

WATER, SANITATION AND HYGIENE IN POST-EMERGENCY CONTEXTS

A study on establishing sustainable service
delivery models

ST JOHN DAY AND TIM FORSTER

Large-scale and complex emergencies often occur in countries where government institutions have weak coping capacity. They may struggle to deliver essential services routinely, even in non-emergency situations. This has serious implications for the way in which emergency water, sanitation and hygiene services are managed long-term and in the transition from emergency to post-emergency situations.

UNHCR and Oxfam commissioned this study to better understand how emergency WASH services are delivered, and to identify how the provision of infrastructure can lead to sustainable service delivery and a more professional management mechanism. As many humanitarian crises are protracted in nature, emergency WASH services need to be sustained once humanitarian agencies depart. This report aims to review and identify alternative service delivery options, and to provide some pragmatic guidance that can be incorporated into emergency response programmes and tested, evaluated and built on in the future.

This research report was written to share research results, to contribute to public debate and to invite feedback on development and humanitarian policy and practice. It does not necessarily reflect the policy positions of the organizations jointly publishing it. The views expressed are those of the author and not necessarily those of the individual organizations.

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ABBREVIATIONS

ARRA	Administration for Returnee and Refugee Affairs (Ethiopia)
Capmanex	Capital maintenance expenditure
CMP	Community Managed Project (Ethiopia)
CRRF	Comprehensive Refugee Response Framework
CWA	Consolidated WASH Account (Ethiopia)
DRR	Disaster risk reduction
IDP	Internally displaced person
INGO	International non-government organization
ITS	Informal tented settlement
KII	Key informant interview
MoWIE	Ministry of Water, Irrigation and Electricity (Ethiopia)
NWSC	National Water and Sewerage Corporation (Uganda)
O&M	Operations and maintenance
OPM	Office of the Prime Minister (Uganda)
OWNP	One WASH National Programme (Ethiopia)
PO	Private operator
RWE	Regional Water Establishment (Lebanon)
SSUWC	South Sudan Urban Water Corporation
STA	Settlement Transformative Agenda (Uganda)
UNHCR	United Nations High Commission for Refugees
WASH	Water, sanitation and hygiene
WTP	Water treatment plant

SUMMARY

Delivering water, sanitation and hygiene (WASH) services in response to emergencies is difficult work. However, the transition from emergency to post-emergency and longer-term recovery is arguably even more challenging. The key consideration is how emergency WASH services will be managed in the long term when humanitarian agencies depart and government institutions lack capacity in terms of skills, knowledge and resources. In professional emergency response, services are often provided free of charge and are delivered with minimal participation by users. National and local government institutions may be sidelined or may be unwilling to assume responsibility during the acute phase of a response, and institutional capacity, as well as credible governance and finance mechanisms, may be lacking. This means that sustainability of service delivery is difficult to achieve.

Against this backdrop, UNHCR and Oxfam commissioned a study to look at sustainable WASH service delivery models in humanitarian contexts. The study was concerned primarily with the transition to and management of post-emergency situations. This is an area of work that is much neglected, with very little documentation of professional good practice. Methods of analysis for the study included a short literature review, field visits to Ethiopia, Lebanon, South Sudan, Uganda and Tanzania and key informant interviews with senior WASH sector professionals.

Large-scale human displacement within or across national borders often results in the establishment of densely populated camps and settlements. In such situations, water and sanitation demands are more like the requirements of a city or a town than those of a rural community. Emergency WASH systems are frequently large-scale and require relatively sophisticated technology. In the short to medium term these services are generally operated and maintained by humanitarian agencies, but at some stage they will need to be managed by other entities. Management structures have to address a wide range of operational, commercial and financial duties, which means that they should be professionalized rather than relying on volunteerism from users. They must be accountable to poor and vulnerable members of affected communities and not driven by profit, though they will need to be financially sustainable.

This study draws attention to four important considerations. The first is the requirement to strengthen standards of WASH service delivery. This is needed because serious failings in the quality of implementation will act as a deterrent for any future management operator. The second concerns the need to rationalize the number of INGOs and UN agencies involved in the post-emergency phase, so that water supply and sanitation services can gradually become viable business models and financially sustainable. The third requirement is to conduct an assessment of the enabling environment (i.e. conditions), which will help to determine the most realistic service delivery model. This will depend on the context. The fourth requirement is to encourage government to set clear policy and strategy directions. This requires mandated institutions (service authorities) to articulate realistic levels of service performance so that business models and financial plans can be established accordingly.

1 INTRODUCTION

UNHCR and Oxfam commissioned a study in October 2017 to look at the sustainability of water, sanitation and hygiene (WASH) service delivery in humanitarian situations. The study comprised two interlinked elements, with the overall aim of helping to strengthen the management of WASH services in the transition from emergency to post-emergency and long-term situations.

The first element of the study was to visit emergency programmes responding to humanitarian crises in Ethiopia, Lebanon, Uganda, South Sudan and Tanzania in order to better understand how emergency WASH services are delivered, while the second was to identify how the provision of infrastructure can lead to sustainable service delivery and a more professional management mechanism. The main reason for developing stronger management models is that many humanitarian crises are protracted in nature and emergency WASH services need to be sustained once humanitarian agencies depart.

This report draws on a literature review, key informant interviews (KIIs) and rapid case study reviews of emergency response programmes in five countries (Ethiopia, Lebanon, South Sudan, Tanzania and Uganda). All of the countries visited have been facing large-scale refugee crises, and case study reports for each (see below) provide details of their humanitarian and WASH contexts.

SETTING THE SCENE

Humanitarian emergencies or disasters can take many forms and can happen either gradually (such as slow-onset droughts and famines) or suddenly (such as earthquakes and floods). People may be displaced and destitute, with little opportunity to return home. If they cross international borders or are forced to flee their country because of war, violence or persecution, they become refugees. If displaced within their own countries, they are categorized as internally displaced persons (IDPs). Naturally such displacement causes serious disruption to the functioning of communities and societies, and the adverse impacts often exceed the capacity of those affected to cope using their own resources (Carter, 2015).

Large-scale and complex emergencies (such as conflict and cross-border fighting) often occur in low-income countries or fragile states, where government institutions have weak coping capacity. Typically, they may struggle to deliver essential service authority¹ and service delivery² functions routinely even in non-emergency situations. This has serious implications for the way in which emergency WASH services are managed long-term. While much has been written about WASH in emergency and development contexts, relatively little has been written about the transition from emergency to post-emergency situations. However, it has become increasingly clear that the sustainability of emergency WASH systems that continue to function over time and provide benefits to refugee and host populations is largely inadequate. Improvements are required in aspects of both service authority and service delivery. It is ultimately the service authority level that must create the enabling environment and provide clear policy direction and strategy as well as undertaking key oversight and coordination functions at national and local levels.

This short study aims to help address this gap in knowledge and is concerned with reviewing and identifying alternative service delivery options. It is worth noting that this by no means the last word on service delivery models in humanitarian situations. However, it aims to provide some pragmatic guidance that can be incorporated into emergency response programmes and tested, evaluated and built upon in the future.

STUDY OBJECTIVES

The issue of the weak sustainability³ of water supply and sanitation systems in non-emergency situations is well documented. Existing research has focused on service delivery models in both rural and urban contexts, and this has resulted in wider interest in alternative management models in emergency situations. However, the problem is three-fold: (1) emergency WASH services need to be established rapidly; (2) the public sector (such as district authorities) often has limited involvement during the acute phases of an emergency and its capacity remains weak; and (3) the enabling environment for alternative service delivery models is rarely adequately assessed. These problems follow on from numerous weaknesses in WASH sector implementation, management and financing.

In response, this study aims to review current challenges and identify alternative management approaches. It draws on a review of recent literature, KIIs and case study work. The specific objectives of the study were as follows:

- document examples of different WASH management models being applied in humanitarian contexts;
- carry out a series of interviews with WASH sector professionals and key informants at international, national and local levels;
- undertake rapid analysis in Ethiopia, Lebanon, South Sudan, Tanzania and Uganda to identify common factors that affect the performance and management of WASH services;
- provide guidance on the most viable management models, setting out a rationale and detailing how these models can be applied in humanitarian contexts.

From the outset, it is important to note the limitations of this study. Its scope was limited to a literature review, interviews and five short case studies with the researchers spending one week in each country. Other primary limitations were that time and resources to conduct in-depth interviews were limited, and that the data collected was primarily qualitative and less quantitative data was collected. Furthermore, the study was undertaken primarily by just two consultants, so it may not always capture wider perspectives.

METHODOLOGY

The study approach consisted of a simple three-step process. The first step was to identify appropriate Oxfam country programmes to visit. This involved determining the willingness of country programmes to support field visits and identifying the category of humanitarian emergency taking place (see Appendix 4). Ethiopia, Lebanon, South Sudan, Tanzania and Uganda are all experiencing complex emergencies as a result of cross-border conflict and/or internal fighting. Additionally, Ethiopia is experiencing climate-related complications such as drought. Step two involved a literature review of work that focused specifically on management models in humanitarian and development contexts. Step three consisted of follow-up interviews with a number of senior WASH practitioners who have worked in either humanitarian or development contexts, or both. The objectives of the field visits were to:

- visit refugee camps or IDP settlements in all five country programmes to better understand the local context and to see what WASH-related activities are currently being undertaken;
- meet with senior members of central and local government, UN agencies and international non-government organizations (INGOs) to understand national policy and current thinking on strengthening WASH management models;
- engage with displaced and host communities to understand their thoughts and views on WASH service delivery;
- discuss with UNHCR and Oxfam country teams (and others) what can realistically be achieved, given normal programme challenges and institutional constraints.

2 BACKGROUND

Water supply, sanitation and hygiene promotion are critical determinants for survival in humanitarian situations. People may live in densely populated settlements and be susceptible to faecal-orally transmitted illness (such as cholera) and vector-borne illness, largely as a result of inadequate WASH services. This section briefly discusses the various components of WASH and outlines the commonalities and differences between emergency and non-emergency settings. This has important implications when selecting appropriate service delivery models.

WATER SUPPLY

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. This naturally means that service provider functions (and management structures) are also different. Standards for water supply in emergencies typically focus on access, quantity, quality and reliability. The approach is similar to that adopted in non-emergency situations, but with some noticeable differences: five in particular stand out.

- First, an important difference is that displaced people may participate relatively little in the planning and design of emergency water supplies. This means that user management capacity may not be strengthened and the solid base needed for long-term sustainability may be absent.
- Second, emergency WASH infrastructure is often large-scale and involves relatively complex technology (such as water treatment and piped water systems). Often, all hardware (pumps, pipes and spare parts) is procured by UN agencies or INGOs and alternative systems or links with suppliers are rarely established.
- Third, people may have limited ability to make a capital contribution (let alone contribute to recurrent costs) when water supplies are being established. A capital contribution may take the form of labour, materials or cash. Financial contributions are important because emergency water supply needs to be of high quality and the water is treated with chlorine, which has additional cost implications.
- Fourth, densely populated camps or settlements place significant demands on local water resources. In such circumstances, a fundamental requirement during the emergency phase is to assess medium- and long-term water demand, ensuring the delivery of safe and adequate water supplies in accordance with Sphere minimum standards (Sphere Project, 2018). This requirement highlights the importance of assessing current and future water availability and quality, and is described in more detail below.
- Fifth, when emergency WASH systems are being established, local and national institutions are often inadvertently sidelined or they may be unwilling to assume responsibility for refugee or IDP needs. Weak government institutions have limited capacity in terms of financial, material and human resources. This means that external support mechanisms for the management of WASH services, which should be provided by the service authority, are often lacking.

Box 1: Water supply needs of refugee/IDP camps

A refugee or IDP camp, designed to the Sphere minimum standards, can result in a population density in excess of 22,000 people per km². Assuming that each person receives 15 litres of water per day, the recommended minimum in the Sphere guidelines, this implies a daily demand of 330m³ of water per day per km². Annually, this amounts to 120,450m³ per km². This volume of water equates more to the water demand of a city than of a rural settlement and it has implications for the design of water supply systems and proposed management structures (Carter, 2007).

SANITATION

The term 'environmental sanitation' typically refers to excreta disposal, vector control, solid waste management and drainage. The initial priority in an emergency is to keep the environment free from hazardous waste and to reduce the transmission of disease by animal and insect vectors. Initially, emergency interventions may focus on the construction of communal latrines and maintaining the wider natural environment (such as land and groundwater resources). Over time the emphasis will be on constructing household latrines to improve access, security and dignity and to encourage improved hygiene behaviours. The construction of latrines during the acute phase of an emergency is often undertaken by humanitarian agencies, and materials and labour are subsidized fully. Later interventions may focus on providing households with the materials to build their own latrines. This decision is often based on the ability of households to construct their own toilet facilities – for example, if the ground conditions are favourable for digging and community members are physically capable.

All components of the sanitation system should be considered when planning sanitation interventions. Often the focus is on the provision of sanitation technologies and on keeping latrines safe and clean. However, other operations and activities also need to be addressed, such as the collection and storage of excreta without contaminating groundwater and its removal and transportation, treatment, safe disposal or re-use. In emergencies, the components of a sanitation system are rarely developed and institutional responsibility for sanitation is often unclear. When an emergency or crisis comes to an end, humanitarian agencies need to work with municipalities and local councils to ensure that the whole sanitation system is functional. In the research for this study, it was evident that many service delivery partners are focusing primarily on the management of water supplies; however, any service delivery model also needs to address aspects of environmental sanitation, particularly faecal sludge and solid waste management in emergency situations.

HYGIENE PROMOTION

The purpose of hygiene promotion in emergencies is to mitigate diseases related to water, sanitation and hygiene. A common approach involves providing communities and households with knowledge and information, mobilizing people to take preventive action and providing essential materials and facilities.

Sound hygiene promotion is arguably the most important intervention for health, but it is often the most difficult aspect of WASH to address because it requires planned and systemic change in people's behaviour and habits. Hygiene promotion in emergencies cannot simply be a technical response. Once the initial phase of an emergency is over, systems need to be established to ensure that local institutions (whatever form they take) can sustain, manage and finance lasting behaviour change.

3 LITERATURE REVIEW

This section briefly explores the research topic through existing literature, which helps to demonstrate current thinking. Gaps in knowledge in relation to WASH management models in humanitarian situations are also highlighted.

HUMANITARIAN CONTEXT

The impact of humanitarian emergencies is inevitably far greater in low-income or fragile states than in developed and industrialized countries. This is because national and local institutions are weak and economies struggle to cope with shocks. In these countries periods of relative stability, in which some progress is made on development efforts, are punctuated by periods of crisis that have long-lasting impacts (Carter, 2015). Effective long-term development is clearly the best form of disaster risk reduction (DRR), but this requires good governance, capable institutions and a strong national economy. However, the transition from an inferior situation to a much better one is lengthy and difficult to achieve. Because of these multi-faceted challenges, community management of services is often promoted as an alternative option in low-income and fragile states.

COMMUNITY MANAGEMENT

The responsibility of communities to manage their own water supplies and sanitation services forms a central component of much WASH sector policy and strategy (World Bank 2017; Lockwood and Le Gouais 2015; Lockwood and Smits 2011; WaterAid 2011). To date, this approach has been applied largely in rural and small town contexts. In some places it has worked well but in others less so, and the achievement of sustainability is a particular challenge in resource-scarce and difficult environments. Three challenges in particular stand out. The first concerns the limited ability of communities, local government and other entities to manage services once the infrastructure has been built. All entities have weaknesses to some degree and invariably communities receive limited external support for major problems that may arise, which means that they become isolated. The second problem concerns the limited financial revenues generated to sustain WASH services. Typically, financial sustainability is not addressed and adequate cost-sharing arrangements are not established; this problem exists equally for point water sources, multi-village schemes and urban water supply systems. The third factor relates to the way in which WASH services are delivered, with other key factors that contribute to sustainability (such as water resource assessments) often being overlooked. Recent literature (World Bank, 2017; Lockwood and Le Gouais 2015; Chowns, 2015; WaterAid, 2011; Lockwood and Smits, 2011) suggests that community management structures are really only viable for relatively simple technologies. Effective external support is still required for major breakdowns that may occur and externalities that exceed community capacities. The embedding of community management within national policy and strategy, with associated support mechanisms, is widely encouraged but in fragile states is yet to come to fruition on a large scale. This approach is commonly referred to as a 'community management-plus' model (WaterAid, 2011; Moriarty and Verdemato, 2010; Bauman, 2006).

Communities that are displaced are particularly vulnerable. They require rapid support and assistance and will have limited ability to manage emergency water and sanitation services. Host populations are also affected as greater demands are placed on their services. As a result, the suitability of

community management structures in humanitarian situations is highly questionable. Limitations are highlighted further by the following questions:

- How can displaced communities form management structures when there is an unwillingness to serve voluntarily long-term?
- How can displaced communities operate complex water supply systems consisting of treatment plants, transmission lines, storage facilities, distribution lines and water points?
- What should refugee or IDP communities do if major operational or commercial problems arise?
- To whom can they turn, particularly if government institutions are not effective during the emergency programme?
- User-generated revenues will likely be non-existent to cover operations and maintenance (O&M) costs, let alone other recurrent costs. Where will long-term subsidies come from?

PROFESSIONALIZED MANAGEMENT MODELS

In response to these sustainability challenges, some WASH sector professionals have been calling for the recognition of wider governance issues and more professional management models (see Whaley and Cleaver, 2017; Lockwood and Le Gouais, 2015; Adank et al., 2013; Carter, 2011; Lockwood and Smits, 2011). Professionalizing in its simplest form means building state capacity to deliver high-quality services, hiring professional staff or outsourcing to private companies that can deliver services efficiently to agreed service performance levels. It also means that the management burden on users is reduced. A recent study (World Bank, 2017) identified three professional management models, apart from self-supply and community management, that are currently being applied: in urban and peri-urban areas, services operated by local government water departments, public utilities or private operators (POs) are commonly adopted alternatives for managing water supply and sanitation systems.

In Uganda and Ghana there are examples of small and medium-sized towns successfully managing their own water supplies. For example, Ghana established a water and sanitation board for distribution and service provision, while the Ghana Water Company Limited managed bulk water supply (Adank and Tuffuor, 2013). However, these systems took time to evolve and required the presence of favourable conditions, such as a strong direction for national policy and strategy, capable institutions, adequate financing, strong financial and environmental regulation and realistic service performance indicators. Many urban water utilities remain weak and struggle to break the cycle of poor service performance coupled with limited revenue generation. Often there is a strong focus on building new infrastructure systems (termed an 'implementation-focused' approach), but much less consideration for establishing business models, reducing physical losses and increasing revenue generation (termed a 'service delivery' approach). This means that many utilities are still not financially viable, and successful utilities will choose to operate only in towns and cities where they can generate a profit.

Humanitarian emergencies present their own unique challenges. Without the three elements of high-quality assets, realistic service performance levels and revenue generation, there will be little willingness on the part of other operators (private or public) to take on management responsibilities once humanitarian agencies depart. This implies that emergency WASH systems must transition from life-saving measures (implementation-focused) to become more viable business models (service delivery-focused).

HYGIENE PROMOTION

It is also important to mention hygiene promotion, because this often receives less attention from water utilities than water supply and sanitation. Any professionalized management structure will need to take on a wide range of operational, financial and commercial duties. However, the maintenance of good health is also a priority and there must be careful consideration of how hygiene promotion can be linked to management structures, which by default often focus solely on the provision of water supply.

In the acute phase of an emergency, humanitarian agencies are active in engaging with displaced people, profiling communities and carrying out rapid assessments of hygiene behaviours. The focus is often on forming community health clubs, problem solving around health issues and providing access to hygiene goods and materials. Over time there will also be a requirement to listen to communities to see how they want programmes to evolve.

If management models are to shift from a community-based structure to a water department, utility or PO model, then it will be necessary to ensure that community user groups or health clubs can also play an active role. Typically, they should be involved in ensuring that water points are kept clean, water is stored in a safe manner and household latrines are clean. Health clubs or community user groups could also help to monitor service performance levels and coordinate responses to any grievances that people may have, acting as a point of contact for the water supply operator.

4 HUMANITARIAN SITUATIONS

This section introduces case studies from five countries facing emergency situations and highlights important work that is already being undertaken. This information provides a context in which to place the discussion that follows.

From the outset, a number of qualifications should be highlighted. The country case studies are based on a series of short field visits each of approximately one week's duration. This means that the field visits did not lead to comprehensive assessments or pilot studies; rather, they provided an opportunity to see humanitarian responses in action and to seek a range of views on possible measures to strengthen WASH management models. For this reason, this section aims to provide insights into current thinking in each country programme, rather than presenting 'results'.

CASE STUDY 1: ETHIOPIA

Ethiopia's WASH context is extremely challenging. The country faces regular water scarcity, recurrent drought and both internal and external pressures created by migration. Certain regions face increased pressures and so are particularly vulnerable. In spite of these challenges, Ethiopia's WASH sector has made some impressive progress over the past 20 years. Some 45 million people have gained access to an improved water supply and 48 million to sanitation services. This has been due (in part) to improved sector coordination and planning, with the establishment of the One WASH National Programme (OWNP), the Consolidated WASH Account (CWA) and the Community Managed Programme (CMP) approach to rural water supply. However, Ethiopia's WASH sector must also evolve to cope with a growing population and industrialization, while also ensuring that regional states do not become ever more vulnerable.

In lowland areas of the country the situation is particularly challenging, as refugees and IDPs put increased pressures on limited human, material and financial resources. In March 2017, there were approximately 830,000 registered refugees and asylum seekers from more than five countries in Ethiopia (see Table 1). In addition, more than 680,000 IDPs have been recorded, driven from their homes by recurrent drought, food insecurity and conflict (DFID, 2017).

Table 1: Refugee population of concern in Ethiopia

Refugees in Ethiopia by country of origin (as of December 2017)	
South Sudan	421,867
Somalia	253,889
Eritrea	164,668
Sudan	44,386
Yemen	1,771
Other nationalities	5,974

Source: UNHCR (2018)

The WASH response to refugees and IDPs falls outside the remit of the OWP, which means that there is much less engagement from key line ministries, such as the Ministry of Health and the Ministry of Water, Irrigation and Electricity (MoWIE). Activities are coordinated mainly by the Administration for Returnee and Refugee Affairs (ARRA) and by UN agencies. This is well

intentioned, but it can make the coordination of sanitation and hygiene promotion interventions difficult. Government funding for the refugee crisis is also limited and is largely dependent on international donors.

The OWNP (in theory) covers the whole country, but the plan is not adequately financed. Over a quarter of Ethiopia's districts (Woredas) are not covered by the CWA or the CMP approach; these areas are mainly in Afar, Gambella and Somali Regional States and in the Southern Nations, Nationalities and Peoples Region (SNNPR) and Benishangul Gumuz Region (BSG). This creates a dilemma and has major implications for the way that WASH services are managed in humanitarian situations. DFID is providing £10m of support for WASH provision in areas facing protracted human displacement; however, this is being delivered through UNICEF and remains separate from the One WASH Plus funding mechanism.

Gambella is one region that has experienced a large influx of refugees. Water supply systems here typically consist of multiple boreholes drilled in productive zones, such as along the banks of the Baro River near Itang town. Water is then pumped via lengthy pipe networks to a series of storage reservoirs, where enough chlorine is added to ensure a residual trace at the point of collection. Distribution pipes then serve the various camp zones, and are operated by INGOs. Distribution points include water kiosks, public water points and hydrants for water trucking. Water supply systems are large in scale and transmission and distribution pipe networks extend to over 20km in length. This means that various service and auxiliary buildings have also been constructed, such as pumping stations, booster stations, offices for staff and guardhouses.

In the absence of adequate support from Regional Water Bureaus and Woreda offices, many water supply systems are being operated and maintained directly by humanitarian agencies. However, an important difference is that, unlike neighbouring countries, Ethiopia is also establishing rural utilities to operate and maintain emergency WASH services. The utility model has a particular focus on large piped water supply systems and is being led by UNICEF and UNHCR, with the backing and support of other agencies: the Regional Water Bureaus, Itang Woreda Water Office, ARRA, the International Rescue Committee and other development partners (UNHCR, 2017a).

The proposed rural utility management structure consists of a general manager, an operations and maintenance team, a financial team and a human resources and administration team (see Appendix 2). A revised business plan estimates that one of the new rural utilities, based in Itang, will need to serve a host population of 30,000 people (20,000 in Itang and 10,000 in Thurfam), as well as local refugee populations amounting to 72,869 people in Tierkidi, 54,567 in Kule and 99,651 in Nguennyiel.⁴ This adds up to nearly 257,087 consumers, of whom nearly 90 percent are refugees with limited ability to pay for water supplies. The proposed strategy is for the water utility to bill UNHCR for refugee customers based on the metering of water delivered in each camp. Unlike in host communities, the ability of refugees to pay requires a change in government policy that would allow them to work and earn income, based on pledges made under the Comprehensive Refugee Response Framework (CRRF).⁵ In the long run, this will improve their ability to pay for water supplies.

This means that the rural water utility model is still open to scrutiny. Will standards of service delivery be defined and will real operating costs be calculated before handover? Will physical assets be assessed before handover? Will financing mechanisms be established to cover shortfalls in revenue generation? Will utility staff have the capability to manage water supply services at scale?

One of the key observations from the Ethiopia visit is that rural utilities should strive for professionalism from the outset, rather than hoping that management structures will grow into the role. This is important because refugee communities are often more empowered than host communities to demand better services. For example, South Sudanese refugees in Gambella are acutely aware of the responsibilities of government and humanitarian agencies and are not afraid to voice their dissatisfaction if humanitarian assistance is unreliable.

CASE STUDY 2: LEBANON

The Syrian conflict, now in its seventh year, has caused one of the largest displacements of people in the world, with an estimated 5.5 million Syrians displaced from their homes. As of June 2017, just over one million Syrian refugees were officially registered with UNHCR in Lebanon (Government of Lebanon and United Nations, 2017). UN agencies and NGOs have been working hard to provide them with improved water sources. In a recent survey,⁶ 78 percent of respondents reported having access to improved drinking water sources, with 77 percent having access to improved sources of drinking water either in their dwelling/yard/plot or within a 30-minute round trip collection time. The main issue regarding access to water was not its availability but its quality and affordability. Meanwhile 86 percent of household members reported having access to improved sanitation facilities, namely pour-flush toilets (56 percent) and improved pit latrines (30 percent).

Providing support to refugees who have limited or no access to basic water supply and sanitation continues to be a costly challenge. An unintended side-effect in Lebanon is the development of an expensive parallel market that competes with cheaper public service provision. Of the 272,000 people residing in informal tented settlements (ITS), 61 percent still rely on unregulated water trucking, often from unlicensed water sources. The cost to the humanitarian sector in 2016 was an estimated \$17m.⁷ Similarly, 71 percent of people in informal settlements require regular desludging services, which in 2016 cost an estimated \$8.6m.⁸ Toilet waste collected through these privately run services is unlikely to be treated, adding further to health and environmental risks. Overall, it has been estimated that the cost for refugee households residing in ITS amounts to 6.45 percent of household expenditure for water trucking alone in the absence of any humanitarian assistance. This is significantly higher than the internationally acceptable level of 3 percent of household expenditure going on water (Oxfam, July 2017).

The provision of WASH systems to host communities was previously not a priority for the humanitarian community, and it is also a source of contention with local government. Before the Syrian crisis began, water resources in the Bekaa Valley were either largely over-exploited or highly stressed due to the profusion of unregulated private wells. The agriculture sector is a particularly significant stressor, as it accounts for 61 percent of total demand and is marked by outdated practices and inefficient systems. On top of this, over 50 percent of public water networks have exceeded their useful design life, with losses 13 percent higher than the global average. Research undertaken by Oxfam in the Bekaa Valley in 2017⁹ indicates that opinions are divided in host Lebanese communities as to whether Syrian ITS households should be connected to public water networks. Approximately 50 percent believe that the idea is a non-starter, but more than 40 percent said that they might change their opinion if a reliable, good-quality public service was available for all households. If service provision were better, then up to 71 percent of host Lebanese could be willing to accept the connection of Syrian ITS households to the public water network.

The same study recommends that humanitarian agencies should transition to modalities of sustainable water provision for Syrian refugees, as the private trucking model is not financially sustainable, has negative impacts on local and national resource management and reinforces an unregulated informal water market. Instead, agencies should be encouraged to work with Regional Water Establishments (RWEs) to align humanitarian interventions with regional and national water policy plans. International humanitarian funding could provide an opportunity to repair and upgrade existing water infrastructure, thus providing longer-term benefits to both host Lebanese communities and Syrian refugees. However, for this to happen, the Lebanese government, through its respective ministries, would need to fully implement laws that guarantee the institutional and legal autonomy of water utilities, and in turn empower them to manage water resources more sustainably and to work towards full cost recovery. This would require not only a comprehensive national water and

wastewater strategy, to include the regulation of agricultural water use, but also a move towards metering public water supplies and the collection of fees.

These observations highlight that, in the short term, the humanitarian WASH sector in Lebanon needs to work towards individual agreements with municipalities and water utilities for direct service provision to refugee communities, on a case-by-case basis. At the same time, humanitarian agencies need to continue to advocate to government and international donors for the implementation of the changes needed to improve public service provision for both host and refugee communities.

CASE STUDY 3: SOUTH SUDAN

South Sudan's civil war is the epicentre of Africa's largest refugee crisis, and the latest outbreak of violence has lasted for more than four years (see Appendix 1). The total number of South Sudanese refugees living in neighbouring countries stood at 2.43 million in December 2017 (USAID 2018). Fighting is ongoing on multiple fronts and the national economy is in tatters. Inevitably the South Sudan WASH sector is also in crisis. A combination of low coverage of WASH services, the all-encompassing poverty of the overwhelming majority of the population and an extremely difficult working environment mean that the basis for improving WASH service delivery and governance appears unpromising.

A national water policy for the fledgling state was published in 2007. However, the water policy fails to provide adequate direction on standards of service delivery, while the wider conditions for establishing an effective WASH sector are absent. Institutional roles and responsibilities remain unclear, institutional capacity is weak and there is a significant lack of recurrent government finance to sustain WASH interventions. This has major implications for the way in which water supply and sanitation services can be managed in the long term.

In the capital Juba, water supply and sanitation services are (in theory) delivered by the state-owned South Sudan Urban Water Corporation (SSUWC). However, the utility's deteriorating performance means that water services are poor, and other service providers have to contribute to establishing water supply systems. This means that service providers must trial water service management models alongside government and other entities (such as SSUWC). One example is the Gumbo Water Treatment Plant in Juba. This plant has been constructed by Oxfam (via a private contractor) and is operated and maintained through a professionalized community management structure. Commonly, emergency WASH management arrangements in South Sudan rely on humanitarian agencies operating and maintaining services, and this is unlikely to change in the near future. But in Gumbo Oxfam is working outside the main emergency response and is trying to ascertain how alternative management arrangements can be established.

Gumbo is a multi-purpose water treatment plant (WTP) that is designed to supply water to households, bicycle vendors and tankers. It was designed as a solar-powered system, in order to reduce fuel dependency and cut operational costs. It operates by sourcing raw water from the River Nile, which is filtered and purified through a number of processes, ultimately providing clean and potable water to consumers. The system consists of two main components: civil works, including an intake filtration well, sedimentation/chlorination tank, public taps, truck filling station and control room, and electro-mechanical units, including solar panels, water pumps, chemical dosing pumps and control system. In an optimal scenario, the Gumbo WTP is designed to produce 300m³ of water per day, equivalent to 37.5m³ of water per hour, and to serve around 20,000 users.

The original management structure was based on the voluntary community management model, with users being active in planning and designing the water supply system. Originally it was intended that the community would be responsible for day-to-day operation of the WTP and all aspects of routine

maintenance. In addition, they were expected to set tariffs, collect payments from users, carry out routine sanitary inspection checks and be responsible for all financial management duties (such as records management and determining real operating costs). Oxfam and SSUWC had a regulatory role to ensure, respectively, that routine maintenance was being undertaken and that service performance levels complied with national standards.

However, due to the inherent complexity of the system and the measures required to ensure the commercial viability of its operations, Oxfam and its partners (SSUWC and local government) recognized that more extensive external support was required if commercial viability, sustainability and provision for poor urban consumers were to be achieved. To address these concerns a new service delivery structure, the Gumbo Water Cooperative Society, was established (see Appendix 3). The management mechanism was designed to foster a closer working relationship between community-based social structures with a market-oriented management style and the existing wider water governance architecture. The rationale for this was that it would promote a 'service delivery' approach rather than an 'implementation' approach and behaviour that closely linked notions of professionalization and collective responsibility with payment, making cost recovery a general practice (Matoso, 2018).

One positive and valuable lesson has been the active participation of the community from the outset. Community members have been trained in skills and areas that otherwise they would struggle to access, and the project has reportedly increased levels of literacy and numeracy. The Gumbo enterprise has also prioritized the active involvement of women, which is gradually translating into women gaining access and taking an active role in the participatory realms of governance, accountability and management – areas where traditionally their involvement has been limited.

It remains to be seen whether the Gumbo operating entity can establish credible management and finance plans. It will also be important to monitor the management system to ensure that problems do not arise that exceed the enterprise's capacities and to ensure that it receives adequate external support from SSUWC, local authorities and Oxfam. To help address this, Oxfam has provided legal support for the registration of the Gumbo management entity, along with technical training on water quality monitoring and the daily running of operations, financial training and help in establishing accountability mechanisms. Oxfam has also spent six months conducting market research and investigating the enabling environment, in order to put together a tailored handover package that provides institutional support for the professionalization of the Gumbo Water Treatment Plant (WTP) operator (Matoso, 2018). This has led to the development of a business plan, coupled with institutional and operational support and training for a period of one year beyond the commissioning and handover date for the WTP. Oxfam has also managed to secure donor support throughout 2018.

It is acknowledged that Gumbo is not necessarily 'typical' of the more complex emergency WASH arrangements in IDP camps in South Sudan. However, Oxfam has carefully documented the project's management arrangements and process, and the Gumbo WTP will serve as an important example for service authorities and service providers when planning how to transition beyond a situation of humanitarian agencies implementing services directly.

CASE STUDY 4: TANZANIA

In 1990 the Kigoma Region of Tanzania hosted large numbers of people fleeing crises in Burundi, Rwanda and the Democratic Republic of Congo (DRC). One camp, the Nyarugusu refugee camp, remained open until 2015 with a longstanding caseload of 30,000 Congolese refugees from the 1990s, who were unable to return to DRC or be resettled in other countries. In 2015 Kigoma once again struggled to cope with the effects of large-scale displacement from Burundi, as well as new arrivals from DRC. Nyarugusu quickly reached its capacity, and further camps were opened in Nduta, Mtendeli and Karago. By the end of 2017 Nyarugusu housed 69,850 refugees (UNHCR Global Focus, 2018), while Nduta had a population of 118,640.¹⁰ Land has been allocated for the expansion of Karago camp, but it has not been able to accommodate any refugees because of the lack of viable water sources.

Camps in the Kigoma sub-region are located in the districts of Kasulu, Kibondo and Kakonko, which are remote and underdeveloped areas close to Tanzania's border with Burundi. The dilemma of sustainability is recognized as a key priority for both the government and the WASH sector in Tanzania. This was reflected in multiple meetings held during the researchers' field visit with various professionals and practitioners working at district and local levels. Particular concern was expressed by the authorities about the use of shared water resources and the inadequacy of WASH service provision in local communities adjoining the large refugee camps. Several water systems, such as hand-pumps and gravity-fed systems, were observed to be broken down and abandoned in these communities. There are also signs that the area is underdeveloped in comparison with other regions of Tanzania. District-level water departments often lack the economic and technical capacity to operate and maintain large-scale water supply and sanitation systems in non-emergency settings, let alone in humanitarian situations. There are no noticeable increases in financial and material resources at the district level, despite increased numbers of refugees. There is also a lack of knowledge about the commercial, financial and business aspects of operating WASH service delivery models.

The coordination of emergency relief in Tanzania does not appear to be overly difficult, though there are numerous actors present in the Kigoma region. Relationships with government are positive, with the camps being managed by government officials from the Ministry of Home Affairs, supported by UNHCR and various international and local agencies. WASH coordination is assured through a number of platforms, including camp coordination meetings, inter-agency meetings and WASH coordination meetings. The district water authorities are active participants in the different meetings, but representatives clearly stated that they have no involvement in how services are run in the refugee camps themselves; it is also clear that the focus of the district water offices is the adjoining host communities rather than refugees. The reality is that INGOs and UN agencies lead on the development of water supply and sanitation services for refugees and the longer-term management of such services is delegated to INGOs, based on their ability to co-finance the interventions. For example, the Norwegian Refugee Council (NRC) is currently taking over the management of WASH services in Nyarugusu refugee camp from Oxfam, as it can co-finance the intervention in partnership with UNHCR. Previously, when Nyarugusu was a smaller camp of around 30,000 people, it was successfully run for over a decade by a local WASH NGO, fully funded by UNHCR. User participation in running and operating WASH services in the camps is recognized as a valid approach at all levels. However, it was clear from discussions with refugees that water provision was seen as a 'right' and there would be no realistic prospect of encouraging refugees to pay for water in the future. Looking forward, it is likely that these refugee camps and settlements will remain in place for years or even decades.

Water systems themselves are managed by INGO/NGO staff, with pumps and water storage facilities being operated by technically qualified staff and day labourers recruited from the refugee population. Experienced operators are paid monthly, while less skilled tasks (e.g. pipe laying) are undertaken by

labourers who are paid daily. The water distribution points are managed by volunteer water committees. In Nduta camp, for example, which has a population of approximately 120,000, there are around 200 water distribution points (tapstands), or nearly 1,000 taps. This leads to very high numbers of water users, making it very difficult for small community mobilization teams to mobilize and motivate more than one thousand volunteers. This results in low levels of 'ownership' and subsequently high levels of vandalism and theft of taps at tapstands. Humanitarian agencies are responsible for repairs and spare parts such as new taps, which results in high O&M expenses on top of day-to-day running costs such as fuel and chlorine. The water networks observed in Nyarugusu and Nduta were technically complicated due to the nature of the terrain and the unplanned expansion of the camps, resulting in inefficiencies in the systems' designs. These system inefficiencies result in higher running costs for INGOs, although efforts are being made to introduce solar pumping technology to try and reduce expenditure on fuel, as well as increasing the funds available for system upgrades.

There are different levels of participation in sanitation, particularly in terms of household latrines. Burundian refugees are adamant that latrines should be provided and built by agencies, including the pit excavation. Refugees from DRC, on the other hand, are prepared to dig pits themselves and to install latrine slabs and superstructures provided by humanitarian agencies. When latrines are full, DRC refugees (old caseload) are nominally responsible for digging new pits and transferring slabs/superstructures to a new location on their plot (plot rotation). However, displaced communities invariably see emergency WASH systems as 'belonging' to development partners and thus the onus for routine O&M often rests with INGOs or UN agencies. Common problems such as high groundwater levels, collapsing latrines (due to unstable soils) and hard bedrock complicate the effectiveness and efficiency of excreta disposal activities. Humanitarian agencies also remain the focal points for hygiene promotion and community mobilization activities, and there are very few initiatives to develop sanitation value chains. Progress on increasing household income through livelihood options also appears limited, and efforts to increase income generation are still ongoing.

Providing WASH services to host communities was not a priority for the humanitarian community, and this was clearly a source of contention for the government officials interviewed. In response, however, agencies have started several initiatives in adjoining communities, including the rehabilitation of existing small-scale water systems and the provision of new water points and communal sanitation facilities in schools. This work is being undertaken in collaboration with local leaders, district water offices, district health offices and other relevant institutions. Inputs include capital costs for infrastructure, technical support and community mobilization for local contributions of materials. On completion, infrastructure or facilities are handed over to the community or, on occasion, to government institutions. The ongoing responsibility for O&M is then assumed by the community (or institution), with financial support coming from government budgets or via contributions from water user groups. Tanzanian government policy allows several different models for community-owned infrastructure, with district water authorities offering a range of legal and organizational frameworks for user groups in rural areas. UNHCR had planned a more comprehensive approach to its refugee response in Tanzania through the CRRF. The CRRF aims not only to protect refugees' rights but also to provide them with access to basic services on a par with Tanzanian nationals, which requires the investment of funds and resources in development projects targeting host communities. However, in Tanzania this ambition was stopped by the government, which cancelled its agreement with UNHCR.

In summary, community management models combined with an INGO or NGO service provider are the default model for service provision in refugee camp settings in Tanzania, while rural water supply management models, rather than professionally managed utility models, are applied to neighbouring host communities. Refugees are often unwilling to engage in voluntary activities for long periods of time; this leads to water user groups with low levels of motivation, and as a result less well managed WASH facilities.

CASE STUDY 5: UGANDA

In 2017 Uganda once again struggled to cope with the effects of large-scale human displacement from South Sudan and DRC (see Table 2). According to UNHCR, over the past twelve months, on average more than 1,800 South Sudanese refugees have fled to Uganda every day, with the vast majority being women and children below 18 years of age (UNHCR, 2017b). During discussions with senior UN sources, it was suggested that there is little prospect that refugees will return to their land and homes in the near future. This means that refugee camps and settlements in Uganda will remain in place for years or even decades.

Table 2: Refugee populations of concern in Uganda

Refugees in Uganda by country of origin (as of May 2017)	
South Sudan	947,426
Democratic Republic of Congo	216,612
Burundi	36,278
Somalia	35,941

Source: UNHCR (2017c)

Sustainability is also recognized as a key priority for the WASH sector in Uganda. This was reflected in multiple meetings held with various professionals and practitioners working at national, regional and local levels. In particular, concern was expressed about the recent breakdown and abandonment of 2,500 water sources (such as hand-pumps), following earlier humanitarian interventions in Northern Uganda. The O&M of WASH systems was described as ‘an afterthought’ by one senior government official. In response, Uganda has developed a far-reaching refugee approach under the CRRF. This framework is designed to protect refugees’ human rights and to provide them with the same access to basic services as Ugandan nationals through improved integration with host communities. However, the application of the CRRF in Uganda in practice appears to lag behind the theory, and it does not prescribe service-level requirements or encourage active engagement by the country’s National Water and Sewerage Corporation (NWSC).

The coordination of emergency relief is notoriously difficult in Uganda. For example, in Bidibidi camp in Yumbe District there are reportedly 20 international humanitarian agencies and four national NGOs serving approximately 290,000 refugees. Approaches to standardize service level standards and improve the efficiency of service delivery are urgently required. Other pressing challenges include the need to phase out water trucking and develop more sustainable water supply options. The reality is that INGOs and UN agencies are leading the development of water supply and sanitation services, and long-term management models are yet to be identified. Increased user participation is recognized as an important factor and efforts are being made to encourage refugees to pay for water, with the installation of water meters. However, as in Tanzania, displaced communities (and sometimes local government) see emergency WASH systems as ‘belonging’ to development partners and thus responsibility for routine O&M often lies with humanitarian agencies. Progress on increasing household incomes through livelihood options also appears to be limited, and efforts to increase income generation are still in their infancy.

Despite these challenges, community management models often appear to be the default model for service providers and government officials, such as those in the Office of the Prime Minister (OPM), especially for point water sources. This forms a central component of Uganda’s national WASH policy. Two common misconceptions are that rural water supply management models (rather than professional management models) can be applied in densely populated refugee camps, and that refugees are willing to engage in voluntary activities over long periods of time.

Concern was also expressed by government WASH officers at sub-county level about the lack of capacity to operate and maintain water supply and sanitation systems in non-emergency settings, let alone in disaster situations. For example, in Palabek camp it was highlighted that downtime while waiting for repairs to water points in host communities can exceed one month, while in camp settings development partners aim to repair water points within 24 hours. Officials expressed concern that there has been no noticeable increase in human, financial or material resources for sub-county offices, despite increased numbers of refugees. Against this backdrop there appears to have been limited engagement with NWSC. This is an oversight, as the utility could potentially provide useful operational, commercial and financial advice when alternative service delivery or business models are established.

The key components of a sanitation system (collection, removal, transportation, treatment, safe disposal or re-use of human excreta) are also not being properly considered. Typically, refugees are provided with latrine digging kits and basic materials for slabs and superstructures. Common problems (similar to those reported in Tanzania) include high levels of groundwater, collapsing latrines (due to unstable soils) and hard bedrock in some areas. Systems have not yet been established to address all aspects of the sanitation chain, and humanitarian agencies remain the focal points for hygiene promotion.

ISSUES EMERGING FROM THE CASE STUDIES

Ethiopia, Lebanon, South Sudan, Tanzania and Uganda are all making steady progress in responding to humanitarian crises, albeit from different starting positions. All five countries are trying to work out how WASH services will be managed in the long term. What is clear is that weak government institutions and the financial sustainability of WASH services are common challenges, but there is widespread interest in understanding what more can be done to establish viable service delivery models.

In terms of humanitarian context, the programmes visited are characterized as providing a high standard of treated water, with subsidized O&M by INGOs and UN agencies, but with users not paying for water. This approach is clearly not sustainable if IDP and refugee camps remain in place for years or become permanent settlements. Complicating matters further is the fact that local institutions responsible for WASH service delivery appear to be sidelined when humanitarian services are designed and constructed. Generator sets, solar pumping systems and other hardware (including pumps, pipes and spare parts) are all sourced, procured, operated and maintained by humanitarian agencies. This means that the links between government institutions, communities and suppliers of spare parts and the question of who pays when major breakdowns occur are often never addressed. Furthermore, the limited capacity of local institutions (in terms of skills, knowledge and resources) is rarely addressed. Consequently, emergency WASH systems and their O&M requirements may exceed the capacities of communities and local institutions.

The lack of support to local institutions (such as Woredas in Ethiopia or sub-counties in Uganda) for capacity building presents major problems. Often it means that community management models are still presented as viable options, though in reality this approach may only work for point water sources (such as hand-pumps) or simple technologies, and such models still require effective external support. However, during the field visits concerns were also expressed about models that depend on volunteerism from users. Many refugees are unwilling to serve voluntarily on water user committees for extended periods of time; the main reason cited was that it distracts from the few income generation opportunities they have.

Community management is unlikely to be a realistic option for major water supply and sanitation schemes where demand is similar to that of a town or small city. Direct local government intervention

also looks unlikely, given that institutions are weak and finances inadequate. In such circumstances the most viable option is likely to be a professionalized service delivery model, such as one involving a water department, water utility or private operator. Wherever possible, the needs of refugees, IDPs and host communities should be addressed simultaneously. Management models should be established as viable business models from the outset, not least in an attempt to attract financing. If they are treated as community-based institutions they may simply remain system operators, and weaknesses in aspects of technical, commercial and financial management will be evident.

In terms of service delivery models, finding sustainable solutions for water supply seems to be the main priority in all five countries, with less emphasis placed on issues of sanitation and hygiene promotion. There are multiple reasons for this, but often responsibilities for sanitation and health are divided across multiple ministries, departments and agencies. This can make it difficult both to establish a clear policy direction and to secure adequate financing. Complicating matters further is the fact that so many humanitarian agencies are involved in implementing emergency WASH services. This means that a transitional approach towards a service delivery model is required, because at some point the number of service providers need to be rationalized.

5 ESTABLISHMENT OF SUSTAINABLE WASH MANAGEMENT MODELS

This section begins by describing some important considerations during the transition from emergency to post-emergency situations. A policy-driven approach is discussed which sets out how sustainable WASH management models can be established. It describes the transition from emergency to post-emergency situations and then illustrates how a business plan could potentially be developed for a water department, utility or PO model. The general structure and functions of the proposed WASH management model are also outlined.

EMERGENCY TO POST-EMERGENCY TRANSITIONS

During the acute phase of an emergency, it is common for multiple international agencies to be engaged in implementing WASH services. These agencies refer extensively to *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response* (updated November 2018) with a focus on the levels of service to be achieved (such as litres of water per person per day). The first requirement in the transition towards sustainable management models is to improve the standards of WASH service provision to minimize risk when assets are handed over to another operator. If service providers do not know the condition of assets they have installed, the service performance levels, the real operating costs (as opposed to operating costs being incurred by humanitarian agencies), the levels of customer satisfaction, the environmental impact or the financial viability of the systems they operate, there will be less chance of utilities or POs successfully taking on management duties. It may seem relatively simple to improve operational, commercial and financial management arrangements, but often these measures are overlooked.

During the transition from emergency to post-emergency, it is reasonable to expect the number of service providers to diminish. The second transition therefore is a shift from multiple humanitarian agencies to a smaller number of service providers who can lay the foundations for a long-term operator model. The type of model selected will depend on the context and the enabling environment created by service authorities. However, for densely populated camps and complex WASH systems a water department, utility or PO model is likely to be the most viable option, rather than pursuing community-based models or trying to build the capacity of local government institutions. Institutional reform programmes require sustained effort over many years, and are often unsuccessful. Even in situations where water sources have been installed, it may be very unlikely that community management structures have the ability to operate and maintain multiple wells or boreholes, let alone address all aspects of the sanitation chain.

When planning alternative management models, it will also be necessary to assess the prevailing conditions in which a water department, utility or PO model would be expected to work. This means that humanitarian agencies should undertake a rapid assessment of the conditions (the enabling environment) to determine which model is the most viable and will receive government support. National governments are responsible for setting policy and strategy, providing recurrent finance and supporting coordination. This is important because it defines the characteristics of how emergency WASH systems should be managed long-term. If direction from the service authority is lacking, there will be little possibility that appropriate service performance levels or finance mechanisms will be established. The third requirement, therefore, is to advocate for clear policy objectives and to support the development of realistic business and financial plans. If this is lacking, then service providers should interpret current policy and propose the most viable management models and service

performance standards. This stepped approach is shown in Figure 1 and is discussed in greater detail below.

Figure 1: Overarching approach with policy-driven objectives



GOVERNMENT SETS POLICY OBJECTIVES

If a humanitarian response is to be successful, one of the most pressing requirements is for the host government to set out clear policy and strategy objectives. National policy should be realistic and objective-driven, and policy objectives should be time-bound and measurable to a defined standard. This is important because it will provide a foundation for local government and humanitarian agencies to develop business plans for sustainable WASH service delivery models. There are four main policy considerations. The first requirement is for sector-specific policies that set out standards for service performance, roles and responsibilities and institutional powers for regulation. When these parameters are clearly defined, they will support the development of business plans for WASH service delivery models. If this is not forthcoming, service providers will need to define these parameters directly with government. Next, the government should have clear economic policies that set out how it will pay for emergency programmes and how it proposes to cover any financial deficit, and this information needs to be communicated to the WASH sector. The third requirement is for clear social policies that protect poor and vulnerable communities, and the fourth is to put in place policies to safeguard the natural environment.

ESTABLISHING A BUSINESS PLAN

In its simplest form, the business plan should determine the level of service that will be provided, based on policy objectives. This should focus on outputs such as adequate water quantity, water quality, hours of service, reliability and efficiency. Sanitation outputs may typically include access, suitability, collection, safe disposal and efficiency. Once the required level of service performance has been identified, the real costs of service delivery need to be determined and agreed. This means that business plans will need to define operational costs and revenue collection opportunities, ascertain investments required to maintain assets and identify all potential sources of financing (such as tariffs, transfers and taxes). To address these issues there will need to be close inter-relationships between government, service providers, users (and paying customers) and regulators. It should also be borne in mind that water departments, utilities or POs will most likely be inheriting assets from humanitarian

agencies. Ideally, efforts will already have been undertaken by INGOs and UN agencies to make water supply and sanitation systems as efficient and reliable as possible.

COST-SHARING ARRANGEMENTS

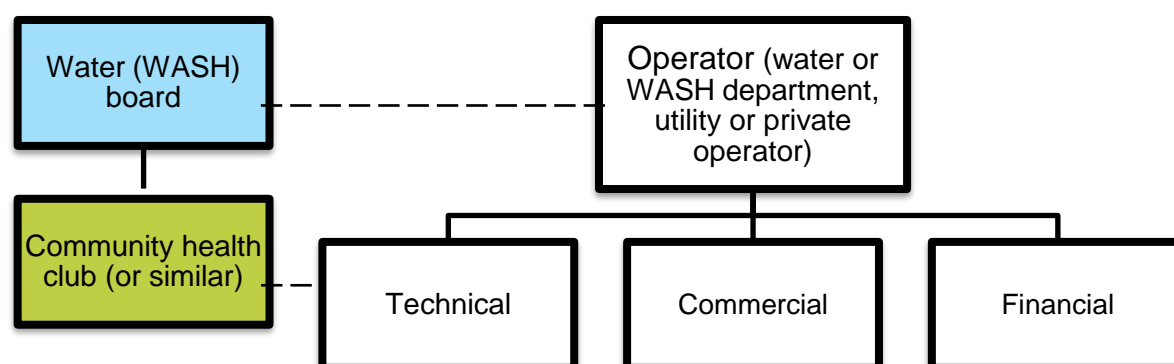
In theory, the functions of a utility, water (or WASH) board or PO are relatively straightforward. They need to be able to provide water on demand, at the prescribed quality and quantity. They need to collect, remove and dispose of faecal sludge and solid waste in accordance with environmental regulations. They also need to continue to help promote sound hygiene behaviour practices. In the absence of adequate user contributions, utilities need revenue to carry out WASH functions, and revenue needs to cover O&M costs at a minimum. This means that humanitarian agencies should work with government to develop realistic cost-sharing arrangements. Primarily, there are four important questions to answer:

- What resources do we need to do this?
- How are we going to do it and by when?
- What will it cost?
- Where will the money come from?

WASH MANAGEMENT MODEL

The functions that water (or WASH) boards and operators (water or WASH departments, utilities or POs) are expected to perform can be broken down into three broad categories (see Figure 2). The functions of each category are discussed below and some important considerations are highlighted in Table 3.

Figure 2: WASH management structure



WATER (OR WASH) BOARD

In the absence of an effective national regulator, it may well be necessary to establish a local water or WASH board to oversee operations. Such a board may or may not already exist, depending on the context and whether the host community has an existing small town water supply system and, if so, whether it is operating efficiently. The primary role of the water (or WASH) board is to provide oversight and decide whether to select a water (WASH) department, utility or PO model. This will depend on the enabling environment, which is discussed at the end of this section. During the initial stages the water (or WASH) board may need to be full-time in order to work with humanitarian agencies to organize the management structure and set service delivery requirements. The composition of the board is critical; typically it should consist of:

- local leaders who have the trust of both host and refugee communities
- some water and sanitation sector professionals (technocrats) who have experience in engineering, commercial and financial management
- user representatives from both host and refugee or IDP communities
- representatives of district WASH staff
- health professionals who can advise on the provision of hygiene goods and services.

The water (or WASH) board should report to both the users of WASH services and to local or regional authorities within government. Over time and with experience, typically the board may meet on a monthly basis to oversee progress and ensure openness and transparency.

OPERATOR

The design of the operating structure will depend on the size and type of water supply and sanitation systems in place. However, the terms and conditions for the recruitment management staff should be attractive and should include training and development opportunities, as well as remuneration. Typically, the attributes needed in a manager are a strong technical background and commercial awareness, good leadership and project management skills, and an understanding that the water supply and sanitation systems serve users and that the role is fundamentally about service performance rather than profit. Other technical, commercial and financial considerations are outlined below.

Technical

The operator should have the ability to assess the water supply and sanitation assets that they will inherit. This should include making recommendations for bulk flow metering and carrying out any repair of leakages to minimize physical losses before systems are handed over. The operator must have the ability to establish an asset management plan in order to sustain (or improve on) levels of service performance established by humanitarian agencies. This should be aligned with the policy objectives and service performance standards set by government. The operator should also have the ability to operate and manage WASH services, as well as performing routine maintenance. This means that mechanics/technicians should be available locally, as well as having access to spare parts and supply chains. The operator should also ensure that there is adequate customer or user satisfaction with the service by establishing mechanisms for feedback and redress of grievances.

Commercial

Operational, financial and commercial records should be established and should be reviewed before WASH systems are handed over. These should be audited independently. Systems need to be established to ensure that users have a say in determining a mechanism for how services will be run, how users can provide feedback and how grievances can be addressed. Ideally, these commercial management functions will be established in partnership with the lead WASH agency at the design stage. However, given that in many situations this may not be realistic, different commercial models should be explored before water and sanitation infrastructure is handed over.

Financial

Another major consideration is finding adequate finance to fund the operator model. The focus should be on financial sustainability, and three issues in particular need to be addressed. First, the level of 'acceptable' service performance needs to be determined. This will require the establishment of monitoring and key performance indicators and will also require feedback from users. Second, the operator will need to determine the real costs involved in delivering the preferred level of service performance, rather than the current costs that may be incurred by multiple humanitarian agencies. Third, these costs will need to be reviewed to determine whether they are realistic and appropriate. Recurrent costs (such as direct and indirect support costs and capital maintenance expenditure (CapManEx)) should be calculated and efforts should be made to reduce day-to-day operating costs. Where appropriate, tariffs should be accurately calculated and national policy should be clear on the regulation of tariffs. Systems should be in place to maximize tariff collection (as appropriate) and subsidies or cost-sharing arrangements need to be established if refugees or IDPs have limited ability to pay.

FROM LIFE-SAVING INTERVENTIONS TO BUSINESS MODELS

Table 3 outlines a number of important considerations to take into account before WASH services are handed over to another entity, such as a public utility, local water board or PO. While it may have been the case in the past that emergency WASH services were handed over directly to local government institutions, that situation is no longer viable. One aspect of the changing context is that emergency WASH systems should strive to become more like viable business models before they are handed over to local utilities or operators. If national policy objectives are not realistic and WASH services are only partially functioning, there will be little chance of other operators being keen to inherit them.

Table 3: Practical considerations when water supply and sanitation services are handed over

Category	Functions	Further comments
<i>Technical</i>	Perform a technical assessment of emergency WASH hardware (infrastructure)	There is a high amount of risk with regards to the assets an operator may inherit. Assets need to be evaluated to ensure that the choice of technology is appropriate, systems are of high quality and recurrent operating costs are reduced.
	Determine level of service performance	Standards of service need to be determined and agreed with users. Ideally, this will be set out in national policy and strategy by the service authority.
	Determine the most viable supply chain options	It will be necessary to determine the most viable options for spare parts supply chains.
	Perform system operation and maintenance	Routine O&M is needed, and reactionary maintenance to deal with major breakdowns.
	Determine the most viable asset management system	Clarity is needed on who owns the assets (infrastructure) provided and who is responsible for capital maintenance expenditure.
	Identify what role end users can realistically fulfil	Promote relevant involvement of users, but avoid volunteerism.
	Perform an environmental assessment	Basic water resource parameters will need to be monitored year-round to ensure that demands for water do not exceed availability. Environmental resources will also need to be protected from faecal contamination.
	Monitor service levels	Establish systems for ongoing monitoring of service performance and for corrective action.
<i>Commercial</i>	Prioritize user satisfaction	Ensure that users have input in determining the type of services they receive. High levels of satisfaction will also encourage users to pay (those with the ability to do so).
	Provide education to users	Educate users about the benefits of clean water, sanitation and safe hygiene practices, as well as risks if WASH systems are vandalized.
	Develop an information and feedback system	In difficult contexts, people will want information about when water is available and how to raise any grievances they have.
	Establish systems for billing and collection	Systems need to be established so that revenue generation is efficient. This may take the form of tariffs and subsidies.

	Establish a pro-poor focus within the commercial unit	It is highly likely that refugees or IDPs will have limited ability to pay for water. Members of host communities may also have limited ability to pay. Increased ability to pay for water, as a result of livelihood interventions, will need to be assessed over time.
<i>Financial</i>	Perform a financial pre-assessment	Determine how financially feasible water supply and sanitation systems are by calculating their real operating costs. This should result in efforts to reduce operating costs (as necessary) and to establish a viable business model. If financial subsidies are required, these need to be determined.
	Establish basic record management systems	Operational, commercial and financial records need to be maintained before and after WASH services are handed over to an operator.
	Demonstrate financial transparency	Trust in service providers will be eroded if management models are not transparent. Systems therefore need to be established to demonstrate transparency.

Source: adapted from van der Byl (2017)

ASSESSING THE ENABLING ENVIRONMENT

In some emergency situations, government policy may be lacking or unrealistic. Another requirement during the transition process is to assess the enabling environment (i.e. conditions) to determine the most viable management model. There are a number of broad service authority conditions that should be considered, as described below.

1. Political commitment: The response to a refugee or IDP crisis is essentially a political issue because the host government will largely determine how a response should be handled in the long term. This requires a review of national policy, legislation and regulation, as well as clarity about what are acceptable service delivery models, according to national policy.

2. Financial frameworks: Financial disbursements from central to local government institutions are often late and inadequate. The transfer of funds to local WASH institutions should be assessed to determine whether they are adequate to sustain emergency WASH services. This information is vital to determine whether government institutions can operate and manage emergency water and sanitation services. The commercial potential of emergency WASH services also needs to be assessed. Given the limited ability of refugees to pay for WASH services, the degree of financial sustainability and sources of revenue for the proposed management model need to be determined.

3. Capacity building: Often government institutions remain on the periphery while emergency WASH services are being delivered. Institutional roles and responsibilities need to be clarified at the earliest opportunity, and targeted interventions can help to build capacity. However, institutional reforms are often unsuccessful and do not achieve the desired outcomes. This means that a judgement call needs to be made regarding the limits of institutional reform in a given context. To overcome institutional shortcomings, it is highly likely that qualified professionals will need to be identified from the outset rather than assuming that institutions with limited skills, knowledge and resources can be rapidly transformed into professional entities.

4. Regulation and oversight: Any management model will need to be transparent and accountable to its users. Standards of service performance should be determined, based on previous humanitarian agency experience, and systems must be established to track performance. Professional attitudes to service delivery should be encouraged, but the focus should not be solely on for-profit operations.

5. User acceptance: Displaced and host communities must be accepting of the proposed service provider. Without this, there will not be any shift in their willingness to pay. High user acceptance of the WASH services provided will also be a prerequisite for attracting new operators. This is largely within the control of humanitarian agencies, but it requires acceptable standards of service delivery to be established from the outset.

6. Commercial viability: To attract public or private operators, emergency WASH services need to be commercially viable. This is an important part of the business model and will increase the potential for attracting donor support, even after services have been handed over. This means humanitarian agencies should ensure that the choice of water supply and sanitation technology is appropriate, with operational costs as low as possible and high demand for services. It implies that humanitarian agencies should work with local government institutions to consider situations where water supply and sanitation can also be delivered to communities who have a higher ability to pay or where businesses are present. For example, water trucking operations are often phased out but they could prove to be a viable business opportunity in some situations. Other considerations could include grouping delivery to host and refugee populations to create economies of scale and considering the possibility of additional support for new household connections and network extensions as new opportunities arise. Humanitarian

situations in themselves are dynamic in nature and the financial sustainability of the operator needs to be reviewed on a regular basis.

7. Harmonizing emergency interventions: Coordination in WASH emergency interventions is notoriously difficult, and so every effort should be made to coordinate and streamline such interventions. By demonstrating that a utility or PO model can work, humanitarian agencies will have a much better chance of attracting other professional entities to engage.

8. Externalities: In humanitarian situations, the situation is dynamic and changes take place rapidly. Additional WASH services may need to be provided for newly displaced populations, or standards of service delivery may deteriorate due to drought. There may be disagreements between host and displaced communities, and people may also leave and return home, leaving WASH systems to be decommissioned and re-used elsewhere. Adaptation therefore has to focus on a management structure that has the ability to develop contingency plans and forge links with other financial support mechanisms provided by government or international donors.

6 RECOMMENDATIONS

The most common management arrangement observed in the case studies was one of international humanitarian agencies managing large piped water systems in the absence of effective government support. In some circumstances, management arrangements included communities managing point water sources themselves. A third option (observed in Ethiopia) was the establishment of a rural water utility to manage large-scale emergency water supply systems. This is a positive approach, but it remains highly vulnerable in the absence of effective government support. A key argument emerging from this study is that emergency WASH systems should be ‘professionalized’ during the transition from emergency to post-emergency and the longer term. The main priorities for humanitarian agencies are outlined below.

- INGOs and UN agencies should try as hard as possible to strengthen standards of WASH service delivery in accordance with the direction of government policy. WASH services should be at least adequate in terms of standards and performance, but if this is not the case then development partners and government need to determine standards for service provision (such as water quantity, quality, reliability, pressure, hours of service and acceptable periods of downtime). In particular, there should be an increased focus on the quality of design and implementation and on establishing efficient operations. This will make the handover of WASH assets and services far more attractive to other potential operators. Examples of performance indicators are provided in Annex 5.
- Post-emergency, agencies should collaborate to reduce the number of service providers. Constructive dialogue between government, service providers, users and regulators will create better understanding of the need for a business model approach.
- Energy to drive change needs to be generated by WASH sector professionals. Senior management should encourage a transition from life-saving activities to the development of viable business models and financial plans.
- Often the enabling environment for establishing professional management models is not adequately assessed. This requires working with government and development partners to undertake an assessment of conditions for a range of WASH management options. In emergencies involving refugees or IDPs, this is inextricably linked to applying the CRRF in practice.
- Serious efforts should be made to encourage government (service authorities) to set out policy objectives for emergency response and to set performance targets for the transition period. This will provide the basis for developing business models and clarifying future financial arrangements. Sustainable WASH management models will be constrained if government does not provide clear and realistic policy guidance (see Annex 6). Business models should also comply with UNHCR’s WASH design guidelines for establishing more sustainable management systems.
- If service delivery shifts to a more professionalized approach, grievance and accountability mechanisms also need to be established. Community groups (such as user groups and health clubs) and water (or WASH) boards can potentially play a useful role in feeding into these systems.
- Emergency response involves complex and difficult work, and the transition from emergency WASH services to a more professionalized management model is unlikely to be a simple linear process. Flexibility and the ability to adapt to changing circumstances will be key.
- It would be useful to develop a sustainability audit tool for use by the wider WASH sector. The audit tool could be used to guide agencies through a process that looks at the enabling environment and technical, commercial and financial requirements that affect sustainability. It could also be used to guide agencies to set realistic and acceptable levels of performance for WASH service provision.

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APPENDIX 1: PROJECTED NUMBER OF REFUGEES FROM SOUTH SUDAN IN NEIGHBOURING COUNTRIES

2.48M

OCT 2017 REFUGEE
POPULATION

2.68M

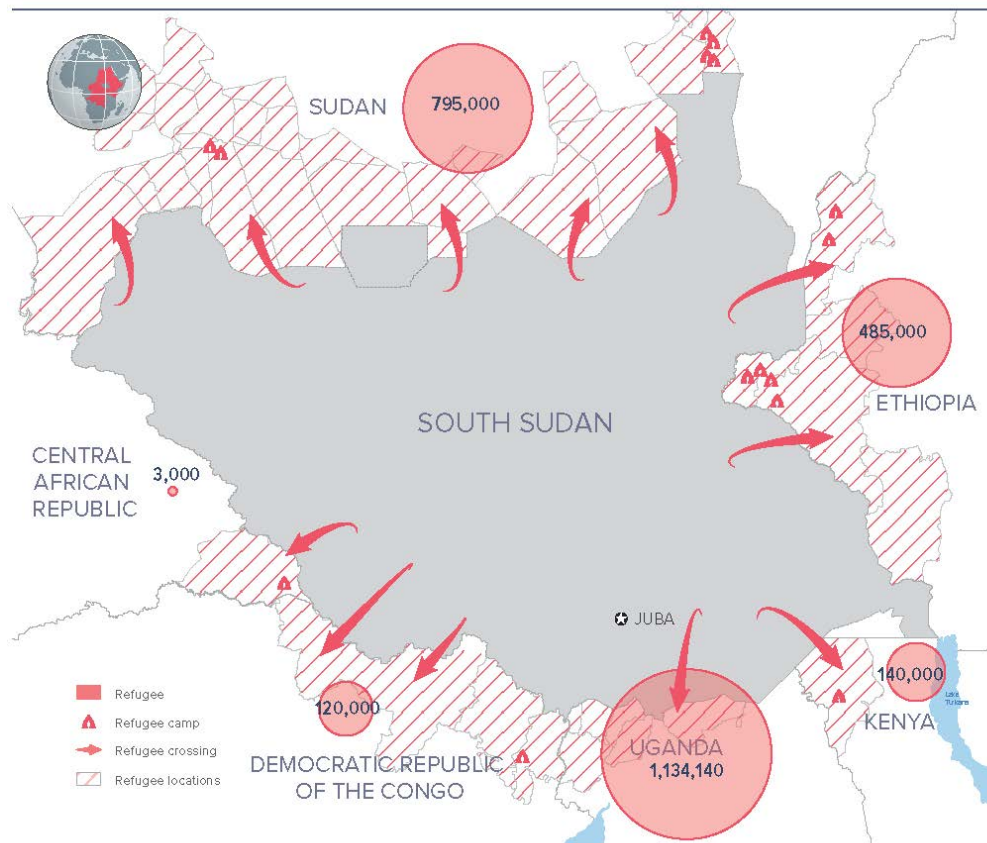
DEC 2018
PROJECTION

US\$ 1.38B

REQUIREMENTS

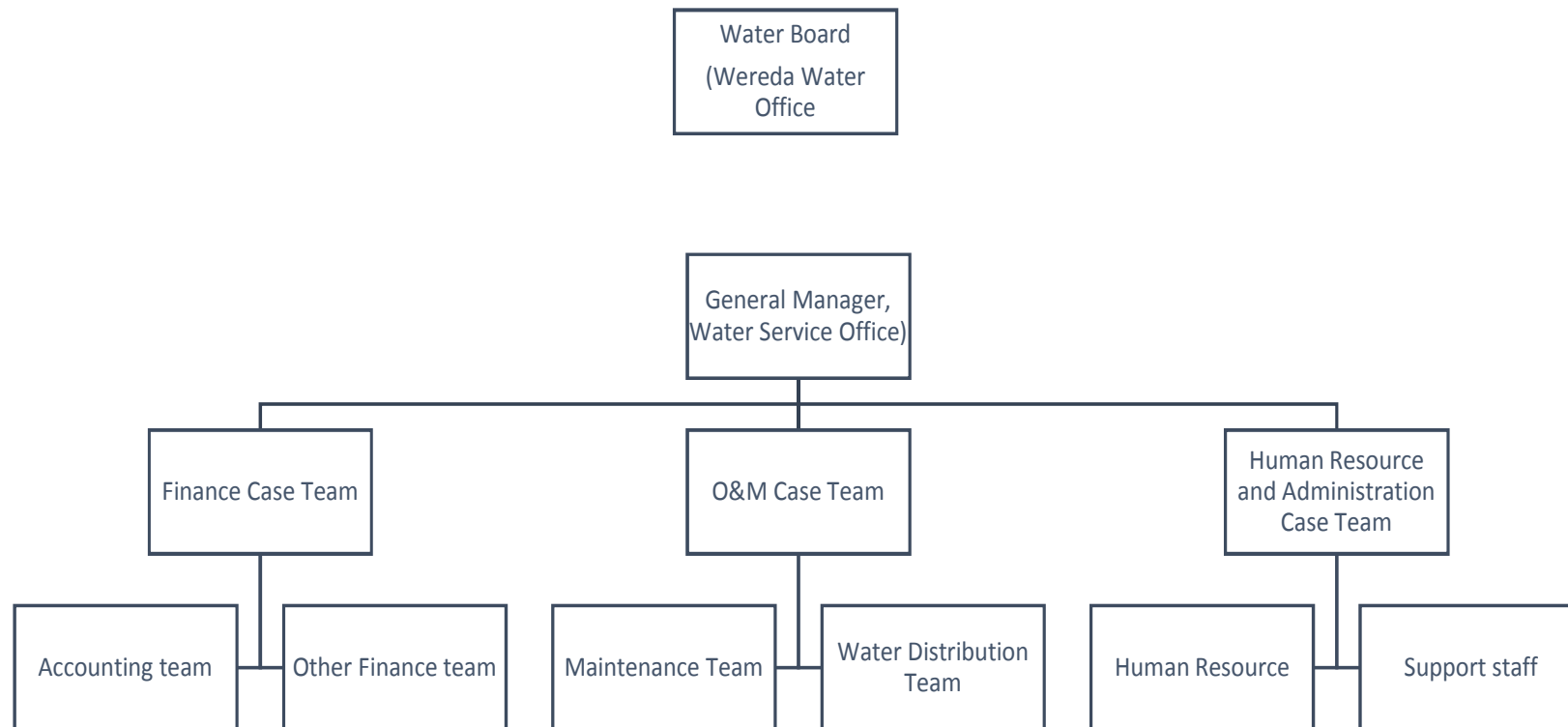
70

PARTNERS
INVOLVED

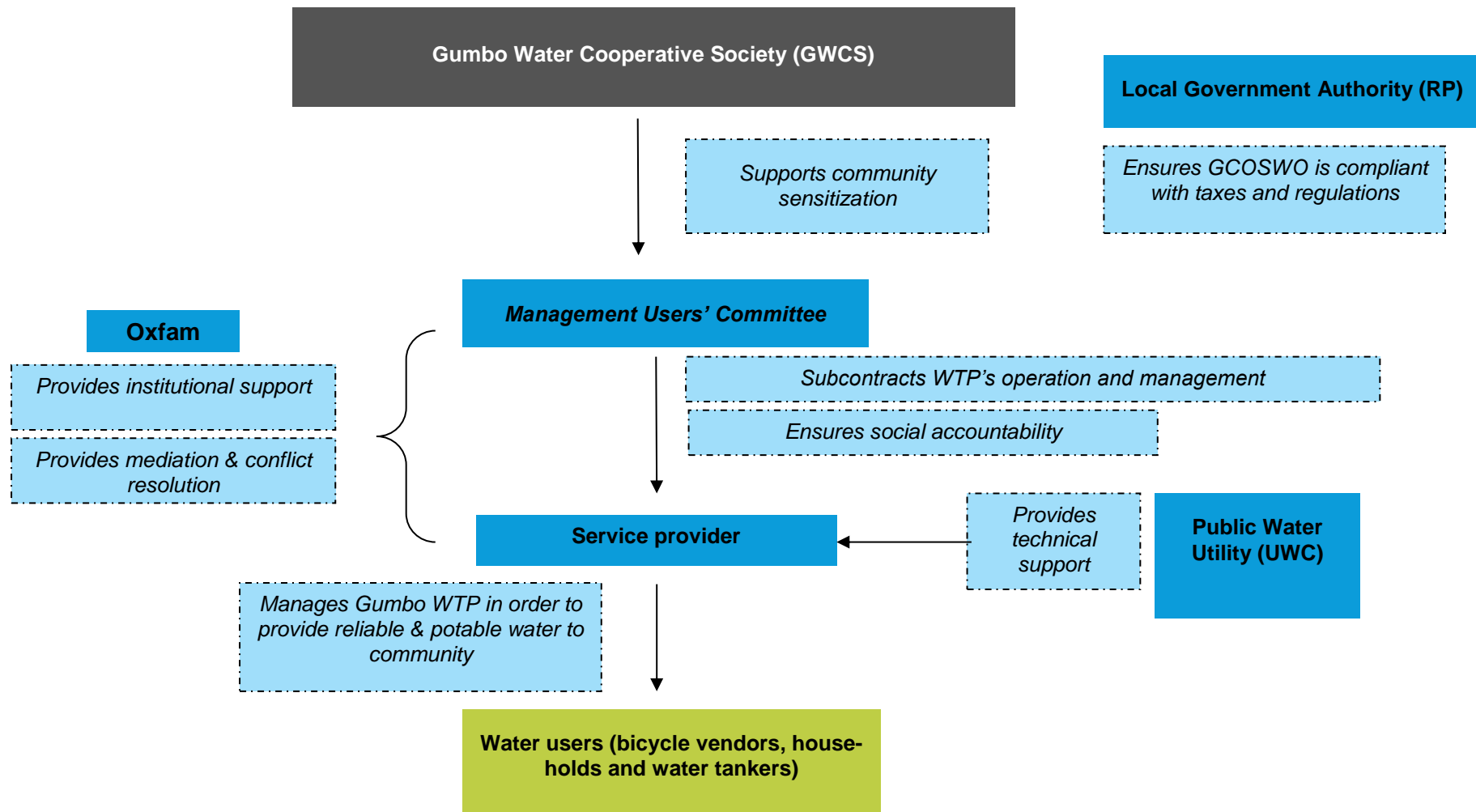


Source: UNHCR Regional Refugee Response Plan, revised July 2018

APPENDIX 2: ETHIOPIAN RURAL UTILITY MODEL – ITANG WOREDA, GAMBELLA REGION



APPENDIX 3: WATER TREATMENT PLANT MANAGEMENT MODEL – GUMBO, SOUTH SUDAN



APPENDIX 4: CATEGORIES OF HUMANITARIAN DISASTER

Category	Sub-category	Examples
Natural	Geophysical	Earthquakes, landslides, tsunamis, volcanic eruptions
	Hydrological	Avalanches, floods
	Climatological	Extreme temperatures, drought, wildfires
	Meteorological	Cyclones, storm surges
	Biological	Disease epidemics, insect/animal plagues
Technological	Industrial accidents	Release of chemicals or radioactivity into the environment
	Transport accidents	Air crashes, road crashes
Complex emergencies/conflicts	Conflict/war	Civil strife, cross-border fighting
	Famine	Chronic and acute food insecurity
Aggravating factors	Climate change	
	Unplanned urbanization	
	Underdevelopment and chronic poverty	
	Threat of pandemics	Ebola

Source: adapted from IFRC (2014)

APPENDIX 5: POTENTIAL PERFORMANCE INDICATORS FOR UTILITIES AND PRIVATE OPERATORS (POS)

Performance indicator	Description
Quantity (volume) of treated water produced daily/weekly/monthly	Ensuring that sufficient quantities of water are provided for cooking, bathing, sanitation and hygiene.
% of water samples that adhere to agreed water standards	Water supplied meets the agreed water quality standards and is free of unwanted taste, colour and smell.
% of refugee population with access to safe water	Having a functioning and reliable service within a reasonable distance of their homes and without the risk of exclusion.
% of non-revenue water	Minimizing the amount of water that is lost before it reaches consumers (e.g. through leaks).
Time taken to resolve problems related to poor service quality	Dealing with problems and customer complaints in a timely and efficient manner. Also ensuring that the system represents value for money for those consumers who are able to pay.
Total amount of revenue generated	Ensuring that the service is financially sustainable, whether through tariffs, taxes or transfers (donor support).
% of people satisfied with their water supply and sanitation services	Consumers are satisfied with the services they receive and the services have a positive impact on their quality of life.
Reliable wastewater services	Ensuring that liquid and solid waste is removed, treated and disposed of in a safe manner and that the risk of disease outbreak is minimized.
Protecting and developing standards of service	Taking active measures to protect and enhance standards of service over time.

Source: These are suggestions rather than being from a particular source.

APPENDIX 6: REALISTIC POLICY GUIDANCE

In the area of policy guidance, there is a need to consider three main issues.

1. There needs to be an independent assessment of long-term WASH needs in a refugee camp. Once the need is determined, then a WASH utility can be established to try to address these requirements. At the moment, if INGOs and UN agencies assess needs and also provide services, this can be seen as being 'self-serving' in the long term. This suggests that these two functions should be split.
2. National or local government needs to articulate what standards of services it wants people to receive, because this will have economic implications.
3. If camps are to remain in existence over long periods of time, it is more in the interests of refugees as well as local communities to integrate refugees into the wider community rather than keeping them isolated (geographically, economically and socially). It is also more cost-effective from a financial perspective.

Uganda is one country where the government has engaged with these issues to develop a longer-term vision through the Comprehensive Refugee Response Framework (CRRF).¹¹ For over five decades, it has provided asylum to people fleeing war and persecution. It currently hosts over 1.4 million refugees, from South Sudan (73 percent), DRC (19 percent), Burundi (3 percent), Somalia (2.5 percent) and other countries (2.5 percent). Uganda is the largest refugee-hosting country in Africa – refugees make up 3.7 percent of its population of 39 million.

Despite the challenges generated by the influx of refugees, Uganda has one of the most progressive refugee protection policies in the world. In line with comprehensive responses to refugee crises, the government upholds an inclusive approach, granting refugees freedom of movement and the right to work, to establish businesses and to access public services such as education, water and sanitation. Refugees in Uganda often live in settlements instead of camps, which significantly enhances their self-reliance and fosters peaceful co-existence with their hosts.

In order to ease pressure on local communities and services and to leverage positive economic impact, Uganda has included refugees in national development plans through the government's Settlement Transformative Agenda (STA), which supports the development of refugee-hosting districts by investing in infrastructure, livelihoods and initiatives for peaceful co-existence and environmental protection. The STA is also aligned with the 2030 Agenda for Sustainable Development and its main principle of 'leaving no one behind'. Uganda is now regarded as a model for many other refugee-hosting countries.

Having initiated the CRRF in Uganda, the government has assumed full leadership of the process, establishing a government-led multi-stakeholder CRRF Steering Group. This brings together humanitarian and development actors, local governments and authorities, refugees and the private sector to engage and provide guidance on refugee affairs. The CRRF Steering Group mobilizes support from humanitarian and development actors, including civil society and the private sector. Key partnerships have also been established with multilateral donors such as the World Bank to support the socio-economic development of refugee-hosting districts.

NOTES

- 1 'Service authority' refers to the enabling environment where sector policy and strategy are set, standards of service delivery are defined and finance mechanisms are put in place. It should also ensure that effective coordination, regulation and planning take place at national and local levels. These functions are designed to support and provide clarity to service providers.
- 2 The terms 'service delivery' and 'service provider' refer to the day-to-day management functions that are performed to maintain an agreed standard of WASH services. Typically, the service provider function may be fulfilled by a water utility, a private operator or a community management structure.
- 3 In its simplest form, the term 'sustainability' refers to whether WASH services remain permanent and lasting and continue to function indefinitely.
- 4 UNHCR Ethiopia refugee figures, July 2018.
- 5 The CRRF was laid out in the New York Declaration for Refugees and Migrants, which was adopted by all 193 Member States of the United Nations in September 2016. See <http://www.unhcr.org/uk/comprehensive-refugee-response-framework-crrf.html> and <http://www.globalcrrf.org/>
- 6 Ibid.
- 7 Ibid.
- 8 Ibid.
- 9 Ibid.
- 10 Ibid.
- 11 See http://www.globalcrrf.org/crrf_country/uga/

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