

Handwashing compendium

for Low Resource Settings

A Living Document

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1. INTRODUCTION

Frequent and proper handwashing with soap is one of the most important measures that can be used to prevent the spread of the COVID-19 virus, along with physical distancing, avoiding touching one's face (eyes, nose and mouth), practicing good respiratory hygiene, including wearing a mask when appropriate. Universal access to and use of handwashing facilities with soap and water is also essential if we are to meet Sustainable Development Goal (SDG) 6.2. Yet 40 per cent of households lack access to a facility with soap and water, of which 18 per cent have no facility whatsoever (WHO and UNICEF, 2020a).

In response to the global COVID-19 pandemic, the Sanitation Learning Hub at the Institute of Development Studies has rapidly developed the *Handwashing Compendium for Low Resource Settings* that can be used to support increased access to facilities and promote positive handwashing behaviours during the pandemic and beyond.

The compendium provides guidance on low-cost handwashing facilities that can be widely used in low and middle-income settings. We hope that this can be shared extensively as governments and agencies tackle the crisis and work towards meeting SDG 6.2 in low and middle-income countries where handwashing facilities are urgently needed in households, communities, schools, healthcare facilities and other settings.

The compendium includes information and further reading on:

- Handwashing facilities – including facilities that are accessible for all.
- Environmental cues to reinforce handwashing behaviours.
- Physically distanced hygiene promotion.

It does not reinvent the wheel but brings together existing information from different organisations – the reasoning behind its production is so it can all be found in one place.

It covers facilities for individual households as well as for multiple users (for densely populated urban areas, prisons, schools etc.). It does not include ways to increase access to water or information regarding respiratory hygiene, both of which are also essential in the fight against COVID-19. It also does not touch upon menstrual hygiene management, incontinence, bathing or the washing of clothes and cooking equipment.

In order to provide a rapid resource this is very much a living document and we will continue to incorporate lessons, innovations and good practices as they emerge across the world. This compendium has been rapidly produced to respond to the current crisis and is not meant to be polished or exhaustive. It has been disseminated quickly to policy-makers and practitioners so immediate relevant and timely actions can be taken. We hope it will trigger further conversations, debate and sharing of ideas and innovations, to help the sector adapt and evolve in these extraordinary times.

In the first edition, the focus was on collecting and presenting information on low-cost handwashing facilities. The second edition included additional technologies as well as local examples of handwashing facilities around the world and further information on physically distanced hygiene promotion. It also increased the emphasis on minimising water wastage throughout. This third edition has additional information on technologies and physically distanced hygiene promotion, with a greater emphasis on long-term sustainability. It is important that thinking extends beyond short-term emergency response initiatives to longer-

term measures that will ensure people have access to the facilities, supplies and information needed to continue washing their hands with soap at critical times in the future.

New or heavily edited sections in this edition are:

[2 HANDWASHING FACILITIES](#)

[2.1.5 Drying hands](#)

[2.1.6 Making handwashing facilities accessible](#)

[2.1.7 Designing handwashing facilities that encourage use](#)

[2.2.1.3 Bamboo handwashing station](#)

[2.3 Local examples of handwashing facilities](#)

[3 PHYSICALLY DISTANCED HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT](#)

[3.1 Examples of community engagement](#)



2. HANDWASHING FACILITIES

To enable people to wash their hands with soap properly at critical occasions (see box below), it is essential that they have access to the facilities they need to do this. Handwashing facilities must be widely available, accessible to everyone, and designed to encourage people to use them.

This section provides information on key design principles and considerations for handwashing facilities, including information on soap options for handwashing (including how to make soap or soapy water), water supply, taps and drainage. It also includes information and suggestions on accessibility, and tips on how to design and locate handwashing facilities so that people are reminded to wash their hands with soap. These can be applied to any of the technologies described.

Following this, details of a range of technologies that can be used to set up handwashing facilities in households, public places and institutions (schools, prisons etc.) are provided. Each technology includes a short description of the facility along with pictures, advantages and disadvantages, accessibility considerations and variations that can be made based on local contexts and materials available. These technologies are a starting point that can and should be adapted based on the context, user preferences and practicalities. Local examples of handwashing facilities around the world are included in an annex to the compendium to provide inspiration and encourage adaptation.

When choosing which handwashing technologies to use in a specific context, it is important to consider the materials/facilities that are currently (or could easily be) locally available and which designs will be desirable to the people using the handwashing facilities. It is also important to consider the durability of any facilities being built and how this can be maximised to support long-term handwashing practices. The COVID-19 Hygiene Hub recommends asking yourself the following questions when choosing a handwashing facility design:

- What designs are easiest to produce at scale quickly?
- What designs will be accessible for all people to use (including children, adults and people with disabilities)?
- Which designs are ‘touch free’ or minimise the likelihood of re-contamination?
- How can you ensure that soap and water is regularly replaced and the handwashing facility and taps are regularly cleaned?
- Which designs are robust and will continue to function under high-use conditions?

(Source: COVID-19 Hygiene Hub, 2020f)

When to wash hands with soap

Handwashing with soap has always been recommended at the following critical occasions:

- Before preparing food.
- Before eating or feeding a child.
- After using the toilet.
- After changing a baby's nappy, wiping a child's bottom or helping a child use the toilet.
- After touching animals and pets.

However, due to COVID-19, *additional* critical occasions for handwashing with soap now include:

- After coughing or sneezing.
- When entering or leaving the household or any other building.
- After coming into physical contact with anyone outside your household,
- After touching surfaces when outside the home (e.g. door knobs, railing, money etc).
- After visiting a public space, including public transportation, markets and places of worship.
- Before, during and after caring for a sick person.

(COVID-19 Hygiene Hub, 2020a, UNICEF, 2020a)

How to wash hands with soap

Handwashing should take at least 20-30 seconds and should include the following steps:

- Step 1: Wet hands with running water.
- Step 2: Apply soap.
- Step 3: Scrub all surfaces of the hands – including back of hands, between fingers and under nails – for at least 20 seconds.
- Step 4: Rinse thoroughly with running water.
- Step 5: Dry hands with a cloth or single-use towel.

(UNICEF, 2020a)

2.1. Considerations for all handwashing facilities

2.1.1. Soap

This section draws heavily on information available on the COVID-19 Hygiene Hub website: <https://resources.hygienehub.info/en/>

It is essential that people wash their hands with a cleaning agent that will effectively remove bacteria and viruses, including the SARS-CoV-2 virus that causes COVID-19. Both **alcohol-based hand rub (containing at least 60% alcohol)** and **soap** are known to remove SARS-CoV-2 effectively.

In low-resource settings, soap is likely to be cheaper and more widely available than alcohol-based hand rub. As such, soap should be made available at all handwashing facilities to enable people to wash their hands effectively.

Soap is available to most households around the world, even if people do not currently prioritise its use for handwashing (for example, they may use it to wash clothes or dishes but not hands). Wherever possible, interventions should encourage people to prioritise soap for handwashing and promote handwashing with one of the three types of soap below. Where available, soap with a pleasant fragrance can make handwashing with soap more desirable (COVID-19 Hygiene Hub, 2020a).

The three main types of soap that can be used for handwashing are:

- Bar soap
- Liquid soap
- Soapy water

There may be concerns that microbes can be transferred between people sharing bar soap. There is no evidence that this is the case (COVID-19 Hygiene Hub, 2020a). However, if people are concerned about the safety of sharing bar soap, liquid soap may be more acceptable, particularly at public handwashing facilities. Liquid soap can be made from bar soap if it is not available or unaffordable. It is important to note that liquid soap dispensers may become a potential point of contamination, although as hands are washed after touching the soap dispenser this is less of a concern than other points of contamination (such as taps that need to be switched off using hands). Section 2.1.4 includes information on foot-operated tap mechanisms which can be applied to liquid soap dispensers.

If bar or liquid soap is unavailable or unaffordable, soapy water can be made by mixing a small amount of laundry powder, detergent or any other type of soap with water. Soapy water should be used in place of other types of soap and should be rinsed off hands with non-soapy water after use. Alternatively, bar soap can be made using ingredients that are widely available locally. However, care must be taken when deciding whether to make soap given the time and chemicals involved (COVID-19 Hygiene Hub, 2020b).

Figure 1 below shows how to make soapy water:



Figure 1: How to make soapy water. Credit: Sultana et al, 2018

Advice on choosing whether to make soap can be found here:

<https://resources.hygienehub.info/en/articles/4106091-is-soap-making-the-right-thing-to-do-in-my-context>

Guidance on making soap at home can be found here:

<https://www.lboro.ac.uk/media/www/lboroacuk/external/content/research/wedc/pdfs/technicalbriefs/08.%20Making%20soap.pdf>

Simple instructions for making liquid soap from bar soap can be found here:

<https://www.instructables.com/id/How-to-make-liquid-soap-from-a-bar/>

In cases where soap really is unavailable, it is recommended that people use ash and water to wash hands. There is limited evidence on the effectiveness of ash used for handwashing in the fight against COVID-19 but it is effective for other germs and likely better than handwashing with water alone (COVID-19 Hygiene Hub, 2020a).

If recommending ash to households, make sure that they are using the white ash from the centre of a fire once cooled. This white ash is likely to be the most sterile as it was heated at the highest temperature. It is possible that chemicals in the ash could damage the skin, depending on what materials were burned in the fire. Be aware that handwashing with ash does not feel very nice and does not leave hands feeling and smelling nice in the way that soap does. As such, promoting ash may actually discourage people from practicing handwashing (COVID-19 Hygiene Hub, 2020a).

Washing hands with chlorine solution is not necessary in the context of COVID-19 and can cause skin irritation. Because of this, it is not recommended if any of the alternatives above are available. However, in contexts where chlorine solution was widely promoted in response to Ebola outbreaks, it may be acceptable to some people. If using chlorine solution for handwashing, 0.05% chlorine solution should be used. Chlorine is a dangerous chemical so take care to prepare this correctly, keeping the chlorine safe at all times.

This summary report from the COVID-19 Hygiene Hub provides more information on cleaning agents for handwashing in the context of COVID-19: <https://resources.hygienehub.info/en/articles/3915684-summary-report-on-handwashing-and-covid-19>

This short video from the London School of Hygiene and Tropical Medicine also provides more information on handwashing with soap and water in the context of COVID-19: <https://vimeo.com/403090072?ref=tw-share>

2.1.2. *Water supply*

To wash hands with soap and water, it is important that water is readily available at handwashing technologies. As outlined in the technology descriptions, water may come from different sources. These include:

- Wells or boreholes (with or without a pump)
- Rainwater harvesting systems
- Piped water supply
- Surface water
- Some grey water (for example, from water used for laundry)

Unless there is a piped water supply to a location convenient for handwashing, most handwashing technologies will need to be filled with water. It is important to ensure the handwashing facility is refilled as necessary so that water is always available. This task of refilling should be shared between men and women using the handwashing facility rather than allocated to one person. For public handwashing facilities, an operator should be paid to manage the facilities and refill them if possible. The handwashing facility's water container should be located to enable it to be refilled easily.

It is important to consider where water for handwashing will come from when choosing a handwashing technology. **Technologies that minimise water use should always be selected and are particularly important if water is scarce or the water source is far away.**

The quality of water used for handwashing **does not need to meet drinking water standards or be chlorinated**. Where it is acceptable to users, grey water from laundry can even be used for handwashing. However, wastewater from handwashing should not be used again for handwashing (COVID-19 Hygiene Hub, 2020c).

These resources – also included in the section on soap above – provide more information on handwashing with soap and water in the context of COVID-19:

A summary report from the COVID-19 Hygiene Hub:

<https://resources.hygienehub.info/en/articles/3915684-summary-report-on-handwashing-and-covid-19>

A short video from the London School of Hygiene and Tropical Medicine:

<https://vimeo.com/403090072?ref=tw-share>

2.1.3. *Drainage*

Drainage of wastewater is an essential component of handwashing stations. Whilst water is not a source of transmission for COVID-19, SARS-CoV-2 can persist in water for 2 days if untreated and more research is needed on whether this poses a risk to people (COVID-19 Hygiene Hub, 2020a). Poor drainage around handwashing facilities can result in water pooling, providing a breeding ground for flies and mosquitoes. It is also likely to make the ground around the handwashing facility muddy which may restrict access for users and/or put them off using it.

The type and size of drainage will depend on soil conditions in a specific context. For example, water will drain much faster and more easily in sandy soils than clay.

Simple wastewater drainage solutions include:

- Planting some types of plant at the point wastewater is disposed of to help absorb excess water.
- Digging a hole at the point wastewater is disposed of and backfilling this with stones and gravel.
- Disposing of wastewater in existing drains or sewers.

Wastewater is likely to be easier to collect from handwashing stations which are fitted with some sort of basin to catch water. Basins can then be fitted with an outlet pipe to a suitable drainage point or used to collect wastewater which can then be safely disposed of at a suitable drainage point.

Further information on drainage can be found in this WEDC technical brief: <https://www.lboro.ac.uk/media/www.lboro.ac.uk/external/content/research/wedc/pdfs/technicalbriefs/32.%20Drainage%20for%20improved%20health.pdf>

2.1.4. *Taps, pumps and water dispensers for handwashing*

It is important to reduce the risk of re-contaminating hands after washing them with soap. Taps that do not need require switching off after handwashing, or taps that can be operated by other parts of the body (for example, feet or arms) should be used wherever possible to minimise re-contamination. The material the tap is made from can also help: brass (and other copper alloys) has antimicrobial properties so using brass taps minimises the likelihood of re-contamination (Grass, 2010).

Taps or other water dispensers used for handwashing should also be selected to minimise water consumption.

The following table includes considerations and suggested resources when choosing the means of dispensing water from a handwashing facility:

Technology type	Examples	Resources
Taps	<ul style="list-style-type: none"> • Push taps that do not need to be switched off. • Lever taps that can be operated with an arm/elbow. 	<ul style="list-style-type: none"> • Different tap types are available in different settings. This UNICEF fact sheet includes common options, including ones that minimise re-contamination: https://www.unicef.org/media/68896/file/Handwashing-Facility-Factsheet.pdf
Foot operated devices	<ul style="list-style-type: none"> • Foot pedals attached to levers that open a tap/liquid soap dispenser. • Foot pumps. 	<ul style="list-style-type: none"> • Push taps and liquid soap dispensers can be attached to foot pedals so that they open when the pedals are pressed. These videos show simple devices that do this: https://www.youtube.com/watch?v=VDWewp8yWmw and https://www.youtube.com/watch?v=nkWLSGcqFnk. See the local examples section for further ideas.

		<ul style="list-style-type: none"> • Swing taps can also be attached to foot pedals so that they open when the pedals are pressed. This video shows a simple device that does this: https://youtu.be/1j6S204YWFI • This CAWST guide includes instructions on how to make a foot pump using locally available materials: https://globalhandwashing.org/wp-content/uploads/2020/04/Handwashing-Station-Instructions_2020-04-08_en.pdf • This video also explains how to make a foot pump using locally available materials: https://youtu.be/eBlznW2VDak. • Field Ready have also developed guidance on how to make a foot pump using locally available materials. Contact them here: https://www.fieldready.org/contact-us
Small water dispenser	<ul style="list-style-type: none"> • Small container with a hole in the base which can be filled and hung at a convenient height for handwashing. The water will flow out of the hole and can be used for handwashing until the container is empty. 	<ul style="list-style-type: none"> • Making handwashing devices from alloy cans: http://aquamor.info/uploads/3/4/2/5/34257237/making_hand_washing_devices_from_alloy_cans.pdf

2.1.5. *Drying hands*

It is important to dry hands after washing as pathogens are more likely to spread to and from wet hands (Patrick et al, 1997). Hand washing stations should emphasise the importance of hand drying to users and if possible provide single use or clean reusable towels. If this is not possible, air drying for example by shaking hands in the air should be promoted (WHO and UNICEF, 2020b).

2.1.6. Making handwashing facilities accessible

Making handwashing facilities accessible to everyone is crucial to maintain handwashing behaviour and ensure equality of access. Considerations for accessibility include age, disability (physical, learning and other), seasonality (with rains and muddiness), location and more. The following section includes factors to consider in the design and placing of handwashing facilities. Challenges and solutions vary between people and contexts so it is essential that facilities are designed and located based on consultations with and feedback from a range of people who may face accessibility challenges.

2.1.6.1. Placement of the technology

Handwashing facilities should be placed/hung in a location that is as convenient as possible for users, particularly those with accessibility challenges. It should be placed/hung at a height that ensures that it is reachable for children and tall users do not have to stoop too much. If the facility is placed on a surface, this should ideally be stable and flat. If the facility is hung up, make sure that it is secure. Bear in mind that handwashing facilities that are hung up may move when touched making them harder for some users to operate. Wastewater drainage should be considered properly (either collection in a bucket or placing stones around the facility) to ensure that the area around the facility doesn't become a slipping hazard.

2.1.6.2. Paths

Paths should be firm, even and non-slip (Jones and Reed, 2014). A wooden/brick/concrete pathway to the facility will ensure a smoother access route and minimize the risk of a muddy and slippery pathway during rainy season. The path should go all the way to the facility and end at the same height as the facility so that users do not need to go up or down a step. The width of the path will depend on the users – people in a wheelchair or who need support to move along the path may need a wider path. Marking the edge of the path with stones or similar highlights the edge of the path and can help users to stay on it. A handrail or guide rope along the edge of the path can also support users to move along the path safely.



Figure 2: Wide concrete path with raised edges. Credit: Jones and Reed (2005)



Figure 3: Smooth earth path with stones marking the edge. Credit: Jones and Wilbur (2014)

2.1.6.3. Ramps

Ramps can be made out of wood (for it to be movable) or concrete to help wheelchair users and those with difficulty walking to get to the handwashing facility. Shallow ramps are preferable where possible – the steeper the ramp, the more likely it is that users will need someone to help them get up it. A slope gradient for the ramp of 1 in 20 is ideal but needs a lot of space; 1 in 15 is a reasonable compromise (Jones and Wilbur, 2014).

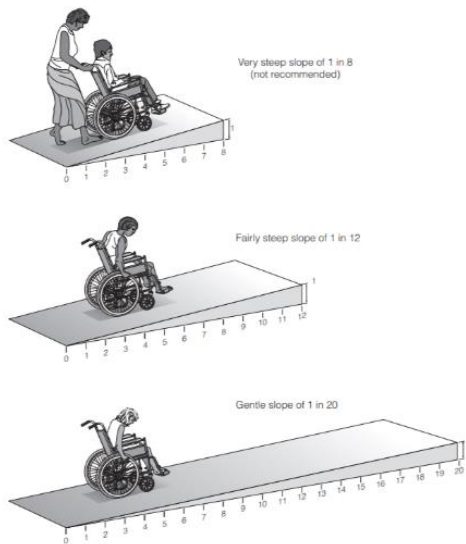


Figure 4: Shallow ramps are more accessible. Credit: Jones and Reed (2005)



Figure 5: A temporary/movable wooden ramp. Credit: Jones and Wilbur (2014)

2.1.6.4. Steps

Steps should be built equidistant to each other and of the same height and size. They can include cross-hatching/markings on their concrete surface to reduce the risk of slippage and should have a handrail for more support. For people with difficulty seeing, the edges of each step should be highlighted with coloured tape or paint (Jones and Reed, 2005).

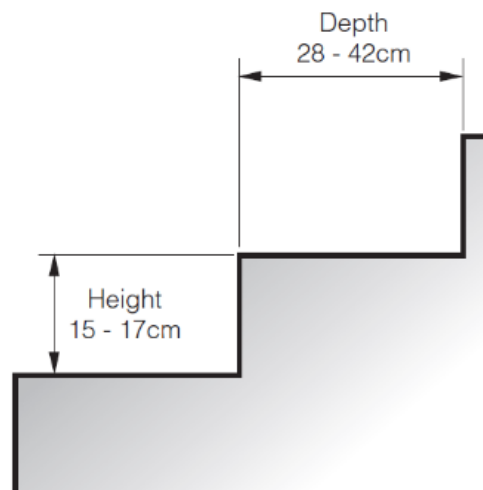


Figure 6: Suggested step dimensions. Credit: Jones and Reed (2005)

2.1.6.5. Type of tap

Some users may find it a challenge to operate certain kinds of taps. The type of tap used should be selected to enable everyone to operate it if possible. For example, if a user has difficulty twisting a tap, consider using a push tap or a pedal-operated tap if these are available. Some users may also struggle with hand/eye/foot coordination, making facilities that rely on multiple movements at once difficult (for example, pressing a pedal at the same time as washing hands) (Groth, A., personal communication, 2020). In these cases, options that do not rely on simultaneous movements are recommended. More information on taps types is included in Section 2.1.4.

2.1.6.6. Soap placement

There should be a designated place for the soap where it should be kept after use. This should be in plain sight and be easily reachable for all users. This fixed place will also enable visually impaired users to access soap without any difficulties.

Further information on accessibility can be found in the following resources:

- *Compendium of Accessible WASH Technologies:* <https://washmatters.wateraid.org/publications/compendium-of-accessible-wash-technologies>
- *Water and Sanitation for Disabled People and Other Vulnerable Groups – Designing services to improve accessibility.* https://wedc-knowledge.lboro.ac.uk/resources/books/Water_and_Sanitation_for_Disabled_People_-_Complete.pdf

2.1.7. Designing handwashing facilities that encourage use

It is important to create and maintain an enabling environment to encourage and sustain good handwashing behaviour. This section outlines design and maintenance features that should be considered alongside accessibility considerations when installing handwashing facilities.

2.1.7.1. Nudges, cues and reminders

Nudges and cues that lead to, point to or emphasise handwashing facilities help remind people to use them. For example, to remind people to wash their hands after using the toilet, footsteps or arrows along the path from the toilet to the handwashing facility can be painted. Colourful hands painted around the handwashing facility can help remind people to use it too.

Mirrors and eyes on the wall in front of handwashing stations have also helped increase rates of handwashing with soap as people are reminded that others expect them to wash their hands properly as they feel they are being observed. Placing mirrors above handwashing facilities has the added benefit of encouraging people to spend longer washing their hands, increasing the likelihood that they wash them thoroughly.



Figure 7: Nudges used to encourage use of school WASH facilities in Madagascar. Credit: SEED Madagascar (2019)



Figure 8: Handwashing facilities with nudges. Credit: Dreibelbis R. et al. (2016) <https://doi.org/10.3390/ijerph13010129>

2.1.7.2. Location

Handwashing facilities should also be placed at convenient locations to encourage people to use them regularly and at the right times. If they are far away or in an inconvenient location, many people will not make the additional effort needed to go to them. Placing handwashing facilities in a visible location will also remind people to wash their hands when they see them.

To help people wash their hands at different times and when they are doing different tasks, it may be helpful to have more than one handwashing facility within a household. For example, one handwashing facility could be placed close to the toilet, another close to the kitchen and at the entrance of the house. If this is not possible, think about a location that is convenient for – or at least visible from – all of these parts of the household or public place.

To maximise the lifespan of handwashing facilities kept outside, they should ideally be located in a sheltered position out of the sun.

2.1.7.3. Making handwashing enjoyable and fun

People tend to like nice things. Handwashing facilities that users consider attractive will encourage use. Similarly, soap that smells nice can encourage use. One study found that children opted to spend more on higher quality soap that smelled nice, even in very low resource settings. Another found that embedding simple toys in transparent soap motivated children to wash their hands with soap more often in order to release the toy (see the box below)

If users are involved in decorating handwashing facilities themselves, it may also increase familiarity and acceptability of the facility.

Use of ‘surprise soaps’ to encourage children to wash their hands in Iraq

To encourage children to wash their hands with soap, LSHTM, Save the Children and Field Ready collaborated to distribute transparent soap with a toy embedded inside. The idea was that children would be incentivised to wash their hands more often to reach the toy inside. Manufactured locally using 3D printers, these were distributed to children in a displaced persons camp in Iraq. Children in forty households in the camp were given the ‘Surprise Soap’ along with short, fun and interactive household sessions that didn’t involve talking about health. Alongside this a control group of children in forty households in the same camp were given normal soap and sessions explaining the health benefits of handwashing. Four weeks later, researchers found that children who received the ‘Surprise Soap’ intervention were four times more likely to wash their hands with soap at crucial moments, based on a comparison to the control group. The approach is currently being trialled on a larger scale in Somalia and Sudan.



Figure 9: ‘Surprise Soap’. Credit: Julie Watson, London School of Hygiene and Tropical Medicine, 2020

Source: <https://www.sciencedirect.com/science/article/pii/S1438463918305686>

2.1.7.4. Well maintained facilities that are easy to use

People are more likely to wash their hands with soap if handwashing facilities are easy and pleasant to use. In addition to locating handwashing facilities in convenient places, it is important that handwashing facilities are well maintained, kept clean, and are soap and water are replenished as necessary to ensure continuous availability. Good drainage of wastewater from the handwashing facility will help ensure the surrounding area remains dry and easy and pleasant to access.

2.2. Handwashing technologies

Section 2.2.1 focuses on handwashing technologies for households while section 2.2.2 focuses on facilities for multiple users.

2.2.1. Handwashing technologies for households

2.2.1.1. Tippy taps

Description: A simple container filled with water which flows out when the container is tipped. Tipping the container can be done using a foot pedal, or by using a specially shaped container that can be manually tipped to release water before returning to its original position automatically. The hole water flows out of should be small to reduce water wastage. Bar soap, liquid soap or soapy water can be tied to the tippy tap with string. The ground beneath the tippy tap should be covered in stones to help drainage of wastewater.

Picture/photo:

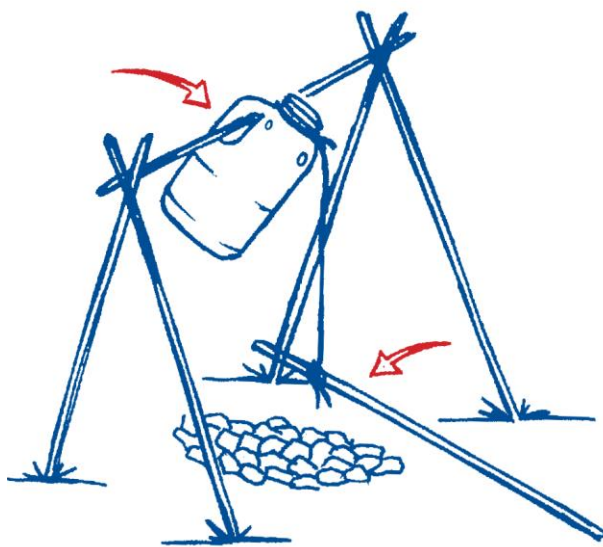


Figure 10: Pedal operated tippy tap. Credit: WaterAid (n.d.)

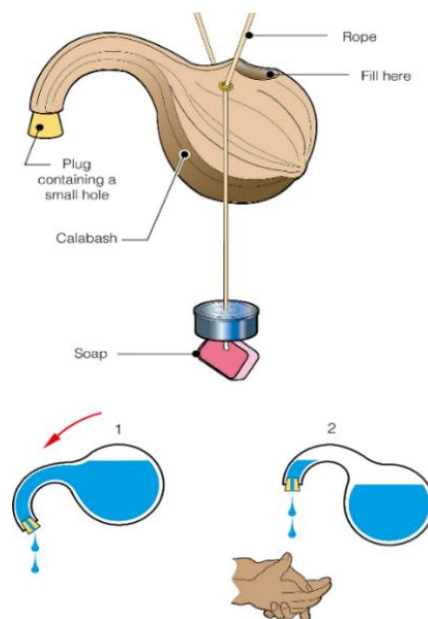


Figure 11: Self-righting tippy tap. Credit: McMahon and Chatterton (2019), <https://doi.org/10.17028/rd.lboro.7908797.v1>

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can be constructed easily and cheaply with locally available materials. • Does not need to be touched after washing hands, reducing re-contamination of clean hands. • Cost effective. • Pedal-operated tippy taps are suitable for users of different heights. • Simple to use. • Limited water wastage, particularly if the hole water flows out of is small. 	<ul style="list-style-type: none"> • Needs to be filled often with water manually. • Less durable than other options and parts will need to be replaced or reconstructed more often. This may impact on the users staying motivated, possibly reducing the frequency and sustainability of handwashing behaviours. • May only serve as an interim solution. • Soap needs to be properly secured to avoid it getting misplaced. • Drainage will need to be considered. • Can be difficult for children to use if the container is too heavy to tip when filled with water. • Wheelchair users may find it challenging to use pedal operated tippy taps.

Variations:

- Any container that can be tipped can be used to make a pedal operated tippy tap. Bottles and jerry cans are commonly used.
- Some gourds or bottles are the right shape for a self-righting tippy tap, but these can be hard to source in many places.
- A second tippy tap filled with soapy water can be placed next to the water container which can be tipped using a pedal as a hands-free alternative.

Accessibility:

- The container should be placed high enough so that taller users do not have to stoop to wash their hands. If the tippy tap is pedal operated, shorter users will still be able to use the facility as long as it is filled with water and the soap is stored low enough.
- For users who may not be able to press a foot pedal (e.g. wheelchairs users), the foot pedal could be converted to an elbow-operated pedal placed at a convenient height.
- Make sure that the basin or stones placed under the tap for drainage do not impede access.
- For those with visual impairments an easily accessible, fixed point for the soap should be agreed upon.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- Video of pedal operated tippy tap: <https://www.youtube.com/watch?v=C4d1nLpqx0M>
- Video of self-righting tippy tap in use: <http://www.rural-water-supply.net/en/training-research/handwashing-devices>
- Instructions on how to make a self-righting tippy tap from a plastic bottle with handle: http://hip.fhi360.org/file/12023/ENG_TippyTap_wr.pdf

2.2.1.2. Bucket/container with tap

Description: A container filled with water, fitted with a tap at the base. These may be available to purchase ready-made or can be easily made by adding a tap to a bucket/container. When the tap is opened, water flows out. Wherever possible, the water container should be closed or fitted with a lid to stop dirt and debris entering it. Bar soap or liquid soap can be stored next to the container. A bucket or bowl should be placed under the tap to collect wastewater, or the ground under the tap should be covered in stones to help drainage of wastewater.

Fixing a tap to an existing container

Method 1: Use a metal pipe to make a dent where the tap will be fixed. The size of the dent should match the size of the tap inlet, often approximately one centimetre wide. Heat the end of the metal pipe and push it in the bucket/drum/Jerry can where the dent is. Twist the pipe to make a hole in the container. Place the tap inlet in the hole and fix it in place with a rubber seal and tape inside and outside of the tap to water leaking out.

Method 2: Use scissors to pierce the bucket/drum/Jerry can. Twist the scissors until they make a hole the same size as the tap inlet. Place the tap inlet in the hole and fix it in place with a rubber seal and tape inside and outside of the tap to water leaking out.

Source: Hamonto Kumar Mollick and Effat Nur, Plan International Bangladesh

Picture/photo:

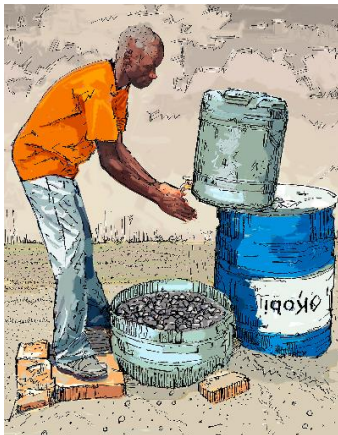


Figure 12: Container fitted with tap. Credit: Shaw (2019), <https://doi.org/10.17028/rd.lboro.c.4334195.v2>



Figure 13: Container fitted with tap. Credit: Oxfam Supply Centre (2019)



Figure 14: The Tap Up – a two bucket hand sink. Credit: Lippincott (2011), CERN Open Hardware Licence

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can be constructed cheaply and easily using locally available containers if affordable taps are available. • Easy to use for most, including children and older people when placed at a comfortable height. • Can make an existing water storage tank with tap into a handwashing facility by adding soap and drainage • Can link the container to rainwater harvesting/guttering to help refill the water container. • More durable than a tippy tap. • Minimal chance of recontamination if the tap used is designed to be pushed once to release water. • Can be a long-term solution. • If a bucket/bowl is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet). 	<ul style="list-style-type: none"> • Dependent on the local availability of affordable taps. • If not connected to rainwater harvesting/guttering, needs to be refilled manually with water from another water source. • If an existing water container is converted to a handwashing facility, it may not be located in the ideal place to promote regular handwashing at key times. • If the tap used needs to be turned off after handwashing, touching the tap may re-contaminate clean hands. To minimise this, the tap handle should be regularly cleaned. • Can be subject to leaks and wastage of water if taps handles are not secured properly during and after handwashing. • If no bucket/bowl is used to collect wastewater, drainage will need to be considered.

Variations:

- Any clean container can be used, of any size. Examples of containers that can be used include buckets, clay pots, clean barrels and jerry cans. The larger the container, the less frequently it will need to be refilled.
- The Oxfam bucket (7) is a product that was developed to be stackable and easily carried on one's head. It was designed to stay out in the sun for long hours and ensure safe storage of water.
- As an alternative to solid containers, it is possible to fit a tap to the bottom of a watertight bag/pouch. This can be a useful option where such bags are available and where a handwashing facility needs to be hung up rather than placed on a surface.
- The Sanitap is a product that has a water dispenser fitted to the bottom of a pouch. This makes it lightweight, collapsible and therefore easy to transport.
- The container can be linked to a rainwater harvesting scheme or guttering to keep it filled with water.
- Any tap can be used but those which switch off automatically or restrict water flow help minimise water consumption.
- As above, any tap can be used but if there are options which switch off automatically or can be pressed using a mechanism connected to a foot pedal these are better than ones which need to be manually switched off. This is because they minimise the risk of re-contaminating hands when being switched off. The Oxfam handwashing tap is an

example of a tap that switches off automatically and the following technology description (foot-operated bucket/container with tap) provides ideas for foot-operated mechanisms.

- The Drop is a small and durable tap that releases a small amount of water when pressed. It can be fitted to containers instead of a tap.
- The 'Tap up' is a version where a valve is placed under a bucket. When pressed, this releases water.

Accessibility:

- The tap should be high enough so that taller users do not have to stoop too much, but low enough for the shortest users. If there is a large height difference between users, a step/seat could be stored near the facility for shorter users to stand on or taller users to sit on. The height of the soap should be chosen based on similar considerations.
 - Some users may find certain taps easier/harder to operate. The type of tap used should be selected to enable everyone to operate it if possible. For example, if a user has difficulty twisting a tap, consider using a push tap if these are available.
 - Make sure that the basin or stones placed under the tap for drainage do not impede access.
 - For those with visual impairments an easily accessible, a fixed point for the soap should be agreed upon.
 - As with all technologies, the path to the handwashing facility should be accessible to all.
-

More detail and additional resources:

- Oxfam bucket: <https://supplycentre.oxfam.org.uk/oxfam-jerry-bucket-14-litre---200-pce-948-p.asp>
- Sanitap: <https://sanitap.org/product-overview>
- Oxfam handwashing tap: <https://supplycentre.oxfam.org.uk/oxfam-hand-washing-tap---50-pce-715-p.asp>
- The Drop: <https://the-drop.ch/>

2.2.1.3. Bamboo handwashing station

Description: A length of bamboo hollowed out and filled with water to use for handwashing with soap. The bamboo is cut and hollowed out, leaving a base inside so that water can be stored in it. It is then inserted into the ground so that it stands vertically and water is poured into it at the top. A hole is made with a nail at a convenient height for water to flow out of for handwashing. The nail can then be used as a stopper: when the nail is removed from the hole, water flows out. Bar soap or liquid soap can be tied to or stored next to the bamboo. A bucket or bowl should be placed under the hole to collect wastewater, or the ground under the hole should be covered in stones to help drainage of wastewater. The bamboo handwashing station may need supports on either side (either strong sticks or concrete rebar) to keep them from tipping when full.

Picture/photo:



Figure 15: New bamboo handwashing station being inserted into the ground. Credit: World Vision International - Vanuatu



Figure 16: Completed bamboo handwashing station. Credit: World Vision International - Vanuatu

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can be constructed cheaply and easily where bamboo is available. • Easy and cheap to install. • Easy to use for most, including children and older people when hole is placed at a comfortable height. • Can link the container to rainwater harvesting/guttering to help refill the water container. • Location can be selected to be convenient and accessible. • If a bucket/bowl is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet). • Can be maintained and replaced as and when required if bamboo is available locally. 	<ul style="list-style-type: none"> • Dependent on the local availability of bamboo. • Possibility of recontamination of hands with the nail stopper if it needs to be plugged in after washing hands. • If not connected to rainwater harvesting/guttering, needs to be refilled manually with water from another water source. • Can be subject to leaks and wastage of water if stopper is not secured in the hole properly during and after handwashing. • If no bucket/bowl is used to collect wastewater, drainage will need to be considered.

Variations:

- Any clean pipe can be used, of any size.
- The bamboo/pipe can be linked to a rainwater harvesting scheme or guttering to keep it filled with water.

Accessibility:

- The hole should be high enough so that taller users do not have to stoop too much, but low enough for the shortest users. If there is a large height difference between users, a step/seat could be stored near the facility for shorter users to stand on or taller users to sit on. The height of the soap should be chosen based on similar considerations.
- Make sure that the basin or stones placed under the tap for drainage do not impede access.
- For those with visual impairments an easily accessible, a fixed point for the soap should be agreed upon.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- Video showing how to make and use a bamboo handwashing station: <https://www.facebook.com/WorldVisionVanuatu/videos/421383908732997/>

2.2.1.4. Foot-operated bucket/container with tap

Description: A container filled with water, fitted with a push tap at the base. The tap is connected to a foot pedal so that when the pedal is pressed the tap opens. When the tap is open, water flows out. Wherever possible, the water container should be closed or fitted with a lid to stop dirt and debris entering it. Bar soap or liquid soap can be stored next to the container. If liquid soap is used, the dispenser can also be connected to a second foot pedal. A bucket or bowl should be placed under the tap to collect wastewater, or the ground under the tap should be covered in stones to help drainage of wastewater.

Fixing a tap to an existing container

Method 1: Use a metal pipe to make a dent where the tap will be fixed. The size of the dent should match the size of the tap inlet, often approximately one centimetre wide. Heat the end of the metal pipe and push it in the bucket/drum/Jerry can where the dent is. Twist the pipe to make a hole in the container. Place the tap inlet in the hole and fix it in place with a rubber seal and tape inside and outside of the tap to water leaking out.

Method 2: Use scissors to pierce the bucket/drum/Jerry can. Twist the scissors until they make a hole the same size as the tap inlet. Place the tap inlet in the hole and fix it in place with a rubber seal and tape inside and outside of the tap to water leaking out.

Source: Hamonto Kumar Mollick and Effat Nur, Plan International Bangladesh

Picture/photo:



Figure 19: pedal-operated handwashing station. Credit: Tearfund DRC



Figure 18: pedal-operated handwashing station with large tank. Credit: WaterAid Nepal



Figure 17: pedal operated handwashing station with large tank. Credit: Aga Khan Foundation, India

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can be constructed easily using locally available containers if affordable push taps are available. • Can make an existing water storage tank with tap into a handwashing facility by adding soap and drainage • Can link the container to rainwater harvesting/guttering to help refill the water container. • More durable than a tippy tap. • Foot-operated so minimal chance of recontamination. • Tap closes when foot pedal released, reducing water wastage. • Can be a long-term solution. • If a bucket/bowl is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet). 	<ul style="list-style-type: none"> • Dependent on the local availability of affordable push taps. • Foot pedal mechanism makes it more expensive than some options. • If not connected to rainwater harvesting/guttering, needs to be refilled manually with water from another water source. • If an existing water container is converted to a handwashing facility, it may not be located in the ideal place to promote regular handwashing at key times. • If no bucket/bowl is used to collect wastewater, drainage will need to be considered. • Foot pedal may be hard for people with mobility challenges to operate.

Variations:

- Any clean container can be used, of any size. Examples of containers that can be used include buckets, clay pots, clean barrels and jerry cans. The larger the container, the less frequently it will need to be refilled.
- The container can be linked to a rainwater harvesting scheme or guttering to keep it filled with water.

Accessibility:

- Foot pedals could be replaced with arm/elbow-operated pedals at an appropriate height to enable use by people with mobility challenges.
- The tap should be high enough so that taller users do not have to stoop too much, but low enough for the shortest users. If there is a large height difference between users, a step/seat could be added near the facility for shorter users to stand on or taller users to sit on. The height of the soap should be chosen based on similar considerations.
- Make sure that the basin or stones placed under the tap for drainage do not impede access.
- For those with visual impairments an easily accessible, a fixed point for the soap should be agreed upon.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- See section 2.3 on local examples for more details on the facilities pictured.

2.2.1.5. Conventional tap with/without basin

Description: Any tap connected to an existing water source can be used for handwashing if it is in a convenient location and soap is made available next to it. This includes taps above a basin or sink as well as taps over open ground. If the tap is over the ground, a bucket or bowl should be placed under the tap to collect wastewater, or the ground under the tap should be covered in stones to help drainage of wastewater.

Picture/photo:



Figure 20: Handwashing at a facility with tap and basin. Credit: UNICEF/UNI310746/Viet Hung (n.d.)



Figure 21: Tap without basin. Credit: M. Coultas (2020)

Advantages	Disadvantages
<ul style="list-style-type: none">• If existing infrastructure is available, no effort required to construct it.• Very cost effective if infrastructure already exists.• If the water supply to the tap is reliable, does not need refilling.• More durable than a tippy tap and relatively less effort needed to maintain the facility.• Easy to use for most, including children and older people if at a convenient height and location.• Can be a long-term solution.• If a bucket/bowl is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet).	<ul style="list-style-type: none">• Dependent on existing infrastructure being in place.• Depending on the tap type, could be left open wasting water and increasing water bills.• If existing infrastructure is available, it may not be in a location accessible for all.• If the tap used needs to be turned off after handwashing, touching the tap may re-contaminate clean hands. To minimise this, the tap handle should be regularly cleaned. <p>If there is no basin or bucket/bowl to collect wastewater, drainage will need to be considered.</p>

Variations:

- If the existing tap is in an inconvenient location, the pipe to which it is fixed could be extended so the tap can be placed somewhere more convenient.
- If the existing tap needs to be turned off manually, it may be possible to replace it with a tap which switches off automatically after a certain time or amount of water has been discharged, or to a tap that can be operated via a foot pedal. This will help reduce re-contaminating clean hands when turning off the tap.
- If the existing tap is over the ground, it may be possible to fit a basin underneath if desired (although this is not necessary). Low-cost basins can be made out of any container that has an opening large enough to catch water from washing both hands with soap (for example, a bucket or open oil drum). The basin should either be manually emptied into a safe drainage point, or should have an outflow pipe for water to drain into a safe drainage point.

Accessibility:

- The tap should be high enough so that taller users do not have to stoop too much, but low enough for the shortest users. If using an existing tap at a fixed height – or there is a large height difference between users – a step/seat could be stored near the facility for shorter users to stand on or taller users to sit on. The height of the soap should be chosen based on similar considerations.
- Some users may find certain taps easier/harder to operate. The type of tap used should be selected to enable everyone to operate it if possible. For example, if a user has difficulty twisting a tap, consider using a push tap if these are available. If using an existing tap that is difficult for some people to use, consider replacing or modifying it to make it easier for them.
- Make sure that the basin or stones placed under the tap for drainage do not impede access.
- As with all technologies, the path to the handwashing facility should be accessible to all.
- For those with visual impairments an easily accessible, a fixed point for the soap should be agreed upon.
- If the existing tap is not accessible for everyone, consider installing a second handwashing facility somewhere more accessible using one of the other technologies in this compendium.

2.2.1.6. HappyTap/LaBobo

Description: A specially designed portable handwashing facility to make handwashing fun and easy for anyone to use. The device consists of a refillable tank with a tap over a drainage tray, with space to store bar or liquid soap. It is brightly coloured to make it eye catching and remind users to wash their hands. Some versions include a toothbrush holder and mirror.

Picture/photo:



Figure 22: HappyTap/LaBobo handwashing facility. Credit: HappyTap (n.d.)

Advantages	Disadvantages
<ul style="list-style-type: none">• Specially designed to make handwashing with soap fun and easy.• Portable so can be located anywhere (and moved around if needed).• Eye catching so reminds people to wash their hands when they see it.• Inclusion of a mirror encourages longer handwashing.• Includes space for soap storage.• Available for purchase online and at conventional retailers in Bangladesh, Vietnam and Cambodia.• Integrated grey-water storage is optional (in the South Asia version).• Facility can be moved to locations with good drainage as needed.	<ul style="list-style-type: none">• Most easily available in South and Southeast Asia, although shipping worldwide is available for large orders.• More expensive than homemade options.• Not possible to make at home.• Requires refilling.• As the tap used needs to be turned off after handwashing, touching the tap may re-contaminate clean hands. To minimise this, the tap handle should be regularly cleaned.• Drainage will need to be considered for water flowing out of the drainage tray.

Variations:

- Variations available for different markets (currently South Asia and Southeast Asia).

Accessibility:

- Portable and can be placed anywhere, at any height to meet different users' needs.

More detail and additional resources:

- HappyTap website: <https://happytap.net/en/>

2.2.1.7. Valve/tap fitted to bottles

Description: A plastic bottle with a valve or tap to release a flow of water for handwashing. The valve or tap may be a specially designed product that can be fitted to bottles, such as the SPATAP (see *Variations* below). Alternatively, the flow of water can be controlled using the bottle lid. If using the bottle lid to control the flow of water, a small hole is made in the bottom of the bottle (at the opposite end to the lid). When the bottle is filled with water and the lid is loosened, water flows. When the lid is tightened, water stops flowing. The bottle can either be placed on a flat surface or be hung from a structure like a tent pole or tree branch. Bar soap or liquid soap can be stored next to the container or hung with the container. A bucket or bowl should be placed under the tap to collect wastewater, or the ground under the tap should be covered in stones to help drainage of wastewater.

Picture/photo:



Figure 23: Washing hands with a SPATAP Portable Tap attached to a bottle of water and soap. Credit: SPATAP (n.d.)



Figure 24: Flow of water for handwashing controlled by lid. Credit: M. Coultas (2020)

Advantages

- The option where flow is controlled by the bottle lid can be created easily using locally available materials.
- Plastic bottles are usually affordable and easily available locally.
- A SPATAP can control the flow and volume of the water, minimising water wastage.
- If hung, soap can be hung with it and secured to the structure.
- The structure on which the handwashing facility is hung is easy to construct, able to be constructed using local and low-cost materials.

Disadvantages

- If the bottle is not very large, it will need frequent refilling. This also makes it less suitable as a community resource unless multiple structures are hung/placed in one handwashing station.
- If the flow is controlled by the bottle lid, tightening the lid after handwashing may re-contaminate clean hands. To minimise this, the lid should be regularly cleaned.
- In the case of a bottle with a lid, there are chances of dropping

<ul style="list-style-type: none"> • Reduced chances of water wastage if flow of water can be controlled. • User friendly for most including children and older people when placed and hung appropriately. • SPATAPs are durable. • SPATAPs are small and easy to transport. • If a bucket/bowl is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet). • If no bucket/bowl is used to collect wastewater, facility can be moved to locations with good drainage as needed. 	<p>and soiling the lid and of it getting misplaced.</p> <ul style="list-style-type: none"> • SPATAP is not as cost effective as the other technologies, priced at USD 21.
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Variations:

- Valves and taps that can be screwed onto bottle openings are available on the market in some locations. Products include the SPATAP and CSIR dispenser. A SPATAP can dispense water at three different volumes based on usage needs. The neck of the bottle needs to be inserted into SPATAP nozzle to create a vacuum.
- To direct the flow of water from the bottle if the lid is being used to control the flow, a pen casing or piece of tube can be fitted to the hole. However, this requires making the hole bigger than necessary which will increase water wastage.
- Any container with an airtight lid can be used to make the option where the lid is used to control the flow, it does not necessarily need to be a bottle.

Accessibility:

- This can be made suitable for various users including children, adults, elderly people and people with disabilities depending on the height at which it is hung. It is also portable.
- The bottle should be placed high enough so that taller users do not have to stoop too much, but low enough for the shortest users. The height of the soap should be chosen based on similar considerations.
- For those with visual impairments an easily accessible, fixed point for the soap should be agreed upon.
- If stones or a bucket are placed next to the facility for drainage, make sure that they do not impede access.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- SPATAP website <https://spatap.com/>
- SuSanA discussion on SPATAP <https://forum.susana.org/160-handwashing-activities-at-schools/21701-spatap-portable-tap-instantly-transforming-access-to-water-in-rural-schools-used-for-handwashing-hygiene>

2.2.1.8. Bucket and cup

Description: A bucket or basin of water, with a cup or small jug to scoop and pour water for handwashing. Soap should be stored next to the bucket to facilitate handwashing with soap. To avoid the ground around the facility becoming waterlogged, a second bucket or bowl should be placed next to the facility to collect wastewater, or the ground around the facility should be covered in stones to help drainage.

Picture/photo:



Figure 25: Handwashing with soap using a bucket and cup. Credit: Tatirano/D. Wood (2020)

Advantages	Disadvantages
<ul style="list-style-type: none">• Can be made easily and cheaply with locally available materials (which many households will have already) and products from local markets.• Easy to set up as an interim handwashing facility whilst waiting for another technology to be installed.• Cost effective.• Water is unlikely to get wasted as users will use the amount of water needed.• If a bucket/bowl is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet).• If no bucket/bowl is used to collect wastewater, facility can be moved to locations with good drainage as needed.	<ul style="list-style-type: none">• Cannot wash both hands with soap together without support from someone else to pour water.• Containers used may be used for other purposes from time to time, making the handwashing facility unavailable.• Needs to be refilled with water manually.• The smaller cup used for pouring water can get easily contaminated and must be cleaned regularly.• The smaller cup can contaminate stored water if it is kept inside the bucket after use.• The smaller cup can get misplaced in many cases where there are multiple users.• Typically uses more water per handwash than other technologies.• If there is no bucket/bowl to collect wastewater, drainage will need to be considered.

Variations:

- Any clean containers can be used as long as one is big enough to store water and one is small enough to be easily lifted and poured.

Accessibility:

- To wash both hands with soap together, users will need help from someone else to pour water over their hands. If someone else is not available, the user must wash each hand in turn, making it harder to wash hands effectively. People who are unable to lift and pour water from the smaller container with each hand may struggle to use this facility independently.
- Choose a smaller container that all users can pick up easily. Containers with handles may be easier to grip with one hand, and smaller containers are likely to be lighter and easier for everyone to pick up.
- The containers should be placed high enough so that taller users do not have to stoop too much, but low enough for the shortest users. The height of the soap should be chosen based on similar considerations.
- For those with visual impairments an easily accessible, fixed point for the soap should be agreed upon.
- If stones or a bucket are placed next to the facility for drainage, make sure that they do not impede access.
- As with all technologies, the path to the handwashing facility should be accessible to all.

2.2.1.9. Camp sink

Description: Two buckets with lids stacked on top of each other and fitted with a pump and water outlet. The bottom bucket contains clean water which feeds a manual pump connected to the outlet, operated by the user's foot. The clean water pumps through the outlet and flows into a basin. The used water drains through the basin into the top bucket. Soap should be stored by the basin to facilitate handwashing with soap. When the top bucket is full, the wastewater should be disposed of in an area with good drainage away from the handwashing facility.

Picture/photo:

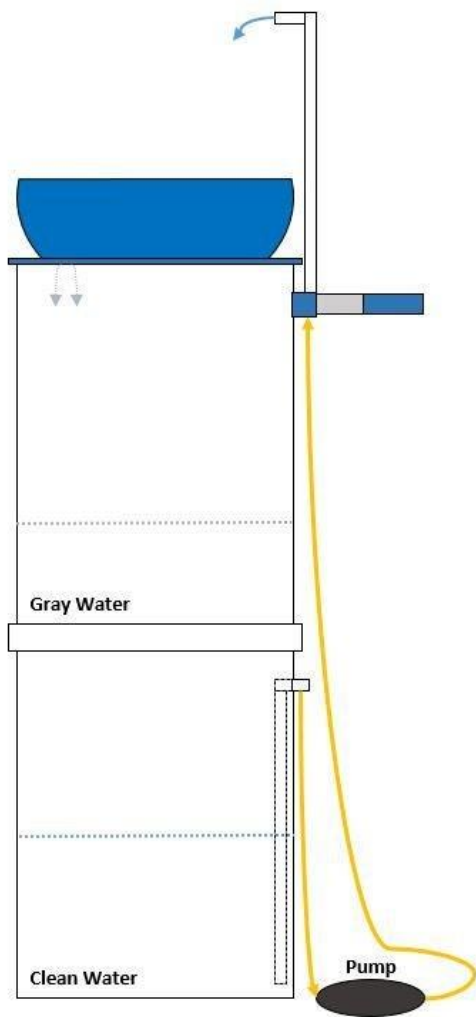


Figure 26: Camp sink. Credit: WaterWorksLife (n.d.) <https://www.instructables.com/id/Camp-Sink-Temporary-Hand-Washing-Station/>

Advantages	Disadvantages
<ul style="list-style-type: none"> • Can be constructed with materials that are mainly available locally. • Collects wastewater so drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet). • More durable than tippy taps. • Portable and can be located in areas accessible and convenient for all. • Height can be adjusted. • Foot operated minimising risk of re-contamination. 	<ul style="list-style-type: none"> • Foot pump may not be readily available. • More complicated to set up than other options. • More expensive than other homemade options. • Needs to be refilled with water manually. • Foot operated so may not be accessible to wheelchair users. • Potentially unstable with full wastewater and empty water source bucket if stacked.

Variations:

- The buckets do not have to be stacked on top of each other if this means that the basin is not at a convenient height. Alternatives include putting the wastewater bucket and basin on top of a table with the water source bucket underneath, or placing the buckets side by side.

Accessibility:

- The height of the basin can be adjusted for different users (see *Variations* above).
- The facility is portable so can be placed in a location convenient for all users.
- The foot pump may not be able to be operated by all users and some may need assistance. For users who may not be able to press a foot pedal (e.g. wheelchairs users), the foot pedal could be converted to an elbow-operated pedal placed at a convenient height.
- For those with visual impairments an easily accessible, fixed point for the soap should be agreed upon.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- Detailed construction instructions: <https://www.instructables.com/id/Camp-Sink-Temporary-Hand-Washing-Station/>
- Instructions on how to make a foot pump: https://globalhandwashing.org/wp-content/uploads/2020/04/Handwashing-Station-Instructions_2020-04-08_en.pdf

2.2.1.10. Jengu handwashing facility

Description: a handwashing facility designed specifically for and tested in humanitarian and development settings. The handwashing facility can be connected to any water tank and comprises a foot pump that feeds water through a pipe over a basin to facilitate handwashing. The basin is supported on height-adjustable legs, which can be bolted to the ground to prevent theft. The design includes a mirror and space for both bar and liquid soap. A drainage pipe from the basin helps to ensure safe disposal of wastewater. Developed by London School of Hygiene and Tropical Medicine, Arup and British Red Cross, the design is open source and modular, allowing it to be modified and locally constructed in different contexts.

Picture/photo:



Figure 27: Jengu connected to jerry cans filled with water; variations of the Jengu handwashing device (left to right: for people with reduced mobility, children and adults) Credit: G. Rose, British Red Cross; Arup

Advantages	Disadvantages
<ul style="list-style-type: none">• Desirable product designed to increase handwashing behaviour.• Can be located anywhere.• Foot/arm operated to reduce re-contamination.• Adjustable height makes it more accessible for older people and children• Robust, sustainable and durable.• Water is not gravity fed, increasing stability.• Can be fixed to the ground to reduce the chance of theft.• Modular design that can be adapted to local needs and materials.• Open source design that can be made locally.• Compact and stackable.• Includes drainage pipe.	<ul style="list-style-type: none">• Higher cost than some other facilities.• More complicated to construct than some other facilities.• Some materials required for construction may not be available in all locations.

Variations:

- Open source designs include variations for adults, children and people with reduced mobility (see images above).
- Modular design allows for variations based on local requirements and materials available.

Accessibility:

- The height of the basin can be adjusted for different users.
- The facility is portable so can be placed in a location convenient for all users.
- The pump can be placed at any height enabling it to be operated with an arm or foot.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- Drawings and bill of materials as well as assembly guidelines and videos are available and can be requested by contacting inigo.ruiz-apilanez@arup.com
- Video with use and assembly instructions: <https://www.youtube.com/watch?v=oTFvoS-lkEA&feature=youtu.be>

2.2.2. Handwashing technologies for multiple users

With any facility for multiple users, it is essential to agree roles and responsibilities for operating and maintaining the facility in advance and designate specific people for these. Who will bear the cost of operation and maintenance should also be agreed in advance. Depending on the type of technology used, tasks may include ensuring that soap and water are available, cleaning the facility regularly, and potentially operating/supervising use of the facility. Longer-term maintenance will also be required to repair or replace any broken parts.

2.2.2.1. Adapting household technologies for multiple users

Any of the technologies for households described in the previous sections can be replicated to provide facilities for multiple users. When setting up several handwashing facilities side by side:

- Make sure that each facility is separated by a suitable distance (in line with national guidance and at least one metre) to ensure users are able to practice physical distancing.
- If queues are likely to form at the facilities, build as many facilities as feasible to minimise queues and establish spacing for to enable people to practice physical distancing whilst queuing.
- Select hands-free technologies where possible to minimise users re-contaminating their hands after handwashing.
- Select technologies that limit water consumption to reduce water wastage and make drainage easier.
- Ensure adequate drainage from the handwashing facilities.

2.2.2.2. Water container fitted to a pipe with multiple taps

Description: A water source connected to a pipe fitted with taps along it for multiple users to wash their hands at once. The water source the pipe is connected to can be a container, piped water supply, or rainwater harvesting system. It is important that the water source has high enough pressure for water to flow all the way along the pipe when multiple taps are open so if the water supply is from a container, this must be located higher than the pipe. Taps should be located at least one metre apart along the pipe to ensure users are able to practice physical distancing whilst using the facility. Soap should be made available at each tap, ideally liquid soap or soapy water if these are available. A basin should be fitted under the pipe with taps to channel wastewater to a safe drainage point or tank. If it is not possible to fit a basin, stones should be placed under the pipe with taps to help drainage of the wastewater.

Picture/photo:

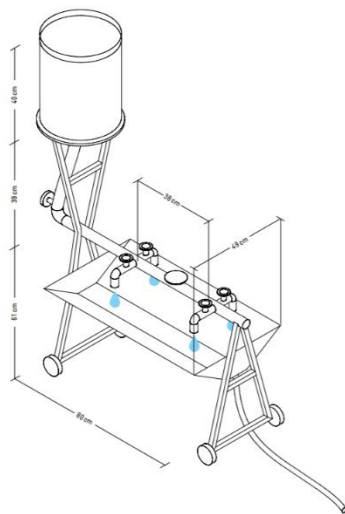


Figure 28: Diagram of a handwashing facility for multiple users with taps (dimensions can be changed). Credit: UNICEF and GIZ (2016) <http://www.fitforschool.international/wp-content/uploads/2016/09/2016-UNICEF-Catalogue-WashingFacilities-FINAL-WEB-new.pdf>

Advantages	Disadvantages
<ul style="list-style-type: none"> • The flow of water can be controlled at each handwashing point along the pipe which is helpful if not all points are being used at once. • Simple to make from locally available materials. • The pipe can be fixed to slope down, creating handwashing points at different heights along it. • If a tank is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet). 	<ul style="list-style-type: none"> • Depending on the tap type, could be left open wasting water and increasing water bills. • It can be vulnerable to leakages and possibly need regular maintenance checks. • If an existing water source is available, it may not be in a location accessible for all. • If set at a certain height, it may not be accessible to all children. • Soap should be placed at easily visible and accessible locations. • If the tap used needs to be turned off after handwashing, touching the tap may re-contaminate clean hands. To minimise this, the tap handle should be regularly cleaned. • If there is no tank to collect wastewater, drainage will need to be considered. • If a container is used, it needs to be manually refilled which may be harder as it must be raised.

Variations:

- If the existing water source is in an inconvenient location, the pipe to which it is fixed could be extended so the handwashing facility can be placed somewhere more convenient.
- If they are available, taps which switch off automatically after a certain time or amount of water has been discharged should be used to help reduce re-contaminating clean hands when turning off the tap and to avoid wasting water if taps are left open.
- Low-cost basins to catch water from washing both hands with soap can be made out of any waterproof material. This can include a plastic pipe or bamboo cut in half and placed under the taps, a sheet of metal folded into a v shape, plastic sheeting hung in a u shape under the taps, or a concrete channel.
- Wastewater can either be collected in a tank and reused for certain purposes (for example, flushing the toilet) or piped to a safe drainage point.

Accessibility:

- The pipe with taps should be high enough so that taller users do not have to stoop too much, but low enough for the shortest users. If there is a large height difference between expected users, the pipe with taps can be fixed to slope downwards so that taps closer to the water source are higher and those further away are lower. The height of the soap at each tap should be chosen based on similar considerations.
- Maintenance of facilities with multiple users is important to facilitate and sustain handwashing behaviour. This can be in the form of periodic checks, patching up leaks, replacing parts, regular cleaning and ensuring the availability of soap.
- Some users may find certain taps easier/harder to operate. The type of taps used should be selected to enable everyone to operate it if possible. For example, if expected users have difficulty twisting a tap, consider using a push tap if these are available.
- Make sure that the basin or stones placed under the tap for drainage do not impede access.
- For those with visual impairments an easily accessible, a fixed point for the soap should be agreed upon.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- UNICEF and GIZ (2016) *Scaling up Group Handwashing in Schools. Compendium of Group Washing Facilities across the Globe*. New York, USA; Eschborn, Germany

2.2.2.3. Water container fitted to a pipe with holes

Description: A water source connected to a pipe fitted with a tap at one end and multiple holes along its length. When the tap is opened, water flows along the pipe and out of the holes for multiple people to wash their hands at once. The water source the pipe is connected to can be a container, piped water supply, or rainwater harvesting system. It is important that the water source has high enough pressure for water to flow all the way along the pipe so if the water supply is from a container, this must be located higher than the pipe. Holes should be located at least one metre apart along the pipe to ensure users are able to practice physical distancing whilst using the facility. Soap should be made available at each hole, ideally liquid soap or soapy water if these are available. A basin should be fitted under the pipe with holes to channel wastewater to a safe drainage point or tank. If it is not possible to fit a basin, stones should be placed under the pipe with holes to help drainage of the wastewater.

Picture/photo:

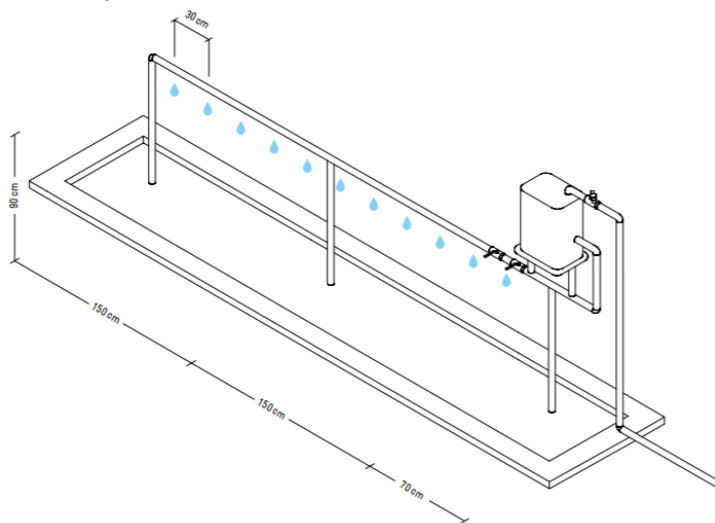


Figure 29: Diagram of a handwashing facility for multiple users with holes (dimensions can be changed). Credit: UNICEF and GIZ (2016), http://www.fitforschool.international/wp-content/ezdocs/giz_unicef_Catalogue_WashingFacilities_FINAL_WEB_new.pdf

Advantages	Disadvantages
<ul style="list-style-type: none">• Water can be controlled from one point, increasing control and reducing potential contamination of the tap.• Users do not need to touch the handwashing facility, reducing potential contamination.• Simple to make from locally available materials.• The pipe can be fixed to slope down, creating handwashing points at different heights along it.• If a tank is used to collect wastewater, drainage and wastage are not concerns and wastewater can be reused for other purposes in water scarce areas (for example, flushing the toilet).	<ul style="list-style-type: none">• If not all the handwashing points along the pipe are used at any one time, water may be wasted and water bills increased.• If an existing water source is available, it may not be in a location accessible for all.• If a container is used, it needs to be manually refilled which may be harder as it must be raised.• If set at a certain height, it may not be accessible to all children.• Soap should be placed at easily visible and accessible locations.• If there is no tank to collect wastewater, drainage will need to be considered.

Variations:

- If the existing water source is in an inconvenient location, the pipe to which it is fixed could be extended so the handwashing facility can be placed somewhere more convenient.
- Additional taps can be located along the pipe to allow different numbers of users need to use the handwashing facility at any one time, opening/closing the flow of water to some holes.
- Low-cost basins to catch water from washing both hands with soap can be made out of any waterproof material. This can include a plastic pipe or bamboo cut in half and placed under the taps, a sheet of metal folded into a v shape, plastic sheeting hung in a u shape under the taps, or a concrete channel.
- Wastewater can either be collected in a tank and reused for certain purposes (for example, flushing the toilet) or piped to a safe drainage point.

Accessibility:

- The pipe with holes should be high enough so that taller users do not have to stoop too much, but low enough for the shortest users. If there is a large height difference between expected users, the pipe with taps can be fixed to slope downwards so that taps closer to the water source are higher and those further away are lower. The height of the soap at each tap should be chosen based on similar considerations.
- Some operators may find certain taps easier/harder to operate. The type of taps used to operate the facility should be selected to enable those who will be operating it to do so easily. For example, if expected operators have difficulty twisting a tap, consider using a push tap if these are available.
- Make sure that the basin or stones placed under the tap for drainage do not impede access.
- For those with visual impairments an easily accessible, a fixed point for the soap should be agreed upon.
- As with all technologies, the path to the handwashing facility should be accessible to all.

More detail and additional resources:

- UNICEF and GIZ (2016) *Scaling up group handwashing in schools. Compendium of group washing facilities across the globe*, New York, USA; Eschborn, Germany

2.2.2.4. Oxfam handwashing stand

Description: A purpose-made low-cost handwashing facility designed for multiple users in camp settings. The facility comes as a compact kit which is easy to transport and assemble. It comprises a water tank, liquid soap dispenser, space for bar soap, two taps and basins, and a drainage pipe. It also includes mirrors and bright colours to encourage handwashing. The facility has three legs to increase its stability on uneven ground. Once in place, the legs of the device can be inserted into the ground and cemented in to prevent theft. The brass taps are anti-microbial and single-touch so do not need to be turned off after handwashing, minimising water use and recontamination. The drainage pipe should be connected to a safe drainage point or pit covered in stones.

Picture/photo:

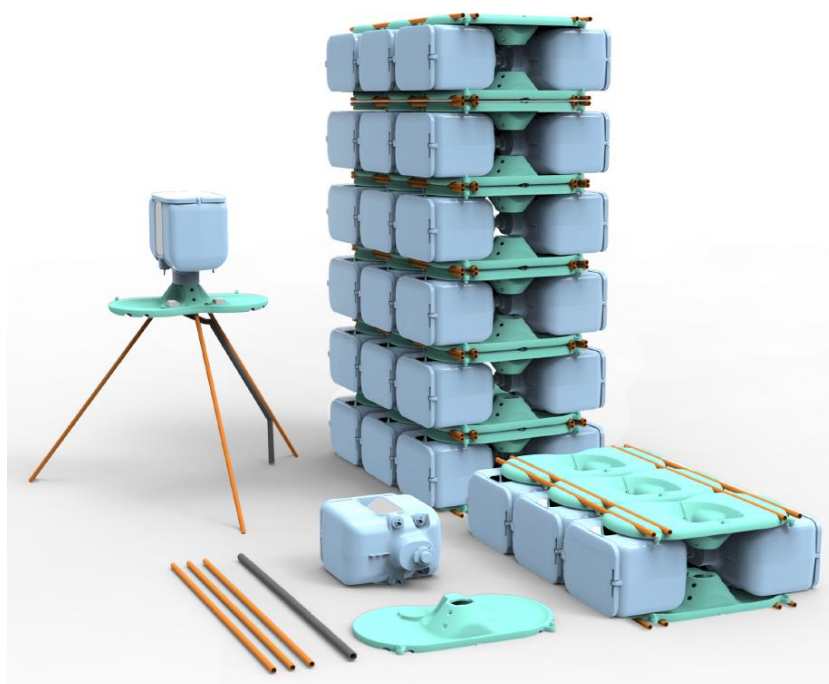


Figure 30: Oxfam handwashing stand (Credit: Oxfam, 2018)

Advantages	Disadvantages
<ul style="list-style-type: none">• Single touch taps for water and liquid soap minimise potential for recontamination and water wastage.• Easy to transport and assemble.• Height adjustable for different users.• Stable on uneven ground.• Option for liquid or bar soap.• Mirror and colourful design encourages handwashing.• Includes a drainage pipe.• Option to cement legs into the ground reduces the likelihood of theft.• Durable and robust for multiple users	<ul style="list-style-type: none">• Water tank needs to be refilled manually.• Only available from the Oxfam Supply Centre and will require shipping (https://supplycentre.oxfam.org.uk/oxfam-handwashing-stand-32-w.asp).• May be relatively expensive compared to locally produced models.• May not enable physical distancing if two people use it at the same time.

Variations:

- There are no variations to this technology currently available, although details of previous prototypes are provided here: <https://oxfam.app.box.com/s/web3ayngprjaj7xqzujk7fykil30aczg>

Accessibility:

- The facilities are portable so can be placed in locations convenient for all users.
 - The facilities should be set at heights convenient for all users. This may require having multiple facilities at different heights, for example for children, adults and wheelchair users.
 - If stones are placed under the facility for drainage, make sure that they do not impede access.
 - As with all technologies, the path to the handwashing facility should be accessible to all.
-

More detail and additional resources:

- Oxfam handwashing stand: <https://supplycentre.oxfam.org.uk/oxfam-handwashing-stand--6-pce-1269-p.asp>

2.3. Local examples of handwashing facilities

This section includes images and brief descriptions of handwashing facilities that people have built and are using around the world. They are shared here to provide ideas and inspiration on a range of solutions that can be employed in different contexts, and to encourage local adaptation and innovation.

We hope to continue building on this collection. If you have examples to add to this section, please share them with the Sanitation Learning Hub SLH@ids.ac.uk.

2.3.1. *Facilities in households*

2.3.1.1. 'Mfereji Mwafaka' handwashing station in Kenya

(Credit: Edmond Awori Osalo, photos by Flavian Mulala)

A retired teacher, Mr Edmond Awori Osalo, made this hands-free facility for use at home. There is a pedal made from a stick tied to a rope, which is attached to a spring, which has a seal under the 20-litre tin. When the pedal is pressed, it stretches the spring, which then opens up the seal, which then lets water out, without the user having to touch the device with their hands.



2.3.1.2. Household handwashing devices in Bangladesh

(Credit: Plan International Bangladesh/H. Mollick and E. Nur)



Bucket with tap, installed inside the kitchen along with plastic bowl for basin



Used paint container with tap and installed inside the kitchen along with plastic bowl for basin



Jerry can with tap

2.3.1.3. First generation handwashing stations in Benin

(Credit: ABMS)

These stations are designed to be easy for a household to attach to key areas of the home, such as near the kitchen or bathroom, to enable easy handwashing. Based on feedback, the following variations were made to facilitate maintenance, ensure durability and improve use:

- part of the container top is cut but it is not completely removed. Users can open the cut part to put water in the can and then close it. This makes maintenance very easy;
- we opted for plastic taps because they are light and very easy to handle;
- we installed a channeling system so that the water from hand washing goes directly into a mini-manhole which is equipped with black charcoal. Charcoal limits odors and filters water before it gets into the ground.



2.3.2. *Single user facilities in public places and institutions*

2.3.2.1. Handwashing stations in Nicaragua erected by citizen-led movement Unidad Nacional

(Credit: Blue and White National Unity Political Council of Nicaragua)



2.3.2.2. Public handwashing stations in Madagascar

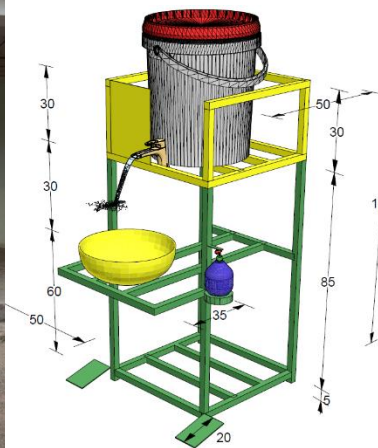
(Credit: Tatirano/H. Chaplin, photos by D. Wood)

Simple handwashing stations comprising buckets, cups, soap and water have been set up in busy public places such as markets across the town of Fort-Dauphin, Madagascar in coordination with local government. Primary school teachers who are currently unpaid due to school closures are employed to manage each station, looking after soap and pouring water for handwashing to minimise contamination from touching the facilities. A team is also employed to keep each station topped up with water using a bladder tank mounted on a chariot which is filled from a centrally located (pre-existing) rainwater harvesting tank.



2.3.2.3. Foot-pedal operated handwashing station in Democratic Republic of Congo

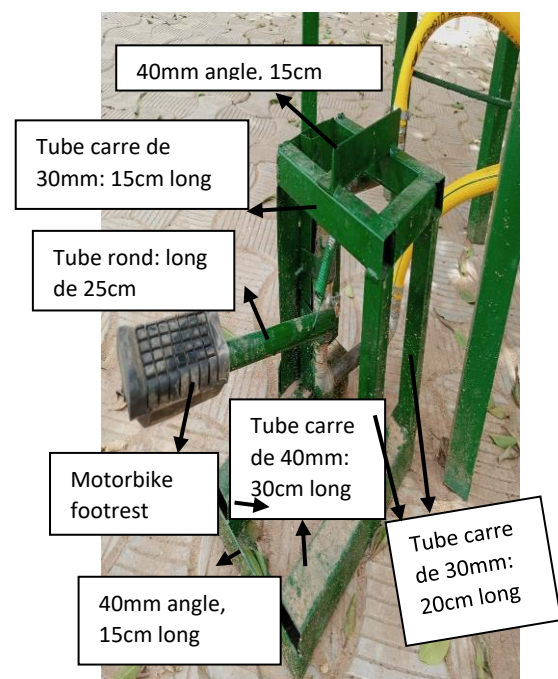
(Credit: Tearfund DRC)



Description & Specifications		Unit	Quantity
Frame	Ossature		
Square metal tube (0,02x0,02x4)m	Tube carré 20x20 mm x4m	pce	1.5
Square metal tube (0,016x0,016x4)m	Tube carré 16x16 mm	pce	1
(0,02x4)m 1,5mm thick	Fer plat 25 mm épaisseur 1.5	pce	0.5
Metal iron sheet 1,5mm thick	Tôle métallique plate lisse	m2	0.25
Welding rod; diameter 1,5mm	Bagette	pce	15
Control linkage	Tringlerie de commande		
Iron bar; diameter 8mm smooth round	Fer à béton de 8 mm rond lisse	pce	0.16
Clutch cable (used for motorcycle)	d'embrayage moto avec gaine	pce	1
Spring for treadle control	Ressor de rappel de pédale de frein	pce	2
Plumbing Fittings	Plomberie et Accessoires		
20 liters-Plastic bucket	Sceau plastique de 20 litres	pce	1
15 liters_Plastic bin	poubelle de 15 litres	pce	1
10 liter -plastic basine	Bassin plastique de 10 litres	pce	1
valve-tap with push-button	poussoir en plastic	pce	1
Napkin paper dispenser	Papier serviette ml	pce	1
painting	Visibilité		
Anti-rust painting	Peinture antirouille	litre	1
Yellow oil-painting	jaune	litre	0.25
painting	vert	litre	0.5

2.3.2.4. Foot-pump operated handwashing station in Chad

(Credit: Concern Worldwide (Chad))



2.3.2.5. Foot-pedal operated public handwashing facilities in Nepal

(Credit: WaterAid in Nepal)



2.3.2.6. Foot-pedal operated handwashing station for healthcare settings

(Credit: Aga Khan Foundation, India)

A 500-litre capacity water tank is fitted onto a locally prefabricated MS steel stand. The tank is connected to a low water consumption plastic tap (commonly used in domestic water systems) and a steel washbasin. Two separate foot paddles fitted with iron rod levers are attached to the liquid soap dispenser and water tap respectively. This no touch design allows hands-free operations and helps maintain hygiene measures. Provisions have also been made for the outlet of grey water, which is connected to a drain or can be channelled to a soakage pit. Information materials are used to promote proper handwashing steps. Nudges such as arrows are also used to direct users to use soap and operate the tap using the foot levers.

Reminder media to showcase correct steps of handwashing

Wash basin and foot operated soap dispenser along with nudges for appropriate use

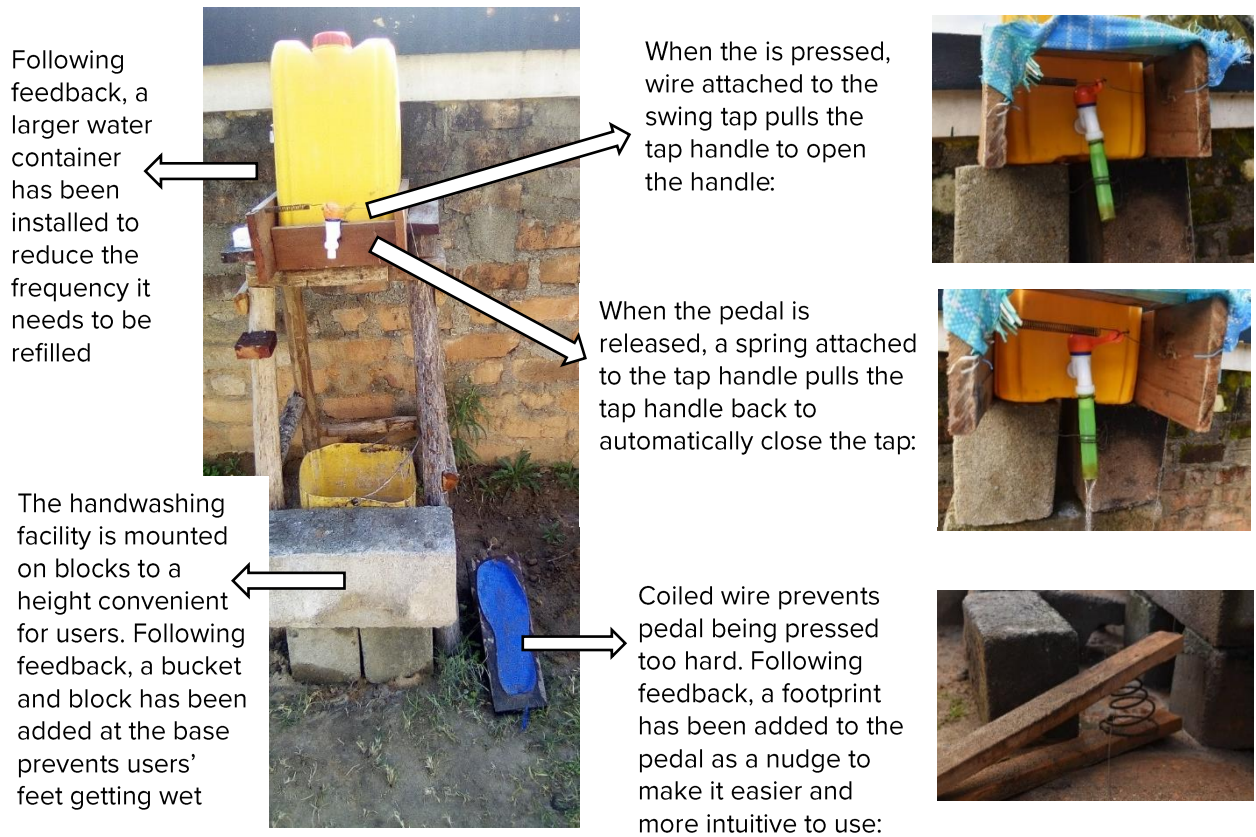


High capacity water storage tank mounted on an iron frame structure

Foot operated lever for dispensing water and soap – **no touch mechanism**

2.3.2.7. The ‘Mahalomba pump’: foot-operated handwashing stations in Madagascar

(Credit: SEED Madagascar / Hasoavana Mahalomba, photos by Hasoavana Mahalomba, Daniel Wood)



More information can be found in:

- Video: <https://www.youtube.com/watch?v=1j6S204YWF&feature=youtu.be>
- Blog: <https://madagascar.co.uk/blog/2020/07/contactless-handwashing-seed>

2.3.2.8. Handwashing facilities developed by local manufacturers in Mozambique

(Credit: SNV Mozambique / Carlos Lihubo Macande, 2020)

COVID-19 has inspired local artisans in Nacala Porto, Nampula Province, Mozambique to design and manufacture a range of handwashing facilities. SNV has acquired several for use at their office, in district health offices and their projects. Although SNV were not involved in designing these facilities, they have offered to provide feedback to the artisans producing them as they start using them.



2.3.2.9. Handwashing facilities developed by local manufacturers in Uganda

(Credit: NSI.WATER LTD, 2020)

An enquiry from a local NGO early in the pandemic prompted NSI.WATER LTD to consider designs for cost-friendly foot operated handwashing facilities. The original design had a foot operated tap and place to store bar soap. Based on experience and feedback from users and clients (including households, NGOs, churches, and businesses), they subsequently modified the design to incorporate a foot operated liquid soap pump. To reduce time spend queuing to wash hands in public places, they have also designed a system for multiple users, although the higher cost of this remains a challenge. To reduce delivery costs for orders from remote parts of the country, NSI.WATER LTD are organising batch supplies which has helped reduce transport costs.



2.3.2.10. Public handwashing stations in Benin

(Credit: ABMS)

These have been designed for the COVID-19 response, to provide a more durable option for households, workplaces, and institutions. The plastic water tank comes in varying sizes placed securely on a long wooden stool and fitted with a tap. A plastic sieve-like cover over a basin collects the wastewater. When this container is full, the water is emptied into a secure place. We are currently working on a version connected to a pipe system to directly discharge the water from hand washing in a manhole or pit. There is an option to create a foot pedal operated/hands free model of this product.



2.3.2.11. Portable handwashing facilities for clinics in Myanmar

(Credit: PSI Myanmar)

These handwashing stations are designed to be connected to an existing water supply. Water is controlled by a foot pump and liquid soap dispensed using a foot pedal. The sign board shows a poem and images explaining handwashing steps and length. PSI designed these facilities to be affordable and simple to construct from locally available materials. They have placed them at the entrance to 200 medical clinics.



Figure 31: Portable handwashing basin in front of SUN clinic. Credit: PSI/Myanmar field staff, 2020



Figure 32: Handwashing basin illustration. Credit: PSI/Myanmar designer, 2020

2.3.3. Multiple user facilities in public places and institutions

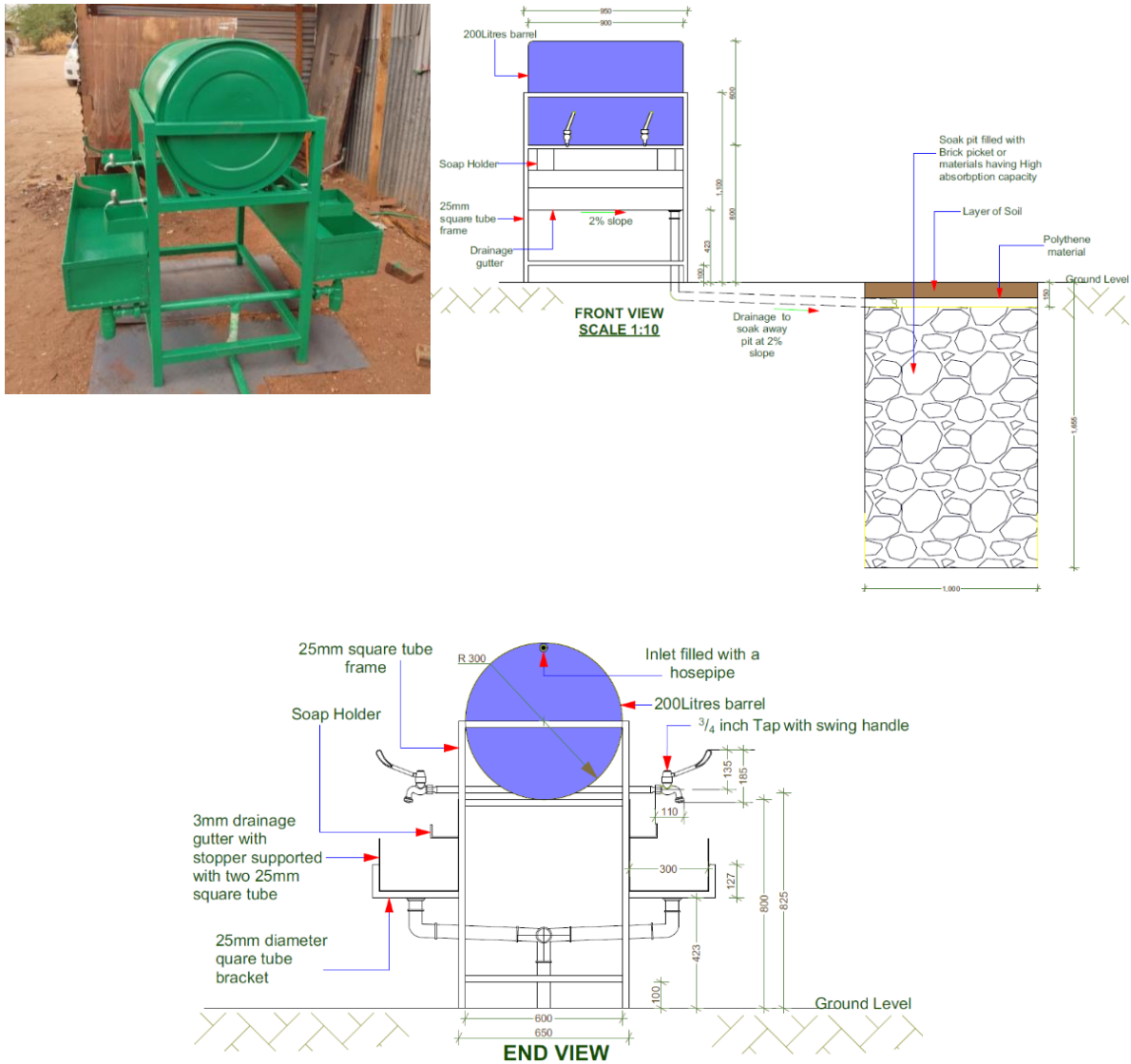
2.3.3.1. Handwashing facilities for multiple users in Bangladesh

(Credit: WaterAid in Bangladesh)



2.3.3.2. Handwashing station with drainage and long handle swing/lever taps that can be operated using an arm/elbow in Somalia

(Credit: Concern Worldwide (Somalia)/Osman Mohamed and Haron Emukule)



2.3.3.3. Handwashing facilities developed by local manufacturers in Ghana

(Credit: Isaac Asante Mireku, 2020)

After the Ebola outbreak in West Africa, Sani-Wise Innovations designed a foot operated handwashing facility. They have continued to refine this during the COVID-19 pandemic, based on the following learning:

- the need to display educational and motivational inscriptions.
- improving upon the effectiveness of the mechanisms, especially that of the soap.
- making the devices affordable so that many people could afford them.
- introducing a waste water outlet to prevent frequent discharge.

Bright colours are used to make the devices visible and attractive to users, especially first time users. The inscriptions are intended to educate and motivate people to wash their hands frequently to stay safe. For instance, "KEEP CALM" and "YOU'RE WELCOME" inscriptions intend to draw attention to the device and make it inviting to use.

Single-user versions of the facility are suitable for households, offices, hotels etc., whilst other versions are suitable for schools, markets, hospitals and other places where many people can have access at the same time, without compromising physical distancing.

To help fund the facilities, there is an option for sponsors/businesses to use them for advertising. However, to date, few clients have taken up this option.





3. PHYSICALLY DISTANCED HYGIENE PROMOTION AND COMMUNITY ENGAGEMENT

Alongside the provision or promotion of handwashing facilities, it is important to promote handwashing with soap at key times amongst community members to maximise the extent to which handwashing with soap is practised. Hygiene promotion efforts must seek to engage and include *everyone* in a community, including men, women, boys and girls; people with disabilities and chronic illnesses; people of all ages, genders, economic backgrounds, sexual orientations, races, ethnicities and religions. There is a lot of misinformation related to COVID-19 being spread so it is essential that any information shared comes from trusted sources, such as <https://shareverified.com/en>.

Community engagement

Community engagement is essential to the success of hygiene promotion activities. For hygiene promotion activities to address challenges faced by specific individuals and communities appropriately, those individuals and communities must be involved in their development and ongoing adaptation. Communications should be designed for local realities based on a rapid community context and risk analysis. Ensuring that this process is iterative and communication remains adaptable as situations evolve will ensure its continued relevance and utility. Blanket, passive communication can be insufficient to address rapid and changing needs. With two-way communication/dialogue (IFRC, UNICEF and WHO, 2020) audiences can feedback their concerns and realities to further inform how messaging can be designed to match local needs (Oxfam, 2020).

In the context of COVID-19, it is essential that community engagement is conducted safely and in line with national and local guidance. The safety of frontline staff and community members is paramount. Mass media is most effective when supported by interpersonal communications (WHO, 2001). However, face-to-face interactions may not be possible in all situations.

If hygiene promotion staff or volunteers are interacting directly with community members, it is essential that they lead by example and model behaviours that will help reduce the spread of COVID-19 (COVID-19 Hygiene Hub, 2020e) as well as protecting themselves. This should include handwashing behaviours but also others such as physical distancing requirements and use of personal protective equipment, in line with local guidance.

Communications channels

For community engagement and hygiene promotion efforts to be effective, they must reach and resonate with the people they are targeting. Different channels will be more effective than others for communicating with different people. This may be because different people access information differently, trust messages from different sources, or relate to information presented in different ways (Oxfam, 2020). It is particularly important to consider how people who may be most vulnerable, including those with disabilities and those from marginalised communities, access information.

Examples of some communications channels are:

- Social media – Twitter, Facebook, TikTok, YouTube
- Mobile messaging – WhatsApp, SMS
- An information hotline that people can phone
- Traditional print media – newspapers and magazines

- Pamphlets and flyers
- Signs and billboards
- Radio
- Loudspeakers – on vehicles, religious buildings, utilising existing infrastructure
- Songs
- Local celebrities
- Community leaders and influencers

In the context of COVID-19, consider the value and risk of distributing physical communications materials in particular. To maximise how long printed materials are kept and noticed for, they should be items people will want to keep and use. However, SARS-CoV-2 can survive on surfaces, meaning IEC materials could become a pathway for transmission. It is therefore essential to think about how any printed materials will be developed and distributed safely (COVID-19 Hygiene Hub, 2020d).

Where possible, it is suggested that multiple channels are used to maximise the number of people and frequency they are reached by promotion/engagement initiatives. For behaviour change programmes to be successful, they need to reach people multiple times (People in Need, 2020, WHO, 2001, COVID-19 Hygiene Hub, 2020e).

Communications that make use of local languages and are delivered through accepted and verified trustworthy channels can help to maximize impact. Use of simple language, pictures and audio can make communications more accessible for people with low levels of literacy (Oxfam, 2020). It is also useful to identify obstacles to acceptance of subjects being communicated due to certain social/ cultural norms/ issues and modify communications accordingly.

To ensure timeliness, many agencies have encouraged use of existing alert systems and communication channels established prior to COVID-19. While these are useful, it is also important to assess the various social groups and communities that may be unable to access this messaging. For example, braille or large text versions of print materials may help people with visual impairments whilst sign language interpretations may make audio-visual materials more accessible for deaf people. One method to address this gap is through partnering with civil society/agencies representing or already engaging with these communities and groups.

Information, education and communication (IEC) materials and messaging

Information, education and communication (IEC) are often an important component of hygiene promotion work. When thinking about the content and design of IEC messages disseminated through different channels, it is important to remember that different IEC materials and messages will reach and resonate with people differently. For example, materials designed to change the behaviours of older women may not be effective for young men. This may be because different groups do not receive or trust information from the same channels (see above), or because they respond to different styles of messaging. It is therefore important to be clear about who the materials are intended for from the start and design them accordingly (People in Need, 2020). IEC materials should build on community engagement efforts and be developed based on communication with and understanding of the target audiences within the community.

For IEC materials to change behaviours effectively, it is important that people believe that it is possible for them to practice the new behaviour. Facilities for handwashing with soap should be in place and images, language and examples used in materials should be as local as possible. Sharing stories of people in the target audience who have changed their behaviour and are advocating for others to do the same can be effective (WHO, 2001). Positive messaging is also typically more effective than negative or fear-based messaging. As such, in IEC materials it is important to emphasise the benefits of adopting good hygiene practices such as handwashing with soap (People in Need, 2020). Emotive messages may also be more effective

than strictly factual ones: sharing information is important but knowledge alone does not change behaviours (COVID-19 Hygiene Hub, 2020d, UNICEF, 2020b).

To develop IEC materials quickly, it can be helpful to review initiatives being used elsewhere and consider adapting these rather than creating new ideas from scratch. This can be complemented by quick formative assessments to inform IEC design. IEC materials should be pre-tested with a small but diverse group of individuals and adjusted based on their feedback. Once the materials are in use, they should then continue to be adapted based on feedback (People in Need, 2020, WHO, 2001, COVID-19 Hygiene Hub, 2020d).

Guidance on engaging and communicating with communities at a distance from the Social Science in Humanitarian Action Platform include:

- Trusted communication methods, channels and networks should be used where possible. These may be adapted so that engagement follows the requirements of local distance policies.
- Recognised influential individuals should be encouraged to safely share information within their immediate area through their own local channels, or further via telephone and online networks. They should be encouraged to share feedback and concerns that they receive from people in their networks.
- Other methods for communicating at a safe distance include interpersonal interactions through telephone hotlines and using the internet and social media for two-way communication. Information can also be shared through loud speakers and through printed materials (e.g. posters and leaflets distributed at health facilities or shops if safe to do so).
- Working with religious institutions to ensure they are delivering accurate information is important. It may be possible to work collaboratively with churches and mosques to provide up-to-date information and to communicate with communities through their various engagement platforms including social media, television and radio channels.
- Frontline health workers and other essential workers who must have physical contact with people can be enlisted to engage effectively with community members in their proximity. They should be briefed on good interpersonal communication, provided with accurate and up-to-date information, and know how to record and deal with feedback, concerns or complaints. They should be provided with skills to maintain their own safety whilst interacting with people at the community level.

(Source: Anthrologica, 2020)

Additional recommended resources on community engagement include:

The COVID-19 Hygiene Hub's summary report on doing community engagement at a distance provides further information: <https://resources.hygienehub.info/en/articles/4028628-summary-report-on-doing-community-engagement-at-a-distance>

This 'how to' brief from the Global Handwashing Partnership provides tips for communicating for hand hygiene during COVID-19: <https://globalhandwashing.org/wp-content/uploads/2020/05/GHP-Communications-Brief-FINAL.pdf>

UNICEF's Minimum Quality Standards and Indicators for Community Engagement provides more detailed guidance on doing community engagement well: https://www.unicef.org/mena/sites/unicef.org.mena/files/2020-04/19218_MinimumQuality-Report_v07_RC_002.pdf

3.1. Examples of community engagement

1. The national 115 health hotline established by the Cambodia Ministry of Health in 2015 was rolled out and scaled up to enable two-way communication as part of the COVID-19 digital response. It was previously used to detect outbreaks within communities and report them to health centres. After the COVID-19 outbreak, the helpline started receiving over 8,000 calls on peak days from the usual 500-600. The success of the hotline was attributed to reusing an existing, familiar technology, state ownership and combining this intervention with existing state led interventions and leveraging citizen trust on this service. These ensured that calls were properly monitored and health centres remained updated.

Source: https://www.ictworks.org/cambodia-115-hotline-digital-response/#.Xs_KQ2hKg2x

2. The GSF-supported Rural Sanitation and Hygiene Promotion in Nigeria (RUSHPIN) are carrying out the following interventions:
 - Printing posters made by the State Government and having them distributed in the Local government Areas. These are government sanctioned messages, with the right information on COVID-19.
 - COVID-19 messaging on radio.
 - Public address systems announcing pre-recorded (government messages) along with public demonstrations of proper handwashing at car stops in urban areas through their Citywide Campaign.
3. Action contre le Faim (ACF) Risk Communication by Phone in Jordan and Iraq:

To ensure physical distancing and respecting lockdown, a telephone script was developed aiming at increasing awareness about COVID-19, its transmission, preventive measures and its effect on individuals and families. This was used to guide calls to households who had previously engaged with ACF projects. Mental health and psychosocial support (MHPSS) key messages, stress management and referral pathways were integrated, based on WHO and Inter-Agency Standing Committee (IASC) recommendations and tools, ensuring provision of much-needed protection support to the most vulnerable. Through this approach, ACF was able to maintain contact with its current and former beneficiaries in a two-way communication allowing a real dialogue, including the ability to monitoring changing needs and trends.

4. WaterAid have employed a range of techniques to promote improved hygiene in countries they work in throughout the COVID-19 pandemic, for example:
 - In **Cambodia**, WaterAid coordinated with the provincial department of rural development in Kampong Chhang and a local radio station to air a COVID-19 talk show. The aim of the show was to spread information on COVID-19 prevention such as handwashing with soap, and understand listeners' feelings, knowledge and experiences relating to the topics discussed. Listeners were encouraged to phone in questions, which a panel including representatives from marginalised groups and local government answered. A small, informal survey suggested that 30-40% of people in the area tuned into the show, particularly older people in remote areas. Airing the show between 7-10pm and making it fun and entertaining helped maximise listeners. They also ran a photo competition on the theme of community best practices relating to COVID-19, although this mainly engaged young people as older people were less likely to have a smartphone/camera.

- In **Myanmar**, WaterAid ran a ‘reinvent the tippy tap’ competition. Following a training on how to make a basic tippy tap, people were encouraged to build and submit their own handwashing facility designs. Social media was used to share a video of the training and competition details. People participated enthusiastically, resulting in widespread coverage of handwashing facilities and creative designs.
- In **Pakistan**, female Community Resource Persons (CRPs) were recruited to visit households to talk about prevention, physical distancing and the importance of handwashing with soap. The aim of this activity was to ensure women are reached with key messages. During the visits, CRPs used pre-recorded messages provided to them, followed by a handwashing demonstration. Debriefing sessions are held with CRPs to gain their feedback on the sessions and topics women are most interested in so the scripts can be adapted accordingly, for example menstrual hygiene management information has been added in response to feedback in rural communities.

Additional examples of community engagement in the context of COVID-19 can be found at <https://hygienehub.info/en/case-studies>.



4. NEXT STEPS

This is a living document and something we will continue to add to as and when we receive substantially new or different low-cost technologies, environmental cues and physically distanced hygiene promotion examples, and when more experiences emerge, including local, community-based initiatives. Please email any relevant information or suggestions to the Sanitation Learning Hub at SLH@ids.ac.uk. If you would like to share information related to a specific technology please follow the template presented in [Annex 1: Handwashing Technology Template](#).

5. USEFUL RESOURCES

Here you will find a variety of practical resources. We welcome suggestions for additional resources to add to future editions of this compendium, please email SLH@ids.ac.uk.

5.1. Handwashing facilities

1. WashEm (2019) *How to design handwashing facilities that change behaviour*. https://files.globalwaters.org/water-links-files/washem_quicktip_handwashingdesign.pdf
2. Jones, H. and Wilbur, J. (2014) *Compendium of Accessible WASH Technologies*. WaterAid, WEDC and SHARE <https://washmatters.wateraid.org/publications/compendium-of-accessible-wash-technologies>
3. UNICEF and GIZ (2016) *Scaling up group handwashing in schools. Compendium of group washing facilities across the globe*. New York, USA; Eschborn, Germany. http://www.fitforschool.international/wp-content/uploads/giz_unicef_Catalogue_WashingFacilities_FINAL_WEB_new.pdf
4. Morgan, P. (2010) *Handwashing Devices: How to make and use*, https://www.susana.org/_resources/documents/default/2-1490-booklet-handwashing.pdf
5. UNICEF (2020) UNICEF Fact Sheet: Handwashing Stations and Supplies for the COVID-19 response, <https://www.unicef.org/media/68896/file/Handwashing-Facility-Factsheet.pdf>
6. UNICEF India (2020) *COVID-19 Handwashing with Soap (HWWS) Facilities: Compendium of Indicative Layouts, Designs and Cost Elements*, <http://www.fountainheadsolution.com/draft/covid19/mobile/index.html>

5.2. Handwashing promotion and community engagement

1. Global Handwashing Partnership (2020) 'How to' Brief: *Communicating for Hand Hygiene during COVID-19*, <https://globalhandwashing.org/wp-content/uploads/2020/05/GHP-Communications-Brief-FINAL.pdf>
2. Mitchie, S., West, R., Amlot, R. and Rubin, J. (2020) 'Slowing down the covid-19 outbreak: changing behaviour by understanding it' [Blog], <https://blogs.bmj.com/bmj/2020/03/11/slowing-down-the-covid-19-outbreak-changing-behaviour-by-understanding-it/>
3. BBC Media Action (2019) 'Covid-19: Guide to Community Engagement at a distance', <https://www.dropbox.com/s/ao086yqa6un3mcq/Community%20engagement%20from%20a%20distance%20-%20EN.pdf?dl=0>
4. Social Science in Humanitarian Action (2020) 'Physical distancing measures for COVID-19 and implications for RCCE in Eastern and Southern Africa', <https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/15221/SSHAP%20COVID-19%20Distancing%20ESAfrica%20brief.pdf?sequence=1&isAllowed=y>
5. Oxfam (2020) *Covid-19 response guidance for community facing staff*, <https://www.oxfamwash.org/response-types/covid-19>

6. WHO (2020) Risk communication and community engagement readiness and response to coronavirus disease (COVID-19): interim guidance. [https://www.who.int/publications-detail/risk-communication-and-community-engagement-readiness-and-initial-response-for-novel-coronaviruses-\(-ncov\)](https://www.who.int/publications-detail/risk-communication-and-community-engagement-readiness-and-initial-response-for-novel-coronaviruses-(-ncov))
7. Hygiene Hub (2020) *Community engagement and communication at a distance*, https://resources.hygienehub.info/en/collections/2337334-community-engagement?utm_source=WASH%27Em&utm_campaign=f89e498cd9-EMAIL_CAMPAIGN_2018_04_25_COPY_01&utm_medium=email&utm_term=0_b91484770a-f89e498cd9-160728893
8. IFRC, UNICEF and WHO (2020) *Risk communication & community engagement (RCCE) action plan guidance*, [https://www.unicef.org/media/65936/file/Preparedness%20for%20and%20response%20to%20coronavirus%202019%20\(COVID-19\).pdf](https://www.unicef.org/media/65936/file/Preparedness%20for%20and%20response%20to%20coronavirus%202019%20(COVID-19).pdf)
9. Velleman, Y. and Northover, H. (2017) *Mass behaviour change campaigns: What works and what doesn't*, Briefing Note, WaterAid, <https://washmatters.wateraid.org/publications/mass-behaviour-change-campaigns-briefing-note>
10. Curtis, V., Dreifelbis, R., Sidibe, M., Cardosi, J., Sara, J., Bonell, C., Mwambuli, K., Ghosh Moulik, S., White, S. and Aunger, R. (2020) *Strategic Thinking in a Pandemic: A Blueprint for Government-Led National Hygiene Communication Campaigns to Combat COVID-19*, Preprints 2020, 2020050042 (doi: [10.20944/preprints202005.0042.v1](https://doi.org/10.20944/preprints202005.0042.v1))

5.3. Programme guidance

1. UNICEF (2020) *COVID-19 Emergency Response UNICEF Hygiene Programming Guidance Note: Understanding Hygiene promotion in the context of Risk Communication & Community Engagement (RCCE) and Infection Control and Prevention (IPC) for the COVID-19 outbreak*, <https://www.unicef.org/media/66401/file/WASH-COVID-19-hygiene-programming-guidance-2020.pdf>
2. Sphere (2018) *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*, Rugby: Practical Action Publishing, <https://spherestandards.org/wp-content/uploads/Sphere-Handbook-2018-EN.pdf>
3. Water and Sanitation Programme (2018) *Handwashing with Soap Toolkit*, Washington DC: World Bank, <https://www.wsp.org/sites/wsp/files/Sanitation%20Marketing%20Toolkits/hwws-toolkit/hwws-tk-home.html>
4. World Bank (2005) *The Handwashing Handbook: A Guide for Developing a Hygiene Promotion Program to Increase Handwashing with Soap (English)*, Water and Sanitation Program, Washington, DC: World Bank, <http://documents.worldbank.org/curated/en/681501468141299225/The-handwashing-handbook-a-guide-for-developing-a-hygiene-promotion-program-to-increase-handwashing-with-soap>
5. Hygiene Hub (2020) *Summary report on considering disability in COVID-19 hygiene programmes*, <https://resources.hygienehub.info/en/articles/4097594-summary-report-on-considering-disability-in-covid-19-hygiene-programmes>

5.4. COVID-19 resource pages

1. Hygiene Hub, Fighting COVID-19 through hygiene: rapid, expert advice and information exchange (<https://hygienehub.info/covid-19>)
2. WHO Coronavirus disease (COVID-19) technical guidance (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance-publications>), in particular:
 - a. Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19 (<https://www.who.int/publications/i/item/water-sanitation-hygiene-and-waste-management-for-the-covid-19-virus-interim-guidance>)
3. UNICEF Coronavirus disease (COVID-19): Resources for practitioners (<https://www.unicef.org/coronavirus/covid-19-resources-policy-makers-front-line-workers>)
4. Global WASH Cluster COVID-19 WASH Resources (<https://washcluster.net/Covid-19-resources>)
5. Global Handwashing Partnership (<https://globalhandwashing.org/responding-to-covid-19/>)
6. SWA COVID-19 and WASH (<https://www.sanitationandwaterforall.org/about/about-us/water-sanitation-hygiene/covid-19-and-wash>)
7. UNHCR COVID-19 WASH resources (<https://wash.unhcr.org/covid-19-resources/>)
8. Coronavirus disease (COVID-19) Pandemic: resources on coronavirus and disability (<https://asksource.info/covid-resources/search>)

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Annex 1: Handwashing Technology Template

Below is a template for those interested in contributing to the compendium. Please do share with us any technologies that can be built at low-cost, using widely available materials.

Name: *What is the name of the handwashing facility?*

Description: *Provide a written description of what the technology looks like, how it is built and how it is used. You can also add different variations*

Pictures/photo: *Add any photos or pictures that you have the right to publish. Due to GDPR laws we are not able to publish photographs of people who can be identified*

Advantages:	Disadvantages:
<i>Add the advantages of this particular technology</i> <ul style="list-style-type: none">•••••	<i>Add the disadvantages of this particular technology</i> <ul style="list-style-type: none">•••••

Variations: *What variations have been made to this particular technology*

Accessibility: *How accessible is this technology for everyone (different ages, people with different disabilities etc.)? What adaptations may be needed so that the facilities are accessible for all?*

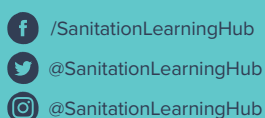
More detail and additional resources: *What additional resources are needed for those who would like more information about the technology? This could include further guides to construction, related research, blogs, photographs/drawings, videos, companies that produce low-cost technologies etc.*

Please send a Word Document to the Sanitation Learning Hub: SLH@ids.ac.uk with contact details in case we need to follow-up.

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

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

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



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