Hands-Free Handwashing stations in Eastern & Southern Africa region in the context of COVID-19 pandemic *Version 5*

This is a consolidation of low-cost low-tech **design & construction guidance for building mobile hands-free Handwashing with Soap Stations in ESAR countries**, with the aim of reducing risks of disease transmission and increasing desirability for hand hygiene

Source: assembled pictures from the compendium

This compendium has been updated periodically during COVID-19 pandemic months with contribution from WASH and IPC (Infection Prevention & Control) stakeholders in ESA region. Feed-back can be sent to Pierre Fourcassie UNICEF ESARO pfourcassie@unicef.org.

Version	Updated By	Description : Updated to include recently developed models	Date
v5.0	IFRC (JAG / RM / BRC) UNICEF (PF)	Entries 15,16,17,21. HWWS assessment matrix ; Introduction; Key considerations. Annex Entries 18,19,22	01 Feb. 2021
v1 to v4	UNICEF (PF) with input from 9 organisations	Updated to include recently developed models Entries 1 to 14	April to August 2020

Contents

Introduction

Accessibility to handwashing stations with soap and water on premises (HWWS facilities) is recognised as a key indicator for the monitoring of improved hygiene and hygiene promotion. The proportionate use of increased use of safely managed sanitation services, including appropriate handwashing facility with soap and water is also recognised as a priority indicator of the sustainable development goals (SDG Indictor 6.2.1b). The WHO/ UNICEF Joint Monitoring Programme defines a handwashing station as a device that ""may be fixed or mobile and include a sink with tap water, buckets with taps, tippy-taps, and jugs or basins designated for handwashing". However, the form and function of handwashing units has evolved significantly in from this definition, especially in areas where there is a prevalence of COVID-19 outbreaks and community transmission. **The use of handwashing (HW) points to promote and facilitate hand washing in the community is seen as a first line of response to the COVID 19 pandemic** and also as a means of mitigating the potential for transmission of water and faecal borne pathogens and diseases, such as cholera. This is especially relevant in the instances where there is high potential for community transmission.
With regards to the use and establishment of HW points and hygiene station, what at first can seem a relatively simple and cheap intervention actually needs a great deal of thought and planning to ensure the facility remains operational over time, is managed in such a way that it does not raise new health risks and is properly allocated sufficient budget to be suitably implemented, maintained and managed.

This document -four versions were issued since April 2020. This fifth version received significant input from the IFRC and UNICEF**- presents a compendium resources of HW stations from existing projects with literature sources, design and technologies references, and contact(s) for each facility**. This is currently focused on the prevention of community transmission within communal areas, such as schools, market places, workplaces and health institutes, but there are equally solutions for households. This compendium was inspired by the excellent catalogue of handwashing facility initiated by Madagascar "WASH cluster".
The **common scoring system** focus on the following aspects:

a) **Strengths in Application** (e.g. schools, hospitals, humanitarian, development, local institutions, mosques / churches)
b) **Costs** (money, people and time) – social capital, costs for training in use, costs for producing / manufacturing
c) **Materials** (locally produced, need stockpiles?, ease in accessing)
d) **Management, Operation & Maintenance requirements** – Ease of management, maintenance and operation

The **individual resources and technologies have been developed and locally produced within a variety of geographical locations** so as to provide, in essence, a foundation around what is universally available for hygiene solutions in both humanitarian aid and development contexts. The HWWS sheets present, as much as possible, characteristics (pros and cons), technical drawings, quantifiable details for materials required for the construction and hyperlink to videos and technical documents.
The **scoring and grouping** is based around the individual units and the literature material reviewed. It will allow for individual assessment and use by national societies, through the review and procurement of locally available materials, as well as provide for the training around maintenance and spare parts.
Cost of implementation, although relative and respective to the location in which the technology was developed, may further allow for the development of universal cost assessment for such hygiene interventions within a regional area. Indicative costs for units will therefore be based on assessment of suppliers for where the units are developed. Management and maintenance requirements should be ensured through engagement of public/private service providers, civil society organisations and users or association of users.

You will note some information are missing in the HWWS entry sheets. We are doing our best to complete the entry sheets but some information was not available and we will try to obtain it for the next issue.

Handwashing Station Assessment Matrix

	Suitable Locations for Use					
Characteristics	**School**	**Market**	**Health Facility**	**Latrines**	**Household**	**Camps**
Heavy Material/Duty (constant use)*	#1 #5 #6 #7 #8 #9 #10 #15 #16 #20 #21	#1 #5 #6 #7 #8 #9 #15 #16 #21	#1 #5 #6 #7 #8 #9 #15 #16 #20 #21	#1 #5 #6 #7 #8 #9 #14 #15 #16	#1 #5 #6 #7 #8 #9 #15	#1 #5 #6 #7 #8 #9 #15 #16 #20 #21
Light Material/Duty (general use)**	#2 #3 #4 #12 #14 #18	#2 #3 #14 #19	#2 #3 #18 #19	#2 #3 #4 #11 #12 #14 #19	#2 #3 #4 #11 #12 #14 #19	#2 #3 #4 #14 #19
High Cost	#5 #7 #8 #9 #13 #18 #20 #21	#5 #7 #8 #9	#5 #7 #8 #9 #13 #18 #20 #21	#5 #7 #8 #9	#5 #7 #8 #9	#5 #7 #8 #9 #20 #21
Low Cost	#1 #2 #3 #4 #6 #11 #12 #14 #15 #16 #20 #19	#1 #2 #4 #6 #14 #15 #16	#1 #2 #3 #4 #6 #15 #16	#1 #2 #3 #4 #6 #11 #12 #14 #15 #20 #19	#1 #2 #3 #4 #6 #11 #12 #14 #15 #20 #19	#1 #2 #3 #4 #6 #14 #15 #16 #20 #19
Pipe Water, Foot Action	#8 #13 #20	#8	#8 #13 #20	#8	#8	#8 #20
Piped Water, Arm Action						
Tank Water, Foot Action	#1 #2 #3 #5 #6 #9 #10 #14 #15 #16 #18 #19	#1 #5 #6 #9 #10 #14 #15 #16	#1 #5 #6 #9 #10 #14 #15 #16 #18 #19	#1 #2 #3 #5 #6 #9 #10 #15 #16 #19	#1 #2 #3 #5 #6 #9 #10 #15 #19	#1 #2 #3 #5 #6 #9 #10 #14 #15 #16 #19
Tank Water, Arm Action	#4 #7	#7	#7	#4 #7 #11	#4 #7 #11	#4 #7
Automated Action	#17		#17			
Integrated Soap / Hand Sanitiser	#1 #2 #3 #5 #6 #9 #10 #13 #15 #16 #17 #18 #19 #20	#1 #2 #5 #6 #9 #10 #15	#1 #2 #3 #5 #6 #9 #10 #13 #15 #16 #17 #18 #19 #20	#1 #2 #3 #5 #6 #9 #10 #15 #16 #19	#1 #2 #3 #5 #6 #9 #10 #15 #19	#1 #2 #3 #5 #6 #9 #10 #15 #16 #19 #20

* Potentially imported materials or externally fabricated components

**Potentially locally produced and readily available materials

Principles for design and construction

These principles for design and construction of HWWS stations proposed in another compendium of HW stations in India are worth considering (source: UNICEF India HWWS compendium 2020). Note that the "Easy to transport, assemble, dissemble" principle should be disregarded when the facility is built in a location where it will stay permanently.

Key Considerations for Selecting a Unit

Specific considerations should be taken into account when surveying, installing or operating a handwashing unit or station of units, in addition to including its anticipated usage and population.

a) **Water supply** – Determining location and accessibility of water supply is paramount. Regardless of operation, washing hands with water with markedly remove dirt and other residual material on hands. Washing hands with soap and water is always optimal, therefore assessment of water supply and reliability of this supply is necessary in the selection of a handwashing unit. If possible, ensuring that a consistent, regular supply of good quality water is plumbed into the supply system for the unit will ensure that the hand washing station will be operational at all times necessary.

b) Failure of the **foot / arm mechanism** – Through regular use, wear on handwashing unit components will be endured and potentially over time cause some kind of mechanical failure. Access to spare parts, necessary skills and materials is a significant consideration in the selection of an area / region for any installation of a specific unit.

c) **Jerry cans** and other receptacles being filled from handwashing stations – Irregular or inappropriate use for the water supply may lead to cross contamination of the handwashing station and lead to inefficient use or lack in operational maintenance. This can have a secondary effect in that people will top using it for its originally intended purpose. Placing handwashing units in areas where they have a targeted benefit, such as in front of or within a heath facility or food distribution / health care area, may largely mitigate this potential misuse of a handwashing unit.

d) Handwashing stations feeling temporary or of **poor quality** – Ensuring that materials for stations and surrounding operational areas are of suitable quality to allow for continued use, and have provisions for regular housekeeping maintenance, is essential in maintaining cleanliness. Providing a high quality unit or station product increasing washing station sustainability, usage and mitigates against general deterioration. Use of different materials will need to be contextualised in regards to available budget, intended application and the country / region / site for use.

e) **Drainage** – Closely linked to inappropriate usage and poor site selection, establishing suitable drainage for the handwashing station is paramount to the future sustainability of the unit and its efficacy in promotion and provision of improved hand hygiene. Poor drainage around a handwashing unit may also present a potential disease vector, with pooled water being used as mosquito breeding site, as well as leading to general erosion of soils where placed, and untidiness of the handwashing units surrounding area.

f) **Placement and provision of consumables** – Soap (solid and liquid) and hand sanitisers must be installed so as to inhibit theft and unauthorised removal. Regular inspection and schedules for replacement of consumables should also be a key consideration in selection of location, as it may be an additional job on an already stretched set of resources, or not have sufficient allocation within an operation budget to ensure that the site unit will continue to be effectively used.

g) **Locally produced units** are preferable – Locally produced units, potentially of a standard or common design (such as is exhibited in this compendium) are ideally preferable, as this will ensure that there is sufficient access to common replacement parts and knowledge required for undertaken ad hoc maintenance and repairs on the unit. This also promotes local livelihoods and increases local communal sense of ownership of the unit. Effective standardisation of typical design, or presenting examples of units used for different applications, may allow for individual, local manufacturers to replicate efficient, durable models.

A series of key survey questions, which may be utilised to assess the selection of individual stations and where they may be most advantageously positioned and used, has been provided as Annex A.

The HWWS station sheets are presented in the following pages.

Hands-free HWWS compendium document #1 – Engineers without Borders

Type	Characteristics	Hyperlinks	Cost	Sources
All hand-free types (operated by foot, forearm, knee…)	 The purpose of this compendium consolidated by **Engineers Without Borders** (May 2020) from/for WASH CSOs and stakeholders in Uganda and relevant for other countries affected by COVID-19 crisis. It presents 8 HWWS stations, low cost& low tech, currently in use. This handbook aims to provide the user with a series of options for the installation of handwashing stations. The document is divided into **three typologies of hands-free handwashing technologies: push valve (1-3), foot pedal (4-6) and automated (7-8).** Each technology will have an introduction, a key set of criteria with scoring, a Bill of Materials (BoM) and a "How-To" section. This allows the user to identify the most appropriate technology for their own needs, be it rapid deployment, portability or permanence, user friendliness, cultural acceptance, available materials or cost considerations. The key assessments of the individual units are focused on the following: Working Principle; Capacity/Adequacy; Performance; Costs; Sustainability; Operation & Maintenance; Reliability, Main Strength and Main Weakness, Application	Temporary location of the document: https://drive.google.com/file/d/11LxvikqqBPINBVDmxBzBQ981vhFEg5Oy/view?usp=sharing	Cost for all models in the document	EWB Engineer Without Borders-USA

Pictures or drawings of Models Assessed.

1-Tap Up Hand Sink

2- WASHalot

3 – EWB USA (UG) Steel Barrel

4 – Tippy tap

5 – The Camp Model

6- Arup/British RC

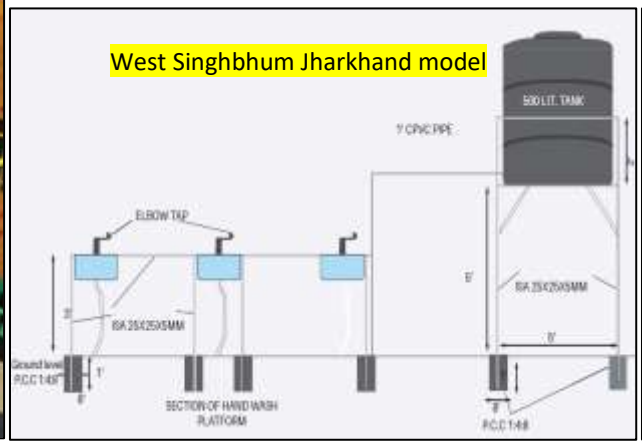
7- IUIU Hand Washer

8- SUNami Solar Handwasher

Hands-free HWWS compendium document #2 – UNICEF India

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Most of HWWS station presented in this compendium are hand-free type	This compendium from **UNICEF India** (April 2020) presents 7 HWWS stations currently in use, with indicative layout, designs and cost estimates, and pictures. The selection of HWWS has been made to satisfy 11 design criteria relevant for COVID-19 and other public health crisis situations. Finally the document provides checklist for installation and O&M of the stations. The eleven (11) key principles of design are illustrated so as to define the key parameters for assessment of the individual stations. These are the basis of coimaprison for the numerous handwashing units	Link to the UNICEF India compendium of HWWS facilities 2020 https://drive.google.com/open?id=1Zwytk3gfwNRsGDhLMrBmXRSw-3tWxr7R	Cost for all models in the document	UNICEF India

Bhopal model



West Singhbhum Jharkhand model

Chhattisgarth model


Stainless steel foot operation model

Hands-free HWWS Technology #1 - Action Contre La Faim, foot-operated

Type	Characteristics	Hyperlinks	Scoring Criteria	Cost ranges	Sources
Hand-free, foot operated device	- made locally - adapted with a large container of water, a sink fitted with a hose to collect used water - can be connected to water network - Support shaped in metal - Heavy duty : 4/5	https://www.facebook.com/aminatadorothee.zerbo/videos/1085227231824331/UzpfSTEyMDA1NzkwNjI6MTAyMjIwNzU4NTE5NDQyNDc/		tbc	ACF Action Contre La Faim – Mission Madagascar Catalogue DLM sans contact Avril 2020- WASH Cluster Madagascar

Pictures or drawings:

Hands-free HWWS single entry #2 – UNICEF Madagascar Metal Bucket unit

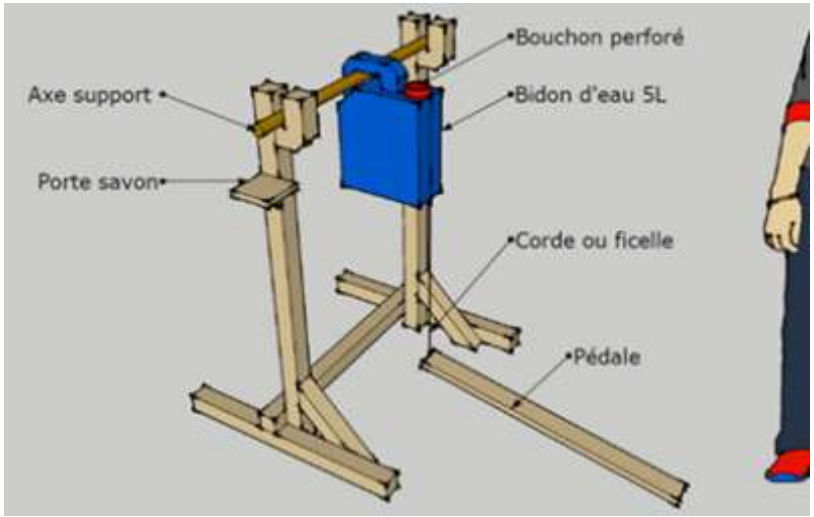
Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hand-free, foot operated device	PROTOTYPE DLM - to be completed - Support adaptable to most buckets or other cans available locally (20-25l) - Can be used at health facilities or at community level - Does not require plumbing installation - Maybe made with local materials (Metallic or wooden) - Easy to operate - Heavy duty: 5/5 (metal model)	Mise en page DLM 20L VF.pdf	If metal : 26 USD If wood : 13 USD Bucket : 6 USD	UNICEF Madagascar Catalogue DLM sans contact Avril 2020- WASH Cluster Madagascar

Pictures or drawings: to be completed

Hands-free HWWS single entry #3 – UNICEF Madagascar, Semi-permanent Tippy unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hand-free, foot operated device	- DLM which can be adapted according to the containers used by households (5l) - Can be used especially at community level - Does not require plumbing installation - The support can be shaped with local materials (metallic or wooden) - Easy to operate ; Easy to move - Heavy duty: 2/5	PLAN DLM 5L sans contact type 2.pdf VID-2020 DLM SC 1.mp4	Coût : Structure en matériaux locaux : 10 USD (38 000 Ar)	UNICEF Madagascar Catalogue DLM sans contact Avril 2020- WASH Cluster Madagascar

Pictures or drawings:



Hands-free HWWS single entry #4 – CRS Madagascar, with reused materials

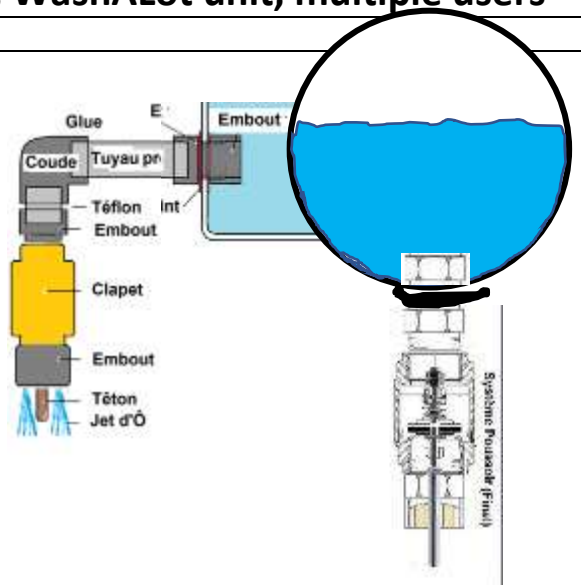
Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hand-free, forearm operated device	  Ingenious mechanism, low-cost, low tech, partly made of reused plastic bottle. Heavy duty: 2/5 Watch the video!	Photos DLM.msg VID-2020-DLM SC 8.mp4	Coût support Structure en matériaux locaux : 10 USD (38 000 Ar)	Madagascar | crs.org | crsespanol.org Catalogue DLM sans contact Avril 2020- WASH Cluster Madagascar

Hands-free HWWS single entry #5 – ACF Madagascar, foot-operated

Type	Characteristics	Hyperlinks	Cost ranges	Sources
ACF Hand Unit Hand-free, foot operated device	- Locally made - Suitable with a large container of water and a bucket to collect the used water - Support shaped in metal, with the existence of a hydro-alcoholic gel and / or liquid soap holder - Difficult to move - Heavy duty : 4/5	VID- 2020 DLM SC 4.mp4	Locally made ; low cost (~$300 USD) – materials can be resourced with most regional hubs and centres	ACF Madagascar Catalogue DLM sans contact Avril 2020- WASH Cluster Madagascar

Pictures or drawings:

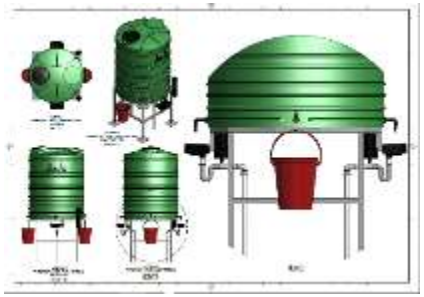
Hands-free HWWS single entry #6 – WSUP, WashALot unit, multiple users

Type	Characteristics	Hyperlinks	Cost ranges	Sources
WSUP WASHALOT - Device operated with the back of the palm (variety of units sizes)	Push system, various type of mounting. Suitable for multiple push taps along a robust plastic or GI pipe (>1m apart) Heavy duty: 3/5 Design notes: The main feed line mounting may be disturbed and break Right: rigid gutter made of a thick plastic or GI pipe. Water seal with piece of inner tube rubber - 	Objet Fabrication de téton de DLM et de su	Push system only: 15 USD (local price – no specific indication of CAPEX requirements for different units or as may be relevant in different countries)	WSUP Water & Sanitation for the Urban Poor

Pictures or drawings:

Note: this model is the same or very similar to the "WASHalot" presented in the compilation entry #1: **Hands Free HWWS EWB-USA**

Hands-free HWWS single entry #7 – UNICEF South-Africa, EAZIWASH unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Device operated with the back of the palm	4 outlets; heavy duty → durable; high storage; grey water: soak pit; can be connected to water network and sewage; We are working on a next generation more robust and child-friendly 	https://drive.google.com/open?id=1mCuWgnhtvkUiZPcC4LVLNs4axnWJDksG https://drive.google.com/open?id=17nvDCzCI8iZf0mxZqWw_--rjrhxAV5_J	1,100 USD installed	UNICEF South Africa More info : jsmulders@unicef.org

Pictures or drawings:

Hands-free HWWS single entry #8 – Save The Children Somalia, HD unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hand-free, forearm operated device	Heavy duty, with/without connections to water and wastewater network Recommended to add a GI pipe to the tap to make it easier to operate with forearm Heavy duty: 4/5 More info: tbc	tbc	tbc	Save the Children **Somalia** **Also:**

Pictures or drawings:

Hands-free HWWS single entry #9 – UNICEF Uganda, foot-operated unit

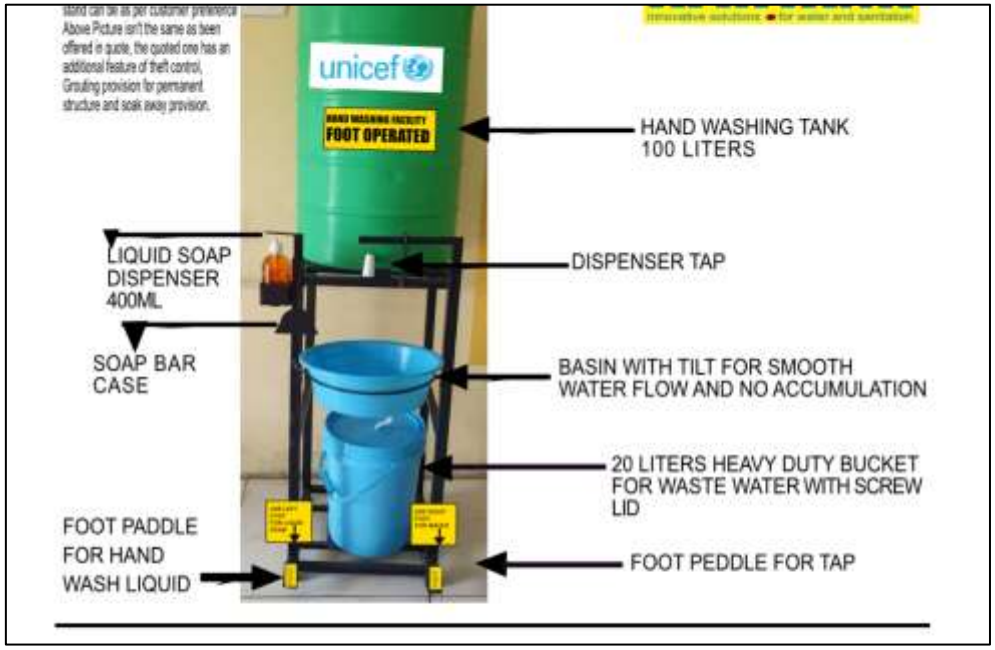
Type	Characteristics	Hyperlinks to tech docs	Cost ranges	Sources
Hand-free, foot operated device	- Liquid soap and push tap actioned by foot; - made locally; - storage up to 200 litres; grey water to soakpit or manually poured to sewage network - heavy duty 4/5	Link to video https://drive.google.com/open?id=1a7nfQoVF8aFTjBKUCzr-_8cAyDM7YWIG	-large HWWS for community use unit price - 635 USD -HWWS station portable (20L) - 22USD -HWWS portable (60L_- 81 USD	UNICEF Uganda

Pictures or drawings:

Hands-free HWWS single entry #10 – Unicef Zambia, foot-operated unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hand-free, foot operated device	a. Liquid wash dispenser and tap are foot operated b. Equipped with soap bar rack c. Water discharge is minimal (water saving device) d. Overhead locking facility for tank which enables owner to protect it from theft e. Height: 170cm and tap at 95cm. it occupies and area of 75cm x 50cm. f. Provision for permanent grounding of stand so that the facility can be used either as a portable or stationery facility. g. Provision for the wastewater flow into soak pit/septic tank. This is additional to the bucket. h. Robust: square tubes actioning both soap and water dispensers moves insides the structural square tubes (the feet) Currently, there are at least three manufacturers in Zambia who are producing these. UNICEF is working with them and the Disability Association of Zambia to make the facility disability-friendly Heavy duty: 4/5	1. https://drive.google.com/file/d/16csEATY6TIPxTmh4utbvzQ4tvpOXCvC_/view?usp=sharing 2. https://drive.google.com/file/d/18wH7YlAzaHCDOjs-8OP6Xf7X8Hdkk4KP/view?usp=sharing 3. https://drive.google.com/file/d/1AiTp0-F4qfkbkS7ddy7T768XZFPj8Fg7/view?usp=sharing 4. https://drive.google.com/file/d/1gjwu5wVFydkkTnTIKRs_b4vgwFYBErsQ/view?usp=sharing, https://drive.google.com/file/d/1pOKAFB4fITBtTXfRRh-nXMVdXXr-zrMk/view?usp=sharing	80 USD	UNICEF Zambia

Pictures or drawings:



Hands-free HWWS single entry #11 – Zimbabwe Aquamor Dip and Hang unit

Type	Characteristics	Hyperlinks	Cost	Sources
Dip & hang up device	This low-cost low-tech HWWS device is presented in the excellent booklet How to Make Simple Handwashing Device (Teaching ecological sanitation series) by Peter Morgan and Annie Kanyemba. This device can be adapted (with precautions) to situation with disease outbreak risks (cholera, COVID-19) using water with diluted chlorine @ 0.05% FRC Heavy duty: 2/5	https://www.aquamor.info	Few cents of a dollar (metal wire) and reusing material	Peter Morgan and Annie Kanyemba. **Zimbabwe**.

Pictures or drawings:

Hands-free HWWS single entry #12 – Madagascar SaniTap Bag unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Pull & slap up HWWS device	SaniTap - No contamination on "second touch" (the tap closes without touching the fingers). Prevention of recontamination - Collapsible design: Allows high volume air movement for quick response - Control of economic water flows: Vital in environments where water is scarce (slums, camps) 3 liters per 10 minutes, enough for a family of 5 to wash their hands 3x / day - Heavy duty: 2/5 - Designed to be used by rural households who do not have access to running water - The SaniTap incorporates an educational element on the product, which increases its effectiveness by enabling users to wash their hands thoroughly	https://www.globalinnovationexchange.org/innovation/sanitap-7f0cf4f8-b708-4ea4-bda4-bfefe75bf3aa SaniTap.pptx	4 USD	Serge RANAIVOJAONA General Manager Practical water supply solutions for remote & difficult environments madagascar@bushproof.com W: www.bushproof.com & www.bushproof-madagascar.com Bush Proof Catalogue DLM sans contact Avril 2020- WASH Cluster Madagascar

Pictures or drawings:

Hands-free HWWS single entry #13 – Kenya Sheffield Africa, knee-operated unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hands-free, knee operated device	Model on the picture made by Sheffield Africa, Nairobi - HWWS block made of stainless steel - Water saving device: percussion or push tap, self-closing, with adjustable automatic cut off after 1-30 seconds. Can be used with flow restrictor. - Ready-to-use: connected to water network; Grey water connected to sewer drain or collected in a tank holder (emptied frequently) - Fully equipped: liquid soap dispenser, tissue dispenser, bin - Heavy duty: 4/5 The principle of knee push tap can be designed by you and made by an artisanal workshop. It should be heavy and cubic shape HWWS stations, made of metal or wood. However stainless still will resist to wet environment.	https://sheffieldafrica.com/products/html/?p=product_full_details&id=2970	480 USD approx	Pictures from Sarit Centre, Nairobi

Pictures or drawings:

Hands-free HWWS single entry #14 – Madagascar, children-made unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hands-free, foot operated device – What is the product?	- Smart tippy tap using mechanics principles (kinematic links) of levers, lever arms, slide, arm stokes etc…. The design should be done on paper then tested with cardboard to make sure the stokes for water and soap dispenser are satisfactory. Encourage participation of adolescent. - Made at community level, with wood pieces, bolts, nuts, nails, and string - Use a stand post or a tree as a rigid structure to support the device. Do not plant nails into the tree. - Heavy duty: 3/5	VIDEO https://drive.google.com/file/d/1TZfQoGKM2RfxnKOobTJRzJsByuMyToKn/view?usp=sharing	10 USD	Shared by social media

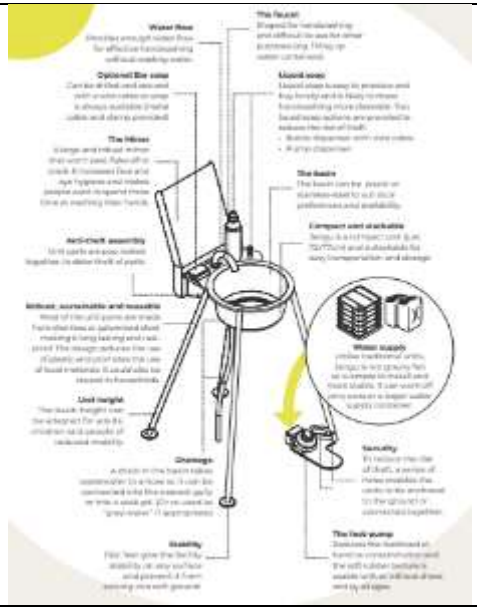
Pictures or drawings:

Hands-free HWWS single entry #15 – Red Cross, JENGU emergency unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Jengu Unit (ARUP and BRC) - Hands-free, foot operated device	- Attractive handwashing basin, with a familiar and comfortable set-up, built with a robust, long-lasting steel design that requires minimal maintenance. - Jengu is an open source blueprint for a durable handwashing unit for use in humanitarian emergency settings - very compact, robust and weighs just 300gm - Requires a foot pump unit that is not currently produced in Uganda - Particularly suited for use in humanitarian emergencies, such as large feet for stability on soft ground and a robust stainless steel mirror. Alderman's can also provide flat pack, screw in legs to reduce the volume during transportation and it comes in a box. - Hands - free hand washing facility by BRC - Arup was piloted in Kyangwali refugee settlement in mid western Uganda - Also installed one unit of the hand washing station at the URCS Hqtrs and has been in use during this entire COVID 19 response period	https://jengu.org.uk Drawings package - https://jengu.org.uk/faq-resources/#boxzilla-414 https://www.youtube.com/watch?v=oTFvoS-IkEA&feature=youtu.be	Jengu Humanitarian with screw in, flat pack legs - £215.00 per unit (1 to 100 units) or £190 (for 100+ units).	https://www.arup.com/jengu-handwashing-units https://www.aldermantooling.co.uk/what-we-do/portable-sink-hand-washing-station/

Pictures or drawings:

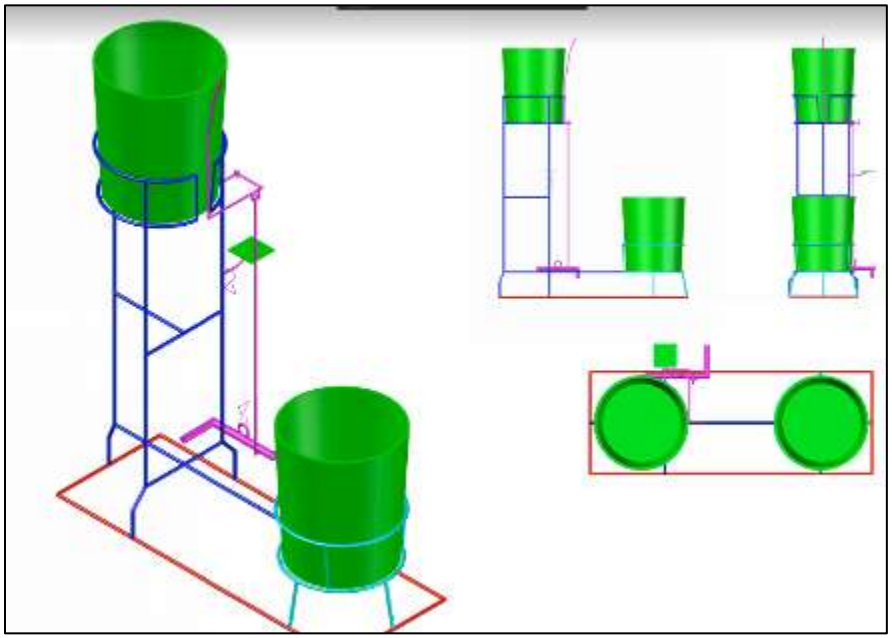
Figure 19: Jengu connected to jerry cans filled with water; variations of the Jengu handwashing device (left to right: for people with reduced mobility, children and adults) Credit: G. Rose, British Red Cross; Arup



Hands-free HWWS single entry #16 – Mozambique, Ongawa unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Ongawa Hand washing unit (container and receptacle unit, using forearm up and down control of water dispensing) – Foot operated	- Metal work frame with two 10 or 20 L buckets for containing hand washing water and receiving the waste water. - Dispensing arm operates on gravity, so when pulled down, the water will flow freely from the main outlet spout, which is positioned over the receptacle. - The elongated arm of the water dispenser allows the individual to control it with minimal movement of their forearm rather than using hand. - Could be utilized in clinics as well as sensitive hygiene environment, food preparation, hospitals etc. Note: this model was manufactured and used in Mozambique, Senegal and possibly other countries	https://ongawa.org/en/home-2/	Unknown Comparable to #9 – UNICEF UGANDA COMMUNITY UNIT	https://ongawa.org/senegal-4/ https://ongawa.org/author/jose-manuel-gomez/

Pictures or drawings:



Hands-free HWWS single entry #17 – Ghana, photovoltaic water saving unit

Type	Characteristics	Hyperlinks	Cost ranges	Sources
No Hands Unit (Ghana) Re-used barrel	- Solar panel powered automated device. - Water and soap dispensed automatically via sensor activation. - 40-gallon drum with internal baffle acts as both water supply and waste water collection unit. - Has alarm system which is set for time for optimum hand washing duration - Key issue would be the solar water pump and power unit, and potential for vandalism and theft. - Can be largely sourced from local supplies and materials, with sufficient details and construction specifications being provided.	Video Solar contactless HWWS Ghana	Unknown	To be updated

Hands-free HWWS single entry #18 – WHO/MoH Rwanda, pedal HWWS

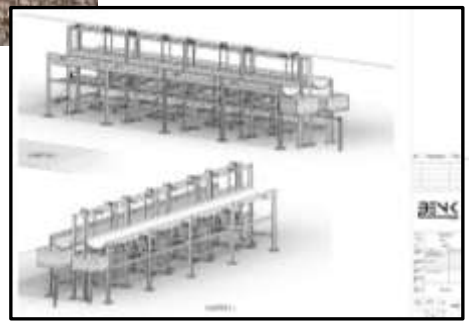
Type	Characteristics	Hyperlinks	Cost ranges	Sources
Pedal operated handwashing portable station	Pros: - Light and portable unit - Water and soap dispensed automatically via pedal - Water saving Cons: Low capacity: requires frequent refilling Is it really heavy duty? (feed back from operators needed)	https://www.youtube.com/watch?v=jehSNCPuQ5M	Unknown	MoH, WHO, Rwanda

Hands-free HWWS single entry #19 – ACDC manual: options for resource limited settings

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hands-free HandWashing Station	This document provides guidance to AU Member States, states/local bodies, and communities on how to construct and maintain low cost non-contact hand washing stations like Tippy Taps and other alternative hand washing stations. This short manual can be downloaded in 3 languages: English, Arabic and Portuguese	https://africacdc.org/download/hand-washing-facility-options-for-resource-limited-settings/	Free (reused container, rope)	ACDC, African Union

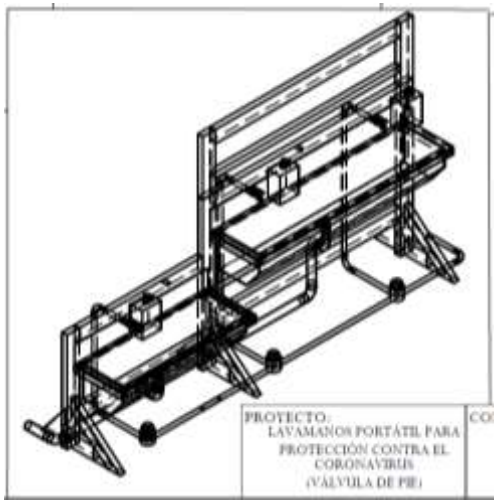
Hands-free HWWS single entry #20 – UNICEF Ethiopia, multi-users pedal handwashing

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Hands-free pedal operated HandWashing Station	Pros: - 8 users simultaneously -can be extended to 10 or 20! - Built locally - Heavy duty - Disabled friendly (one tap) Cons: • TBC: pending evaluation and feed-back from users	Videos links to watch the hand wash unit in operation in schools: https://app.box.com/s/96vn7ismnw2o6d0o7akbs3wcjwu1fkt0 Link to technical construction manual and BOQ HERE	tbc	UNICEF Ethiopia Contact: Steven: smugarra@unicef.org



Hands-free HWWS single entry #21 – Lavamanos units -from South America region

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Foot operated HWWS stations	Note: there models were developed in Latino America and Caribbean region 1. T2 and T3 *Jeison Rodriguez* models of Hands-free sanitation devicesB. Child-friendly 2. Re-used barrel model -UNICEF	https://unicef-my.sharepoint.com/:f:/g/personal/pfourcassie_unicef_org/EuBxd1G7MQtOp22dpSuoI7gBMzVe3rI_TW5SsyXTkTzuwg?e=4VMtuj https://sites.google.com/site/grupowashlac/	Unknown	Enrique Eraso (UNICEF WASH IM) eraso@unicef.org



LAVAMANOS PORTATIL CON SISTEMA DE PEDAL

Hands-free HWWS single entry #22 – Kenya, 3 simple foot-operated units

Type	Characteristics	Hyperlinks	Cost ranges	Sources
Pedal operated HandWashing Station	These 3 models are very similar. Pros: - Up to 3 users (model 23.a) with water and liquid soap included - Made locally - Heavy duty Cons: • Requires frequent refilling of water and liquid soap (suitable for businesses, schools, institutions…) and should be stored at night (easy to steal) • Subject to corrosion (requires quality welding and anti-corrosion coated before final painting layer) • Some avoidable friction in the mechanical motion (requires testing and periodical lubrification)	Not available For technical design refer to entry #9	40 to 100 USD	Pictures from public places and shop entrance

Model 23.a

Model 23.b

Model 23.c

Hands-free HWWS single entry # xx – Title

Type	Characteristics	Hyperlinks	Cost ranges	Sources

Annex A – Site Survey Assessment Questions

1. What is the nearest water supply?
2. What is the quality of water?
3. Will there be requirement for regular refilling of tanks for hand washing water or can the water be supplied continuously?
4. What are the current drainage arrangements?
5. Is the site available to connect to local drainage?
6. Will there be areas where you can redirect washout from the hand washing unit/s?
7. What are access arrangements to the area?
8. IS there access for elderly and disabled people?
9. Who will be primarily using the unit or station?
10. How near is the nearest latrine / sanitation area?
11. Who will be the main operator / maintenance provider?
12. Is there a regular supply for consumable materials?
13. Is there a regular supply for repair materials for handwashing unit?
14. Is there a budget for consumables / maintenance / repairs?