Case study of sustainable sanitation projects

Community-Led Total Sanitation+

Bong, Lofa and Nimba Counties, Liberia

Fig. 1: Project location

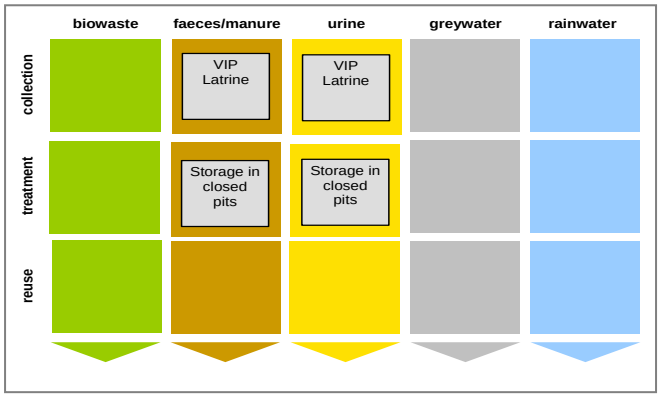

Fig. 2: Applied sanitation components in this project

1 General data

Type of project:
Rural and peri-urban community WASH program

Project period:
Start of operation: February 25, 2010
Project end: April 30, 2015

Project scale:
Sanitation-specific results include:

- **284** communities verified open defecation free (ODF), **80.7%** of 351 total triggered communities (target 70%)
- **73%** of ODF communities have maintained that status for one year
- Established **six** district-level Natural Leader Networks comprised of **582** natural leaders in total
- **106,564** individuals gained access to improved sanitation facilities and practice safe hygiene
- **158,500** people have access to improved drinking water
- **112** CLTS ambassadors have been trained
- **50** entrepreneurs are active in WASH commerce

Budget:
Federal funding: 8.9 million EUR (10 million USD)*

Address of project location:

Global Communities
14th Street at Payne Avenue
Sinkor, Monrovia

Planning & executing institution:

Global Communities (formerly CHF International)
8601 Georgia Avenue, Suite 800
Silver Spring, MD 20910 USA

Supporting agency:
United States Agency for International Development
1300 Pennsylvania Avenue NW
Washington, DC 20004 USA

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*Using Feb. 28, 2015 exchange rate (1 USD = 0.89 EUR)

2 Objective and motivation of the project

The **"Improved Water, Sanitation and Hygiene" (IWASH) program** goal was to make measurable, community-focused improvements in water supply, sanitation and hygiene in Bong, Lofa and Nimba counties in Liberia.[1] Building on existing program frameworks, IWASH also included Ebola-related hygiene messaging in the final year of implementation.
IWASH sought to:

- Increase access to water supply, sanitation, hygiene education and household-level hygiene products.
- Raise community knowledge and use of potable water supply options and storage technologies, sanitation facilities and hygiene practices.
- Develop an enabling environment for WASH at the national, county, district and community levels.

This case study will focus on the program's employment of **Community-Led Total Sanitation (CLTS)**, which promotes transformative, community-driven behaviour change to eliminate open defecation. Global Communities developed an innovative "**CLTS+"** approach by tailoring the proven CLTS methodology to community-specific needs in order to create a more sustainable and scalable program model for some of Liberia's most vulnerable communities.

Fig. 3 An IWASH facilitator conducts a community mapping session at a CLTS workshop *(WASH Semi-Annual Report, 2010).*

[1] The program also conducted limited pilot programming in selected Montserrado County communities.

Community-Led Total Sanitation+

Bong, Lofa and Nimba Counties, Liberia

3 Location and conditions

Post-war displacement, extreme poverty, low educational attainment and high unemployment coupled with a fractured health system have had negative implications on WASH access in Liberia. Liberia's Ministry of Public Works reported in 2015 that 25% of Liberia's population lacks access to safe water, and a staggering 82% do not have safe sanitation. In rural counties such as Bong, Lofa and Nimba, lack of water and sanitation access increase to 37% and 94% respectively.[2] UNICEF observed that only 4% of rural Liberians washed their hands with soap after using a latrine prior to the Ebola crisis.[3]

Worldwide, 88% of the diarrheal disease burden is due to contaminated water supply, inadequate sanitation and hygiene.[4] In Liberia, with children most susceptible to water-borne diseases, the 2013 under-five child mortality rate was 71.7 deaths per 1,000 live births.[5] The Water and Sanitation Program estimates that Liberia loses 15.58 million EUR (2% of its GDP) annually as a result of poor sanitation.[6]

With a total approximate population of 1.07 million, Bong, Lofa and Nimba counties are some of the most heavily populated in Liberia and have a population density of about 44 people per square mile. Access roads to communities are often in poor condition, unpaved and inconsistently maintained. This restricts the distribution of aid and increases time and resource costs to deliver goods and services.

Liberia's sanitation governance is decentralized, and County Health Teams within the Ministry of Health are largely responsible for sanitation and hygiene-related service delivery. The Ministry of Public Works has most prominent oversight over access to water. The Government of Liberia has made strides in institutionalizing WASH and developing policies and plans; however, the national government lacks sufficient staff for implementation, and existing staff have limited capacity and resource support – particularly at the county and district levels.

The Government of Liberia established the National Technical Coordinating Unit charged with overall coordination of and technical support to CLTS efforts nationwide. The National Steering Committee within this unit is chaired by the Ministry of Health and co-chaired by the Ministry of Public Works. Global Communities worked with the unit to develop and roll out the national *Guidelines for Community-Led Total Sanitation Implementation in Liberia*, published in 2012.

4 Project history

Funded by USAID, Global Communities launched the five-year, 8.8 million EUR (10 million USD) IWASH program in February 2010. The program responded to USAID's commitment to accelerated achievement of the Millennium Development Goal to halve by 2015 the proportion of people without sustainable access to safe drinking water and sanitation.

As Liberia continued to recover from civil war, IWASH focused on long-term development and emphasized community buy-in. In the initial phase of the program, Global Communities implemented a standard CLTS methodology and guided communities to open-defecation-free (ODF) status with modest success.

In 2011, USAID requested that Global Communities (then CHF International) realign the IWASH program and narrow its geographic scope. This shift put a greater emphasis on multi-level government engagement to foster a stronger enabling environment for rural sanitation.

In response, Global Communities refocused activities in July 2013 and rolled out the locally-tailored CLTS+ approach. CLTS+ builds on standard CLTS through the addition of **three key components: 1.)** modified technologies responsive to the Liberia context; **2.)** the development of Natural Leader Networks (NLNs); and **3.)** systematized coordination with existing government and traditional structures. Each will be described in the following two sections. Programming through the CLTS+ methodology proved significantly more effective, and Global Communities continued to trigger and bring to ODF status[7] more than 280 communities in total and exceeded its ODF targets.

When the Ebola virus became an increasing threat to Liberia in March 2014, IWASH programming – which was winding down in its last year of implementation – shifted to Ebola response. Natural leaders delivered health messaging in remote communities, and IWASH staff provided hygiene supplies to communities and clinics. USAID issued a two- month, no-cost extension to allow Global Communities to maintain focus on larger Ebola response activities.

5 Technologies applied

Component 1: Modified technologies responsive to the Liberia context – Working with target communities to customize programming to local conditions, and with private sector actors to innovate and redesign WASH products to be more affordable and tailored to the needs of the communities, two key technologies became standard in IWASH communities: slabless ventilated improved pit (VIP) latrines and reed-based handwashing stations. These are made available by locally-trained WASH entrepreneurs (see section 8).

Fig. 4: Slabless VIP Latrine Design

The Slabless VIP latrine's pit is offset from the superstructure, reducing the need for an expensive concrete floor and lowering the risk of floor collapse *(IWASH Products and Services Guide, 2012).*

To develop these technologies, Global Communities staff worked with community members, including masons and natural leaders, to provide training on basic latrine and handwashing

[2] Liberian Ministry of Public Works. Health Partners Meeting, Corina Hotel, Monrovia, Liberia. Feb. 2015.
[3] UNICEF. 2013 WASH Baseline Study. Rep. Monrovia, Liberia. 2013.
[4] WHO. "Facts and Figures: Water, Sanitation and Hygiene Links to Health." 2004. Web. 10 Mar. 2015.
[5] The under-five mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates (UNICEF and CME Info).
[6] WSP. Economic Impacts of Poor Sanitation in Africa. Rep. 2012.

[7] ODF verification includes the following criteria: no visible feces in community, no community members admit to practicing OD, at least 50% of HHs use a latrine (shared or owned), functional and available handwashing facilities, garbage pit, no unfenced animals, dish rack and clothesline use.

station design identified in the I*WASH Products and Services Guide*. Providing several design options of varying cost and complexity, community members could determine what they could afford and what was most appropriate for their households. Community members adapted these designs to their needs and budgets.

Slabless Ventilated Improved Pit latrine design: The Slabless VIP latrine was developed by a Bong county natural leader using only local materials. The pour-flush pit is offset from the superstructure, mitigating safety issues for latrine users by not placing the user over the pit – a dangerous design when a full cement slab is not available or affordable for consumers and many use wooden planks that rot. A small amount of cement is used to secure the toilet bowl and seal around the bamboo pipe, significantly reducing the amount of cement and steel needed and nearly eliminating transport costs and logistical challenges that had previously prevented affordable latrine construction in these communities. With a price tag of about 60 EUR, this simple, low-cost design provides the benefits of a VIP latrine without the cost of a concrete slab and reduces the risk of dangerous floor collapse. The design has become standard in IWASH ODF communities.

Some communities modified the design to fit their needs: Households have replaced the bamboo ventilation pipe with PVC pipe, and many have put a thin layer of concrete on the latrine floor to make it easier to clean. Others have used zinc roofing. Community interviews revealed that rainwater made wooden latrine components rot prematurely, so some households extended the latrine roof to divert water and reduce the risk of rotting.

- **Benefit:** Reduced odour and flies, no risk of falling through the floor while using the latrine, no cost of building a large concrete slab floor.
- **Sustainability:** IWASH staff have trained natural leaders on proper latrine siting as an integral part of the triggering procedure during community mapping and action planning to help reduce latrine failure. In addition, the use of low-cost, local materials reduces maintenance burdens.

Reed-based handwashing station: While handwashing is essential for WASH programming success, accessibility is limited by water access and ease of use. IWASH developed a water-saving device tailored to community needs and available materials. To make a reed-based station, a tall reed is set into the ground and filled with water; a small hole low on the reed plugged with a stick can release water for hand washing. The stick can be inserted when the user is done to stop the water until the next use.

Fig. 5: Reed-based Handwashing Station

The Reed-based handwashing station offers a low-cost, locally available handwashing option for IWASH participants *(IWASH Products and Services Guide, 2012).*

- **Benefit:** Low cost and easy to construct.
- **Sustainability:** Handwashing stations are emphasized in natural leader training as essential hardware and reviewed during monitoring and verification visits. Again, inexpensive, locally-available materials allow for easy maintenance and repair.

Other Technologies: As part of the CLTS+ model, natural leaders and WASH entrepreneurs also promote a range of well-established tools to improve community access to safe water, sanitation and hygiene, and their use is required for ODF verification. These include:

- **Tippy-tap:** This hand-washing device made from locally-available materials at extremely low cost is an alternative to the reed-based station. Users hang a jerry can or other container to a rod or rope that can be tipped downward with an improvised pedal to release water for handwashing.
- **Dish rack:** Made with local materials, the kitchen device keeps kitchen utensils from coming into direct contact with the ground, animals and other contaminants.
- **Rock/sand filter:** Households can make this filter with local materials to remove dirt from water. This filter is not reliable for removing bacteria or viruses, so water should be treated with a point-of-use product after filtering. The rock/sand filter is useful in communities that depend on surface water and reduces dirt, discoloration and odour from the water.
- **Clothesline:** The simple device is used to reduce contamination of clothes by better preventing contact with the ground, animals and crawling insects that could leave harmful parasites.
- **Garbage pit:** To reduce solid waste contamination, a hole is dug in the ground at the edge of the community to dispose of garbage.

6 Programme Design information

Component 2: Development of natural leader networks (NLNs) – In standard CLTS, natural leaders are activists and enthusiasts who emerge from community ranks and take the lead during CLTS processes; they can include men, women, youth and children. Kar and Chambers (2008) note that, as part of the scaling-up of CLTS, natural leaders from CLTS-triggered communities can be identified and supported to become facilitators themselves, given the needed training, encouragement and support to trigger and follow-up with other communities.

Global Communities developed NLNs – district-level groups of natural leaders from ODF communities who are trained to be facilitators and trigger neighbouring communities – to bring CLTS facilitation to a local, sustainable level. Integrated into Liberia's national CLTS implementation strategy, NLNs were developed to reduce the cost of CLTS triggering and monitoring and to increase local ownership of the process. Natural leaders receive modest Global Communities-supported bonuses when they successfully bring communities other than their own to ODF status. Many programs rely on government or NGO staff to act as facilitators, which is expensive, time-consuming and logistically challenging. In its initial model, IWASH staff transported district-level Environmental Health Technicians (EHTs) (employees of the Ministry of Health) by car or motorbike to visit triggered communities.

Given the poor road infrastructure in Liberia and remoteness of villages, this system resulted in significant travel time and a four-to-seven-month lapse between triggering and achievement of ODF status due to insufficient monitoring. CLTS+ shifts primary responsibility for implementation from NGO or government staff to the community through local natural leaders organized in networks. Simultaneously, CLTS+ ensures that management and accountability are integrated

into existing government and traditional structures by working closely with general County Health Volunteers (gCHVs), EHTs and chiefs in building their capacity to oversee CLTS programming.

IWASH developed NLNs to reduce logistical barriers and ensure increased trust. To become networked natural leaders, individuals must successfully bring their communities to sustained ODF status. They are then eligible to be trained in facilitation and then trigger other nearby communities. Natural leaders walk to communities and already live in program areas, significantly reducing transportation costs. They are from the same clan, speak the same language, understand the social dynamics of the community and can draw on clan leadership to support them in influencing the target community to attain ODF status. In the non-networked natural leader framework, natural leaders work only in their own communities; the network model brings programming to scale while providing a support system for natural leaders.

As networked natural leaders trigger neighbouring communities, additional natural leaders emerge who can also be integrated into the network and go on to trigger communities themselves. This organic growth model encourages rapid scale-up with relatively limited external inputs.

Selection, training and development: NLN members include motivated community members from local government, youth and women's groups and traditional councils. Only natural leaders with successful ODF communities can join the network. IWASH staff provide a three-day training using the Liberia Natural Leader Training Manual including lessons on participatory approaches, effective use of pictures, aids and simulation and field/exchange visits. Network members are outfitted with training materials, rain boots, identifying T-shirts, etc. EHTs coordinate network members, ensuring effective triggering expansion and provide any necessary follow-up support or troubleshooting assistance. This is important to sustainability, as district officials develop relationships with natural leaders outside of IWASH programming.

To incentivize networked natural leaders, who usually work in pairs, those who bring at least one other community to ODF status are rewarded through both performance-based financial incentives (typically 58 EUR per natural leader per successful ODF community) and are elevated to the status of community champion (described below). Network members whose communities are sliding back into open defecation are not permitted to attend network meetings and are not allowed to trigger other communities or participate in important events until their community ODF status is regained. This strategy helps ensure that ODF communities sustain their improved sanitation status.

Fig. 6: NLN Members

IWASH natural leaders gather at a Global Communities Ebola prevention event in Lofa County *(Global Communities file photo, 2015).*

Points of contact for WASH issues: In addition to being CLTS facilitators, network members serve as primary community representatives for WASH-related issues, even after program completion. They provide accountability and oversight for water, sanitation and hygiene in their communities and work with EHTs to report on health concerns, monitor community health statuses and deliver important WASH and health messages. It was through these NLN members and EHTs -- as part of the County Health Team structure -- that Global Communities rapidly was able disseminate Ebola messaging.

Component 3: Systematized coordination with existing government and traditional structures – Government and traditional leadership inclusion is essential to sustained sanitation gains in the CLTS+ model.

Government engagement: NLNs play a significant role in linking local communities to government structures. Members work closely with the government at the county and district level who monitor communities and ensure they maintain ODF status, thereby building government engagement and responsibility. Network members also attend district development meetings to report on CLTS activities and to raise issues related to communities' ODF status attainment and maintenance. EHTs coordinate with natural leaders to conduct ODF verification and certification.

In close coordination with the government, IWASH also tapped into Liberia's National CLTS Management Structure, which includes the National Steering Committee, National Technical Coordinating Unit, County Steering Committees and District Steering Committees. These high-level entities work closely with EHTs and natural leaders at the community level.

Traditional leadership engagement: Traditional leader engagement is essential for successful CLTS+. IWASH engaged town, zonal, clan and paramount (district-level) chiefs early in the program to gain their buy-in and oversight support. In Liberian traditional society, chiefs have the authority to oversee and instruct communities in household practices. With this authority, chiefs can support the ODF process and institute enforcement mechanisms. By working within this respected structure, Global Communities can reduce staff-centric oversight and support the development of pro-WASH community leaders.

Capacity building: The establishment of NLNs places a high priority on existing structures, yet IWASH staff found that several subnational government officials from the Ministry of Health and Ministry of Public Works did not have the training or resources necessary to carry out their duties effectively. Most were unaware of the full scope of their job description and the policies, plans and guidelines that affected them. County and district authorities would benefit from intensive capacity building and resource support to help them effectively manage WASH infrastructure.

In response, IWASH hosted policy dissemination workshops for county- and district-level government officials. Facilitators from each of the WASH-related ministries (Ministry of Health, Ministry of Public Works, Ministry of Lands and Mines, and Ministry of Internal Affairs) described their WASH-related policies and technical guidelines and the role of local government in implementation. The responses to the workshops were positive, and attendees developed county and district WASH development plans as a result.

IWASH also participated in a review and planning session for County Health Teams and presented the IWASH model for CLTS+ and its success to date. As a result, each County Health Team developed a CLTS plan for their county which includes a budget; these plans inform Liberia's national CLTS plan and funding allocations. Global Communities is working to systemize the CLTS planning process so that it will continue post-IWASH. For example, Global Communities supports CLTS local and national budgeting processes and works with EHTs to improve data collection and monitoring practices.

Logistical support: Global Communities also directly supports government WASH actors. In addition to general technical support and advice, IWASH staff work with government officials to coordinate ODF verification and certification. The program provides logistical support in the form of petrol, ride sharing and meals and modest stipends for government officials to travel to remote communities to conduct monitoring visits. While some technical capacity and motivation exist in district health offices, officials lack logistical resources from the government, inhibiting them from conducting ODF site visits, which are crucial for sustained program success. With logistical support from IWASH, the participation of district employees has greatly improved the percentage of communities attaining ODF status. This coordinated support for national ministry and district official engagement is essential for ongoing CLTS implementation post IWASH.

7 Type and level of reuse

This project did not have a major reuse component – waste is stored in a sealed pit. There is potential for reuse in future programming.

8 Further project components

WASH entrepreneurs: Access to improved water and sanitation and the practice of good hygiene remains limited outside of Monrovia, but the private sector has the potential to increase and sustain WASH gains in Liberia. The supply of products is poorly organized and insufficient, and there are limited tailored options to meet consumers' demands. While entrepreneurs and local traders that supply WASH products exist in higher-density areas, rural communities are often located hours from the nearest road and lack community entrepreneurs to supply available, affordable products.

Building a network of goods and service providers: Through deliberate employment of market-led approaches to ensure demand for and supply of products and services, IWASH has facilitated increased access to WASH infrastructure and products in hard-to-reach communities. The WASH entrepreneur model trains entrepreneurial community members – including natural leaders – offers basic tools to provide fee-based WASH services in their communities. Products and services provided by WASH entrepreneurs initially included hand pump installation and repair, soap production and sales, and later expanded to include latrine construction and maintenance, point-of-use water treatment and new hand pump installation. WASH entrepreneurs were engaged in the Ebola crisis to repair clinic pumps, distribute hygiene kits to communities and increased soap production to promote hand hygiene.

Potential for growth: Leveraging pre-established NLNs and government support, WASH entrepreneurs can be established effectively and efficiently. WASH entrepreneurs participate in sustainable, market-driven activities to earn wages that contribute to their communities through financial self-reliance while providing accessible, lower-cost options to consumers. As CLTS+ implementers trigger more communities to seek improved WASH infrastructure and behaviours, and as ODF communities continue to climb the sanitation ladder, WASH entrepreneurs will be poised to provide affordable and tailored goods and services.

Sanitation Marketing: In addition to the WASH entrepreneur component, IWASH worked with implementing partners to promote and track safe sanitation and improved hygiene habits.

CLTS+ social marketing through behaviour change communication (BCC): BCC strategies focus on promoting the social and health benefits of ODF status and improved WASH practices. IWASH BCC messaging targets potential CLTS+ communities to spark interest in participating in the process and to encourage existing CLTS+ communities to make progress. This social marketing of CLTS+ and WASH behaviour change was accomplished through:

Fig. 7: Sanitation Marketing Billboards

Various IWASH-supported billboards promote safe sanitation practices *(IWASH Annual Report, 2013).*

- Billboards promoting "pupu free" communities in target counties encouraging healthy competition among communities;
- The broadcast of radio dramas focused on point-of-use water treatment and the airing of local-language WASH-focused radio jingles; and
- The production of live street theatre performances to create buzz and interest about CLTS.

CLTS champion branding: CLTS champions receive specially-branded uniforms to set them apart from the other members of the NLN, making them more identifiable when visiting communities, markets and other locations. This also adds an additional layer of incentive for natural leaders to successfully bring communities to ODF through the incentive of this heightened status.

Global Handwashing Day: IWASH conducted activities in Bong and Nimba counties through a soap-making workshop conducted with WASH entrepreneurs to promote soap as an essential tool for proper hygiene.

9 Costs and economics

IWASH community costs totalled approximately 470 to 575 EUR depending on population. This cost included training materials (200 EUR), two natural leader bonuses (58 EUR each), one community celebration (45 EUR) and one to two environmental sanitation kits depending on community size, which include brooms, rakes, wheelbarrows, etc., and are presented to communities at their ODF celebration (107 EUR each). The IWASH program provided no toilet subsidy, and households contributed in-kind labour and materials.

Indirect community costs can vary by district and are linked to overall IWASH operation costs and support for government oversight. Monitoring team costs include phone credit (4.50 EUR pp/month), a monthly stipend for one supervising EHT (134 EUR pp/month) and one or two local EHTs (71.50 EUR pp/month). Two members of the National CLTS Coordinating Technical Unit conduct verification and certification of ODF communities and received a per diem (45 EUR pp/day). A team is active in each district and the amount of work hours depends on community activity and district size.

10 Operation and maintenance

Operation and maintenance of IWASH facilities are carried out by households – they constructed facilities with no subsidy, indicating a high level of buy-in. Pit latrines require infrequent emptying as waste degrades at a fast rate. In addition, for natural leaders to remain active network members, they must ensure their communities remain ODF. Therefore, they encourage their communities to maintain facilities and continue safe sanitation and hygiene behaviours.

11 Practical experience and lessons learned

Construction of household latrines through CLTS: Community interviews revealed that rain water made wooden latrine components rot prematurely. Households extended the latrine roof to divert water and reduce the risk of rotting.

Natural leader networks: With high transport and logistic costs for triggering and monitoring visits, Global Communities introduced the network model to institutionalize local-level CLTS facilitators capable of carrying out day-to-day program functions. IWASH and government staff continued to provide support and monitoring when needed.

Engagement of traditional leaders: To foster long-term community behaviour change, it was necessary to gain the support and buy-in of traditional leadership. They have the authority to exert influence on household practices.

Government capacity building: Insufficient human and financial capacity at the national government level posed challenges for IWASH. National-level officials are responsible for ODF verification and certification nationally and are instrumental in capacity building at county and district levels. They are also responsible for training and supporting any new implementing partner involved in CLTS, yet they lack any resources for independent mobility. Global Communities has experienced modest success in influencing national funding allocations for CLTS programming, yet increased national government commitment to WASH funding is needed to ensure WASH gains can be achieved without partner support.

Further engaging the national-level government in all stages of implementation from planning to ODF certification to developing the capacity of subnational government officials would further embed CLTS into national strategy; however resource allocation must be a priority of the national government for CLTS programming to be truly sustainable outside of NGO intervention.

WASH Entrepreneurs: With the establishment of WASH entrepreneurs, communities were able to access market-based affordable WASH-related goods and services that remained available after the program ended.

12 Sustainability assessment and long-term impacts

Global Communities conducted a basic assessment (Table 1) based on *SuSanA Vision Document 1's* sustainability criteria for sanitation. The table below ranks IWASH against these measures.

Table 1: Qualitative indication of sustainability of system. A cross in the respective column shows Global Communities' assessment of the relative sustainability of the project (+ means strong point of project; o means average strength for this aspect; and – means no emphasis on this aspect for this project).

	collection and transport			treatment			transport and reuse		
Sustainability criteria:	+	o	-	+	o	-	+	o	-
• health and hygiene	X				X			X	
• environmental and natural resources	X				X			X	
• technology and operation	X				X			X	
• finance and economics	X				X			X	
• socio-cultural and institutional	X				X			X	

Sustainability criteria for sanitation:

Health and hygiene include the risk of exposure to pathogens and hazardous substances and improvement of livelihood achieved by the application of a certain sanitation system.

Environment and natural resources involve the resources needed in the project as well as the degree of recycling and reuse practiced and the effects of these.

Technology and operation relate to the functionality and ease of constructing, operating and monitoring the entire system as well as its robustness and adaptability to existing systems.

Financial and economic issues include the capacity of households and communities to cover the costs for sanitation as well as the benefit, such as from fertiliser and the external impact on the economy.

Socio-cultural and institutional aspects refer to the socio-cultural acceptance and appropriateness of the system, perceptions, gender issues and compliance with legal and institutional frameworks.

For details on these criteria, please see www.susana.org: the SuSanA Vision document "Towards more Sustainable Solutions" (www.susana.org).

Regarding long-term impacts of IWASH and the CLTS+ model, Global Communities expects sustained sanitation and hygiene improvements as evidenced by a 73% success rate of communities' ODF maintenance one year or more after verification. Additionally, we believe communities can become more disease resistance and responsive to health messaging by participating in community-driven WASH programming.

Global Communities is continuing to refine this model through ongoing Ebola recovery and health system strengthening programming in Liberia as well as through CLTS implementation in Ghana.

13 Available documents and references

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Other resources available at:
http://www.globalcommunities.org/resourcelibrary

14 Institutions, organisations and contact persons

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