

# Chapter 7



## Can and should refugees and communities that host them expect better performing and resilient water supply services?

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### ABSTRACT

During the acute phase of an emergency the priority for humanitarian agencies is to rapidly establish water supply and other basic services (e.g. sanitation, hygiene, and solid waste) for people affected by disaster or crisis. However, the immediate response to an emergency is relatively short in duration, while the services, particularly water supply, often need to meet the needs of affected populations for many years. Often crises are protracted in nature and it is therefore important to understand how service performance evolves and whether service users are satisfied with the level of water supply. This is an important consideration because long-term sustainability may not represent an important part of initial thinking by humanitarian agencies. The United Nations High Commission for Refugees estimates the average time spent by a refugee in a camp is 10 years, while the average refugee camp remains for 26 years. Two questions arise: first, how will humanitarian agencies ensure emergency water supplies reach the desired performance levels; second, how will local institutions be able to manage, modify and finance the services that camp or settlement dwellers and host communities will depend upon. In this chapter the authors explore experiences from two country case studies and monitoring data extracted from ongoing

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humanitarian crises. The main conclusions are: service level enhancements are often slow to materialise and widespread efforts are required to raise performance levels.

**Keywords:** water supply, protracted emergencies, asset management, financial resilience

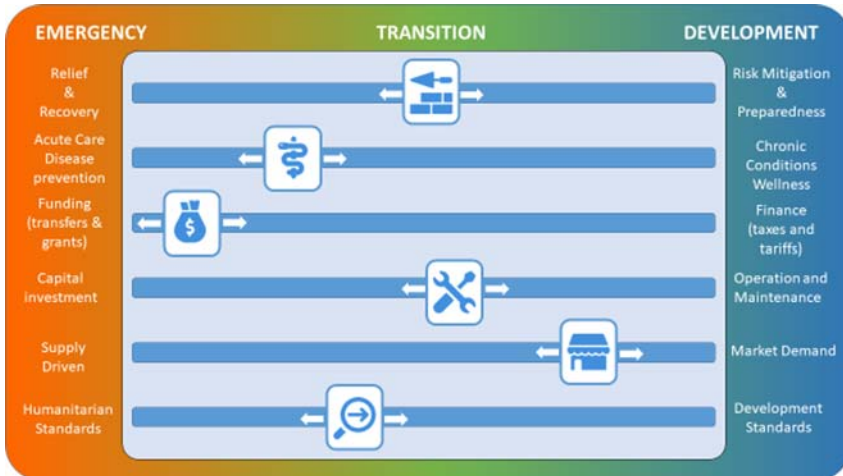
## 7.1 INTRODUCTION

Humanitarian crises can take many forms. They may be rapid or slow onset, and result from natural and technological disasters, armed conflicts or aggravating factors (such as climate change and drought). Those affected may be displaced within the country or forced to move across international borders. Host populations are also affected by displacement as greater demands are placed on their natural resources and services. [Tearfund \(2007\)](#) illustrates this risk in the following example:

*The heavy environmental impact of prolonged displacement is degrading some of Darfur's most valuable agricultural land. Many IDP camps are built around agricultural market towns, which means that land degradation affects prime farmland, undermining livelihoods for both the displaced and the host population, affecting the crisis as well as the future recovery period.*

Each emergency also has a unique profile. Aside from root cause other important issues include: the underlying capacity of government and its national partners to respond, the baseline conditions prior to the emergency with regard to basic services, environmental conditions and the degrees of human and economic development and socio-political stability. These factors will affect the timing and quality of necessary transitions to more resilient and stable conditions. During the emergency to post emergency transitions there will be differing priorities and driving factors. Often, the transition process to stability can be drawn out and influenced by additional compounding crises (e.g. disease outbreaks, security issues, and funding gaps). These can serve to slow or even reverse progress.

During the acute emergency phase government and humanitarian agencies (United Nations, international or local non-governmental organisations (NGOs)) tend to focus on life-saving interventions and meeting critical needs of the affected through emergency funds and grants and temporary infrastructure, following humanitarian standards and rapid response mechanisms. As conditions stabilise, the scope and perhaps scale of programming may increase allowing actors to pursue other outcomes that include: mitigation against further risk, preparedness for future shocks, expanding health services, leveraging other sources of finance, and improving levels of service and user satisfaction. This transition is a dynamic and non-linear process; and in any given sector the rate of progress will be variable. [Figure 7.1](#) presents a visual representation of dynamism inherent in this transition from acute emergency work to longer-term human development.



**Figure 7.1** Representation of a number of factors or components which influence emergency and development programming.

Post emergency transitions may also be sudden or slow. Depending on the context people may return to their homelands, they may seek resettlement in another country, or apply for asylum in the host country. Many also migrate to other towns and cities within the host country or they may remain in refugee or internally displaced person (IDP) camps or settlements indefinitely, waiting for conditions to stabilise so that they may eventually return home. Arguably, as compared to an acute emergency response, the greater challenge may be to determine how to provide the desired levels of service to host communities and displaced populations that may remain for years, even decades, especially when host governments may be reluctant to build permanent facilities in host communities. Unfortunately, the scale of the challenge has increased dramatically in the past few decades.

Section 7.2 will describe the overall scale of the current humanitarian challenge. Then Section 7.3 will unpack the specific challenges for the transition from emergency to development for water supply services. Section 7.4 will present evidence of water supply services from two recent humanitarian emergencies which will be used to highlight five key areas for opportunity, that are further discussed in Section 7.5. Section 7.6 will provide a conclusion.

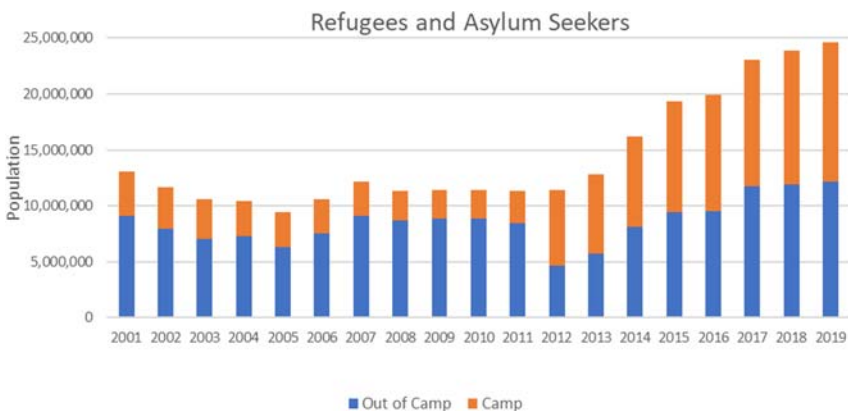
## 7.2 SCALE OF THE CHALLENGE

At the end of 2020 there were 82.4 million forcibly displaced persons globally (UNHCR, 2021c). Over the past decade, the trends in forced displacement have seen both an increase in the cumulative number of individuals forcibly displaced, as well as an increase in the duration of displacement and in the duration of the

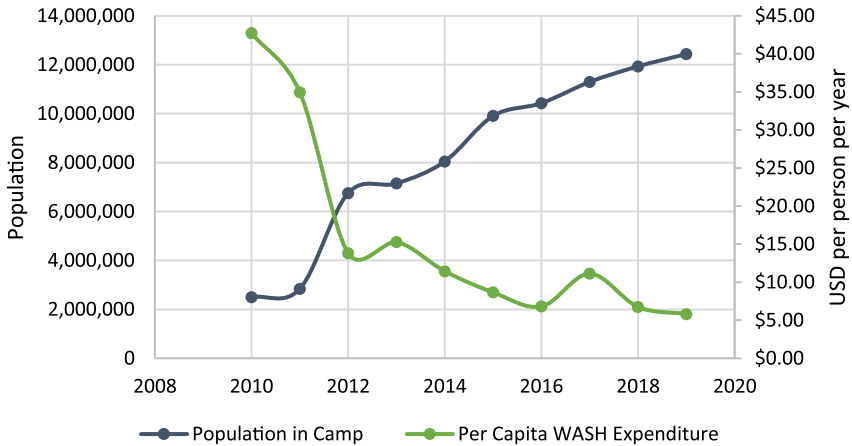
camps or settlements, which are established to support the basic needs of those displaced. For example, over the past decade the number of refugees living in camps has increased six-fold while the total number of displaced only doubled (UNHCR, 2020a, 2020b). At the end of 2018 it was estimated that the number of refugees in a protracted situation, defined as 25,000 or more refugees from the same nationality in exile for five consecutive years or more in a given host country, was 76% of all refugees (UNHCR, 2021c). Figure 7.2 shows the recent trends in the number of refugees and asylum seekers over the past decade, with a breakdown of those living in camps and settlements as well as those living outside of camps and settlements.

Although the absolute number of refugees living in camps and settlements has increased six-fold in the past decade, the amount spent by the United Nations High Commission for Refugees (UNHCR) on water supply and sanitation services has not increased proportionately and therefore this has required organisations to ‘do more with less’ as the amount allocated by UNHCR per capita has considerably decreased. Figure 7.3 shows the amount UNHCR spent per capita on the provision of water supply and sanitation to refugees and asylum seekers in UNHCR planned and managed camps between 2010 and 2019. This does not account for any amount that is spent by operating or implementing partners, which may be considerable in some cases, particularly for the Syrian response in Jordan and Lebanon and the Rohingya response in Bangladesh. Figure 7.3 also shows the population of refugees and asylum seekers in camps during the same period.

The majority of those living outside of camps or settlements reside in urban or peri-urban areas. Amongst these individuals, there are some that are targeted with assistance for meeting their basic needs such as food, housing and



**Figure 7.2** Number of refugees and asylum seekers over the past two decades, disaggregated by those living inside camps or settlements and those outside of these locations.



**Figure 7.3** Population of refugees and asylum seekers living in camps and settlements and the per capita expenditure on water supply and sanitation made by UNHCR.

non-food-related items. This assistance is usually provided in the form of cash-based interventions. Indeed, UNHCR's policy is to pursue alternatives to camps, whenever possible, while ensuring that refugees are protected and assisted effectively. Despite this policy, in the past 10 years it has been necessary to establish over 180 camps and settlements to cope with the rapidly increasing number of refugees and asylum seekers (UNHCR, 2020a, 2020b). The vast majority of refugee camps and settlements are located in rural areas that are devoid of existing services and physical infrastructure. This makes service delivery extremely challenging for the humanitarian agencies.

As compared to urban areas, rural areas tend to have lower levels of access to safely managed water supply and also have a larger relative population accessing surface water sources. According to the Joint Monitoring Programme (JMP) of UNICEF and WHO in 2017, eight out of every ten people who lacked access to basic water supply services lived in rural areas, and nearly half lived in least developed countries (JMP/WHO, 2018). In addition, the JMP found that only 46% of rural inhabitants accessed improved sources which were free from faecal contamination versus 72% of urban inhabitants. There are numerous factors that attribute to the lower service levels in rural areas including:

- Limited capacity of local governments to provide services or monitor and regulate services provided by others (e.g. private sector).
- In rural areas, economies and markets are generally weaker than in urban areas, which has a number of implications including weaker supply chains, limited economies of scale, lower access to financial services, and less access to international markets.

- Job opportunities can be limited in rural areas with wages and salaries less competitive than in urban areas. This can lead to brain drain as people leave rural areas to seek opportunities in towns and cities.

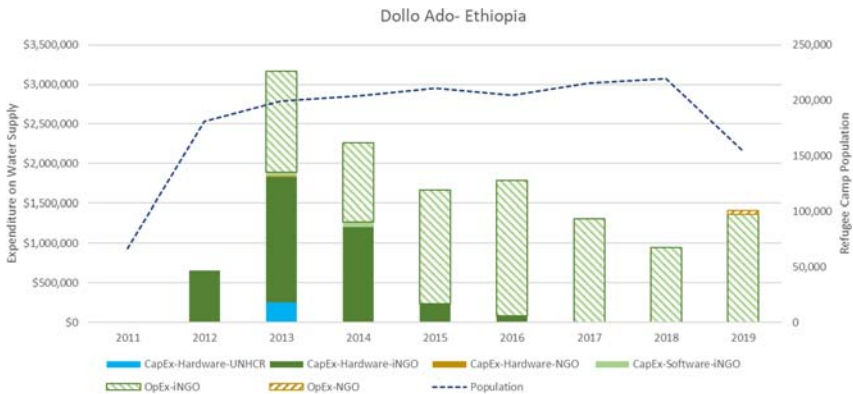
As a result of these factors, it is important that humanitarian actors that are working to address the needs of the forcibly displaced also consider the impact on the host community and work to alleviate any additional pressure created by the displacement. Indeed, this is a key objective of the Global Compact for Refugees (GCR) (UN, 2018). The GCR has additional objectives of enhancing refugee self-reliance through increased livelihood and education opportunities and ensuring the freedom of movement and right to work for refugees. Achieving these objectives is critical for ensuring that water supply and other basic services can be transitioned from the typical humanitarian service delivery model to a more sustainable model which is in alignment with existing models operating in that context. Section 7.3 looks more closely at the issues in transitioning from emergency water supply to resilient solutions

## 7.3 TRANSITIONING FROM EMERGENCY TO RESILIENT WATER SUPPLY

### 7.3.1 What is the status quo

Following the onset of an emergency, if a camp or settlement must be established, often the land that is allocated by the host government is undeveloped and devoid of any civil infrastructure or access to public services. Therefore, in order to meet the immediate needs of the population during this acute emergency phase, the humanitarian agencies must provide life-saving assistance through temporary or transient infrastructure. This often includes water supply via water trucks or emergency sanitation facilities.

During this time period humanitarian agencies often work towards professional humanitarian standards (e.g. SPHERE) which target the minimum levels of services necessary for survival and to prevent disease. Depending on the scale of the displacement this work is usually led by the host government with operational activities often carried out by international NGOs (large displacements) or national NGOs (smaller displacements) or through direct implementation by the UN agencies who contract private companies. Figure 7.4 is an example of a common refugee response scenario in terms of expenditures on water, sanitation and hygiene (WASH). Dollo Ado camps in eastern Ethiopia received an influx of refugees from Somalia beginning in 2012. There was considerable initial investment in water trucking carried out by international NGOs followed by capital investment in water systems in 2013 and 2014, which is shown as a solid colour labelled 'CapEx' in Figure 7.4. This investment was mainly made by international NGOs with some direct implementation by UNHCR and local NGOs. What is also notable is the shift from capital investment to operation and

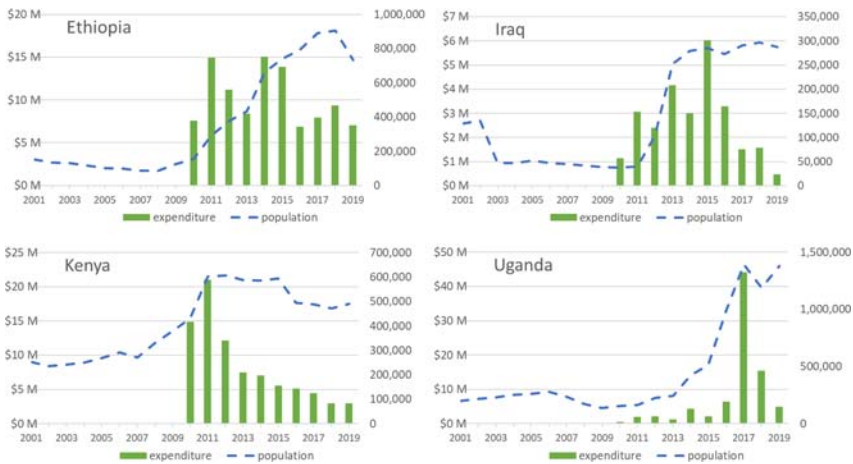


**Figure 7.4** A rapid increase in the population of Dollo Ado required considerable capital investment to expand WASH services which was phased out over 5 years.

maintenance expenditure ‘OpEx’ (shown by the hashed boxes) which dominates as time passes from the emergency phase in 2012.

As the situation stabilises and the acute emergency phase concludes it is desired to transition to resilient solutions that would provide higher levels of service to the beneficiaries (displaced and host community). It is also important to address not only technical aspects, but also social, institutional, environmental, and financial aspects which contribute to the overall resilience of the water services.

It is critically important to begin planning for this transition as soon as possible. There are several reasons for this which include declining resources (financial and human resources) as well as declining social and political capital. In general, during the acute phases of an emergency there are considerable financial resources available and numerous actors available to support the response (international and national NGOs). International humanitarian organisations working through the Inter-Agency Standing Committee commitment can access various global funds such as the Central Emergency Response Fund (CERF) and Country-based Pooled Funds (CBPF). However, in general the funding available reduces as time passes. Figures 7.5(a)–(d) are illustrative of these trends in decreasing resource allocation over time. These figures show the population of refugees and asylum seekers living in camps and settlements across four countries (i.e. Kenya, Uganda, Ethiopia, and Iraq) over the past two decades, along with the expenditure on WASH by UNHCR (this excludes any overhead costs for UNHCR (e.g. staff, and staff expenses) and does not account for any additional expenditures made by other humanitarian organisations). In general, the trends show that as the forcibly displaced population grows (blue dashed line) there is a corresponding increase in WASH expenditure (solid green bars), but this expenditure decreases as time passes and media attention and donor earmarking



**Figure 7.5** Refugee population in camps and settlements and expenditures on water supply and sanitation made by UNHCR in Ethiopia (a), Iraq (b), Kenya (c), and Uganda (d). Population data available from 2001 through 2019, while expenditure data are only available from 2010 until 2019.

wanes. However, if the displaced population does not decrease concurrently, it will mean less funding available per capita. There is evidence demonstrating that decreasing funding (per capita) can impact the ability to maintain or improve the level of water supply or other basic services, particularly those with high operation and maintenance costs (Moriarty *et al.*, 2011).

### 7.3.2 What is best practice

The year 2020 marked the milestone of one decade remaining until the deadline of the Sustainable Development Goals (SDGs), and at the current rate most fragile states will not achieve the established targets. Considerable attention in the literature has been given to WASH in fragile and conflict affected states, most notably with UNICEF's Water Under Fire series. However, globally there is very limited experience in successfully transitioning water supply services from emergency/humanitarian to sustainable and resilient service delivery. There is no roadmap or framework outlining best practice.

Section 7.4 looks at two specific examples of the transition from emergency to post emergency taking a deeper dive into the evolving service levels in this transition. The examples both result from the South Sudan civil war: the influx of refugees in Gambella, Ethiopia and the influx into Northern Uganda. These examples were selected for the following reasons:

- **Scale:** They represent large populations of forcibly displaced persons (in both cases the displaced populations were more than 200,000 placing them within the top five displacement situations in the past decade).



- **Availability of data:** Both situations were refugee emergencies and had data readily and publicly available. Specifically they had data on service level (proxies) throughout the entire transition.
- Both **host country governments are supportive** of the Global Compact for Refugees and the Comprehensive Refugee Response Framework and are facilitating the transition work.
- Development donors and **funding for the WASH response**, and specifically for the transition from humanitarian to development approaches, are available, including the establishment of public utilities to operate water supply systems.

## 7.4 LOOKING AT SOME EVIDENCE

### 7.4.1 Gambella, Ethiopia

The South Sudanese civil war, which started in mid-December 2013, led to a considerable influx of refugees into the Gambella Region (kilil) of Ethiopia. As of December 2019 refugees make up approximately 50% of the region's population (UNCHR, 2020a). Since the 2013 influx, a number of additional refugee settlements were established and other, existing camps and settlements were closed. Currently, there are three camps hosting refugees in the Gambella area, namely: Tierkidi, Kule and Nguenyiel, which are located approximately 50 km east of the border with South Sudan. These camps combined host approximately 200,000 refugees. Kule and Tierkidi were established in March of 2014 and water service for both camps was provided via water trucking for approximately 24 months. Nguenyiel Camp was established in October 2016 and water was also supplied via water trucking for 22 months (10/2016–8/2018) (UNHCR, 2019).

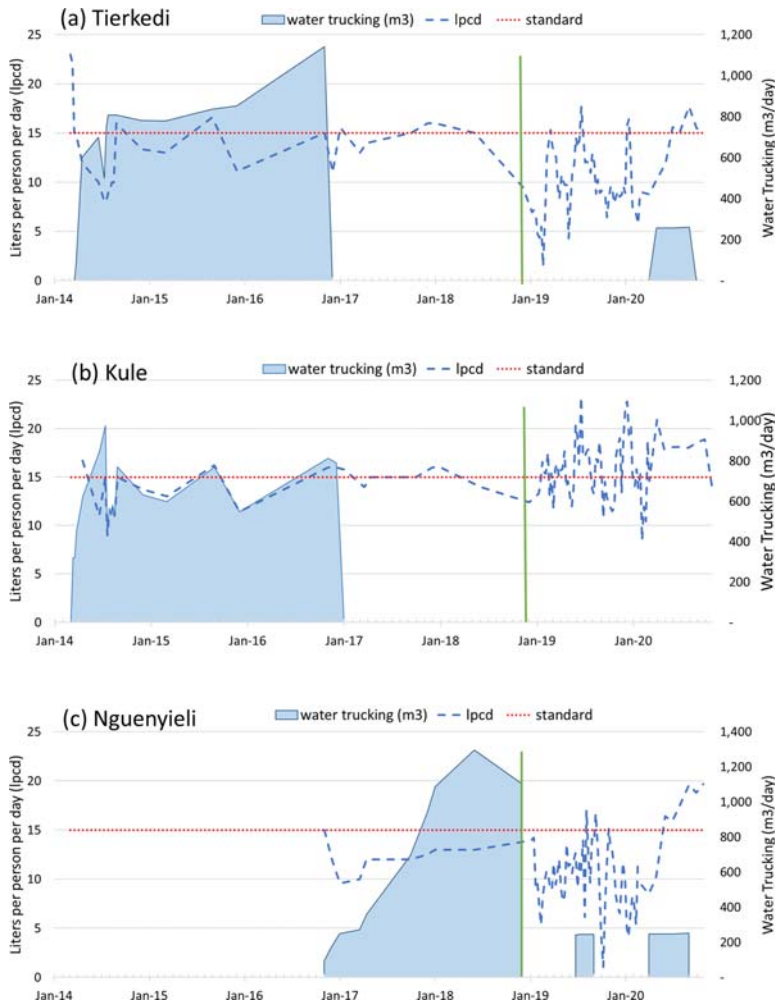
In 2014, UNHCR and UNICEF carried out a financial analysis comparing the ongoing water trucking costs for Kule and Tierkidi refugee camps and the options for more resilient water supplies. The determination was that trucking water for two years was equivalent to the capital investment for an entire water distribution network in the camps. As a result, 1 M euros in funding from the German government was secured for Phase 1 (12/2014 to 12/2015) for the development of water supplies, conduction line and storage reservoirs for Kule, Tierkidi and the host community (Birhanu, 2020).

In 2016, with additional refugee arrivals and in alignment with the Government of Ethiopia's commitments to the Comprehensive Refugee Response Framework, Phase 2 was initiated. This phase ran from 12/2016 to 6/2019 and had a cost of 6.5 M euros for an expansion of the water supply system connecting Itang Town, Thurfam community as well as Nguenyiel Camp and the establishment of a public utility-based service provider. This was unique as it shifted responsibility for day-to-day operations from an NGO (International Rescue Committee – IRC)

to a utility. Under the utility operation model there was an emphasis on cost-recovery, localisation, community participation, capacity development and coordinated partnership (UNICEF, 2018). The Itang Water Utility was formed in 2017 and took over operation of the system in December 2018 and received direct operational support from IRC until April of 2019. Currently the project is in Phase 3, the final phase of the project which includes an estimated 10 M euros earmarked for an expansion of the system for 30,000 refugees and funds to optimise the system and improve the capacity of the Itang Utility (Birhanu, 2020). The current Itang Water Supply System provides water to almost 840,000 people (48% refugees and 52% host community) and the utility is collecting a tariff of 16.91 ETB (0.40 USD) per cubic metre of water delivered (Birhanu, 2020).

The project faced a number of considerable challenges including vandalism to equipment and infrastructure, reduced operating times due to security risks, difficulty accessing spare parts, logistics challenges, human resource and administrative challenges (e.g. non-competitive salaries for utility staff, ineffective board) (Birhanu, 2020). Considering these challenges and the scale and complexity of the operating environment (e.g. remote area, relatively low service levels prior to influx, high cost of service delivery), the achievements accomplished to date may be commended. However, the transition from humanitarian to development programming has, at times, come at a high price borne by the refugees and host community in the form of services that do not meet even the lowest humanitarian standards, much less the national targets recognised by the government (25 lpcd (litres per capita per day) for refugees and 40 lpcd for the host community; GoE, 2016).

To get a longitudinal look at the water services provided in these camps since the influx, data were collated by the authors from publicly available data sources and reports including: UNHCR's WASH monitoring system (UNHCR, 2021a), situation reports from UNCHR, 2021b, IRC, OXFAM and other partners, and data compiled by the Itang technical working group. Figure 7.6(a)–(c) shows the trends of water supply (expressed as litres per person per day) together with the volume of water provided via water trucking. These graphs show that since the initial emergency onset in 2014 (or the establishment of the camp Nguenyiyil in 2017) the general trend in quantity of water provided per person per day has been flat, with no improvement in the quantity of water provided to the refugee camps. What is concerning is the substantial time periods when the supply drops well below minimum humanitarian standards of 15 lpcd. This is most evident during the time period since the utility has taken over operation of the system. (It is worth noting that following the upgrading of the water supply infrastructure (2016–2019) and establishment of a reticulated system, the quantity of water provided was tracked daily while at the outset of the emergency the quantity delivered was tracked weekly. Although the measurements for the reticulated system are more precise, these do not account for any loss within the distribution networks of the camps.)



**Figure 7.6** Water provided via water trucking (cubic metres per day) and the average quantity of water available to refugees and asylum seekers (litres per person per day) in Tierkidi (a), Kule (b), and Nguenyiel (c) camps. The green line identifies when the Itang Water Utility took over operation of the systems.

These data presented in Figure 7.6(a)–(c) were corroborated by household surveys and other qualitative and health data collected by WASH partners. For example, a survey conducted by Oxfam in November 2018 immediately before the system was handed over to the utility revealed that just 20% of the 387 households surveyed had access to 15 litres per person per day (l/p/d) and two thirds of households interviewed perceived water supply to be inadequate. A total

of 55% of households received <10 l/p/d and 23% were able to access less than 5 l/p/d. Service disruptions lasting up to 8 days were also commonplace, forcing people to access water from more distant and unprotected sources (OXFAM, 2019).

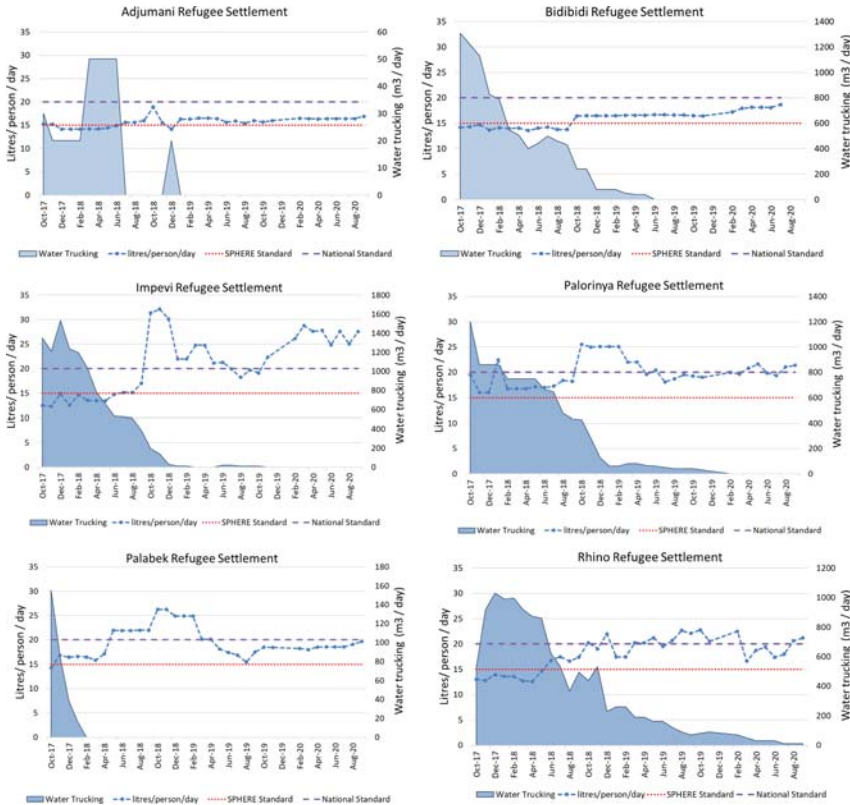
Focus group discussions (FGDs) carried out during the same time frame revealed considerable concerns about protection risks facing women and girls who had to travel long distances to collect water for their households. Women also reported difficulties in carrying a sufficient amount of water over long distances to the alternative source located 2–3 hours walk away, resulting in families having to limit their water consumption and habits – including limiting hygiene practices – when having to use these alternative sources. In addition, FGDs with children revealed that three quarters experienced diarrhoea after drinking water from the pond (OXFAM, 2019). Data collected by Medecins Sans Frontieres corroborated the increase in diarrhoea during the periods when water supplied by the system dropped below the desired targets.

These data suggest that even five years on from the emergency there were still considerable challenges to meeting humanitarian standards in the Gambella camps, despite the shift from the typical emergency service delivery model (i.e. NGO operation of infrastructure) to a development approach of service delivery through a utility (i.e. Itang Town Water Utility).

### 7.4.2 Northern Uganda

Another example of humanitarian to development transition in water service provision is the South Sudanese situation in Uganda. Since 2017, over one million refugees have sought refuge in Uganda, making it the third largest refugee-hosting country in the world after Turkey and Pakistan with over 1.4 M refugees as of March 2020. The Government of Uganda has been very progressive in its response with a strong commitment to promote refugee self-reliance and inclusion in the country's development planning. This has resulted in a fundamental shift in the approach to service delivery in the 12 settlements in the country by linking the traditional humanitarian response to long-term development approaches. For WASH practitioners this means transferring operation of WASH services from NGOs to private and parastatal Ugandan water utilities. Humanitarian actors have been successful in making a quick transition away from temporary services such as water trucking and community sanitation facilities. Monitoring data were obtained for twelve refugee settlements in Uganda including six settlements in the north hosting the refugees from the 2017 influx, namely: Adjumani, Bidibidi, Palabek, Palorinya, Rhino, and Impevi. Figure 7.7(a)–(f) shows this transition for the six settlements in the north which house nearly two thirds of refugees living in camps and settlements in Uganda.

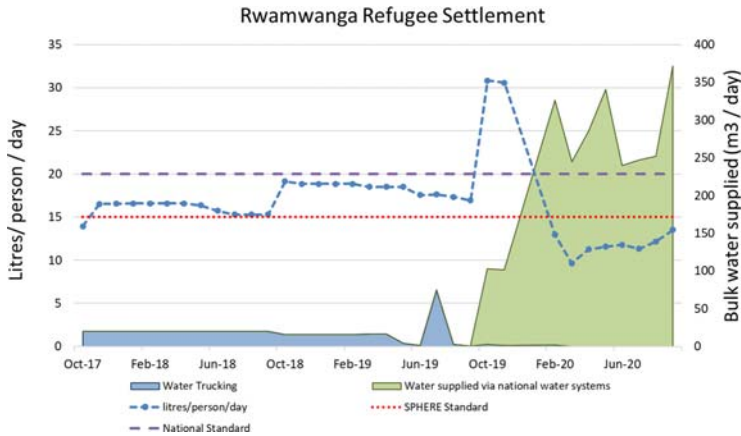
Figure 7.7(a)–(f) shows that water trucking was scaled back, by at least 80% in the first 1.5 years, and in four sites had been completely eliminated by June 2019.



**Figure 7.7** Quantity of water supplied per person per day and water provided via water truck (cubic metres per day) in six refugee settlements in northern Uganda: Adjumani, Bidibidi, Impevi, Palabek, Palorinya, and Rhino.

These achievements alone are very laudable. Analysing the progress in the quantity of water supplied over the 3-year period (October 2017–August 2020), using a linear regression shows that since the influx there has been no change (i.e. less than 1% change +/–) in five of the six camps. Only in Impevi has the trend shown an increase in the quantity of water supplied over the 3-year period for which there is data, going from 12.5 to 27.5 l/p/d with an annual average increase of 30%. Although there has not been an increase in services in most of the camps, there has been general success in meeting SPHERE emergency standards of 15 l/p/d. During the period of record 81% of the time the sites were at or above SPHERE standards.

In March 2020, the National Water and Sewerage Corporation (NWSC) took over management of water supply in Rwamwaja in Kamwenge District (see Figure 7.8). This represents the first transition to a local/national utility within a



**Figure 7.8** Quantity of water provided (liters per person per day) and bulk water (cubic metres per day) supplied via water trucking and the national water systems.

refugee settlement in Uganda. This settlement hosts 71,707 people, which is equivalent to 5% of the refugee population in the country (UNHCR, 2020a, 2020b). The process began in September 2017. Similar to the experiences seen in Ethiopia, the transfer to the utility has seen an initial drop in service levels from 30 l/p/d to less than 15 l/p/d. Some of this can be attributed to reduced focus on repair and maintenance of handpumps and point sources, which is not an area of strength for utilities.

Other systems in Uganda are slated to be handed over to NWSC or umbrella authorities. As of November 2019 the Northern Umbrella for Water and Sanitation (NUWS) took over management of water schemes in Nyumanzi settlement in Ajumani and has expanded to cover an additional seven water schemes including Rhino and Bidibidi settlements. These transitions are an important milestone for humanitarian organisations as they represent an opportunity for resilience with a permanent local/national authority operating the services. Transition of management of WASH services from NGO partners to Utilities in Uganda is anchored within an overall framework under the Ministry of Water and Environment (MWE). A Water and Environment Sector Refugee Response Plan (WESRRP) for refugees and hosting populations was developed, bringing together actors in development and humanitarian space. A Refugee Response Sub-Group was established and incorporated within the MWE coordination structure. A secretariat was created within MWE to oversee implementation of the WESRRP with a steering committee comprising of diverse stakeholders in development, humanitarian and private sector spaces. In addition, development donors are commissioning a consulting firm to carry out a detailed assessment of financial costs, operational performance, and user satisfaction before and after transitions.

### 7.4.3 Discussion

To date, emergency to post emergency transitions have not been well documented and as a result evidence-based best practice guidelines have not been established. Each emergency poses its own unique challenges, and many of these are not easily addressed. In emergency response, services are often provided free of charge and managed by external agencies (UN or INGOs). In the long term, national and local institutions, with vastly different capacities and resources, need to take on management responsibilities.

It is important to note that humanitarian agencies are working in some very extreme and challenging environments with crises occurring in localities where the optimal conditions or 'enabling environments' in terms of market access, governance, and social and political development do not exist. The authors note the transition efforts described above in Sections 7.4.1 and 7.4.2 are laudable. Furthermore it is encouraging to see the interest from development donors and host governments in Ethiopia and Uganda to support this transition with finance and political buy-in. However, it is clear that increased efforts are needed to improve the planning, implementation, monitoring, and support of these transitions. Furthermore, the authors believe that efforts should be made to decrease the timeframe for initiating the transition. For example, the case studies presented saw the transition begin four years (Ethiopia) and three years (Uganda) after the emergency. The important question is: can planning for this transition begin immediately during the emergency phase?

The evidence presented shows that there is limited improvement in service levels (the proxy of which presented herein is quantity of water per person per day) while services are operated by humanitarians. It is, perhaps logical, that humanitarian agencies would be working towards humanitarian standards (e.g. 15 l/p/d), and given the constraints (financial, administrative, technical, etc.) this may be expected and even acceptable. However, there is considerable evidence that increased access to improved service levels has benefits in human health, economic productivity, and user satisfaction. Therefore accelerating the transition should be the objective.

Importantly, the success of emergency to post emergency transitions cannot only be gauged in financial terms (e.g. money that is saved from water trucking, or the financial sustainability of the resulting system). It also needs to be measured in terms of the impact on the health, well-being, and satisfaction of the consumers (displaced persons and host community) that are accessing the services. Humanitarian agencies may also not be able to address the full scope of challenges present in such transitions, which means they need to identify interventions that may have the greatest positive impact given their constraints.

The following sections explore the five key opportunities, which have emerged from these case studies and the data presented, and also a series of desk reviews and investigations into the outcomes of emergency to development transition in six

different countries: Bangladesh, Ethiopia, Ghana, Jordan, Nepal, and Uganda (Day *et al.*, 2020).

## 7.5 FIVE AREAS FOR IMPROVING POST EMERGENCY SERVICE DELIVERY

Once the acute phase of an emergency is declared over, systems for providing adequate water supplies will be needed for the foreseeable future. Logically this demands clarity and commitment concerning medium- and long-term water supply solutions. This requires support from the host government and other advocates who are willing to consider different water service options. An important consideration will be whether integrated services can be provided for both displaced and host populations and whether there are opportunities to strengthen the capabilities of national or local water utilities that may be present and willing to take over service delivery responsibilities. Other transitions will also be required. For example, humanitarian agencies will likely need to modify emergency water supply networks and they must ensure services are *relevant* to the local context and professionally implemented, in order to be *effective*. Reporting on service levels will also need to improve and emergency agencies will want to ensure adequate, safe and reliable water services, with minimal service disruptions.

For good reasons, those that manage humanitarian crises may also wish to rationalise the number of agencies involved in service delivery. Or they may wish to handover operations to public or private utilities. In order to do this the level of skills and resources available will need to be determined because they may be significantly less than those of humanitarian agencies. Even if the physical infrastructure is functioning effectively, there may not be sufficient data to determine the actual life-cycle costs to be able to sustain service levels. This is a common knowledge gap when water supply systems are handed over. Other issues to consider when services are handed over to other entities include: inaccurate or incomplete information concerning water supply networks; out-of-date asset information; absence of asset registers; availability of asset failure and repair data; and information on the cost of asset renewal. Day *et al.* 2020 outlines these challenges to service delivery in more detail. The following sections identify five areas that could help to remedy these challenges.

### 7.5.1 Independent assessments

The introduction of independent assessments could provide more convincing evidence for long-term planning. This is because emergency WASH services are often provided by humanitarian agencies (UN or INGOs). At least in the earliest days of an emergency, agencies conduct their own needs assessments and secure funding for implementation, either directly or by contracting other local agencies



and institutions. This will often take the form of establishing emergency water supplies, and excreta and solid waste disposal, promoting safe hygiene behaviours, and so on. Agencies assess humanitarian needs, implement services directly and report on impacts. However, once media attention wanes and funding diminishes (as shown in [Figure 7.3](#)), the international agencies may move on to another global crisis or considerably downscale their operations. In undertaking independent assessments involving local institutions (e.g. municipalities, local government offices of water, health, education, and other line ministries, local regulators, etc.), who typically may be left responsible for modifying, managing and financing services long term, it is reasonable to assume that planning will factor in transitions at an early stage.

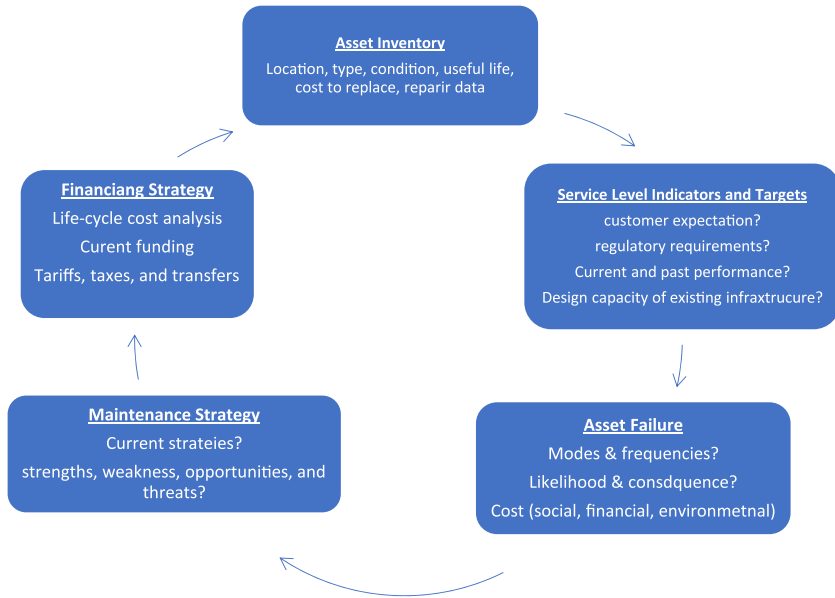
Another important consideration is whether current funding models perpetuate refugee or IDP camps. Barder (2018) highlights that refugee camps may be restrictive places with people unable to come and go as they wish and seek new employment opportunities. This is evidenced from the ongoing Rohingya crisis in Cox's Bazaar, Bangladesh. The provision of services to these camps is also dependent on aid agency funding models. Humanitarian agencies must recoup their own operational and logistical costs and there may be little incentive to move beyond direct implementation until funding streams diminish. This means humanitarian agencies do not currently rely on independent assessments or regulation to determine which long-term WASH systems are most viable and what service levels displaced people and host communities desire.

### 7.5.2 Asset management

With the projected reduction in official development assistance due to COVID-19 and the decreased funding to WASH by some agencies (e.g. UNHCR [Figure 7.2](#)), it will be crucial for humanitarian agencies involved in service delivery to adopt asset management planning practices into their operations. By engaging in asset management it will be possible for agencies to strategically manage their assets and better understand the minimal resources needed to maintain the desired service levels. This is vital information for service providers and investors that should accompany any handover of services.

In its simplest form asset management is a process that should enable service providers to meet the desired level of service in the most cost-effective manner. It is a systematic process to determine (a) the condition and risk associated with the assets, (b) which assets are a priority for renewal in the short to medium term and (c) the realistic level of funding required to renew assets on a continuous basis. The word 'continuous' is important because the process of asset management planning, and the related finance, is not a one-off activity but rather an ongoing process.

There are five basic elements to asset management ([Boulouar & Schweitzer, 2015](#)). The first is that humanitarian agencies should maintain an asset inventory



**Figure 7.9** Five elements to asset management. Adapted from [Boulouaer and Schweitzer \(2015\)](#).

or register. This should include geo-location details of all infrastructure combined with the current condition, design life, and financial value or replacement cost. The second element is to determine the service level standards and targets. The third is to identify and analyse the modality of failure of each asset as well as the likelihood and consequences of failure including costs (such as financial, social, and environmental). The fourth is to establish the maintenance strategies for each asset or system of assets. These need to take into account personnel and capital budget accounts. The fifth and final requirement concerns the collection and analysis of data for identifying the life-cycle costs to maintain the service level standards and devising a financing strategy to maintain (and replace when necessary) assets at the desired level. [Figure 7.9](#) gives an overview of the types of questions that are answered as part of each stage or element of the asset management plan, which is a permanently occurring and evolving process.

### 7.5.3 Service level targets

Logically and by reference to well established service delivery practices, once SPHERE minimum humanitarian standards have been achieved, long-term service standards and targets need to be determined and agreed upon. These may include indicators around the quality, quantity, reliability, hours of service, and access locations to be provided to service users. If this significantly exceeds minimum

humanitarian standards, then new or improved assets may be required. Data in Figure 7.7(a)–(f) show that often service levels, in this case the quantity of water provided per capita, are erratic or limited improvements are achieved with the passage of time. However, if the desired level of service is not determined it will be impossible to decide the most cost-effective method for service delivery. Thus determining the agreed service level is fundamental for future investment planning and engagement with donors and financing agencies. Where funding declines or remains limited, service providers must prioritise asset renewal. There is also a requirement to consider both the condition of assets and their importance to the overall performance of the water supply network. For example, a pump may be considered to be in a poor physical condition, but still performs at the required head and flow. Thus it could be said to still perform well. However, a water supply pipe may be considered to be in a good condition but silt deposits, scaling, or biofouling result in poor performance. Thus, the operator needs to consider (a) the probability of asset failure and (b) the consequences of asset failure, both of which are informed by the asset register and data base.

#### **7.5.4 Costing and financing of services**

Finance is critical if post emergency water supply services are to remain resilient. Prior to handover, humanitarian agencies should estimate the true cost of service delivery, which includes minor operation and maintenance costs as well as asset replacement costs (sometimes referred to as capital maintenance costs). This is necessary both operationally, so assets are understood and can be managed, and strategically – to inform long-term financial planning and investment.

In addition, as mentioned previously, the transition from emergency to long-term development programming may involve well-resourced humanitarian agencies handing over to relatively weak local institutions or utilities (i.e. with limited resources, equipment and personnel). In these situations a considerable transition phase is required during which local institutions are supported to achieve the desired service levels (users) and operational performance (service providers). The timeframe of this transition is likely to be inversely related to the strength of the local institution (i.e. weaker institutions will require longer transition periods with greater support). In some cases it may be necessary for the humanitarian sector (and its funding or financing agencies) to expect a protracted transition period over many years and perhaps as long as a decade. For humanitarian agencies, of which many rely on annual budget and planning cycles, this may be a difficult task.

#### **7.5.5 Capacity**

Any emergency to post emergency transition will involve detailed discussions regarding who, realistically, can take on the long-term responsibility for managing and operating water supply services. Options may include: investing in

existing water utilities; establishing new entities from scratch; handing over services to government agencies or continuing with the operation by humanitarian agencies (often with the objective to rationalise the number of agencies and prioritise strengthening of local agencies). Another trend that has been observed in East Africa is to establish rural water utilities. However, none of these options are straightforward and it is critical to assess what is the most viable long-term solution. In determining which service delivery approach to pursue it is important to consider the various factors that will impact the resilience of the services. In assessing receptive capacity it is reasonable to assume that humanitarian coordinators will document or benchmark the key attributes that need to be in place. This would serve as a reference for assessing receptive capacity and determining what long-term training and support is required. A conceptual framework for qualitatively assessing the service delivery options is presented by [Day et al. \(2020\)](#), however, in addition it would also be worthwhile developing quantitative metrics for assessing and tracking utility performance over time.

AquaRating is one such international rating system for water and sanitation utilities which focuses on the challenges water and sanitation utilities face in a comprehensive manner. It evaluates their performance through indicators and management practices, establishing an international standard. Importantly it relies on information verified by independent auditors accredited by AquaRating.

The primary purpose of using AquaRating in post emergency situations is fourfold:

- To establish an objective baseline of the performance of emergency water supplies provided by multiple agencies.
- To assess the capability of the local water company or institutions that will take on responsibility for managing.
- To inform improvement action plans during the transition period.
- To enable improvements to be measured over time.

The rating system assesses a range of competencies such as: service quality, investment planning and implementation efficiency, operating efficiency, business management efficiency, financial sustainability, access to services, corporate governance and environmental sustainability. The system is considered relevant because it recognises that improvements will inevitably be necessary and it focuses on increased accountability to service users – both consumers and customers. Thus it pinpoints critical areas for improvement and change management as well as opportunities.

AquaRating is one assessment system, but other approaches exist (such as customer survey benchmarking, establishing core monitoring indicators or process benchmarking). What is important is that there is stakeholder engagement in the process and transparency with regard to what the indicators are, how data are collected, collated, and reported, and what actions are taken to address any gaps or deficiencies.

## 7.6 CONCLUSIONS

While there is a strong desire to integrate refugee and host community water supply services and handover to a professional water utility this may not be a straightforward transition. In many contexts this may not be a viable option, and it may take years to build the enabling environment conditions for another entity to operate and manage water services. In many post emergency situations, in order to maintain and improve service levels, it is reasonable to think that humanitarian agencies (UN or INGOs) will need to have a long-term presence so that service levels can be incrementally improved.

For this to be achieved, humanitarian agencies also need to improve their own performance. To ensure emergency to post emergency transitions are viable then standard measures like independent assessments, asset management planning and agreed service levels are particularly useful. Furthermore, knowledge on the true cost of service delivery and asset replacement are crucial for future investment planning and engagement with international donors.

The most important conclusion from this paper is that better data are needed from post emergency situations. Standardised data for assessing service performance levels is needed to inform practitioners, decision-makers, donors/financing agencies and service users. If we want to make post emergency water supplies more resilient, we need to define service levels and establish detailed asset management plans. Data presented in this paper show that these are pressing issues to address. It is also necessary to determine the true cost of service delivery and assess the performance of any other entity that may assume greater responsibility for service delivery. Rapid decline in service levels or simply handing over services to another entity with minimal ongoing support and accountability to service users is unacceptable.

In Ethiopia and Uganda the humanitarian actors (UN and civil society) are working closely with the national line ministries and development donors to improve the outcomes of the transition. The experiences and lessons learned from these transitions will be critical to building a body of evidence for future transitions. It is evident that forced displacement will continue as will lengthy durations of displacement and therefore there is a need to have in place plans and procedures for transitioning to resilient service delivery approaches.

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