household latrine_NF Latrine is not functioning Stolen Latrine was stolen Large_FZ Large family size Other Other
% of conflict-affected community considers WASH services to be accessible, safe and useable by men, women, and children according to their needs > 5(c) - Do you believe that you and your family can easily access latrine?		
Women	For Women	Yes Yes No No
Men	For Men	Yes Yes No No
Children	For children	Yes Yes No No

Field	Question	Answer																						
Older	For Older	Yes Yes No No																						
Disable	For Disable	Yes Yes No No																						
Why_Not_Accessible_Latrine <i>(required)</i>	5(d) - If no, why not accessible to latrine?	<table border="1"> <tr><td>Larine_Far</td><td>Latrines are too far away</td></tr> <tr><td>Latrine_Locked</td><td>Latrines are locked</td></tr> <tr><td>Latrine_Unsafe</td><td>Latrines are not safe</td></tr> <tr><td>Latrine_Dirty</td><td>Latrines are too dirty</td></tr> <tr><td>No_Path</td><td>No path to latrine</td></tr> <tr><td>Not_Functioning</td><td>Latrines are not functioning</td></tr> <tr><td>Overflow</td><td>Latrines are overflowing</td></tr> <tr><td>Stolen</td><td>Latrines were stolen</td></tr> <tr><td>High</td><td>Latrine is high</td></tr> <tr><td>Large_FS</td><td>Large Family Size</td></tr> <tr><td>Other</td><td>Other</td></tr> </table>	Larine_Far	Latrines are too far away	Latrine_Locked	Latrines are locked	Latrine_Unsafe	Latrines are not safe	Latrine_Dirty	Latrines are too dirty	No_Path	No path to latrine	Not_Functioning	Latrines are not functioning	Overflow	Latrines are overflowing	Stolen	Latrines were stolen	High	Latrine is high	Large_FS	Large Family Size	Other	Other
Larine_Far	Latrines are too far away																							
Latrine_Locked	Latrines are locked																							
Latrine_Unsafe	Latrines are not safe																							
Latrine_Dirty	Latrines are too dirty																							
No_Path	No path to latrine																							
Not_Functioning	Latrines are not functioning																							
Overflow	Latrines are overflowing																							
Stolen	Latrines were stolen																							
High	Latrine is high																							
Large_FS	Large Family Size																							
Other	Other																							
Enough_Desludging <i>(required)</i>	5(e) - Do you believe there is enough desludging happening in your community?	Yes Yes No No																						
Safety_Issue <i>(required)</i>	5(f) - What is your safety issue to use latrine?	<table border="1"> <tr><td>No_Light</td><td>No light at night</td></tr> <tr><td>No_Path</td><td>No path to latrine</td></tr> <tr><td>Non_Fun_Lat</td><td>Non functioning Latrine</td></tr> <tr><td>High</td><td>Latrine is high</td></tr> <tr><td>D_Latrine</td><td>Double Latrine</td></tr> <tr><td>no_safety_issue</td><td>No safety issue</td></tr> <tr><td>Other</td><td>Other</td></tr> </table>	No_Light	No light at night	No_Path	No path to latrine	Non_Fun_Lat	Non functioning Latrine	High	Latrine is high	D_Latrine	Double Latrine	no_safety_issue	No safety issue	Other	Other								
No_Light	No light at night																							
No_Path	No path to latrine																							
Non_Fun_Lat	Non functioning Latrine																							
High	Latrine is high																							
D_Latrine	Double Latrine																							
no_safety_issue	No safety issue																							
Other	Other																							
Accessible_Quality_Water <i>(required)</i>	5(g) - Do you believe you and your family can easily access quality water from handpumps?	Yes Yes No No																						
Why_Not_Accessible_handpump <i>(required)</i>	5(h) - If no, why not accessible to handpumps?	<table border="1"> <tr><td>No_Good_Water</td><td>No good quality water</td></tr> <tr><td>Far_HH</td><td>Too far from HH</td></tr> <tr><td>No_Functioning</td><td>HPs are not functioning</td></tr> <tr><td>Unsafe</td><td>Unsafe to get water from HP</td></tr> <tr><td>Other</td><td>Other</td></tr> </table>	No_Good_Water	No good quality water	Far_HH	Too far from HH	No_Functioning	HPs are not functioning	Unsafe	Unsafe to get water from HP	Other	Other												
No_Good_Water	No good quality water																							
Far_HH	Too far from HH																							
No_Functioning	HPs are not functioning																							
Unsafe	Unsafe to get water from HP																							
Other	Other																							
% of conflict-affected community members, including vulnerable and marginalized groups, are aware of complaints mechanisms established for their use																								
Aware_Feedback_Mechanism <i>(required)</i>	6(a) - Do you know how to provide feedback or a complaint about WASH services to OXSI staff?	Yes Yes No No																						
Provided_Feedback <i>(required)</i>	6(b) - Have you ever provided feedback to OXSI?	Yes Yes No No																						
Providing_Feedback <i>(required)</i>	6(c) - If yes, how did you provide feedback?	<table border="1"> <tr><td>Feedback_Tablet</td><td>Feedback on Tablet</td></tr> <tr><td>Oxfam/SI_Office</td><td>Oxfam/SI Office</td></tr> <tr><td>Person_Staff</td><td>In Person (Staff)</td></tr> <tr><td>T_CMC</td><td>Through CMC</td></tr> <tr><td>T_CMA</td><td>Through CMA</td></tr> <tr><td>T_BL</td><td>Through Barrack Leader</td></tr> <tr><td>T_RL</td><td>Through Religious Leader</td></tr> <tr><td>Hot_line</td><td>Phone, Hot Line</td></tr> <tr><td>Other</td><td>Other</td></tr> </table>	Feedback_Tablet	Feedback on Tablet	Oxfam/SI_Office	Oxfam/SI Office	Person_Staff	In Person (Staff)	T_CMC	Through CMC	T_CMA	Through CMA	T_BL	Through Barrack Leader	T_RL	Through Religious Leader	Hot_line	Phone, Hot Line	Other	Other				
Feedback_Tablet	Feedback on Tablet																							
Oxfam/SI_Office	Oxfam/SI Office																							
Person_Staff	In Person (Staff)																							
T_CMC	Through CMC																							
T_CMA	Through CMA																							
T_BL	Through Barrack Leader																							
T_RL	Through Religious Leader																							
Hot_line	Phone, Hot Line																							
Other	Other																							
% of conflict-affected community satisfied with response received from feedback																								
Receiving_Response <i>(required)</i>	7(a) - Do you regularly receive a response to the feedback you provide?	Yes Yes No No																						
% of the affected population that consider the complaints mechanisms accessible and safe																								
Satisfactions <i>(required)</i>	8(a) - Overall, how satisfied are you with the responses you have received from the feedback?	<table border="1"> <tr><td>Satisfied</td><td>Satisfied</td></tr> <tr><td>Neutral</td><td>Neutral, Don't know</td></tr> <tr><td>Dissatisfied</td><td>Dissatisfied</td></tr> </table>	Satisfied	Satisfied	Neutral	Neutral, Don't know	Dissatisfied	Dissatisfied																
Satisfied	Satisfied																							
Neutral	Neutral, Don't know																							
Dissatisfied	Dissatisfied																							
Accessible_Complaint <i>(required)</i>	8(b) - Do you consider the OXSI complaint mechanism accessible for you to report your feedback to OXSI?	Yes Yes No No																						
Safe_Complaint <i>(required)</i>	8(c) - Do you feel safe to raise your feedback to OXSI?	Yes Yes No No																						
% of conflict-affected community who consider that they have timely access to relevant and clear information																								
Unsafe_Specify <i>(required)</i>	9(a) - If you feel unsafe, why, please specify?	<table border="1"> <tr><td>Fear_Attacked</td><td>Fear to be attacked</td></tr> <tr><td>No_Trust</td><td>No Trust to staffs</td></tr> <tr><td>Afraid_CMC</td><td>Afraid of CMC</td></tr> <tr><td>Away_Office</td><td>Far away from Office</td></tr> <tr><td>No_Action</td><td>No action on response</td></tr> <tr><td>Shame</td><td>Shame</td></tr> <tr><td>Other</td><td>Other</td></tr> </table>	Fear_Attacked	Fear to be attacked	No_Trust	No Trust to staffs	Afraid_CMC	Afraid of CMC	Away_Office	Far away from Office	No_Action	No action on response	Shame	Shame	Other	Other								
Fear_Attacked	Fear to be attacked																							
No_Trust	No Trust to staffs																							
Afraid_CMC	Afraid of CMC																							
Away_Office	Far away from Office																							
No_Action	No action on response																							
Shame	Shame																							
Other	Other																							

Field	Question	Answer										
Information <i>(required)</i>	9(b) - How often do you receive relevant and clear information about OXSI WASH?	<table border="1"> <tr><td>Never</td><td>Never</td></tr> <tr><td>Sometimes</td><td>Sometimes</td></tr> <tr><td>Often</td><td>Often</td></tr> <tr><td>Always</td><td>Always</td></tr> </table>	Never	Never	Sometimes	Sometimes	Often	Often	Always	Always		
Never	Never											
Sometimes	Sometimes											
Often	Often											
Always	Always											
9c. Do you know if the following groups receive relevant and clear information about OXSI WASH?												
children <i>(required)</i>	Children	<table border="1"> <tr><td>never</td><td>Never</td></tr> <tr><td>Sometimes</td><td>Sometimes</td></tr> <tr><td>Often</td><td>Often</td></tr> <tr><td>Always</td><td>Always</td></tr> </table>	never	Never	Sometimes	Sometimes	Often	Often	Always	Always		
never	Never											
Sometimes	Sometimes											
Often	Often											
Always	Always											
women <i>(required)</i>	Women	<table border="1"> <tr><td>never</td><td>Never</td></tr> <tr><td>Sometimes</td><td>Sometimes</td></tr> <tr><td>Often</td><td>Often</td></tr> <tr><td>Always</td><td>Always</td></tr> </table>	never	Never	Sometimes	Sometimes	Often	Often	Always	Always		
never	Never											
Sometimes	Sometimes											
Often	Often											
Always	Always											
people_with_limited_mobility <i>(required)</i>	People with limited mobility	<table border="1"> <tr><td>never</td><td>Never</td></tr> <tr><td>Sometimes</td><td>Sometimes</td></tr> <tr><td>Often</td><td>Often</td></tr> <tr><td>Always</td><td>Always</td></tr> </table>	never	Never	Sometimes	Sometimes	Often	Often	Always	Always		
never	Never											
Sometimes	Sometimes											
Often	Often											
Always	Always											
People_with_hearing_impairments <i>(required)</i>	People with hearing impairments	<table border="1"> <tr><td>never</td><td>Never</td></tr> <tr><td>Sometimes</td><td>Sometimes</td></tr> <tr><td>Often</td><td>Often</td></tr> <tr><td>Always</td><td>Always</td></tr> </table>	never	Never	Sometimes	Sometimes	Often	Often	Always	Always		
never	Never											
Sometimes	Sometimes											
Often	Often											
Always	Always											
People_with_visual_impairments <i>(required)</i>	People with visual impairments	<table border="1"> <tr><td>never</td><td>Never</td></tr> <tr><td>Sometimes</td><td>Sometimes</td></tr> <tr><td>Often</td><td>Often</td></tr> <tr><td>Always</td><td>Always</td></tr> </table>	never	Never	Sometimes	Sometimes	Often	Often	Always	Always		
never	Never											
Sometimes	Sometimes											
Often	Often											
Always	Always											
% of conflict-affected community reporting solar lights are an effective method for improving safe access to latrines at night												
Solar_Present <i>(required)</i>	10(a) - Is there solar lighting near latrine which you use?	Yes Yes No No										
Effective-Method <i>(required)</i>	10(b) - Do you think solar lighting is effective method for improving safe access to latrine at night?	Yes Yes No No										
Suggestion	10(c) - Do you have any suggestion to access to latrine at night better than solar lighting?											
% of women and girls who report that they have an adequate system for disposing of used sanitary pads?												
dispose_used_sanitary_pads <i>(required)</i>	11 (a) - Where do you dispose the used sanitary pads?	<table border="1"> <tr><td>MHM_incinerator_bin</td><td>At MHM incinerator bin</td></tr> <tr><td>into_the_latrine</td><td>Into the latrine</td></tr> <tr><td>waste_collection_point</td><td>At waste collection point</td></tr> <tr><td>into_the_drainage</td><td>Into the drainage</td></tr> <tr><td>other</td><td>Other</td></tr> </table>	MHM_incinerator_bin	At MHM incinerator bin	into_the_latrine	Into the latrine	waste_collection_point	At waste collection point	into_the_drainage	Into the drainage	other	Other
MHM_incinerator_bin	At MHM incinerator bin											
into_the_latrine	Into the latrine											
waste_collection_point	At waste collection point											
into_the_drainage	Into the drainage											
other	Other											
when_disposed_the_used_pads <i>(required)</i>	11 (b) - When do you dispose the used pads normally?	<table border="1"> <tr><td>during_the_day</td><td>During the day</td></tr> <tr><td>at_night</td><td>At night</td></tr> <tr><td>whenever_available</td><td>Whenever available</td></tr> </table>	during_the_day	During the day	at_night	At night	whenever_available	Whenever available				
during_the_day	During the day											
at_night	At night											
whenever_available	Whenever available											
encountered_problems_while_disposing <i>(required)</i>	11 (c) - Have you ever encountered any problems/challenges while disposing the used sanitary pads?	yes Yes no No										
specificaiton_of_problems <i>(required)</i>	11 (d) - If yes, can you please tell what problems you are facing?											
satisfied_with_existing_disposal_system <i>(required)</i>	11 (e) - Overall, how are you satisfied with the existing disposal system for used sanitary pads?	<table border="1"> <tr><td>satisfied</td><td>Satisfied</td></tr> <tr><td>dissatisfied</td><td>Dissatisfied</td></tr> <tr><td>neutral</td><td>Neutral</td></tr> </table>	satisfied	Satisfied	dissatisfied	Dissatisfied	neutral	Neutral				
satisfied	Satisfied											
dissatisfied	Dissatisfied											
neutral	Neutral											
% of women and girls who report that they have an adequate system for disposing of used sanitary pads												
attended_MHM_session <i>(required)</i>	12 (a) - Have you ever attended a MHM session for men?	yes Yes no No										
conducted_organization <i>(required)</i>	12 (b) - Which organization conducted it?											
shared_with_family_members <i>(required)</i>	12 (c) - If yes, have you ever shared the information received during the session with your family especially women and girls?	yes Yes no No										
interesting_topics <i>(required)</i>	12 (d) - Which topics did you find interesting?											
satisfied_with_information <i>(required)</i>	12 (e) - How are you satisfied with the information?	<table border="1"> <tr><td>satisfied</td><td>Satisfied</td></tr> <tr><td>dissatisfied</td><td>Dissatisfied</td></tr> <tr><td>neutral</td><td>Neutral</td></tr> </table>	satisfied	Satisfied	dissatisfied	Dissatisfied	neutral	Neutral				
satisfied	Satisfied											
dissatisfied	Dissatisfied											
neutral	Neutral											
improving_MHM-session <i>(required)</i>	12 (f) - Do you think there is anything that can be improved in the MHM session?	yes Yes no No										
suggestions <i>(required)</i>	12 (g) - If yes, please specify details											
% of affected people surveyed who report feeling satisfied with the latrine design and sanitation services % of affected people surveyed who report feeling satisfied with the water point design and water services												
satisfaction_of_latrine-design_sanitation_servies <i>(required)</i>	13 (a) - Overall, how are you satisfied with the latrine design and sanitation services? <i>Note for enumerator: Please make sure the respondent understands the question. The question is mainly to assess the overall satisfaction on the OXSI latrine design and other sanitation services such as waste management system, drainage system as well as latrine desludging.</i>	<table border="1"> <tr><td>satisfied</td><td>Satisfied</td></tr> <tr><td>dissatisfied</td><td>Dissatisfied</td></tr> <tr><td>neutral</td><td>Neutral</td></tr> </table>	satisfied	Satisfied	dissatisfied	Dissatisfied	neutral	Neutral				
satisfied	Satisfied											
dissatisfied	Dissatisfied											
neutral	Neutral											

Field	Question	Answer	
satisfaction_of_water_point-design_water_services (required)	13 (b) - Overall, how are you satisfied with the water point design and water services? <i>Note for enumerator: Please make sure the respondent understands the question. The question is mainly to assess the overall satisfaction on the OXSI water point design and other water services such as water quality test and shock chlorination.</i>	satisfied	Satisfied
		dissatisfied	Dissatisfied
		neutral	Neutral
MHM Incinerator Bin PDM			
MHM_incinerator_bins (required)	1a. Is there anything you don't like about the MHM incinerator bins?	too_far_from_household	It's too far from household
		MHM_incinerator_bins_are_full	The MHM incinerator bins are full
		Other	Other
If_Other (required)	1b.If Other, please mention details		
access_MHMincinerator_daytime (required)	2a.Can you easily access the MHM incinerator bins at day time?	yes	Yes
		no	No
access_MHMincinerator_nighttime (required)	2b.Can you easily access the MHM incinerator bins at night time?	yes	Yes
		no	No
feelsafe_disposing_used_sanitary_pad (required)	3a.Do you feel safe disposing used sanitary pad in the MHM incinerator bins?	yes	Yes
		no	No
If_No_why (required)	3b.If No, why?		
prefer_male_female_workers_burning_used_sanitary_pads (required)	4a.Do you prefer male or female workers burning the used sanitary pads inside the MHM incinerator bins?	M	Male
		F	Female
if_no_why (required)	4b.If Female, why		
believe_enough_MHMincinerator_bins (required)	5a.Do you believe there are enough MHM incinerator bins in your community?	yes	Yes
		no	No
Extra Soaps PDM			
Did_you_receive_extra_soap (required)	1a.Beside the soaps included in HK distributed by OXSI, Did you receive extra soap?	yes	Yes
		no	No
Extra Soaps PDM > Group14			
how_many_months_recieve_extra_soap (required)	1b.How many months did you receive Extra Soaps?	1month	1 month
		2months	2 months
		3months	3 months
Can_you_specify_whichmonthdid_youreceiveExtraSoaps (required)	1c.Can you specify in which month did you receive Extra Soaps?	April	April
		may	May
		jun	Jun
		july	July
		august	August
Did_yourememberwho_distributed (required)	2a.Did you remember who distributed the extra soap that you received?	yes	Yes
		no	No
Isit_useful_receive_extra_soap (required)	2b.Is it useful to receive extra soap?	yes	Yes
		no	No
if_yes_why (required)	2c.If Yes, why	Hygiene_use	Hygiene use
		To_sell_them_and_gain_money	To sell them and gain money
		give_who_my_family_neighbor	To give to who in my family/ neighbor are in need
		other	Other
if_no_why1 (required)	2d.If NO, Why?		
Can_give_us_your_opinions_upon (required)	3a.Can you give us your opinions upon Extra Soap distribution?	Just_an_overlap_aid	Just an overlap aid as other organizations also distributed
		In_excess_of_soaps	In excess of soaps, I don't need them
		Sold_some_soaps	Sold some soaps
		Other	Other
DoyouthinkOXSI_should_continue_distribute (required)	3b.Do you think OXSI should continue to distribute Extra Soaps?	yes	Yes
		no	No
If_yes_why (required)	3c.If yes, why?		
If_no_why (required)	3d.If no, why?		
Dignity Kit PDM			
Did_you_receive_dignity_kit (required)	1-(a) Did you receive dignity kit provided by OXSI?	yes	Yes
		no	No
Dignity Kit PDM > Group15			

Field	Question	Answer	
Did_you_have_to_pay_for_dignity_kit (required)	2-(a) Did you have to pay for dignity kit?	yes	Yes
		no	No
Whom_did_you_pay_for_the_kit (required)	2-(b) Whom did you pay for the kit?		
How_much_did_you_have_to_pay (required)	2-(c) How much did you have to pay?		
give_any_of_items_the_dignity_kit_as_pay (required)	2-(d) Did you have to give any of the items in the dignity kit as pay?	yes	Yes
		no	No
satisfied_with_the_new_dignity_kit_household_distribution (required)	3-(a) How are you satisfied with the new dignity kit household distribution?	satisfied	Satisfied
		dissatisfied	Dissatisfied
		neutral	Neutral
if_dissatisfied_why (required)	3-(b) If dissatisfied, why?	Poor_behavior_of_staff	Poor behavior of staff
		Need_to_wait_for_a_long_time	Need to wait for a long time
		Distribution_site_too_crowded	Distribution site too crowded
		Distribution_site_too_far	Distribution site too far
		Poor_informing	Poor informing
		not_like_standing_MandF_together	Do not like standing men and women together
		Other	Other
If_other_please_mention_details (required)	3- (c) If other, please mention details		
distribution_than_office_distribution (required)	3- (d) Are you more satisfied with household level distribution than office distribution?	yes	Yes
		no	No
safe_receiving_dignitykit_household (required)	3- (e) Did you feel safe receiving dignity kit with the household level distribution	yes	Yes
		no	No
If_No_why1 (required)	3- (f) If No, why?		
satisfied_with_quantity_of_underwear (required)	4-(a) How are you satisfied with the quantity of underwear?	satisfied	Satisfied
		dissatisfied	Dissatisfied
		neutral	Neutral
satisfied_with_size_underwear (required)	4-(b) How are you satisfied with the size of underwear?	satisfied	Satisfied
		dissatisfied	Dissatisfied
		neutral	Neutral
satisfied_with_quality_underwear (required)	5-(a) How are you satisfied with the quality of underwear?	satisfied	Satisfied
		dissatisfied	Dissatisfied
		neutral	Neutral
kits_being_used (required)	6-(a) Are the dignity kits being used?	Yes-using_all	Yes-using all
		Yes-using_some	Yes-using some
		No	No
Why_Not_Using_DK (required)	6-(b) Why are you not using dignity kit?	Sold	Sold
		Give_to_other	Give to other
		No_Need	No Need
		Not_useful	Not useful
		Other	Other
meet_family_need (required)	7-(a) Is the dignity kit useful for your family ?	yes	Yes
		no	No
benefits_DK_family (required)	7-(b) If Yes, what are the benefits your family derive from using the dignity kit?	improve_personal_hygiene	It improves menstrual and personal hygiene
		reduce_financial_budget	It reduces the financial burden on the family to seek those items
		Not_sure	Not sure
		Other	Other
informed_about_distribution (required)	8-(a) Were you informed about the dignity kit distribution date and time?	yes	Yes
		no	No

Field	Question	Answer
informed_about_distribution_items <i>(required)</i>	8-(b) Were you informed about the sizes and number of items to be distributed?	yes Yes no No
quantity_female_underwear <i>(required)</i>	8- (c) How many pieces of female underwear did you receive?	
challenges_receiving_kits <i>(required)</i>	8- (d) Were there any challenges you faced while receiving the kit?	no_one_home No one was in the house when kits were distributed received_neighbour Neighbour received the kits loss_kit Loss of the kit items No No Other Other
If-other_details <i>(required)</i>	8- (e) If other, please mention details	
explain_DK <i>(required)</i>	9 - Did OXSI staff explain to you how to use the items in the dignity kit?	yes Yes no No
preferred_colour <i>(required)</i>	10 - (a) What are the Underwear colours that your family prefers (choose 3)	white white black black blue blue yellow yellow red red
satisfied_consultation <i>(required)</i>	10- (b) Are you satisfied with the ways of consulting with the community by OXSI staff in Dignity Kit distribution?	yes Yes no No
suggestion_dk_process	10-(c) Do you have any suggestion on Dignity Kit?	
suggestion_distribution_process	10-(d) If you wish you can give us suggestions to make the distribution process better in the future	

Rating Scale for Community Engagement - Participation

Consulted: Communities are consulted and informed during all phases, including the assessment phase (less participative)				Consensus score and justification
1: Community is not sufficiently consulted	2: Community is occasionally consulted	3: Community is often consulted	4: Community is almost always consulted	
Informed: Community is informed of project objectives, expectations, and/or necessary project information (less participative)				
1: Community is rarely informed, with misleading or incomplete information	2: Community is occasionally informed with some complete information	3: Community is often informed, with clear information	4: Community is almost always informed, and updated, on all relevant details/objectives of project information	
Demonstrates acceptance: Community demonstrates acceptance of implementing organization(s) and project (less participative)				
1: Community members rarely show buy-in, commitment or consistency in project activities	2: Community members occasionally show buy-in, commitment or consistency in project activities	3: Community members often show buy-in, commitment or consistency in project activities	4: Community members almost always show buy-in, commitment or consistency in project activities	
Plans and acts together: Community plans and acts together with implementing partners (more participative)				
1: Community members rarely or never plans community-related activities in the project	2: Community members occasionally plans and acts together with OXSI in the project	3: Community members often plan project activities, and implements them alongside OXSI	4: Community members almost always plan project activities, and implements them alongside OXSI	
Negotiates: Community negotiates their views and are used to update programming; community plans and acts together with OXSI (more participative)				
1: Community members rarely make their views on project activities known, and if they do OXSI rarely incorporates their views into project activities	2: Community members occasionally make their views on project activities known, and if they do OXSI occasionally incorporates their views into project activities	3: Community members often make their views on project activities known, and if they do OXSI often incorporates their views into project activities	4: Community members almost always make their views on project activities known, and if they do OXSI almost always incorporates their views into project activities	
Takes decisions: Community takes decisions supported by implementing partners (more participative)				
1: Community members rarely make project decisions supported by OXSI	2: Community members occasionally make project decisions supported by OXSI	3: Community members often make project decisions supported by OXSI	4: Community members almost always make project decisions supported by OXSI	

Pharmacy Assessment

Field	Question	Answer																										
Enumerator <i>(required)</i>	Enumerator																											
Date <i>(required)</i>	Date																											
Camp_Name <i>(required)</i>	Camp Name	<table border="1"> <tr><td>STMG</td><td>Say Tha Mar Gyi Camp</td></tr> <tr><td>OTG-1</td><td>Ohn Taw Gyi - 1 Camp</td></tr> <tr><td>OTG-3</td><td>Ohn Taw Gyi - 3 Camp</td></tr> <tr><td>OTG-6</td><td>Ohn Taw Gyi - 6 Camp</td></tr> <tr><td>MTNC</td><td>Maw Tin Nyar Camp</td></tr> <tr><td>TKPC</td><td>Thet Kay Pyin Camp</td></tr> <tr><td>BDPC</td><td>Baw Du Pha Camp</td></tr> <tr><td>BSRC</td><td>Bar Sar Rar Camp</td></tr> <tr><td>HMZC</td><td>Hmanzi Camp</td></tr> <tr><td>TCC</td><td>Thae Chaung Camp</td></tr> <tr><td>DPC</td><td>Dar Paing Camp</td></tr> <tr><td>KDKC_1</td><td>Khaung Doke Khar-1 Camp</td></tr> <tr><td>OTCC</td><td>Ohn Taw Chay Camp</td></tr> </table>	STMG	Say Tha Mar Gyi Camp	OTG-1	Ohn Taw Gyi - 1 Camp	OTG-3	Ohn Taw Gyi - 3 Camp	OTG-6	Ohn Taw Gyi - 6 Camp	MTNC	Maw Tin Nyar Camp	TKPC	Thet Kay Pyin Camp	BDPC	Baw Du Pha Camp	BSRC	Bar Sar Rar Camp	HMZC	Hmanzi Camp	TCC	Thae Chaung Camp	DPC	Dar Paing Camp	KDKC_1	Khaung Doke Khar-1 Camp	OTCC	Ohn Taw Chay Camp
STMG	Say Tha Mar Gyi Camp																											
OTG-1	Ohn Taw Gyi - 1 Camp																											
OTG-3	Ohn Taw Gyi - 3 Camp																											
OTG-6	Ohn Taw Gyi - 6 Camp																											
MTNC	Maw Tin Nyar Camp																											
TKPC	Thet Kay Pyin Camp																											
BDPC	Baw Du Pha Camp																											
BSRC	Bar Sar Rar Camp																											
HMZC	Hmanzi Camp																											
TCC	Thae Chaung Camp																											
DPC	Dar Paing Camp																											
KDKC_1	Khaung Doke Khar-1 Camp																											
OTCC	Ohn Taw Chay Camp																											
Shelter	Shelter Number																											
Room	Room Number																											
Owner_Name <i>(required)</i>	Shop Owner Name																											
Categories <i>(required)</i>	For what type of medical issue do you sell the most medications? Please name 3 types response categories;	<table border="1"> <tr><td>Diarrhoea</td><td>Diarrhoea (Oral Dehydration Pack, Diarrhoea Medication)</td></tr> <tr><td>Cold_Flu_Fever</td><td>Cold, Flu, Fever (Cough, Sore throat)</td></tr> <tr><td>Stomach</td><td>Nausea, Stomach ache</td></tr> <tr><td>Intestinal_worm</td><td>Intestinal worm</td></tr> <tr><td>Heart</td><td>Heart Medication (Blood thinner etc)</td></tr> <tr><td>Pain</td><td>General Pain Medication</td></tr> <tr><td>Hypertension</td><td>Hypertension</td></tr> <tr><td>Diabetes</td><td>Diabetes</td></tr> <tr><td>Malaria</td><td>Malaria</td></tr> <tr><td>Hepatitis</td><td>Hepatitis</td></tr> <tr><td>Head_Ache</td><td>Head Ache</td></tr> <tr><td>Other</td><td>Other</td></tr> </table>	Diarrhoea	Diarrhoea (Oral Dehydration Pack, Diarrhoea Medication)	Cold_Flu_Fever	Cold, Flu, Fever (Cough, Sore throat)	Stomach	Nausea, Stomach ache	Intestinal_worm	Intestinal worm	Heart	Heart Medication (Blood thinner etc)	Pain	General Pain Medication	Hypertension	Hypertension	Diabetes	Diabetes	Malaria	Malaria	Hepatitis	Hepatitis	Head_Ache	Head Ache	Other	Other		
Diarrhoea	Diarrhoea (Oral Dehydration Pack, Diarrhoea Medication)																											
Cold_Flu_Fever	Cold, Flu, Fever (Cough, Sore throat)																											
Stomach	Nausea, Stomach ache																											
Intestinal_worm	Intestinal worm																											
Heart	Heart Medication (Blood thinner etc)																											
Pain	General Pain Medication																											
Hypertension	Hypertension																											
Diabetes	Diabetes																											
Malaria	Malaria																											
Hepatitis	Hepatitis																											
Head_Ache	Head Ache																											
Other	Other																											
Ranking																												
ranking_diarrhea <i>(required)</i>	Ranking for diarrhea medication																											
ranking_cold-flu-fever <i>(required)</i>	Ranking for cold_flu fever medication																											
ranking_stomach-ache <i>(required)</i>	Ranking for stomach ache medication																											
ranking_intestinal-worm <i>(required)</i>	Ranking for intestinal worm medication																											
ranking_heart-medication <i>(required)</i>	Ranking for heart medication																											
ranking_general-pain <i>(required)</i>	Ranking for general pain medication																											
ranking_hypertension <i>(required)</i>	Ranking for hypertension medication																											
ranking_diabetes <i>(required)</i>	Ranking for diabetes medication																											
ranking_malaria <i>(required)</i>	Ranking for malaria medication																											
ranking_hepatitis <i>(required)</i>	Ranking for hepatitis medication																											
ranking_head-ache <i>(required)</i>	Ranking for head ache medication																											
ranking_other <i>(required)</i>	Ranking for other																											

Guidelines for Implementation of Activities in Camps and Settlements during COVID-19 Response

Introduction

COVID-19 is spreading throughout the world through human-to-human transmission. The most effective preventative measures against COVID-19 have been identified as:

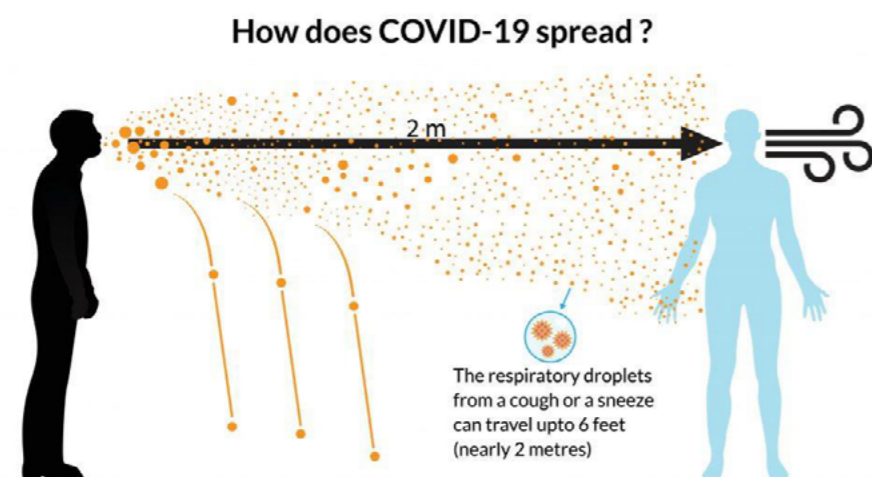
- Wash your hands frequently
- Cover your mouth and nose when coughing or sneezing
- Maintain physical distance (3-6 feet) from others
- Avoid touching your face

To avoid transmission of the virus, Oxfam and SI have drastically cut down activities that involve gathering in groups in all programmes (WASH, Food Security and Livelihoods, advocacy, and community listening). The Ministry of Health and Sports also issued a notice that gatherings of more than 5 people should not be held except as required for some specific and necessary activities.

However, much of our community engagement work involves sharing essential information and educating communities about life-saving hygiene practices. This short document gives some guidance for staff who are continuing activities in camps or other settlements to stay safe, especially by using physical distancing, during activities that require frequent communication with others.

Why is physical distancing important?

COVID-19 is transmitted person-to-person through small droplets from the nose or mouth of infected persons. A healthy person can get sick if they breathe in these droplets, or if the droplets land on a surface and other people touch the surface and then touch their eyes, mouth, or nose. When a person coughs, sneezes, or exhales these infectious droplets, they will move forward and down, eventually evaporating or falling to the ground. Some droplets, especially from a sneeze or cough (if not covered properly with an elbow or tissue), can travel about 6 feet.



If you stay 6ft away from others, you will be less at risk of inhaling infectious droplets. Even if your neighbour or family members get sick, it is not guaranteed that you will also get sick if you a) keep your distance, b) wear a mask when tending to a sick family member, c) wash your hands with soap and water, and d) disinfect surfaces.

Guideline for Activity Implementation

Although Oxfam and SI have reduced or paused many activities, some need to continue to ensure that communities are receiving accurate information about COVID-19 and how to stay healthy, as well as to keep WASH infrastructure functioning and communities clean, as well as to make sure that community voices keep on being heard and to minimize the risk of future food insecurity. Below are guidelines for how to continue each activity safely.

The guidelines for activities change based on the current status of the pandemic in Myanmar. To define the status, Oxfam uses 1-4 Levels, while SI uses A-C Situations. In developing the guidelines for how to continue activities during COVID-19 in Myanmar, it became clear that the actions to take during Level 3 and Level 4 as defined by Oxfam were almost exactly the same, so they were combined to match the 3 levels that SI uses, as shown below.

Oxfam	SI
Level 1: No cases in Myanmar	Situation A: Minimal measures on any base , all areas are concerned. THREAT IS still LIMITED at the moment <i>No or few COVID-19 cases (confirmed or suspected) and outside of areas of operations for the concerned base.</i>
Level 2: One or more cases in Myanmar, without cases in OXSI's area of work*	Situation B: THREAT IS still MODERATE at the moment <i>Significant number of COVID-19 cases (confirmed or suspected) but outside of areas of operation for the concerned base.</i>
Level 3: Significant number of cases in Myanmar, with cases in OXSI's area of work*	Situation C: THREAT IS SIGNIFICANT <i>Significant number of COVID-19 cases (confirmed or suspected) and within areas of operation for the concerned base.</i>

* In this case, for the Oxfam-SI WASH Programme, the area of work is defined as Sittwe Township. It is unlikely that there will be extensive testing offered in the Sittwe camps, and with regular movements between camps and Sittwe town, any cases in Sittwe will trigger a move to Level 3/Situation C.

For the WASH project that Oxfam and SI are implementing in Sittwe township, a contingency plan (separate document) shows an overview of tasks and activities that will be continued, stopped, or altered at each Level. There are also general guidelines for managers, particularly addressing preparations for each Level. However, these are subject to change. For guidance on how often certain activities should be done and which activities have been suspended, speak with your line manager.

Government rules and regulations issued as part of measures to reduce the spread of COVID-19 in Myanmar shall be duly followed by Oxfam and SI staff. In any case and scenario, the stricter rule will prevail.

Note: A separate SOP has been developed for distributions, but distributions are included at the bottom row in case of a change in Level.



Activity	Protection and Risk Management Strategies		
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
FGDs/Small group meetings	<ul style="list-style-type: none"> - A maximum of 10-12 people per group. - Hold in a space that allows for physical distancing of 6ft (2m) between participants and has good ventilation, preferably outside. - Where weather does not permit being outside or opening windows, ensure the space is large enough for physical distancing. - Ensure handwashing facilities are available and ask each participant to wash hands on entering and exiting the group. - Advise participants who feel sick to remain at home and not attend the session. - Ensure that all sessions contain time for awareness raising and discussion of concerns. Share hotline numbers with participants to raise awareness about the accountability mechanism. - At the end of the session, clean surfaces with disinfectant. - Reduce the number of FGDs being held to a minimum. 	<ul style="list-style-type: none"> - Follow the guidance for level 1 but reduce numbers to only essential FGDs/meetings (e.g. consultation on life-saving outbreak activities, perception of the disease, health seeking behaviour, etc.). - A maximum of 5 people can gather, keeping a distance of 6ft apart. - Regularly review government guidelines, balancing advice against what is happening in localised context. - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> - Suspend FGDs/meetings; consider other mechanisms for gathering feedback and community input, including by telephone or text message, taking into consideration access issues for different groups.
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Door to Door/ Household Visits (including water sample collection at household level)	<ul style="list-style-type: none"> - Do not enter the household, conduct discussions from the doorway where possible. - Practice physical distancing, maintaining 6ft (2m) distance between participants. - Hold discussions with 1 or only a few members of the household. - Avoid body contact, such as shaking hands. - Wash hands frequently, either with hand sanitiser or water and soap. - Avoid touching your face. - Cover your nose and mouth with a tissue or your bent elbow when coughing or sneezing. 	<ul style="list-style-type: none"> - Follow the guidance for Level 1, plus: - If someone in the HH is sick, stop the visit, share referral pathway, and refer to medical facilities. - Only conduct essential HH visits that are required to support the Covid-19 response. - Share hotline numbers with participants to raise awareness about the accountability mechanism. - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> - House-to-house visits should be done for lifesaving actions only. However, if proper PPE is not available, suspend household visits. - Follow the advice for Levels 1 and 2, plus: - Avoid contact – leave any items at the door of the household for them to collect, rather than handing over. - Sanitise hands in between each HH visit. - If discussion is needed, maintain 6ft



	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
			(2m) distance; if this is not possible, discuss through the door. <ul style="list-style-type: none"> - Wear a mask (medical or cloth). - Staff conducting household visits should have access to hand sanitiser or handwashing spaces to use regularly.
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Key Informant Interviews (KIs)	<ul style="list-style-type: none"> - Hold in a space that allows for physical distancing of 6ft (2m) between participants and has good ventilation, preferably outside. - Ensure handwashing facilities are available and ask each participant to wash hands before entering and exiting the interview. - Advise participants who feel sick to remain at home and not attend the session. - Ensure that all sessions contain time for awareness raising and discussion of concerns. Share hotline numbers with participants to raise awareness about the accountability mechanism. - At the end of the session, clean surfaces with disinfectant. - Reduce the number of KIs being held to a minimum. 	<ul style="list-style-type: none"> - Follow the guidance for level 1 but reduce numbers to only essential KIs and consider holding these by phone where appropriate. - A maximum of 5 people can gather, keeping a distance of 6ft apart. - Regularly review government guidelines, balancing advice against what is happening in localised context (e.g. masks may be required). - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> - Suspend face to face KIs and hold these over the phone, video conference, or other remote communication.
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Large group meetings (20+)	<ul style="list-style-type: none"> - Reduce the number of these events being held to a minimum. - Hold in a space that allows for physical distancing of 6ft (2m) between participants and has good ventilation, preferably outside. - Ensure handwashing facilities are available and ask each participant to wash hands before entering and exiting the space. - Advise participants who feel sick to remain at 	<ul style="list-style-type: none"> - Suspend group meetings; consider other mechanisms for gathering feedback and community input, including by telephone or text message, taking into consideration access issues for different groups. 	<ul style="list-style-type: none"> - Same as Level 2.



	<ul style="list-style-type: none"> home and not attend the session. - Ensure that all sessions contain time for awareness raising and discussion of concerns. Share hotline numbers with participants to raise awareness about the accountability mechanism. - At the end of the session, clean surfaces with disinfectant. 		
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Mass events (100+)	As a preventative measure, suspend mass events; consider other mechanisms for gathering feedback and community input, including by telephone, radio, or text message or by installing informational banners and posters.		
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Workshops/ Trainings	<ul style="list-style-type: none"> - Reduce the number of these events being held to a minimum. - Hold in a space that allows for physical distancing of 2m between participants, and has good ventilation, preferably outside. - Ensure handwashing facilities are available and ask each participant to wash hands before entering and exiting the space. - Advise participants who feel sick to remain at home and not attend the session. - Ensure that all sessions contain time for awareness raising and discussion of concerns. - At the end of the session, clean surfaces with disinfectant. 	<ul style="list-style-type: none"> - Follow the guidance for level 1 but reduce numbers to only essential workshops and trainings. - Consider webinars, remote conferences, or online training for staff and volunteers where connection allows. - Regularly review government guidelines, balancing advice against what is happening in localised context (e.g. masks may be required). - If you must meet in person, keep the number to a maximum of 5 people, spaced 6ft apart. 	<ul style="list-style-type: none"> - Suspend any workshops or training not relating to the provision of lifesaving aid. - For staff undertaking lifesaving activities, conduct training/briefing daily whilst donning PPE, and debrief whilst doffing. - For essential workshops and training, consider webinars, remote conferences, or online training for staff and volunteers where connection allows. - If proper PPE is not available, suspend any in-community briefings or trainings.
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Meetings with partners/ other NGOs	<ul style="list-style-type: none"> - Hold in a space that allows for physical distancing of 6ft (2m) between participants and has good ventilation, preferably outside. - Ensure handwashing facilities are available and ask each participant to wash hands before entering and exiting the space. - Advise staff and partners who feel sick to remain 	<ul style="list-style-type: none"> - Follow the guidance for level 1 but reduce visits to essential activities, and consider holding these by phone, webinars, or remote conferences where connection allows. - Regularly review government guidelines, balancing advice against what is happening 	<ul style="list-style-type: none"> - Suspend non-lifesaving related visits, and communicate over the phone, video conference, or other remote communication. - Where visits involve lifesaving tasks and will take place in communities, a mask (medical or cloth) should be worn



	<ul style="list-style-type: none"> at home and not attend the session. - Ensure that all sessions contain time for awareness raising and discussion of concerns. - At the end of the session, clean surfaces with disinfectant. - Reduce the number of meetings to a minimum. 	<ul style="list-style-type: none"> in localised context. - A maximum of 5 people can gather, keeping a distance of 6ft apart. - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> if available. - Staff conducting such visits should have access to hand sanitiser or handwashing spaces to use regularly.
	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Monitoring and Evaluation / Data Collection /feedback collection in the framework of the accountability system	<ul style="list-style-type: none"> - Do not enter the household/building and conduct discussions from the doorway where possible. - Practice physical distancing, maintaining 6ft (2m) distance between participants where possible. - Hold discussions with 1 or only a few members of the household. - Avoid body contact, such as shaking hands. - Wash hands frequently, either with hand sanitisers or water and soap. - Avoid touching your face. - Cover your nose and mouth with a tissue or your bent elbow when coughing or sneezing. - Utilise mobile data collection methods where possible and have one note taker only touching the device. Each device should be wiped with a disinfectant wipe at the end of each day. 	<ul style="list-style-type: none"> - Follow the guidance for level 1. - If someone in the household or shop is sick, stop the visit and refer to medical facilities. - Only conduct essential monitoring/data collection visits. - Ensure that the accountability hotline is in place. - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> - Undertake monitoring or data collection for lifesaving actions only. - Follow the advice for Levels 1 and 2, plus: - Avoid contact – utilise mobile data collection methods where possible and have one note taker only touching the device. Each device should be wiped with a disinfectant wipe at the end of each day. - If discussion is needed, maintain 6ft (2m) distance; if this is not possible, discuss through the door. - Explore possibilities for collecting data remotely such as through SMS systems or phone calls. - Wear a mask (medical or cloth). - Staff should have access to hand sanitiser or handwashing spaces to use regularly. - If proper PPE is not available, suspend face to face data collection and use remote collection methods only.



	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Operation and Maintenance of WASH Infrastructure	<ul style="list-style-type: none"> - Ensure physical distance of 6ft (2m) from others during work; where necessary, provide workers with signs or barrier tape that allow them to work while maintaining this distance. - Ensure that the usually required PPE is in good stock and that those who require to wear it are trained on how to use it and strictly abiding by its use. - Provide spaces for workers to wash their hands on a regular basis, including at the beginning and end of each shift. For mobile teams, provide hand sanitiser. - Provide areas where workers can safely dispose of used PPE. - Facilities should be cleaned regularly with disinfectant. - Scale up maintenance teams where possible to complete as many outstanding tasks in case of movement restrictions. - Ensure those facilities that pose the highest public health risk (latrines and sanitation facilities) are serviced as a priority. 	<ul style="list-style-type: none"> - Follow the guidance for Level 1 and introduce a risk prioritisation mechanism to ensure facilities that pose the greatest public health risk are serviced quickly. - Weekly disinfection of WASH facilities (latrines, handpumps, MHM bin handles). - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> - Follow the guidance for level 1 and 2, plus: - If possible, daily disinfection of WASH facilities. - <i>The following PPE should be worn for ANY worker during operation and maintenance work at this stage of the outbreak:</i> - Gloves - Medical or cloth mask - Goggles - Gumboots - Staff undertaking operational and maintenance work should have access to hand sanitiser or handwashing spaces to use regularly, and spaces to safely don and doff PPE.
Environmental Sanitation	<ul style="list-style-type: none"> - Avoid working in crowded and/or narrow areas. - Practice physical distancing, maintaining 6ft (2m) distance between others. - Wash hands frequently, either with hand sanitiser or water and soap. - Avoid touching your face. - Cover your nose and mouth with a tissue or your bent elbow when coughing or sneezing. - Ensure those facilities that pose the highest public health risk (latrines and sanitation facilities) are serviced as a priority. 	<ul style="list-style-type: none"> - Follow the guidance for Level 1, plus: - If possible, cut working days/hours. 	<ul style="list-style-type: none"> - Follow the guidelines for Levels 1 and 2, plus: - <i>The following PPE should be worn: gloves and medical or cloth mask.</i> - Staff should have access to hand sanitiser or handwashing spaces to use regularly. - Provide areas where workers can safely dispose of used PPE.



	Level 1/Situation A	Level 2/Situation B	Level 3/Situation C
Distributions	<ul style="list-style-type: none"> - Arrange distributions for small numbers at a time, beginning with those most vulnerable. - Undertake distributions in open spaces, with plenty of room for people to wait in shaded areas. - Encourage people to space out in queues, using markers on the ground to indicate where possible. - Pre-package kits or items so that recipients can collect these without contact with distributors. - Have handwashing facilities available and ensure each person attending the distribution washes their hands upon entering and exiting. - Advise recipients who feel sick to remain at home; organise alternative deliveries for these households. - Ensure that all distributions have awareness materials displayed and staff available for people to ask questions and discuss concerns. Share hotline numbers to raise awareness about the accountability mechanism. - At the end of the distribution, clean surfaces with disinfectant. - Reduce the number of distributions to a minimum. 	<ul style="list-style-type: none"> - Follow the guidance for Level 1 but reduce distributions to essential items. - Merge monthly distributions if possible (eg. 2 hygiene kits in one distribution). - Undertake house to house distributions for vulnerable groups, such as the elderly and those with underlying health problems. - Regularly review government guidelines, balancing advice against what is happening in localised context. - Wear a mask (medical or cloth) if available. 	<ul style="list-style-type: none"> - Follow the advice for Levels 1 and 2, plus: - Suspend large scale distributions. - Undertake distributions house to house only. - Avoid contact – leave any items at the door of the household for them to collect, rather than handing over. - Ensure hands are sanitised between handling each kit. - If discussion is needed, maintain 6ft (2m) distance; if this is not possible, discuss through the door. - <i>The following PPE should be worn: plastic apron or overalls and medical or cloth mask.</i> - Staff should have access to hand sanitiser or handwashing spaces to use regularly.



Basic Gender Checklist

This checklist is intended for all HARP/OXSI staff and managers as they implement and revise programme strategies and activities, and as they develop new and additional work, in response to the COVID-19 pandemic which is affecting Rakhine, alongside the rest of Myanmar, the region and most of the world since February 2020.

The checklist reflects the evidence that COVID-19 has gendered impacts. More specifically, it has disproportionate consequences on women's and girls' health and well-being, on their exposure to the infection, increase in their care responsibility, and to the risk of domestic and other forms of Gender-Based Violence (GBV).

No.	Gender Responsive Activities	Meet	Don't Meet	Progress	Remarks
1.	Make COVID-19 specific assessments, surveys, SOPs, and IECs with a gender and protection lens, and carry out specific gender analyses and reviews of the impact of COVID-19 as necessary.				
2.	Consider the results of these gender reviews/analysis into the program activities to make all accessible and to prevent protection issues.				
3.	Give the space for women's participation and leadership in our consultation sessions and meetings for any COVID-19 response activities.				
4.	Promote the leadership of existing women leaders and women groups and women's organizations, and coordinate with them in our COVID-19 response activities.				
5.	Encourage women and girls to take community technician roles related with the minor repairs of WASH facilities.				
6.	Make sanitation facilities—including latrines, washing stands, and MHM boxes—accessible to all including the vulnerable people.				
7.	Carry out safe distribution and ensure access to dignity kits with extra soap, underwear and hygiene materials for personal hygiene and dignity of women and girls.				
8.	Ensure both women and men participate in the identification of safe and accessible distribution sites.				
9.	Give awareness about gender and protection consequences of COVID-19 to all beneficiaries and perform activities to promote gender equality in the response to this crisis.				
10.	Regularly consult with men, religious leaders and CMC members to change their attitudes and behaviors towards women and girls and involve women in the COVID-19 response activities.				
11.	Ensure women, girls and people with disabilities can access our CRM and Safeguarding systems.				



12.	Ensure all OXSI staff, especially accountability staff, are familiar with our CRM process, safeguarding system and updated GBV case management flow information.				
13.	Ensure all IEC materials and information related with COVID-19 are accessible to all beneficiaries.				
14.	Make sure the community speakers are both women and men.				
15.	Hold consultations with women, men, the elderly and people with disabilities about different gender needs in the quarantine facilities, to meet their different needs and prevent GBV issues.				

OXSI Hygiene Kit Distribution Standard Operating Procedures for door-to-door distribution – September 2020

As COVID-19 continues to spread in an unpredictable manner, it presents a growing risk to OXSI personnel and beneficiaries, particularly during Hygiene Kit (HK) distributions.

This document aims to guide the revision of HK distribution Standard Operating Procedures (SOPs), which were revised in March 2020, to take **further** precautions in the COVID-19 context in OXSI's WASH programme, to minimize the risk of exposure of staff and beneficiaries. Adjustments to existing HK distribution SOPs should be in alignment with country-specific guidance shared by the relevant health authorities and partners (e.g. Ministry of Health, WHO), where available.

The following recommendations will go into effect immediately as preventative measures, even when no cases of COVID-19 have been confirmed in camps.

SPECIFIC INSTRUCTIONS FOR STAFF AT THE OFFICES

- **Inform staff about the new HK distribution protocol**
 - Inform staff about this protocol and ensure that everyone is aware of his/her responsibility for the distributions.
- **Ensure all staff who are conducting door-to-door visits have the proper PPE:** goggles (reusable, wash each day), N90 masks (disposable, new one each day) if available (cloth masks are acceptable as well), and gloves (disposable, two pairs per day, before and after lunch).
 - Ensure all staff know how to put on, take off, and use the PPE:
 - Wash your hands with soap and water before putting on PPE.
 - Mask: hold the mask by the loops, determine which side is up (stiff bendable edge goes on top), then place a loop around each ear. Pinch the stiff edge to the shape of your nose and pull the bottom of the mask over your mouth and chin. While wearing the mask and when removing it, avoid touching the front of the mask because it is contaminated. To remove the mask, gently lift by the ear loops.
 - Gloves: check the gloves to make sure there are no rips, then put on one glove at a time. While wearing the gloves, avoid touching your face, since the gloves are contaminated. To remove the gloves, pinch the glove at your wrist and pull down over your hand so the glove goes inside-out and you do not touch the outside of the glove.
 - After removing PPE, wash your hands with soap and water.
 - Ensure all staff know how and where to dispose of PPE at the end of the distribution.
 - Prepare a location at the entrance of each office to dispose of PPE (eg. rice bag labeled "used PPE" that can be taken to the incinerator when full). Place the PPE disposal bag/bin next to the handwashing station, so that all staff coming back after distribution are reminded to dispose of their PPE in the bag/bin and wash their hands immediately.
 - Goggles: wash goggles with soap and water at the end of each day and allow to air dry OR wipe down with 0.2% chlorine solution and a tissue (see Annex I for instructions to make chlorine solution).
- **Ensure that the hand washing station is present in each office** and consistently has enough water and soap – if not, inform your manager immediately.

STEPS FOR DOOR-TO-DOOR HYGIENE KIT DISTRIBUTION

- **Plan door to door distributions**
 - Plan for two staff to work as a team for each pushcart filled with hygiene kits. One staff should take care of the pushcart and hygiene kits, while the other staff should ensure that people stay organized, pick up one hygiene kit at a time, and sign the distribution list.
 - Depending on the size of the camp, plan the number of staff and pushcarts needed, and how many days it will take to finish the distribution.
 - Print hygiene kit distribution lists for each group of two and assign areas of the camp to make sure there is no overlapping.
- **Inform households about the day and approximate time of delivery**
 - Use a megaphone to inform households in advance the date and approximate time of the HK delivery.
 - The distribution of vouchers is not necessary.
- **Prepare hygiene kits in pushcarts**
 - Place 30- 40 hygiene kits in each pushcart, enough to distribute to about 4 longhouses with each trip.
- **Start distributions**
 - Bring the pushcart of hygiene kits to the planned longhouse.
 - Call out **one** person from **one** household at a time to come out to receive the hygiene kit. Ask them to wear a mask if they have one.
 - Ask each person to take one hygiene kit from the pushcart; do not hand the hygiene kit to them directly.
 - Place the distribution list and ink pad on the pushcart and step away 2m while each person marks their household on the distribution list.
 - Maintain a distance of at least 2m from everyone, including your distribution partner, while distributing hygiene kits.
 - Avoid touching your face, especially your eyes, mouth, and nose, after touching the ink pad and the distribution list.
 - If someone is not home at the time of the distribution, come back to the household later in the day or the next day.
 - When the pushcart is empty, return to the office to get more hygiene kits.
- **Reminders**
 - If you remove your PPE to eat or drink, wash your hands with soap and water before eating and again before putting the PPE back on. You can use one mask per day but use new gloves after lunch.
 - Continue to follow good hygiene practices: wash hands with soap and water, cough/sneeze into elbow or a tissue, leave space between yourself and others when possible.



Important Note: All OXSI staff are responsible for complying with all aspects of the SOPs identified the country level. If any individual (OXSI staff) demonstrates symptoms of COVID-19, they should avoid contact with others and not be present at the distribution sites.

Annex 1: Instructions for making disinfectant solution (0.2% bleach solution) from liquid bleach

Disinfectant solution (0.2% chlorine solution) can be made from a variety of chlorine bases available in the market. All washing and disinfecting solutions must be prepared at the OXSI offices prior to dispatching to the distribution point and marked clearly.

Use for: Floors, surfaces, materials, aprons, boots, dishes (after cleaning)

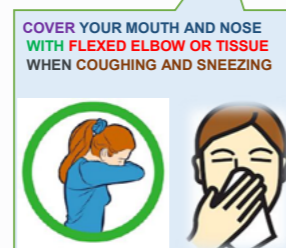
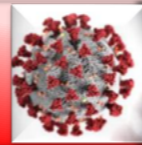
If you have...	Add...	To...	Then...	Remarks
Sodium dichloroisocyanurate (NaDCC) granules, 55% active chlorine	4 level 20 ml measuring spoons	20 litres water	Mix for 10 seconds and wait 30 minutes before use	72 grams in 20 litres 430 grams in 120 litres
Sodium dichloroisocyanurate (NaDCC) tablet, 1 g of active chlorine/tablet	40 tablets	20 litres water	Mix for 10 seconds and wait 30 minutes before use	2 tablets per litre
Calcium hypochlorite (HTH®) granules, 65-70% active chlorine	4 level 20 ml measuring spoons	20 litres water	Mix for 10 seconds and wait 30 minutes before use	60 grams in 20 litres 360 g in 120 litres of water

Notes: Do not prepare too much solution at a time (to avoid wasting unused solution). Make new solution each day.



Cautionary Note: Concentrated chlorine and bleach are highly toxic substances that can cause irritation and inflammation to eyes, throat and nose. When mixing and using 0.2% disinfecting solution, appropriate PPE (including mask, goggles and gloves) must be worn.

PROTECT YOURSELF AND OTHER FROM COVID19



WASH Handbook for Protracted Emergencies:

The OXSI Experience in Myanmar

When the WASH project launched in 2017 as part of the Rohingya crisis response in Sittwe, there was limited guidance available on approaches and techniques to deliver WASH services in a protracted emergency, particularly in the context of a human rights crisis. The Oxfam–SI partnership (referred to as “OXSI”) piloted and tested strategies to adapt the delivery of WASH services to the specific protracted Rohingya crisis in Myanmar, while focusing on increasing engagement and ownership of the community.

Many of the approaches described in the ‘WASH handbook for protracted emergencies’ are adaptable and relevant to a protracted emergency linked to a human rights crisis. This handbook aims to help cover a gap of knowledge and also to stimulate further discussion on WASH approaches in these unique contexts.

All approaches are clearly explained and accompanied by visuals and SOPs for easy replicability and adaptation

