

Article

# Community Engagement in WASH Emergencies: Understanding Barriers and Enablers Based on Action Research from Bangladesh and the Democratic Republic of Congo (DRC)

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**Abstract:** Engaging communities in humanitarian programming is key to ensuring their participation in decision-making that affects them as outlined by commitment 4 of the Core Humanitarian Standards. Based on learning from the West-African Ebola response (2014–2016), Oxfam’s WASH (water, sanitation, and hygiene) team is undertaking a paradigm shift toward greater community engagement (hereafter referred to as CE) in WASH, with a strong focus on measuring community participation—a crucial step toward understanding how we can better involve communities in reducing the risks of WASH-related diseases. This article presents key findings from Oxfam’s recent responses in Bangladesh and the Democratic Republic of Congo (DRC), describing the process of building trust and identifying barriers and enablers to meaningful CE in emergencies.

**Keywords:** community engagement; WASH innovations; approaches to provision of WASH; disease outbreak; risk reduction; public health promotion

## 1. Introduction

### 1.1. Context

Oxfam is an international aid confederation composed of 20 independent charitable organizations, all focused on alleviating poverty and suffering worldwide. For over 70 years, Oxfam has sought to save lives through campaigning for change, responding to emergencies through its humanitarian work, and building sustainable futures through long-term development programs.

Today, Oxfam is considered a major international aid organization, globally recognized as a leader in providing water, sanitation, and hygiene (WASH) services and infrastructure to crisis-affected communities across the world. Oxfam’s WASH approach involves the provision of clean water, access to sanitation facilities (such as latrines and bathing units, and menstrual hygiene management facilities where appropriate), the promotion of health and hygiene to crisis-affected communities and the distribution of hygiene items or vouchers [1], amongst other interventions (see Table A1(i), Appendix A).

### 1.2. Problem Statement

As one of the leading agencies in emergency WASH, Oxfam’s primary concern is to reduce public health risks. Access to water in sufficient quality and quantity, safe excreta disposal, and positive hygiene practices such as hand washing are considered critical factors for risk reduction and disease

prevention. However, the simple provision of hardware facilities does not necessarily ensure that crisis-affected populations will use them effectively. The reasons for this are complex social norms, perceptions of risk, and the availability of resources, which can all influence whether certain positive changes are adopted. Preventing and reducing disease risks also means that people may have to change their current behaviors and practices or adopt new ones.

For over two decades, Oxfam's WASH team has recognized this need to involve crisis-affected populations in the prevention and mitigation of disease risks, consequently leading to the team's development of a specific competence in public health promotion (PHP) to supplement its work in engineering. PHP is vital to strengthen the role of community participation as the backbone of WASH programming and has become central to Oxfam's approach to WASH in emergencies [2].

However, recent research from the Ebola crisis in West Africa revealed several significant barriers to the team's PHP work. Each of the following affects Oxfam's ability to honor its commitment to both meaningfully involve people affected by crisis and increase their control over the decision-making processes that affect them:

- Public health programming often adopts an instructive approach rather than building on the local expertise of affected communities;
- Teams use a variety of methods and communication channels to facilitate behavior change among diverse communities, but do not necessarily measure whether this results in meaningful participation;
- Despite global commitments to work in partnership with crisis-affected people and to strengthen accountability mechanisms, there is a persisting perception within both Oxfam's public health team and the wider WASH sector that community participation is a mere "add-on", a non-essential that is accordingly deprioritized when pressure on delivery is high;
- Community interaction does not necessarily factor in existing power dynamics and, as such, there is a tendency to focus on local elites rather than seeking to establish continuous interactions with the vulnerable or less accessible population groups.

### 1.3. How Do We as Oxfam WASH Address This?

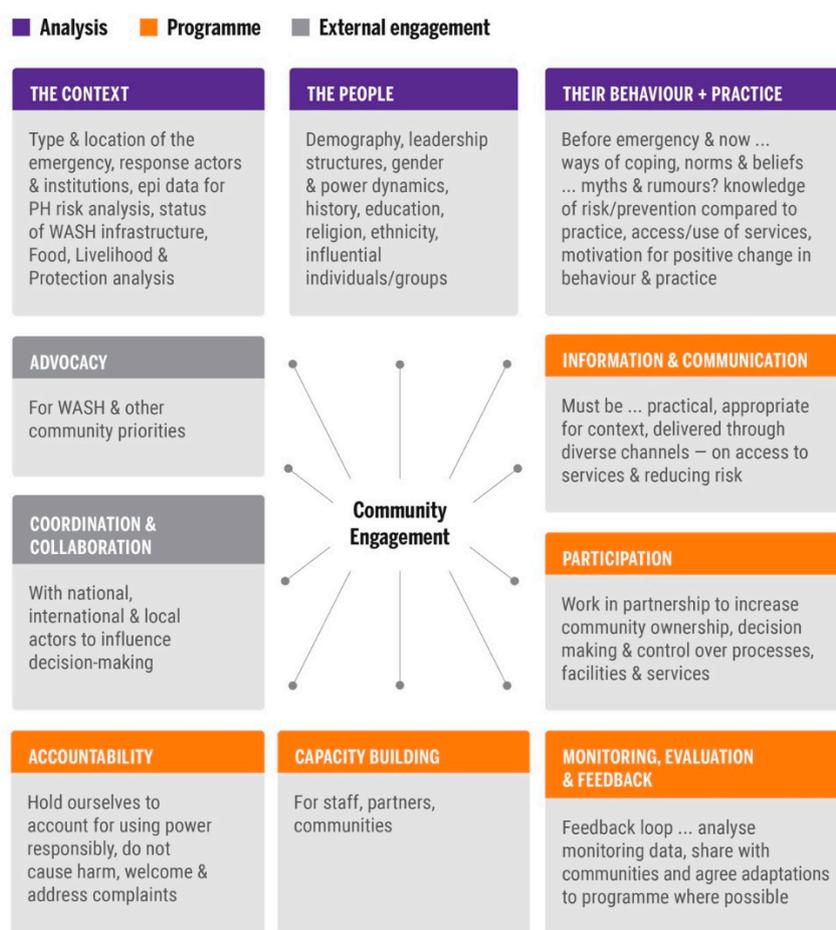
Understanding these barriers led Oxfam to revise its current approach to community participation and develop new tools to support a pioneering community engagement (CE) strategy. These include an overview of the lessons learnt [3], a model to facilitate understanding and implementation of CE methods as shown in Figure 1, and a guidance note [4] outlining the process—including indicators to measure community participation and satisfaction.

The model itself was initially designed for an Oxfam disease outbreak response and was then further adapted and applied to WASH programs. Its aim is to put CE at the center of the Oxfam WASH program, and links communities to other emergency response stakeholders through coordination and advocacy mechanisms. It seeks to maximize the influence of affected communities over positive outcomes in emergency WASH responses and is a continuous process reflecting the relationship between affected communities and humanitarian response actors. The level of engagement does vary according to the stage of the response (first phase or later when the situation stabilizes), as well as the context (i.e., natural disaster, protracted crisis, disease outbreak). The specific context and phase of the program will also impact opportunities for increasing people's ability to influence and take decisions on their own.

The PHP team initially followed an organic approach to developing these new ways of working. This involved launching a pilot project in 2017, focused on a rapid onset emergency context in Bangladesh and epidemic/conflict setting in the Democratic Republic of Congo (DRC), and designed to cover the following:

- *Implementation of the CE approach in varying emergency contexts*—rapid-onset emergency, epidemic, and conflict—to capture lessons learnt and inform the new way of working.

- **Measurement of community participation**—critical to truly understand a project’s impact and how the response adjusts to community input.
- **Orchestration of field trials**—necessary to understand what effective CE in WASH emergencies means and how it contributes to the intended WASH outcomes. The aim here was to utilize the new CE model to inform both technical and strategic approaches.
- **Identification of barriers and enablers** that affect community-centered ways of working in WASH, across different contexts.



**Figure 1.** Model for water, sanitation, and hygiene (WASH) community engagement.

Humanitarian crises can vary greatly—from rapid-onset natural disasters to mass displacement, conflict, and disease outbreaks. In each case, the provision of WASH infrastructure and services is essential to reduce and/or prevent public health risks. However, the technical approach and design will depend on the context, and will be driven by technological progress and learning, as well as the specific needs and perceived health risks.

Recognizing the importance of trialing and measuring CE in WASH in different humanitarian contexts to understand the effectiveness of the approach, Oxfam was keen to embed community-centered ways of working in the Ebola crisis in the DRC and the Rohingya refugee situation in Bangladesh. Given the contrasting nature of these crises, and the different WASH approaches each adopted (see Table A1(ii), Appendix A), they were considered as two ideal and suitably different settings in which to pilot the CE methodology and form a solid evidence base to support future interventions.

## 2. Materials and Methods

### 2.1. Macro Perspective

The new tools were produced further to extensive research conducted in 2015–2016, including both a literature review and inter-agency learning review to identify gaps and develop the aforementioned pilot project. This informed an innovative model to CE in WASH and the development of indicators to measure community participation—a critical step in understanding how to increase a community’s participation in the decisions that affect them and, thus, amplify their level of ownership.

Oxfam’s current approach to community participation is collaborative and continuous, combining the capacity, knowledge, resources, and motivations of both the community and the organization. The context, type of crisis, and phase of the response will all inform the level of community involvement.

Indicators followed for both community participation and satisfaction are tailored according to the WASH outcomes for each response. For instance, a key outcome might be for “WASH facilities to be consistently used and users involved in their maintenance”—the corresponding indicator for community participation would in this case be “a diverse range of people selected by the community is involved in decisions on the planning, design, and maintenance of WASH infrastructure and services”, and for community satisfaction would be “communities report that specific gendered needs of women and men, and boys and girls are taken into account in the design and location of the facilities (access, privacy, safety)”.

Defining indicators on community satisfaction is critical as these affect people’s sense of dignity, privacy, and safety, all of which ultimately impact on behavior. For example, Oxfam’s recent sanitation lighting research [5] found an average of 40% women not using agency latrines—even in daylight. Reasons included lack of privacy, a fear of sexual harassment and/or vermin, and a lack of lighting and/or locks. Consequently, many women resort to alternative, unsanitary methods which in turn may increase public health risks. Critical parameters for a community’s satisfaction might, therefore, include the following:

- Languages and communication channels used and the extent to which the information reaches all sections of the community using context-specific channels;
- How specific gendered needs of women and men, and boys and girls were taken into account in the design and location of the facilities (access, privacy, safety, menstrual hygiene management);
- The use of their feedback to make relevant changes in the program.

The 18-month pilot project is ongoing and involves a series of field studies, implemented across the two following contexts as shown in Figure 2:

- Rohingya refugee crisis—Cox’s Bazar, Bangladesh;
- Ebola outbreak—North Kivu, DRC.



**Figure 2.** Map of the Democratic Republic of Congo (DRC) and Bangladesh.

## 2.2. Micro Perspective—Bangladesh Example

The methodologies used will always be organic (contingent on a team's dynamics, capacity, and programmatic priorities) and dependent on context. Figure 3 outlines how the macro perspective was combined with the micro perspective and applied in Bangladesh, where the approach materialized through the following:

1. **Establishing a measuring framework**—this was done based on the participation and satisfaction indicators developed under the new CE approach, and entailed defining the following:
  - clear outcomes in terms of WASH (i.e., increased acceptance and satisfaction with the design of water facilities by diverse age and gender groups, increased satisfaction with water supply in terms of quality and quantity);
  - how the indicators were to be measured in terms of ongoing program activities;
  - the relevant methodologies and tools (mostly participatory and qualitative).
2. **Defining with WASH response teams the critical components to enhance community-centered ways of working.** In some areas, there may be a greater need to focus on closing the feedback loop, while, in others, the priority will be on establishing a good enough contextual understanding, or advocating for WASH infrastructure projects to be modified and improved through community involvement. Priorities will inevitably change according to the context and the phase of the humanitarian WASH response.
3. **Conducting learning reviews** with technical teams and community volunteers/focal points of Oxfam's WASH program to analyze what works well and what does not in terms of involving people in the response and increasing a community's ownership over WASH-related processes.

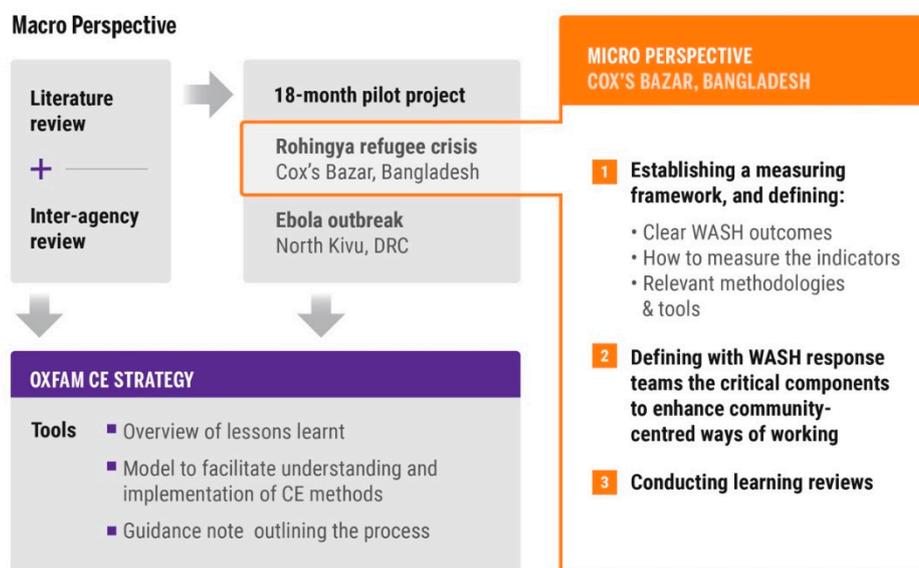


Figure 3. Methodology.

## 3. Results

### 3.1. Case Studies—Summary

The pilot projects, conducted in Bangladesh and the DRC, specifically sought to tackle the barriers identified in the problem statement and did so by implementing the new CE guidelines according to both context and the phase of the respective WASH responses. The ways in which the individual barriers were addressed are summarized below.

### 3.1.1. Barrier 1

*Public health programming often adopts an instructive approach rather than building on the local expertise of affected communities.*

In the DRC, the community-based alert system (CBAS) outlined below actively sought to strengthen the community's capacity to prevent and reduce Ebola transmission risks, thereby promoting the role of local leaders and representatives of existing social networks. The CE model prioritizes an action-orientated approach over conventional message dissemination methods, by focusing on the analysis of community perceived barriers to contain/reduce the epidemic spread, and by promoting corresponding community solutions.

In Bangladesh, the team focused on understanding the context, and mapped community stakeholders in addition to vulnerable groups. The information content and communication channels were adapted according to people's existing capacity and knowledge, including socio-cultural norms. Furthermore, the crucial roles played by women and adolescent girls were strengthened in order to influence the design of the water network.

### 3.1.2. Barrier 2

*Teams use a variety of methods and communication channels to facilitate behavior change among diverse communities, but do not necessarily measure whether this results in meaningful participation.*

Adopting a structured approach to measuring CE in WASH constitutes the core of Oxfam's CE strategy. This reflects the right of people to participate in the decisions that affect them, and enables teams to adapt WASH programs based on community feedback. It further generates solid evidence to plan for cost-effective interventions and to lobby for resources to deliver community-centered activities at scale.

The reduction of public health risks is considered the overall objective of an emergency WASH program. WASH outcomes such as access to and use of WASH facilities are measured as part of the program, used as a proxy for impact and compared with information on WASH-related disease trends. Oxfam's CE monitoring approach centers on measuring community participation in, and satisfaction with the WASH program. For Oxfam, these two areas are critical to manage the way communities are engaged for maximum impact on their health and wellbeing.

In the trial countries, several indicators were selected (among an existing set of indicators) (see Table A2, Appendix A) and form part of a measurement framework that will be brought to scale over the next few months. Various criteria were considered in the selection of indicators for the two trial countries; these included (a) the relevance of the indicator to the context in which the WASH program was being implemented, (b) whether the indicator was measurable (i.e., does the program build on existing activities or does it require the introduction of new ones?), and (c) whether the indicator was achievable and likely to significantly impact on program quality. Indicators were then selected based on extensive consultation with Oxfam's PHP team, taking into consideration socio-cultural norms and barriers, and recognizing the need to step away from "message dissemination" (see Table A1(iii), Appendix A).

The following indicators were thereby selected:

- **Community participation:** communities, including the more marginalized, influence the design of feedback and complaint mechanisms; diverse community members are included in identifying local priorities, problems, and their own solutions; community-based action plan with roles and responsibilities for all actors is agreed upon and monitored.
- **Community satisfaction:** communities report that specific gendered needs of women and men, and boys and girls are taken into account in the design and location of the facilities (access, privacy, safety, menstrual hygiene management); communities express satisfaction that Oxfam listened to their feedback and made changes to the program where possible.

### 3.1.3. Barrier 3

*Despite global commitments to work in partnership with crisis-affected people and to strengthen accountability mechanisms, there is a persisting perception within both Oxfam's public health team and the wider WASH sector that community participation is a mere "add-on", a non-essential that is accordingly deprioritized when pressure on delivery is high.*

Within Oxfam, funding streams are available for a dedicated CE WASH role, responsible for advocating for the importance and relevance of CE to its humanitarian work, and providing strategic guidance and capacity-building support to bring community-centered activities to scale.

Across both pilot projects, CE became a key strategic focus—as outlined in depth below—and particularly in the DRC where Oxfam's current Ebola response strategy puts CE at the very heart of its response. This entailed renewed trust-building efforts and increasing endeavors to enable communities to assert their control over decision-making processes.

### 3.1.4. Barrier 4

*Community interaction does not necessarily factor in existing power dynamics and, as such, there is a tendency to focus on local elites rather than seeking to establish continuous interactions with the vulnerable or less accessible population groups.*

In both the DRC and Bangladesh, building and improving Oxfam's contextual understanding was critical to enabling a structured involvement of the less accessible groups. Continuous analysis and reflections on lessons learnt—with communities and among the technical team—were critical enablers to adopt more inclusive ways of working. In the DRC, for example, the recognition of the elite-heavy approach to community-based alerts resulted in a revised strategy, focusing instead on a local committee-level approach. The latter consistently involved community leadership structures, strengthened the role of less accessible groups, and provided ongoing capacity-building support and regular meetings to conduct barrier analysis and develop community action plans.

## 3.2. Case Study 1: Water Network—Bangladesh

### 3.2.1. Background

In August 2017, targeted violence in the Rakhine State of Myanmar forced over 670,000 people to flee their homes and seek safety in the south east of Bangladesh, adding to an existing Rohingya refugee community of approximately 300,000.

The immediate humanitarian response sought to meet basic needs, with many WASH actors rapidly constructing water and sanitation facilities but struggling to keep up with the scope and scale of the emergency. This was exacerbated by difficult terrain and limited space. Consequently, speed was prioritized over quality, leaving little room for consultation with the affected population, and partially resulting in unsustainable services and infrastructure.

Given its substantial experience in providing crucial WASH services in camp settings, Oxfam was involved in this response from the very outset. Drawing on prior experience (see Table A1(iv), Appendix A) and ongoing research [1] and thereby recognizing that the average life span of a refugee camp is 17 years [6], Oxfam's technical team soon sought longer-term solutions to the provision of water and sanitation facilities. The scale of the refugee camp—comparative at this point to a Bangladeshi city and expected to exist for the next 20 years—likened it to a peri-urban area for which cost-effective and sustainable water access had to be developed. The construction of a camp-wide water network system, embedded in and supported by the sector-wide WASH strategy, was, therefore, considered a viable solution.

Oxfam advocated for the construction of a water network early in the response (during the first year), drawing on technical expertise from similar projects recently conducted in Ethiopia, Angola, and Rwanda. Learning from the past and factoring in the importance of CE in the process, Oxfam sought to involve the community in a structured manner and from the onset, making sure to both

measure and document its engagement. However, in light of recent research that shows that displaced communities are highly vulnerable and “will have limited ability to manage emergency water and sanitation services” [1], this involvement did not entail community-based approaches to the operation and maintenance of the system.

In 2018, the United Nations High Commissioner for Refugees (UNHCR) funded a project to develop longer-term water supply networks in refugee camps. Water networks in such settings are connected through an underground piped system that supplies water to different distribution points throughout the camps. Their design and implementation improve and ensure water quality on a sustainable basis.

In the initial acute phase of the Rohingya refugee crisis, shallow tube wells were constructed as a water source; however, these became rapidly contaminated due to overflowing and/or damaged latrines. To decrease the risk of water contamination, the WASH sector strategy was to construct deeper tube wells. Considering the year-long life span of the camp, more sustainable approaches—such as a water distribution network—were required. The investment in such a system was considered an effective and sanitary mechanism as the water could be treated directly through the system (rather than establishing individual chlorination mechanisms at water points for example). Moreover, such a water network is solar-powered (as opposed to water points which are operated through hand pumps), thereby providing the additional benefit of decreased operation and maintenance costs in the long term. This is a critical advantage, as funding for humanitarian responses, and for their ongoing operation and maintenance often declines in the years following the onset of the emergency.

The overall design for the water network was led by Oxfam’s engineering team based on a global agreement developed with UNHCR in 2016. The design process began in March 2018 and included detailed field assessments and extensive coordination and strategy development with the WASH sector. The implementation process of the water network system, including the level to which communities would be involved, was then divided amongst the different WASH partners according to their designated catchment area. In Oxfam’s case, the initial phase of the water network design and construction process focused on two designated areas of the larger refugee camp targeting a population of initially around 7000 people, but expanding later to capture an additional 10,800 (see Table A1(v), Appendix A).

Contrary to previous water network design projects, Oxfam’s team integrated a strong community engagement component from the onset, investing in a dedicated CE team to implement the water network project in assigned camps and designing an innovative approach. This included detailed steps to ensure consultation and opportunities for communities to influence the decision-making process on the design.

### 3.2.2. Approach

The consultation process incorporated important aspects of a CE approach, such as collecting feedback on the tap stand design and its site selection, and defining how different community groups were to be kept informed about the progress/adaptations and means to provide feedback, as described in Figure 4. The consultation started a month prior to the planned construction work. Due to delays in the commencement of the latter, it was challenging at times for the team to provide a clear timeline to communities. Follow-up meetings had to be set up to mitigate people’s disengagement with the process.

### 3.2.3. Initial Findings

#### *Information sharing:*

Figure 5 provides a summary of barriers and enablers people faced as well as their suggestion to improve access to context appropriate information which entailed in detail:

**Current barriers to water collection and use:** During the initial consultation process, communities highlighted the various barriers to regular water collection, including frequent breakdowns of the

water points (tube wells), the challenges faced by women and girls due to heavy-weighted handles of the tube well, and/or the location of the water points. For the groups consulted, such barriers to regular water collection result in insufficient water quantities at the household level.

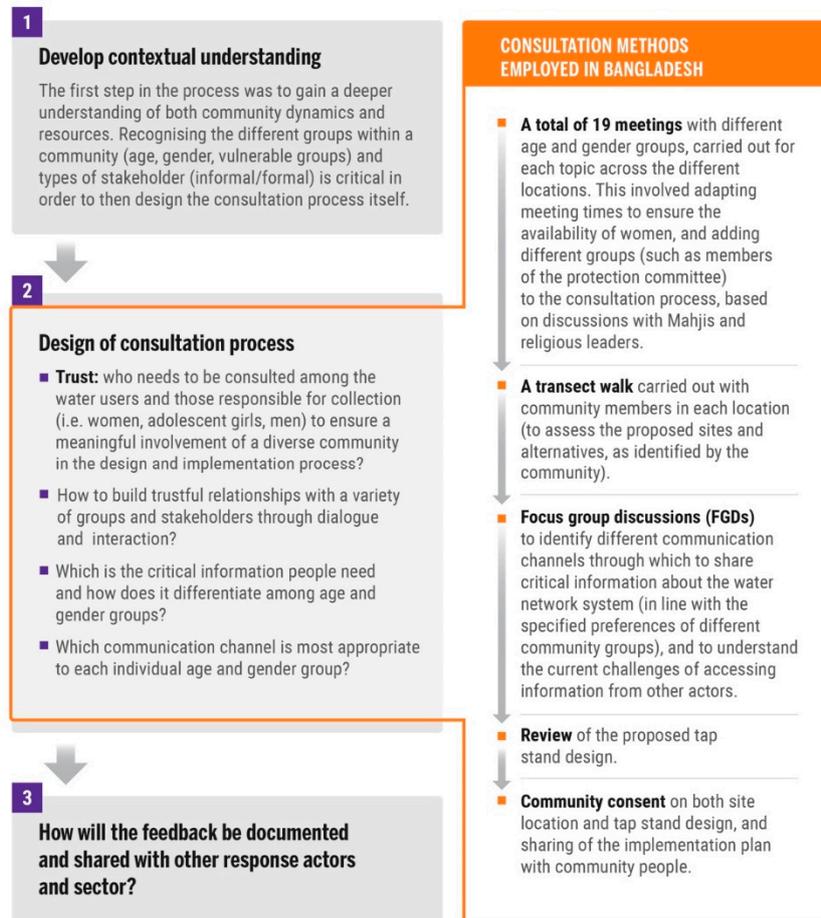


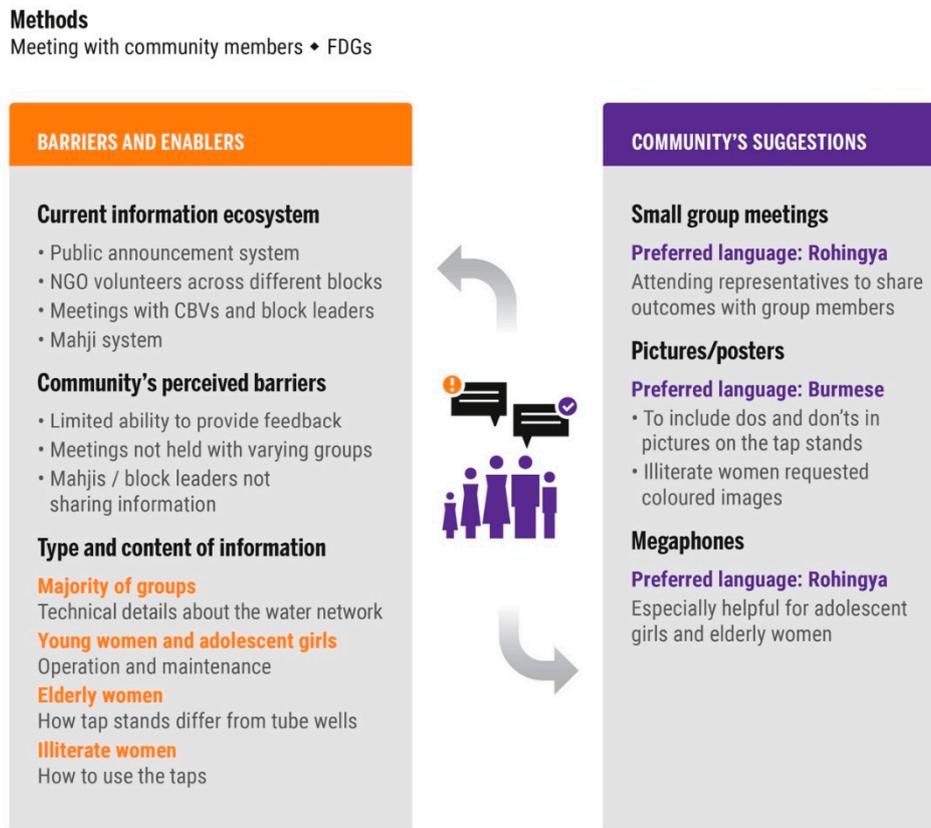
Figure 4. Process.

**Current information ecosystem:** Independent from age or gender groups, the public announcement system (displaying pre-recorded messages), and the presence of non-governmental organization (NGO) volunteers across the different blocks were universally acknowledged as critical information sources. The public announcement system is particularly relevant for adolescent girls as they are often not allowed to attend community or other meetings and, thus, have little opportunity to access information.

In another camp, all groups stressed the importance of meetings with community-based volunteers (CBVs) and block representatives to access information, which could then be further shared with their family members. The Mahji system (see Table A1(i), Appendix A) was also mentioned as one of the means by which people receive information.

**Community's perceived barriers to access information and provide feedback:** Depending on the source and purpose, information from NGOs is shared by volunteers (CBVs, outreach workers) during meetings, by megaphones or door-to-door. The different community groups expressed that this limits their ability to provide feedback. Many meetings grouped different sub-groups together, rather than holding separate meetings per sub-group (per age/gender or other social determinants), and a majority felt that this created a real barrier to access information, thereby also restricting participation in decision-making processes. The consultation also highlighted that information shared with Mahjis

or block leaders was often not shared with the wider population, limiting their understanding of trends, wider needs, and decisions made by the humanitarian community.



**Figure 5.** Information sharing.

**Type and content of information:** Most groups consulted highlighted a need to understand the details of the water network—including some technical details on how water is supplied from the borehole, through the pipe network, to the tap stands where they will access it. Young women and adolescent girls expressed interest in gaining information about the operation and maintenance of the system, and in particular how damages/challenges to the tap stands could be reported. Elderly women mentioned having no prior experience of using tap stands as a water source and, therefore, wanted to know what differentiates these from tube wells, the common water source in the camp. Illiterate women wished to understand how to use the taps for fetching water.

#### 3.2.4. Outcomes

**Community's suggested communications methods:** The majority of different water users prefer information to be shared through a variety of communication channels or platforms:

- Most of them prefer small group meetings, limited to the representatives of different water user groups, based on their suggestions. However, such representatives would have the assigned responsibility of ensuring that the outcomes of these meetings be shared among the user group members.
- The use of pictures/posters ranked as the second highest preferred communication method. Different groups suggested the printing of “dos and don'ts” in pictures on the tap stands, which they would use on a daily basis. Illiterate women expressed the need for colored images to facilitate understanding.

- The use of megaphones with pre-recorded messages was another critical communication channel identified, particularly among adolescent girls and elderly women.

**Language preferences:** Language was a key challenge in ensuring an adequate response to the needs of the Rohingya refugees across the camps in Cox’s Bazar. The consultation process highlighted the need to share verbal information in Rohingya, either during meetings or using pre-recorded audio. However, written information (on posters or leaflets) was preferred to be in Burmese. This was mainly due to the fact that men in particular can read Burmese and are then able to translate the information for others.

**Information content:** to explain the system in more detail, the engineering staff drew system maps which were then used by the team to explain to each of the different groups how the water would flow through the system.

**Tap stand design:**

**Measuring community participation and satisfaction:** The team used a participatory and visual tool (the spidergram) outlined in Figure 6 to measure five separate indicators of the community’s involvement and level of satisfaction with regard to the design of the water network project, including the following:

- Information sharing on the project (technical details, roles and responsibilities in the process);
- Involvement in the design, site selection, and construction of the tap stand as described in detail in Figures 7–9;
- Feedback mechanisms available for communities to share suggestions and concerns with Oxfam.

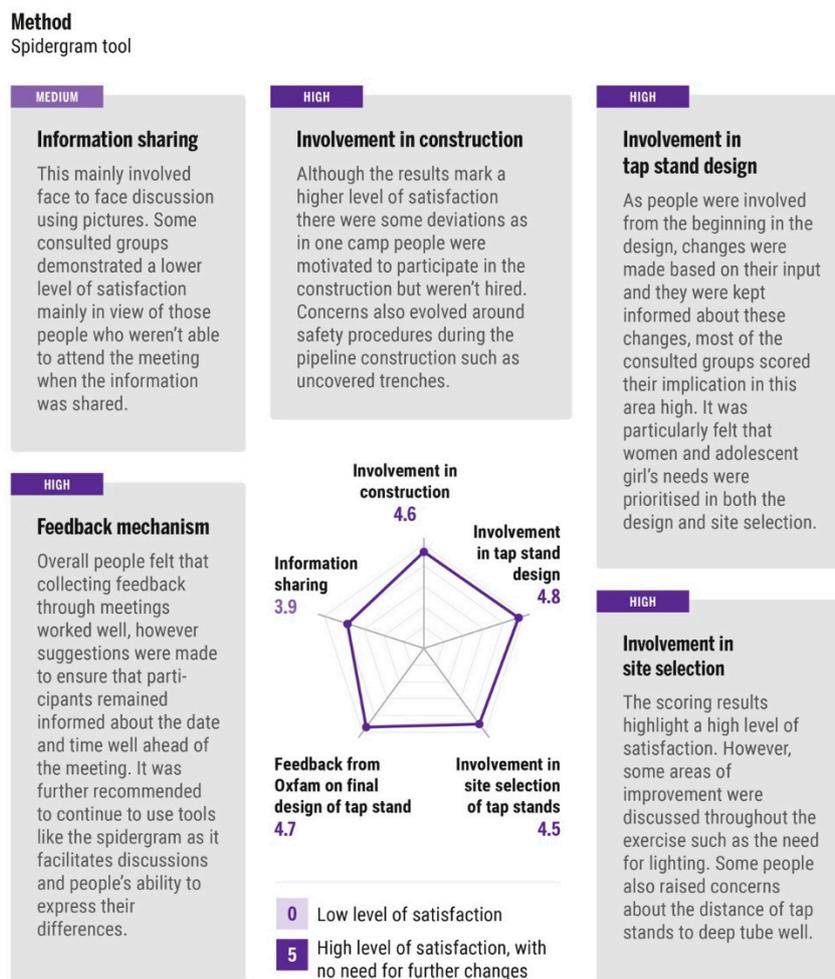


Figure 6. Community participation and satisfaction.

**Methods**

Transect walk • Meeting with community members

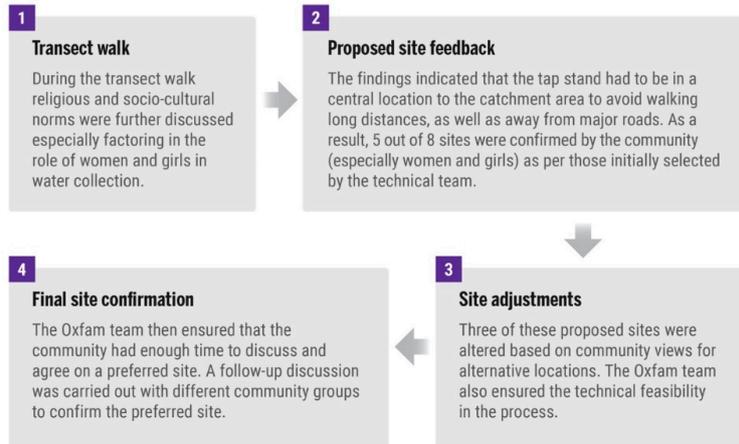


Figure 7. Site selection.

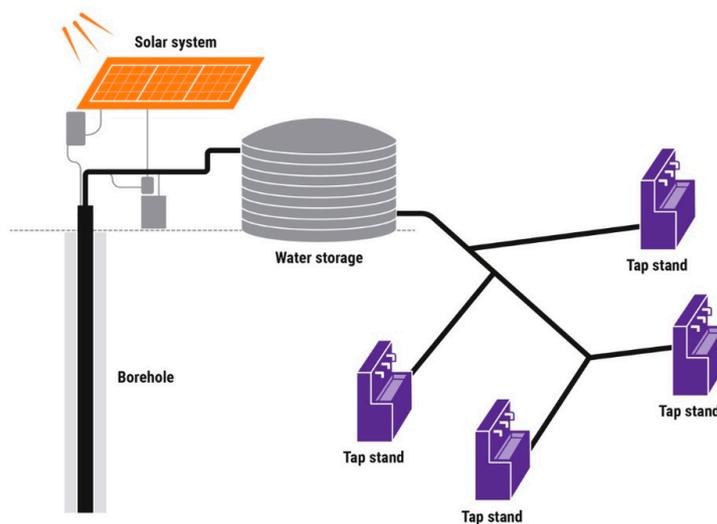


Figure 8. Tap stand and water system.

**Methods**

Review of proposed designs • Meeting with community members  
Community consent • Sharing of implementation plan

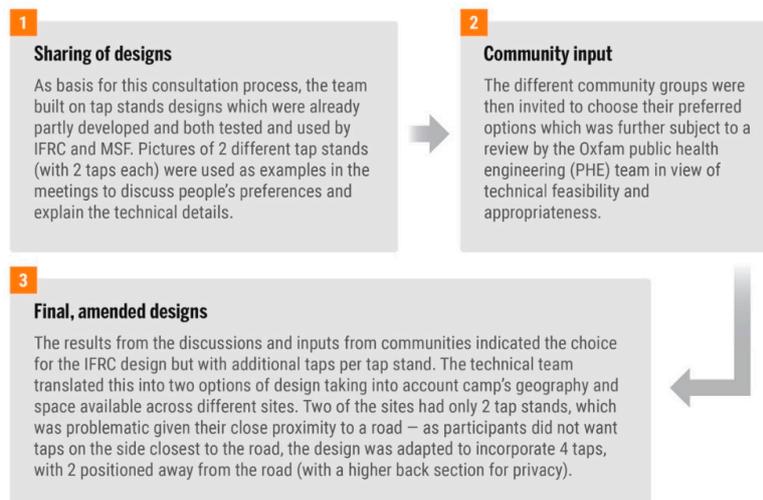


Figure 9. Tap stand design.

Each of the indicators was discussed in turn to understand both positive and negative ranking values. Each participant was then asked to score the different components from 0–5 (with 0 indicating a low level of satisfaction and 5 indicating a high level of satisfaction, with no need for further changes) (see Table 1).

**Table 1.** Community satisfaction and participation indicator scores, by area and group.

Area	Camp 3	Camp 4 Extension	Camp 3	Camp 4 Extension	Camp 3	Overall
Group	Adolescent Girls	Women	Women	Men	Adolescent Boys	
<i>Information sharing</i>	3.8	4.4	3.2	4.9	3.25	3.91
<i>Involvement in tap stand design</i>	5	5	4.4	5	4.75	4.8
<i>Involvement in site selection of tap stands</i>	4.5	4.6	4.6	4.8	4	4.5
<i>Involvement in construction</i>	4.2	4.8	4.8	4.9	4.5	4.6
<i>Feedback from Oxfam on final design of tap stand</i>	4.9	4.8	4.2	5	4.91	4.7

### 3.3. Case Study 2: Community-Based Alert System—DRC

#### 3.3.1. Background

In 2014, West Africa was devastated by an epidemic spread of EVD (Ebola virus disease). In 2016, the World Bank estimated a significant impact on local economies in the three affected countries with a total of 2.8 billion United States dollars (USD) [7]. Rapid strategies to contain the epidemic included travel bans, village and school lock downs, and trade closures—combined with the global fear of further cross-border contamination, labor markets (see Table A1(vii), Appendix A) were severely affected and the price of commodities (see Table A1(viii), Appendix A) declined on an international level.

The situation was particularly precarious for women. Given they are often considered the primary carers for sick family members, the risks of them contracting the virus were high [8]. The Ebola crisis also negatively affected populations' trust in the health system. As a result, in Sierra Leone, the utilization rate of health services dropped as Ebola was closely associated with health facilities [9]. This disengagement with health services and the deployment of almost all district health management teams (DHMTs) to the Ebola response disrupted vertical programs (such as epidemiological data collection and outreach services) with adverse impact on tuberculosis, human immunodeficiency virus (HIV), malaria, and nutrition programs [9].

Progress was since made through the availability of a vaccine offering protection to Ebola contacts, improved treatment, and the deployment of rapid diagnostic kits [10]. Compared to the West-African Ebola outbreak [11], the EVD-related mortality and morbidity rates in DRC are significantly lower [12], yet contacts are still falling sick and the refusal of vaccines and fear of treatment persists.

The Ebola crisis is embedded in a context of armed conflict, political instability, and mass displacement, thus overstressing the capacity of both local government and international response actors. While free healthcare is available, people complain about the decrease in health service quality at the public level and “patients continue to present late or not at all” [10]. The risk of Ebola spreading to Uganda, Rwanda, and South Sudan is high as thousands of people continue to cross borders daily, for trade or personal reasons. This means that the outbreak is far from being controlled and risks becoming a long-term epidemic with wide-reaching global impact [13].

Since early August 2018, DRC is experiencing the largest ever reported Ebola outbreak in the DRC. As of 5 January 2019, there were a cumulative 614 cases confirmed, 374 of which resulted in deaths, and 214 people cured. The spread of Ebola virus disease (EVD) continued across urban and rural areas in two provinces, affecting 17 health zones—some of which are hard to reach and have limited access due to ongoing insecurity and the presence of armed actors—constituting a major public health risk.

Oxfam's initial response started rapidly, using mostly conventional community mobilization (see Table A1(ix), Appendix A) activities underpinned by “sensitization” (see Table A1(x), Appendix A). In September 2018, with the facilitation and support of a CBAS in three hotspot areas in Beni

city, Oxfam was able to start listening more systematically to community concerns and fostering community-generated solutions.

### 3.3.2. Persistent Issues and Corresponding Solutions to Enhance CE

The Ebola response system was complex from the outset and perceived by the population as highly politicized [14]. For some time, the response was largely managed biomedically, with limited opportunity for communities to shape the outbreak response. The Ebola coordination itself is divided into different commissions (see Table A1(xi), Appendix A), all interlinked and relevant to the effective control of the epidemic spread. Oxfam has substantial experience in working with communities in disease outbreaks and providing WASH assistance at the community and institutional level (including health facilities), but it is not a medical actor. As such, the organization has little control over decision-making processes, particularly those led by the government and donors in response to disease outbreak and, thus, can only influence through advocacy and policy work.

Using the feedback and outcomes of the work with the CBAS and wider community-level interaction, Oxfam developed three initial briefing papers for further advocacy work at the national and international level [15]. The information was also shared with the social science in the humanitarian action group to feed into technical briefs and any compilations of behavioral data, providing insight into how people's perceptions and concerns around the management of Ebola outbreaks evolved over time [16].

Various persistent issues were raised during the planning sessions with members of the CBAS, and potential solutions presented. Examples include the following:

- **Issue:** low trust in response teams and the politicization of the response, as well as continuous complaints about the lack of local actors involved in the Ebola response. This was closely associated with the visibly large resources, including financial ones, allocated to the Ebola response.
- **Solution:** as a result, the Oxfam team advocated to the Beni sub-coordination to ensure regular meetings with the local committee (focal points of the three hotspot areas where the CBAS was implemented). In addition, the team actively supported the design and implementation of the new CE strategy led by the United Nations Children's Fund (UNICEF), strengthening local-level coordination mechanisms with regular platform meetings at the neighborhood level and improving the reporting systems.
- **Issue:** very low acceptance and partial rejection of the vaccination teams due to both a widespread perception of the vaccination being "only for elites" and the perceived discriminatory and disrespectful behavior of certain vaccination teams (see Table A1(xii), Appendix A).
- **Solution:** Oxfam took this issue seriously and shared this feedback with the focal point of UNICEF Communication for Development (C4D). Direct meetings with a representative of the vaccination team were then organized in two out of three sites where the complaints were raised, providing an opportunity to listen to the various concerns and explain the principles and eligibility criteria of the vaccination. These efforts were additionally supported by social-science researchers from the World Health Organization (WHO) and UNICEF, advocating for an orientation of the vaccination teams to improve their sensitivity to socio-cultural perceptions and behaviors.

Through brokering interactions between the communities and respective response actors, Oxfam was able to facilitate some immediate actions. However, general coordination issues and a lack of accountability across the response system created major barriers to the effective roll-out of the CBAS, especially with regard to closing the feedback loop between concerns raised by the communities and actions taken by different commissions. For instance, despite Oxfam's efforts to advocate for different accountability mechanisms, when community feedback was directly shared with the communication commission (or other response services), there was little transparency around how the information was then used to further the response (see Table A1(xiii), Appendix A).

### 3.3.3. Objective of the CBAS

The West-African Ebola outbreak (2014–2016) highlighted the need for community engagement to build trust and confidence in the response system and for “formative research with affected and at-risk communities ( . . . ) defining the situation on the ground and generating evidence to support decision-making” [17]. For example, findings from the qualitative and community-based research on barriers and enablers to treatment-seeking behavior resulted in important recommendations for the Ebola response system, particularly in relation to building trust and confidence in existing Ebola treatment measures. The findings included meaningfully involving crisis-affected communities in the decision-making around the establishment of Ebola care centers, improving access to information on Ebola patients’ situation (during treatment at these centers), mobilizing survivors to instill hope in the available treatments, and developing outreach and communication programs [18]. In a context where suspicion, local rumors, and mistrust in local authorities is rife, the provision of accurate and palatable information is vital for communities to face the risks of an accelerating health crisis. Abramowitz’ et al.’s research from Monrovia, Liberia, demonstrates that substantial social learning can rapidly occur in terms of accuracy of health beliefs—although there might be a gap between acquiring the knowledge to prevent and reduce Ebola transmission risks and adapting behavioral practices [19]. Despite the overall learning and global efforts undertaken since the West-African Ebola outbreak 2014–2016, the DRC national Ebola response still promoted a top-down approach to treatment and prevention—with little consideration for community concerns and solutions. Issues around vaccination, a fear of treatment, and the general perception of Ebola as a “money-making machine” increased the levels of distrust and heightened the transmission risks. The objective of the CBAS funded by UNICEF C4D was, therefore, to ensure greater involvement of the local population in the Ebola response, with the aim of fostering acceptance of the different response services, and recognizing the communities’ capacity to contribute to containing the spread. For instance, this could be achieved through sharing accurate information in the local language, identifying and notifying Ebola-suspected cases, and ensuring rapid referrals to treatment centers.

### 3.3.4. Understanding the Risks

The current Ebola response takes place in a complex setting, marked by chronic insecurity, ongoing violence, and a longstanding mistrust of authorities. Given that Oxfam was new to the relevant locations, an overall risk analysis was initially carried out. This highlighted a need to actively involve the youth movement (which demonstrated particular reservations against the system) and mitigate risks around the following:

- Community actors of the CBAS becoming subject to violence and oppositions within their own community, and as such risking stigmatization;
- People’s high expectations toward incentives given, which would lead to disengagement over time;
- Confusions between different intervening actors and the inconsistency of the information shared with the local population.

### 3.3.5. Setting up the CBAS

The alert system centered around two core community pillars: (a) community leaders (chef de quartier, cellule level, street leaders), and (b) networks of community dialoguers, per location as shown in Figure 10.

The facilitation of community dialoguer networks was critical to counter-balance the heavy “elite-based structure” of leaders. Community dialogue members were selected during larger community meetings in which roles and responsibilities were outlined. The composition of the groups varied across the locations, but often included representatives of different social groups and associations, such as youth, women, and motorcycle drivers. The latter were important due to their

daily reach—as a major means of transportation in Beni city, their regular movements enabled contact with large numbers of people.

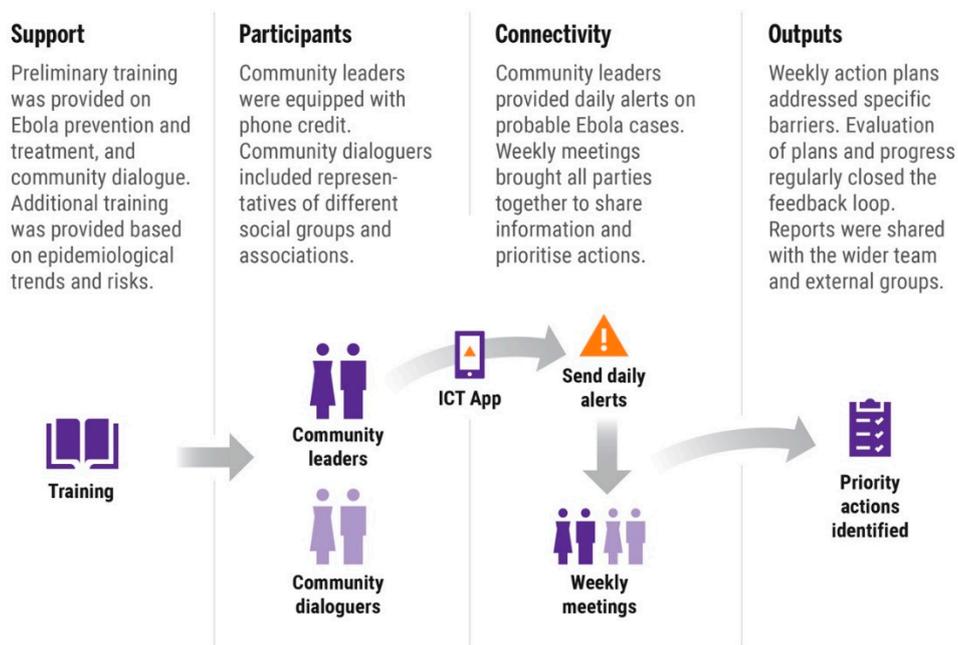


Figure 10. How do community-based alert systems work?

Community dialogue members were provided with phone credit to facilitate rapid case notifications and referrals to Ebola treatment centers (ETCs) if required—this was vital to put focal points of the CBAS directly in touch with the surveillance commission and other relevant services (such as contract tracing and vaccination teams) and for sharing information on security threats in the given areas. Although phone credit and transport allowances (for reaching the meeting venue) were provided, Oxfam’s teams emphasized the importance of voluntary involvement, whereby communities’ engagement would depend on individual priorities, and that there were no strict hours around the implementation of solutions found. Formal financial incentives were not considered, partly due to the risks of undermining self-efficacy and motivation, but also because all actions and solutions were determined by the community itself.

### 3.3.6. CBAS Enablers

#### Support and Follow-Up

Each group received preliminary training on preventive and treatment methods of Ebola, as well as the basic principles of community dialogue. Community leaders were additionally equipped with phone credit to provide daily updates on alerts (“probable Ebola cases”). After a few weeks, community dialoguers were also equipped with credit, as they were considered trusted information sources within their community and would inevitably become aware of other potential cases. Based on epidemiological trends and the barriers perceived by the communities toward containing the epidemic spread, additional training was then provided, entailing, for example, the following:

- Orientation from the safe and dignified burial team (SDB) on burial protocols and procedures.
- Protection training focused on how confidentiality could be ensured in the process, and to mitigate the risk of community actors becoming subject to threats and accusations by the wider population (whose fears would be around Ebola patients being sent to treatment centers that would “kill” the patient).

- Meetings with the vaccination team to understand the principles of vaccination, including eligibility criteria (i.e., those entitled to vaccination versus those who are not).

### Planning for Action

The Oxfam team ensured weekly meetings with each group, leaders and dialoguers, to evaluate the effectiveness of the system, focused for example on the numbers of alerts raised and activities carried out to reduce the risk of Ebola transmission. In the first few weeks, these meetings were performed on an ad hoc basis, mostly brainstorming the activities the community could carry out on their own.

### Becoming More Strategic

With increased insecurity, due to armed attacks and the partial suspension of Ebola response activities, it became obvious that the role of communities as first-line responders needed to be strengthened. A more strategic approach to community-based action planning was, thus, implemented, involving the following:

- The analysis of the epidemiological situation, triangulating community alerts with data available from the surveillance commission.
- A detailed exploration of why the community remained at risk of the Ebola epidemic and the perceived barriers felt by the local population toward disease prevention and management.
- Barriers were then broken down and prioritized, and detailed actions discussed (including the resolution of roles and responsibilities for members of the alert system, other community actors, Oxfam, and the wider response system).
- A weekly evaluation of the action plans was established to understand challenges, progress made, and closing the feedback loop (by bringing information back from the wider coordination and activities carried out by Oxfam to support the community in the process).
- The community feedback was shared on a weekly basis within the wider Oxfam team, UNICEF C4D, and response commissions.

### Barriers and Solutions

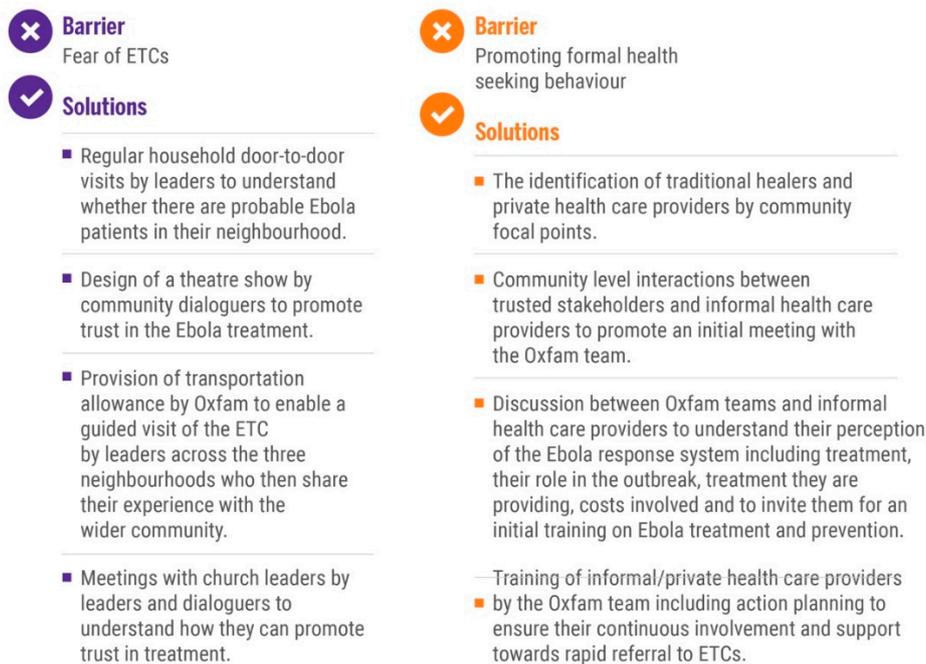
Barriers and solutions varied from area to area, but major trends became quickly apparent—such as the fear of Ebola treatment centers (ETC). This was linked to the initially high mortality rate of Ebola patients in ETCs, due to late referrals, as well as the wider weak perception of healthcare quality provided. Communities, therefore, preferred to seek treatment at private and/or informal healthcare levels, such as through traditional healers. Figure 11 outlines solutions and actions which included the involvement of other social influencers beyond the members of the alert system and were two-pronged to achieve the following:

- reduce the fear of ETCs;
- promote formal health-seeking behavior.

### How It Fostered Trust

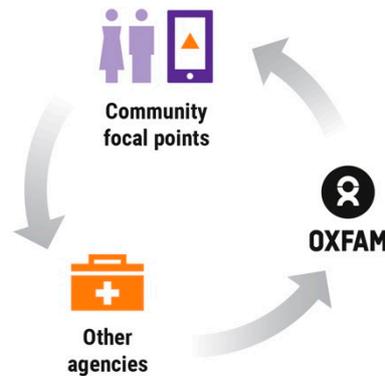
During the last week of September, armed attacks occurred in Beni city, resulting in a suspension of Ebola response activities. Regular interactions, technical support, and the opportunity to communicate with Oxfam on a daily basis were all vital during this time.

The phone credit provided to community focal points continued throughout the period, communicating daily with Oxfam on any probable Ebola cases, the security context, and raised issues such as the need for decontamination of a health center, the delay of safe and dignified burial teams after a community death, community blockages to hinder vaccination teams entering the area, etc.



**Figure 11.** Barriers and solutions.

Acting as a bridge between the community and support services, Oxfam put people in touch with critical response services provided by other agencies. The continuous feedback loop to communities was crucial to ensure they remained informed, whilst simultaneously fostering a great deal of trust in Oxfam and acceptance of its response work, described in Figure 12.



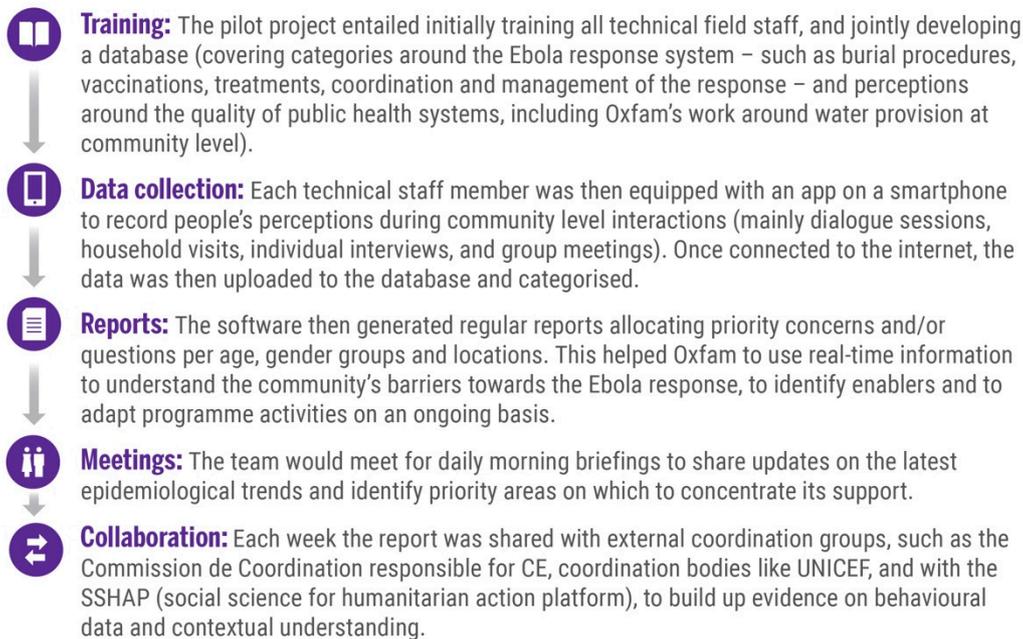
**Figure 12.** How it fostered trust.

### The Value of Mobile Technology

During the first two months of the Ebola outbreak in the DRC/North Kivu, Oxfam staff recorded questions and perceptions by different community members on paper. Although the information was often filed, it was not necessarily discussed among team members, often meaning that new staff did not understand the purpose of collecting the information.

In October 2018, a pilot project was, therefore, introduced to enable teams to better and more systematically capture qualitative information around people’s perceptions, questions, concerns, and rumors in Oxfam’s working area in Beni, and to use the information in real-time. Figure 13 outlines the process of introducing and using mobile technology for real-time analysis enhancing programmatic adjustments.

## Process



**Figure 13.** The value of mobile technology.

## 4. Discussion

### 4.1. Measurement

“If we measure, we manage.” As early as possible during an emergency response, listening mechanisms should be established in order to understand how the crisis is affecting people’s lives and determine what the priority needs may be. Further mechanisms should be established to measure an organization’s ability to adapt its WASH programs in line with feedback from monitoring data or complaints, and report this back to communities. Such mechanisms as described in Figure 14, foster trust, increase satisfaction, and ultimately heighten the community’s ownership over the facilities/services.

- **Use of participatory tools is critical.** These must be appropriate to the contexts and community groups we work with and should be informed by the intended outcomes. Such tools (for instance, the spidergrams employed in the context of Bangladesh) generate dialogue and contribute to trustful relationships between the communities and the relevant response actors.
- **Use of mobile technology,** with the right support (inductions / training) and tailored to the context, provides a real opportunity to both analyse community perceived barriers / enablers and use real-time information to adapt the programme on an ongoing basis.

**Figure 14.** Measurement.

### 4.2. CE Takes Time and Resources

A common sector-wide perception is that CE is both time-intensive and costly, something response actors often use as an excuse for avoidance. In reality, CE requires the features outlined in Figure 15.

### 4.3. CE Requires Extensive Collaboration and Coordination

Sharing information and working together with communities, local level actors, and authorities, and across national and global sectors is vital to develop coherent and appropriate ways of approaching and working with communities. Effective collaboration and coordination is, thus, required across the board, as outlined in Figure 16.

- **Increased investment in human resources.** This requires recruiting staff whose expertise covers community participation and analysis, and augmenting the number of public health promotional staff in the community to ensure:

  - (a) continuous interaction and trust building with diverse groups; and
  - (b) capacity building and ongoing technical support (to listen to and interact with a variety of community groups).
- **Being realistic and clear about the level of participation we can achieve across different phases of a humanitarian response.** For instance, in the first four to six weeks it will be challenging to achieve collective ownership and a community's control over WASH facilities, services and decision-making processes. It may be more important to put the emphasis on ensuring information sharing and consultation with diverse community groups (representative samples using the right approach), to both develop relationships and build the foundations for meaningful participation in the months that follow.
- **Increased time and organisational investment.** Coaxing technical team members out of their comfort zone of "doing business as usual" is time consuming, and requires focus on capacity building and organisational commitment, particularly during the first phase of an emergency response, when time is of the essence. Deploying a dedicated senior staff, to further assist and support the teams on the ground can be a critical enabler.
- **Capacity Building of community based structures** is vital to empowering the community and promoting contextualised and achievable actions. This will involve formal workshops, hands on training in the field as well as regular interactions. Ultimately, capacity building is critical to build community motivation and ensure the impact of Oxfam's WASH work.
- **Clarity around the intended outcomes we aim to achieve through meaningful community involvement.** This will help to structure the approach and select the appropriate CE methods.
- **Providing an enabling environment makes the software component of WASH work.** People demonstrate a high capacity to adopt and cope with new contexts and want to put their knowledge into practice, but ultimately need functional facilities, resources and appropriate services to do so.

Figure 15. Community engagement (CE) takes time and resources.

- A At community level,** with structured formal/informal stakeholders and leadership networks to foster community level solutions and facilitate collective actions.
- B With other implementing actors and local authorities,** to break down the concept of CE, contextualise it, and harmonise ways of working with the affected population to a top-down approach, setting up parallel structures in affected communities (in order to build on contextual understanding) and creating confusion in the community. This involves recognising the capacity, resources and knowledge levels of the affected population.
- C At WASH sector level,** greater investment is needed to promote CE as a new way of working in Hygiene Promotion (HP) and as an effective enabler of WASH outcomes. This means increasing the HP resources in WASH and building their capacity, and growing recognition of the significance of CE within the WASH sector to ensure the effective use and maintenance of WASH facilities.
- D Management leadership is critical to make programmatic adjustments.** Continuous strategic and programmatic directions enable technical teams to provide the right information and have clarity on the possible scope of community engagement.

Figure 16. CE requires extensive collaboration and coordination.

#### 4.4. Accountability and Program Quality

Encouraging and using the feedback from diverse population groups, including the most vulnerable and marginalized, on the quality and effectiveness of the response is a central component to CE, as described in Figure 17.

- **Establishing a good-enough contextual analysis rather than making general assumptions** is critical in order to adopt Oxfam's community engagement strategy in WASH. In Bangladesh, over the course of four months, informal and formal stakeholders were identified across all areas in which Oxfam is the WASH camp focal point.
- **Proper consultation increases people's satisfaction**, and positively affects both the use and maintenance of WASH facilities, and a community's overall control over decision-making processes.
- **Involving people in the risk analysis** and generating solutions on their own is vital for any form of self-organisation. In DRC, the regular analysis of community barriers, both perceived and actual, helped communities to realise what they can do on their own, and thereby plan and implement their own solutions.
- **Ensuring a solid feedback loop is a critical component of effective CE.** This involves advocating for people's priority needs, based on community feedback, to trigger changes to an existing response delivery, and should be done on a regular basis, given the changeable nature of emergency contexts. Completing the feedback loop, by repeatedly bringing information back to the community, is instrumental to the trust-building process.
- **Closing the feedback loop remains a key challenge to promote community-centres ways of working.** To effectively address community based suggestions, concerns and solutions, the technical teams need to work closely across sectors identifying culturally appropriate mechanisms.
- **Promoting community owned solutions is central to community engagement.** This requires gaining clarity on how much control is feasible and appropriate to facilitate among communities in any given phase of a response. It is equally subject to funding opportunities and coordination among different WASH actors and the overall camp management. A clear mapping on what Oxfam has control over and what depends on other stakeholders and actors in the process will help to determine the appropriate level of control.

Figure 17. Accountability and program quality.

## 5. Conclusions

### 5.1. Key Outcomes—Bangladesh and the DRC

The action research was vital to create space for CE in Oxfam's response work in the DRC and Bangladesh, to adjust the strategic focus, and to make programmatic changes based on the community's feedback.

In Bangladesh, this resulted in the following programmatic changes:

- Dedicated funding for a CE WASH advisory position, a role responsible for introducing the measuring framework on CE in WASH, developing a contextualized approach, and building the capacity of the team to design and implement a community-centered response.
- Allocated funding for CE-related innovation projects (such as collaborating with Translators without Borders to better understand communication needs and develop a WASH-specific glossary) [20].
- Documentation of lessons learned from the CE aspects of the water network design to inform the application of CE in other emergency settings and to better inform future global work with UNHCR—this will ultimately lead to WASH responses that are more community-centered than they were in the past.

For the WASH program in the DRC, the following steps were taken:

- The response strategy evolved from a WASH Ebola program to a community-centered response, the aim of which is to increase community trust in the response system by providing a space to listen and foster community-led solutions.
- Additional deployment of CE and PHP experts across different project sites.
- Allocated funding for learning on CE and formative research on the ground.
- Replication of the bottom-up approach across new working sites (such as Butembo (see Table A1(xiv), Appendix A)), working with formal and informal community stakeholders to identify barriers and solutions.
- New support for Oxfam's view on CE by the World Health Organization (WHO)—for example, in terms of developing a response-wide CE strategy that is owned by all commissions, as well as

mapping at the local level (Katwa/Butembo) of key social influencers, barriers, and solutions to address the root causes of community distrust in the Ebola response system.

### 5.2. Overall Outcomes for Oxfam

Oxfam is currently developing its new humanitarian approach to strengthen community engagement across all technical sectors and emergency contexts. The learning from the above pilot projects provides crucial directions to inform this new approach. Based on Oxfam's findings in the DRC and Bangladesh, greater efforts will be made to both build the confidence of Oxfam's WASH emergency staff at the global, regional, and country level, and to put CE into practice. This will require additional investment in the development of both a capacity-building framework and a full communications strategy. The latter is currently being designed and will be tailored to both technical and non-technical staff requirements. Its aim is ultimately to bridge the existing gap between global-level thinking and country-level preparedness and response work, and will seek to "demystify" CE for program managers, whose buy-in will be critical to ensure continuous support for community-centered ways of working.

Overall, Oxfam's WASH approach aspires to deliver community-centered activities at scale. The pilot projects and respective results provided vital ammunition to this aspiration and will be used to inform the design of future strategies, at both the country and regional levels. Moreover, the hope is that, by consistently dedicating efforts and resources to Oxfam's own capacity building, by promoting CE as standard for WASH programming, and by playing a leading role in adapting its PHP strategy, other humanitarian agencies will be influenced to do likewise, thus advancing behavior changes throughout the sector and ultimately contributing to key WASH outcomes by reducing public health risks in emergencies. The general perception that community participation remains desirable, rather than integral to WASH responses, is a serious barrier to progress within the sector; universal buy-in is required to enable meaningful change.

### 5.3. Overall Outcomes for the Humanitarian Sector

The key lessons learned and subsequent recommendations are outlined in Section 4 of this manuscript.

Overall, there is a growing recognition of community-level actions in the context of humanitarian responses and development work, as supported by the Grand Bargain in 2016 [21] and the development of core humanitarian standards [22]. Such global commitments toward improved partnership with crisis-affected communities mean substantial changes in the ways of working of international and local governments, response actors, and donors. However, changing policy and practice with the aim of putting people at the center of humanitarian aid and development work will require time, resources, and substantial investment, both financial and technical.

A global initiative was launched by UNICEF C4D in 2017 to harmonize standards and indicators for CE, providing a relevant example on how the above commitments were already taken on board. Following an initial consultation process, a strategic CE advisory group was formed in 2018, with the aim of improving coordination, integration, and measurement of CE, thereby strengthening the effectiveness, responsiveness, and accountability of the approach in emergency and development contexts. Encouraging donors to both recognize the relevance of CE and provide flexible funding in accordance with community needs is an integral working stream of this group. It additionally focuses on how to secure buy-in from national governments and build their capacity when faced with humanitarian crises. The outcomes of this initiative will be insightful and, in time, will inform the process on facilitating policy change.

How the WASH sector takes these recommendations forward will likely depend on various factors, including individual organizational strategies and the capacity of each to strengthen community-centered ways of working. Unlike many other aid organizations, Oxfam has a contracted pool of humanitarian experts across all sectors, and it invests time and resources in innovations, learning, experience sharing, and promotion of new approaches. As such, Oxfam is committed to

strengthening CE and encouraging global discussions around this new way of working, not only in relation to WASH programs but across other technical sectors too.

Furthermore, substantial efforts should be made in terms of preparedness (see Table A1(xv), Appendix A) and potential crisis mapping based on epidemiological data, socio-economic factors, and historical past. This will be relevant to understand the potential scale and scope of new crises, especially in protracted contexts. A global roster of social-science experts would be invaluable to this and should be made available to relevant research institutions, as well as local, national, and international NGOs. While the systematic inclusion of social-science-based interventions (SSIs) as an integral part of operational response remains a challenge, there is growing evidence that supports the use of social science in public health emergencies [23]. For example, building on the experience of the Ebola Response Anthropology Platform, UNICEF's C4D, in collaboration with the Institute of Development Studies and Anthologica, launched in 2017 the Social Science in Humanitarian Action Platform (SSHAP) [24]. In the DRC (Ebola outbreak 2018/2019), the work of the SSHAP group provided valuable insight into people's perception of the Ebola response mechanisms [25], socio-cultural perceptions [26], and views regarding burials and Ebola preparedness and readiness [27]. Moreover, a study by Ripoll et al. (carried out during the early onset of the Rohingya refugee influx in Bangladesh—2017) provided useful recommendations to shape community-based approaches in Cox's Bazar [28].

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## Appendix A

**Table A1.** Detailed reference notes.

Number	Note
i	In densely populated IDP and refugee camps, emergency water supply systems often consist of treatment systems, pumping stations, transmission and distribution lines, and standpipes. This system of infrastructure (assets) differs from rural water sources, which typically involve point sources (wells or boreholes) equipped with hand-pumps.
ii	In the refugee camp context of Cox's Bazar, Bangladesh, Oxfam's WASH program included the installation of communal sanitation facilities (latrines) to ensure safe excreta disposal, the construction of deep tube wells to provide safe water, water treatment where required, the distribution of hygiene items (such as soap) to enable people to practice hand washing, as well as the training and support of a network of community-based volunteers (to discuss access, maintenance, and use issues with latrine and water point users), and the promotion of hygiene at household and community level. In the DRC, the response strategy initially followed a more "conventional" WASH approach to disease outbreaks. This involved (a) the construction/rehabilitation of WASH facilities at health centers; (b) the construction/rehabilitation of water sources at the community level; (c) WASH support for schools, including the provision of hardware facilities and training of teachers and students on Ebola prevention; and (d) public health promotion through the existing network of community health networkers, as well as the briefing of community leaders.
iii	While it was critical to share vital information on the WASH situation in the camp, and promote both the use of the WASH facilities provided and any important hygiene measures, the team often adopted a rather instructive approach rather than tailoring the content and channels to the different population segments and their respective communication preferences.
iv	The WASH sector was faced with a similar challenge in Jordan's Za'atari camp during the Syrian refugee crisis, a camp that was established in 2012 for 10,000 people but swiftly grew to accommodate 79,000. Nobody could anticipate the scale and implications of the conflict in Syria and, as such, the probable lifespan of the camp was not considered from the outset. WASH programs were, therefore, poorly planned and did not take community voices into consideration. During the second year of the camp's operations, the WASH sector constructed a piped water network, thereby investing in a longer-term governance model to ensure a fair water distribution.
v	At the time of writing, the total number of refugees covered by Oxfam's designated catchment area is 17,800.
vi	A formal leadership system introduced by the Bangladesh government as a result of the refugee influx in 2017. All Mahjis are Rohingya and appointed by the Bangladeshi army to take on various responsibilities, including population counts and the identification of immediate survival needs.

Table A1. Cont.

Number	Note
vii	Increased unemployment rates, loss in incomes, lower educational level, reduction in food consumption: World Bank, 2016
viii	Such as iron and gold: World Bank, 2016
ix	Community mobilization, as defined by Oxfam's PHP guidelines, is a strategy for involving communities in taking action to achieve a particular goal. The emphasis of mobilization is on the action taken rather than the longer-term concept of behavior change and, thus, provides a more useful model for the emergency context.
x	Broad term often referring to all different kinds of promotional approaches mostly focusing on "awareness-raising activities" aiming to inform a large number of people on a standard set of information.
xi	These commissions include surveillance, contact tracing, case management, laboratory testing, communication, and CE, as well as prevention (WASH and infection, prevention, and control).
xii	It was repeatedly noted that vaccination teams were prone to calling their friends (to ensure their protection) over the contact lists they were provided with, and wasting time on their smartphones rather than focusing on the urgent task at hand.
xiii	Note that, since the start of 2019, the feedback system improved (largely due to response actors recognizing that CE plays a critical role in the reduction and control of the Ebola disease).
xiv	Butembo is a city of nearly one million people, in North Kivu, DRC. Katwa health zone (located in Butembo city) is currently considered a main Ebola hotspot: 34% (33/97) of the new confirmed cases over the past 21 days were reported in this health zone" World Health Organization (WHO): "Ebola Virus Disease, Situation Report 34".
xv	A positive example on existing preparedness efforts is the work undertaken by the Global Task Force for Cholera Control (GTFCC), which, for example, invested in a standing commitment until 2030 to develop national cholera plans, mapping hotspot areas, planning for longer-term WASH investment, and detailing how CE across the acute and longer-term phase would look alike.

Table A2. Matrix of indicators for measuring community participation and satisfaction in relation to WASH in the initial four to six months of response.

WASH Outcomes	Community Participation	Community Satisfaction
There is no evidence of WASH-related disease outbreaks	Formal and informal community leaders, community organizations, and institutions are identified	Communities report that key information is clearly communicated in appropriate languages and reaches all sections of the community using context-specific channels
Access to appropriate WASH facilities and resources is available to all in line with Sphere standards	A stakeholder map developed with communities is used to analyze power dynamics and for program planning	Communities report that specific gendered needs of women and men, and boys and girls are taken into account in the design and location of the facilities (access, privacy, safety, menstrual hygiene management)
WASH facilities are consistently used, and users are involved in maintaining them	A diverse range of people selected by the community is involved in decisions on the planning, design, and maintenance of WASH infrastructure and services	Communities express satisfaction that their feedback was listened to and changes were made in the program where possible
There is no evidence of open defecation	Communities, including more marginalized groups, influence the design of feedback and complaint mechanisms	Marginalized groups and individuals express satisfaction with consultation and program adaptations
Safe water chain is maintained	There is evidence that cultural and religious beliefs are incorporated into program design	
Hand washing is effectively practiced	Diverse community members are included in identifying local priorities, problems, and their own solutions	Communities report that they have the skills and support to manage WASH facilities and services
	Implementation plan with roles and responsibilities of all actors is agreed upon and monitored	
	Community members are involved in monitoring program activities and in the feedback loop to their wider community	
	Communities are supported to advocate on their behalf to Oxfam and to other stakeholders through coordination	
	Capacity development and a timely exit/transition plan is agreed upon by communities and other key stakeholders	

## References

- Day, S.-J.; Foster, T. Water, Sanitation and Hygiene in Post-Emergency Contexts: A Study on Establishing Sustainable Service Delivery Models. Oxfam, UN High Commissioner for Refugees. 2018. Available online: <https://policy-practice.oxfam.org.uk/publications/water-sanitation-and-hygiene-in-post-emergency-contexts-a-study-on-establishing-620598> (accessed on 17 March 2019).
- Oxfam. *Guidelines for Public Health Promotion in Emergencies*; Oxfam: Oxford, UK, 2006.
- Niederberger, E.; Ferron, S.; O'Reilly, M. *Guide to Community Engagement in WaSH: A practitioners' Guide, Based on Lessons from Ebola*; Oxfam: Oxford, UK, 2016; ISBN 978-0-85598-824-1.
- Niederberger, E.; Knight, L.; O'Reilly, M. An Introduction to Community Engagement in WASH. Oxford, UK, 2019. Available online: <https://policy-practice.oxfam.org.uk/publications/an-introduction-to-community-engagement-in-wash-620611> (accessed on 10 December 2019).
- Fisher, J.; Reed, B.; Vidal, J.; Sissons, C.; Lafreniere, J.; Hastie, R. Lighting the Way: Lighting, Sanitation and the Risk of Gender-Based Violence. December 2018. Available online: <https://policy-practice.oxfam.org.uk/publications/lighting-the-way-lighting-sanitation-and-the-risk-of-gender-based-violence-620606> (accessed on 15 March 2019).
- Moore, B. Refugees settlement and sustainable planning. *Forced Migr. Rev.* **2017**, *55*, 5.
- World Bank. 2014–2015 West Africa Ebola Crisis: Impact Update. 2016. Available online: <http://www.worldbank.org/en/topic/macroeconomics/publication/2014-2015-west-africa-ebola-crisis-impact-update> (accessed on 20 March 2019).
- Menéndez, C.; Lucas, A.; Munguambe, K.; Langer, A. Ebola crisis: the unequal impact on women and children's health. *Lancet Glob. Health* **2015**, *3*, e130. [[CrossRef](#)]
- Elston, J.W.T.; Moosa, A.J.; Moses, F.; Walker, G.; Dotta, N.; Waldman, R.J.; Wright, J. Impact of the Ebola outbreak on health systems and population health in Sierra Leone. *J. Public Health* **2016**, *38*, 673–678. [[CrossRef](#)] [[PubMed](#)]
- Nguyen, V.K. An Epidemic of Suspicion—Ebola and Violence in the DRC. *N. Engl. J. Med.* **2019**, *389*, 12981299. [[CrossRef](#)] [[PubMed](#)]
- 28,616 Cases of EVD and 11,310 across Sierra Leone, Guinea and Liberia during 2014–2019. Center for Disease Control (CDC): “The 2014–2016 Ebola Outbreak in West Africa Has Ended. Visit the Ebola Outbreak Section for Information on Current Ebola Outbreaks. Available online: <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/cumulative-cases-graphs.html> (accessed on 18 March 2019).
- As of 24th March 2019, 951 Confirmed Cases and 569 Confirmed Deaths Were Recorded. World Health Organisation (WHO): Ebola Virus Disease, Situation Report 34. Available online: [https://apps.who.int/iris/bitstream/handle/10665/311507/SITREP\\_EVD\\_DRC\\_20190326-eng.pdf?ua=1](https://apps.who.int/iris/bitstream/handle/10665/311507/SITREP_EVD_DRC_20190326-eng.pdf?ua=1) (accessed on 25 March 2019).
- Gostin, L.; Phelan, A.; Coutinho, A.G.; Eccleston-Turner, M.; Erundu, N.; Filani, O. Ebola in the Democratic Republic of Congo: time to sound a global alert. *Lancet* **2019**, *393*, P617–P620. [[CrossRef](#)]
- Sweet, R.; Bedford, J. WhatsApp and Local Media (Grand Nord)—Reluctance, Refusal, Resistance and the Politicisation of the Ebola Response. Sep 2018. Available online: [https://sohs.alnap.org/system/files/content/resource/files/main/SSHAP\\_WhatsApp\\_and\\_local\\_media\\_NKivu\\_180919.pdf](https://sohs.alnap.org/system/files/content/resource/files/main/SSHAP_WhatsApp_and_local_media_NKivu_180919.pdf) (accessed on 24 March 2019).
- Fanning, E. Oxfam: Briefing 1: “DRC: The World's First Ebola Outbreak Inside a Conflict”, Briefing 2: “Strengthening the Ebola Response in Beni, DRC by Putting Communities at the Centre”, Briefing 3: “Briefing 3: Crucial Course Corrections for the Ebola Response in Beni, DRC”. Oct 2018. Available online: <https://policy-practice.oxfam.org.uk/publications/the-ebola-outbreak-in-drc-strengthening-the-response-620555> (accessed on 20 March 2019).
- Bardosh, K.; Gercama, I.; Bedford, J. Social Science and Behavioural Data Compilation, DRC Ebola Outbreak, November 2018–February 2019, SSHAP. Available online: [https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/14389/SSHAP\\_data\\_compilation\\_brief\\_2\\_March\\_2019.pdf?sequence=1&isAllowed=y](https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/14389/SSHAP_data_compilation_brief_2_March_2019.pdf?sequence=1&isAllowed=y) (accessed on 5 February 2019).
- Douglas Storey, J.; Ketan, C.; Rafael, O.; Kama, G. Community engagement and the Communication Response to Ebola. Available online: <https://doi.org/10.1080/10810730.2017.1283200> (accessed on 20 March 2019).
- Carter, S.E.; O'Reilly, M.; Frith-Powell, J.; Kargbo, A.U.; Byrne, D.; Niederberger, E. Treatment seeking and Ebola community care centers in Sierra Leone: A qualitative study. *J. Health Commun.* **2017**, *22* (Suppl. 1), 66–71. [[CrossRef](#)] [[PubMed](#)]

19. Abramowitz, S.; McKune, S.L.; Fallah, M.; Monger, J.; Tehoungue, K.; Omidian, P.A. The opposite of denial. Social learning at the outset of the Ebola emergency in Liberia. *J. Health Commun.* **2017**, *22*, 59–65. [CrossRef] [PubMed]
20. UNICEF Section of the Programme Division: Communication for Development. Available online: <https://glossaries.translatorswb.org/bangladesh/wash> (accessed on 24 March 2019).
21. Available online: <https://interagencystandingcommittee.org/participation-revolution-include-people-receiving-aid-making-decisions-which-affect-their-lives> (accessed on 20 January 2019).
22. Available online: <https://corehumanitarianstandard.org/the-standard> (accessed on 18 November 2019).
23. Report of the Informal Consultation: “Integrating Social Science Interventions in Epidemic, Pandemic and Health Emergencies Response”; Geneva: World Health Organization. 2018. Licence: CC BY-NC-SA 3.0 IGO. Available online: <https://apps.who.int/iris/bitstream/handle/10665/259933/WHO-WHE-IHM-2018.1-eng.pdf?sequence=1> (accessed on 16 March 2019).
24. Available online: <https://www.socialscienceinaction.org/vision/> (accessed on 10 February 2019).
25. Baggio, O.; Camara, C.O.; Prue, C. Bringing Community Perspectives to Decision-Making in the Ebola Response in the Democratic Republic of Congo. *Social Science for Humanitarian Action*. 2019. Available online: <https://odihpn.org/magazine/bringing-community-perspectives-decision-making-ebola-response-democratic-republic-congo/> (accessed on 21 March 2019).
26. Bedford, J.; Gercama, I.; Bardosh, K. Social Science and Behavioural Data Compilation—November 2018, *Social Science for Humanitarian Action*. 2018. Available online: [https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/14144/SSHAP\\_data\\_compilation\\_brief\\_November\\_2018\\_updated.pdf](https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/14144/SSHAP_data_compilation_brief_November_2018_updated.pdf) (accessed on 19 December 2018).
27. Bedford, J. Key Considerations: Changing Behaviours & Care-Seeking Practices in the Grand Nord, North Kivu, DRC. *Social Science for Humanitarian Action*. 2018. Available online: [https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/14050/SSHAP\\_changing\\_behaviours\\_and\\_care\\_seeking\\_practices.pdf?sequence=1&isAllowed=y](https://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/14050/SSHAP_changing_behaviours_and_care_seeking_practices.pdf?sequence=1&isAllowed=y) (accessed on 22 February 2019).
28. Ripoll, S. Social and Cultural Factors Shaping Health and Nutrition, Wellbeing and Protection of the Rohingya within a Humanitarian Context. *Social Science for Humanitarian Action*. 2019. Available online: <https://opendocs.ids.ac.uk/opendocs/ds2/stream/?#/documents/3587036/page/1> (accessed on 19 March 2019).



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