ANALYSIS OF BARRIERS AFFECTING INNOVATIONS IN HUMANITARIAN CONTEXTS

CREATING HOPE IN CONFLICT:
A HUMANITARIAN GRAND CHALLENGE

USAID
FROM THE AMERICAN PEOPLE

UKaid

Ministry of Foreign Affairs of the Netherlands

WITH SUPPORT FROM
Grand Challenges Canada
Grands Défis Canada

EXECUTIVE SUMMARY

As the length, frequency, and scope of the world's conflicts increase, it is becoming more difficult to reach affected people in insecure areas with life-saving and life-improving humanitarian assistance. The U.S. Agency for International Development, the UK Department for International Development, the Ministry of Foreign Affairs of the Netherlands, and Grand Challenges Canada established the Humanitarian Grand Challenge to save and improve the lives of vulnerable people affected by conflict. The Humanitarian Grand Challenge funds bold solutions that allow communities to respond more nimbly to complex emergencies, with a focus on four specific areas:

1. Access to life-saving information
2. Health supplies and services
3. Water, sanitation and hygiene (WASH)
4. Access to energy

The Humanitarian Grand Challenge launched in February 2018, with a request for proposals (RFP) to identify new, innovative solutions that allow communities to respond More nimbly to complex emergencies. A total of 52 Innovations have been selected for funding to date.

In early 2019, the Humanitarian Grand Challenge partners identified the need to conduct a barrier analysis to inform the focus of the second RFP and refine the priority areas for further funding. The purpose of the barrier analysis was to conduct an in-depth review of the key barriers that prevent and affect the provision of humanitarian aid in each of the four focus areas.

In March and April 2019, semi-structured interviews were conducted with 21 humanitarian experts, with expertise across the four focus areas. The interviews were supplemented by a desk review that included 20 papers on barriers and challenges in providing humanitarian aid.

A wide range of barriers were identified through the interviews and desk reviews, which spanned the global, regional, national and/or local levels. Two types of barriers and challenges emerged:

1. Sector-specific barriers that could (to varying degrees) be addressed by innovation in the four focus areas; and
2. Contextual or political challenges, that have historically blocked innovation and service provision within the humanitarian sector and are beyond the scope of what humanitarian agencies or the Humanitarian Grand Challenge can address.

A total of ninety-two (92) sector-specific barriers were identified through the interviews and desk review, all of which are described in this report along with some specific examples of how they affect humanitarian service delivery and prevent access. For each of the four focus areas, a corresponding barrier diagram was developed to show the interplay between the different barriers.

TABLE OF CONTENTS

1.0 OVERVIEW

Today, more than 201 million people[1] around the world live in areas experiencing humanitarian crises. Millions of these people are unreachable by traditional humanitarian aid delivery due to armed conflict. As the length, frequency, and scope of the world's conflicts increase, it is becoming more difficult to reach affected people in insecure areas with life-saving and life-improving humanitarian assistance.

The U.S. Agency for International Development, the UK Department for International Development, the Ministry of Foreign Affairs of the Netherlands, and Grand Challenges Canada have partnered to create the Humanitarian Grand Challenge, which aims to identify and support ground-breaking solutions to significantly improve and in some cases, save – the lives of vulnerable people affected by conflict. The Humanitarian Grand Challenge launched in February 2018, with a request for proposals (RFP) to identify bold solutions that allow communities to respond more nimbly to complex emergencies. In 2017, a scientific process involving 68 experts from across humanitarian sectors informed the four focus areas for the first round of innovations:

1. Access to life-saving information
2. Health supplies and services
3. Water, sanitation and hygiene (WASH)
4. Access to energy

Prior to launching the second RFP in 2019, the Humanitarian Grand Challenge partners identified the need to conduct a barrier analysis. The purpose of the barrier analysis was to conduct an in-depth review of the key barriers that prevent and affect the provision of humanitarian aid in each of the four focus areas. The results of the barrier analysis informed the second RFP, and the Humanitarian Grand Challenge was able to identify and support innovative solutions that aimed to tackle these barriers. It is anticipated that this informative analysis will be useful across the humanitarian sector for agencies, decision-makers and stakeholders who want to understand barriers to effective service provision.

Since launching the first and second RFPs, The Humanitarian Grand Challenge launched an additional RFP in response to the global Covid-19 pandemic, and the third round of RFPs is also planned to be launched in September 2020.

2.0 METHODOLOGY

In March and April 2019, interviews were conducted with 20 humanitarian experts with expertise across the four focus areas. The initial interviewees were identified from among Humanitarian Grand Challenge partners, and a snowball technique was used to identify additional interviewees and to help fill gaps in sector-specific expertise.

Interviews were semi-structured and lasted 40-50 minutes. Each respondent was asked to identify and elaborate on barriers they thought were most critical. A list of the types of experts that were

interviewed can be found in Annex 2. Given the sensitivity of the interviews, several of the respondents requested anonymity, and sector/expertise is listed without a specific role.

The interviews were supplemented by a desk review that included 20 papers on barriers and challenges in providing humanitarian aid. The papers were identified by Humanitarian Grand Challenge partners, interview respondents and from the authors' knowledge of relevant systematic reviews of the thematic areas. A full list of papers is provided in the bibliography.

2.1 LIMITATIONS

A snowball approach was used to identify key informants for interviews and to identify key reports and documents to include in the desk review. This approach provides insight into the primary barriers faced by humanitarian organizations in each area; however, it is not intended to be exhaustive.

Moreover, it should be noted that the context of the conflict-affected countries in this analysis may dramatically shift in the coming years, as existing conflicts evolve, and new ones emerge. New barriers may arise as humanitarians implement interventions, and current barriers may lose importance. The authors of this analysis intend to periodically review the barriers and update the findings to keep them up-to-date and relevant.

3.0 SUMMARY FINDINGS

There was widespread agreement among interviewees that improvements are needed in humanitarian response to address needs in hard to reach conflict zones such as Syria, Yemen, South Sudan and the Democratic Republic of the Congo (DRC). A wide range of barriers surfaced during the interviews and desk reviews, which spanned the global, regional, national and/or local levels. Through analysis of the interviews, ninety-two (92) barriers across the four focus areas were identified and included in this report.

Broadly speaking, there were two types of barriers and challenges that emerged during the interviews and desk research:

Sector-specific barriers.
These are the types of barriers that exist at the local, national, and organizational levels, and are within the scope of what could be addressed through bold innovations funded by the Humanitarian Grand Challenge. These include barriers such as equipment and supply shortages, lack of locally available expertise to address humanitarian issues, and high costs associated with maintaining infrastructure. While these barriers pose significant challenges to effective service provision, we believe innovative solutions could be found to tackle them.

Cross-cutting contextual barriers.
The second part of the report highlights larger, more extensive contextual, political and structural

barriers that have historically blocked innovation and service provision within the humanitarian sector. These include barriers such as corruption, a lack of humanitarian access due to government restrictions, and a focus on short term solutions. In general, these are not problems that can be solved by humanitarian organizations alone, or by a single innovation. Instead, innovators will need to circumvent many of these barriers to effectively take their innovations to scale and achieve meaningful impact. While these challenges are likely beyond the scope of the Humanitarian Grand Challenge to address through a targeted RFP, they frequently came up during the interviews and the desk review, and need to be considered as part of any plan for testing or scaling innovation.

4.0 KEY BARRIERS

Barriers are categorized by those that are sector-specific barriers (sections 4.1 to 4.4) and those that are cross-cutting contextual challenges (section 4.5). The sector-specific barriers are categorized
within the Humanitarian Grand Challenge's four focus areas:

1. Access to life-saving information
2. Health supplies and services
3. Water, sanitation and hygiene (WASH)
4. Access to energy

Each of the four focus areas is summarized with a barrier diagram that shows each of the corresponding barriers, and the interplay between them.

Photo Credit: Sebastian Widmann

BARRIERS TO THE PROVISION OF LIFE-SAVING INFORMATION

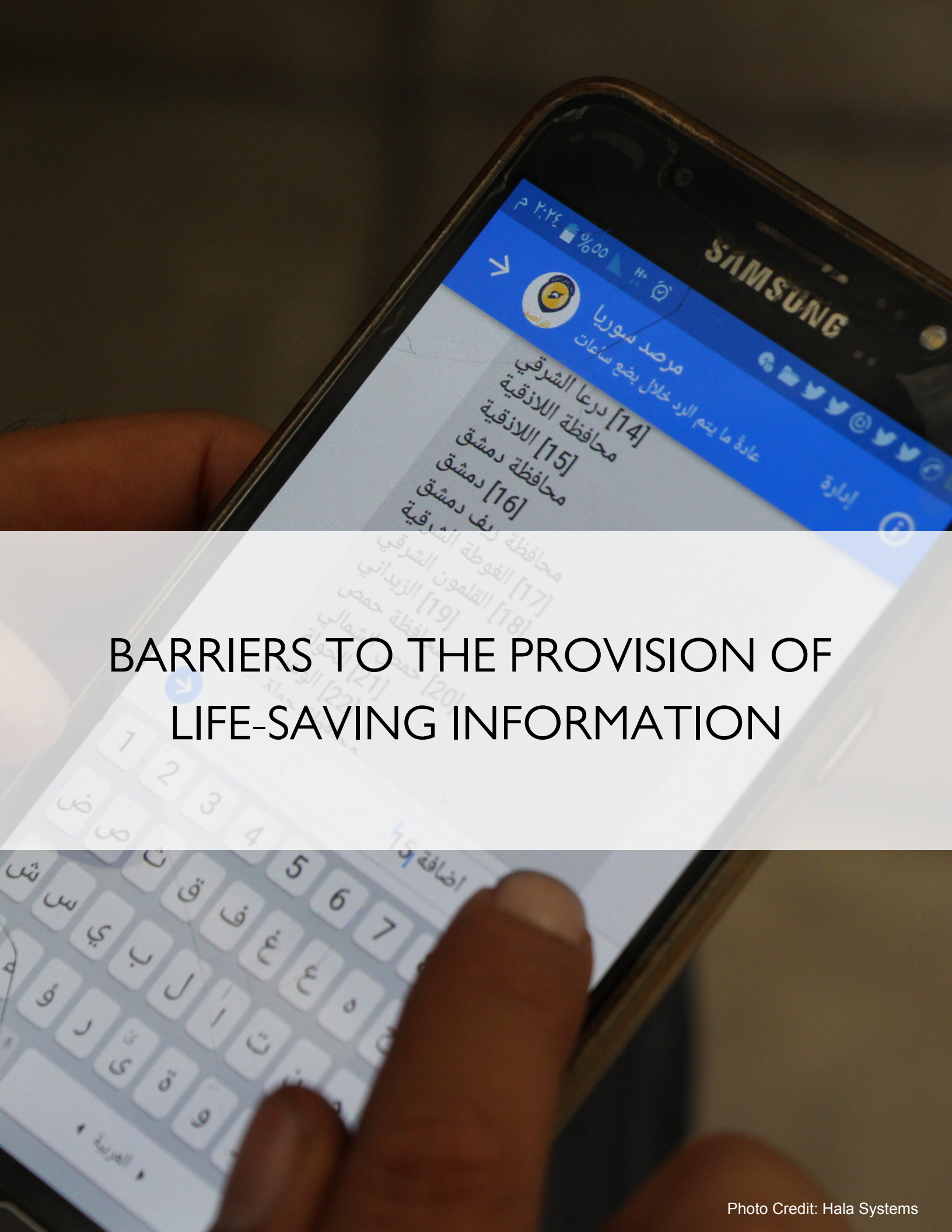


Photo Credit: Hala Systems

4.1 BARRIERS TO THE PROVISION OF LIFE-SAVING INFORMATION

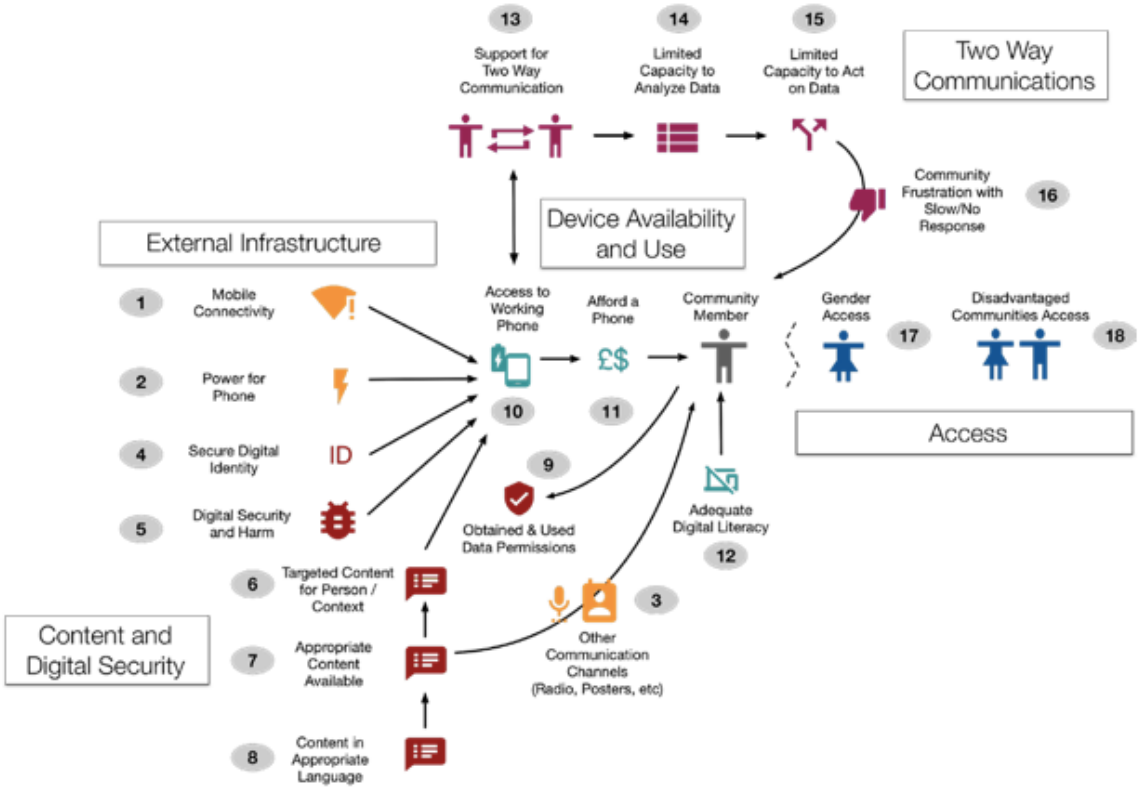
The Humanitarian Grand Challenge seeks bold ideas that improve access to information and data to increase the impact of humanitarian assistance at the local level as well as enable more effective connections between affected populations and humanitarian responders.

The barriers identified within this focus area are grouped into five broad categories:

1. External infrastructure;
2. Content and digital security;
3. Device availability and use;
4. Two-way communications; and
5. Access.

The infrastructure challenges include the need to provide working an affordable cell phones and deliver supporting connectivity and WiFi services. This provides a platform on which appropriate content can be provided. Content must be tailored to the crisis and context as well as the local language and culture. This all must be delivered in a way that avoids digital harm and appropriately respects digital rights of people in crisis. Affected populations must be able to access information via mobile devices or through better two-way communications with humanitarian organizations. The specific needs of vulnerable groups must also be considered.

FIGURE 1: BARRIER DIAGRAM FOR THE PROVISION OF LIFE-SAVING INFORMATION



EXTERNAL INFRASTRUCTURE

1. Internet connectivity: 2G and 3G coverage has increased dramatically in the past decade but remains inconsistent in conflict-affected countries. Camps for displaced people are often set up in remote and hard to reach areas, close to borders, and lack basic Mobile/cellular infrastructure.

2. Power for phones: Energy infrastructure is often poor and access can be expensive for vulnerable groups, leaving them without connectivity and unable to access important information. In some cases, phone users may be able to charge their devices using personal solar-powered chargers or by taking their phone to a communal charging station (see 4.5 Barriers to Energy Provision), but these options are not widely available for everyone who needs them.

3. Other communication channels: Humanitarian organizations use a variety of methods for two-way communication including radio, posters, community meetings, discussions with community leaders and representatives, and feedback phone-lines. However, the access and quality of these mechanisms vary widely, and organizations rarely have feedback loops that let them understand how well communications mechanisms are working or that allow people to know how their feedback has been used.

4. Secure digital identity: Displaced people face legal barriers to accessing SIM cards, or opening bank or mobile money accounts in their own name. In some cases, governments restrict access to ID credentials, and in others, it takes a significant amount of time for governments to issue the necessary credentials.[2]

5. Digital security and harm: In a conflict zone, both personal data and demographic data may be highly sensitive and subject to cyber-attacks, misuse, or carelessness. Vulnerable people may access sensitive services online without understanding how their personal data is being used, or the associated risks to their personal safety.

CONTENT AND DIGITAL SECURITY

6. Targeted content: Most information shared with conflict-affected populations is not tailored to the specific needs of different sub-groups within the larger population. Sub- groups such as women, people with disabilities, children in and out of school, different language groups, etc., may have unique needs and vulnerabilities that need to be addressed through tailored content.

7. Appropriate content: The content or format of information are not consistently aligned with local customs and beliefs. Some of the information, education, communication (IEC) content materials do not reflect local customs and this may impact the reputation of an organization. For example, sexual education is perceived as a taboo in some cultures, and organizations which are not tailoring the content of the messages may find that, as a result, their well-intended messages are rejected by the community and local government.

8. Appropriate language: Information for affected communities should be provided in the local language(s) and using terminology that is easily understood. Too often, messages are only communicated in the official language and not in local language(s) that the most vulnerable people can understand.

9. Obtained and used data permissions: Legal regulations around obtaining and using data are difficult to adhere to in humanitarian settings, due to shifts in administration, bureaucracy and corruption. This causes delays in the completion of data collection and reporting, which has a negative impact on the use of evidence-based decision-making in humanitarian responses.

DEVICE AVAILABILITY AND USE

10. Access to a phone: The proportion of an affected population with access to a phone varies from one context to another. Many households have, at most, one phone. The frequency and type of access will vary between family members, particularly when the phone owner is spending time away from the household. Usually, this is a very gendered issue.

11. Affordability of phones: People in the local population who need phones are not able to afford the phones, or the accompanying SIM cards/phone plans or credit, which are needed to use the phones.

12. Digital literacy: Low digital literacy prevents many of the most vulnerable from accessing life-saving information technologies. Digital literacy for smartphone applications is often lower.

TWO-WAY COMMUNICATION

13. Support for two-way communication: Humanitarian organizations do not dedicate sufficient time, human resources, or funding for two-way communication between themselves and the affected population.

14. Limited capacity to analyze and use data: Organizations struggle to gather, analyze and share relevant operational data to inform their collective decisions over short timeframes. This includes needs assessment data, community feedback and data on coverage and effectiveness of their interventions.

15. Limited capacity to act on data: Rigid program design and planning, combined with funding restrictions from donors can hinder organizations' ability to operate in a responsive and adaptable way, as they have limited flexibility to make changes once implementation begins. Some staff fear feedback fatigue or raising expectations before funding has been secured, which prevents them from doing extensive needs assessments prior to implementation.

16. Funding frustrations with no/slow response: The focus on providing life-saving information as quickly as possible can create situations where humanitarian agencies have little time to consult with populations, and are not able to fully assess their needs and preferences, or take their

feedback and input into account to improve the intervention. In addition to reducing the effectiveness of the intervention, this can also cause tensions and frustrations among the affected populations, when they do not feel that their concerns and feedback are being addressed.

ACCESS

17. Gender access: Lack of cell phone ownership is a gender issue. GSMA research conducted in Nyarugusu refugee camp in Tanzania found that 62 percent of men reported owning a mobile phone, compared to only 36 percent of women (a gender gap of 42 percent).[3]

18. Disadvantaged communities' access: Access to face-to-face information sharing activities and phone ownership levels are both lower among specific groups, such as the elderly, people with disabilities, and single heads of households.

Photo Credit: The Sentinel Project

BARRIERS TO THE PROVISION OF HEALTHCARE SERVICES AND SUPPLIES

Photo Credit: Iristick

4.2 BARRIERS TO THE PROVISION OF HEALTHCARE SERVICES AND SUPPLIES

The Humanitarian Grand Challenge seeks bold ideas that enable community health workers and non-specialized health providers to provide quality healthcare; empower skilled staff who work in conflict zones; allow faster or less costly importation and distribution of quality essential health supplies in conflict zones; and enable affected communities to manufacture necessary high quality and safe supplies, or sterilize and reuse them.

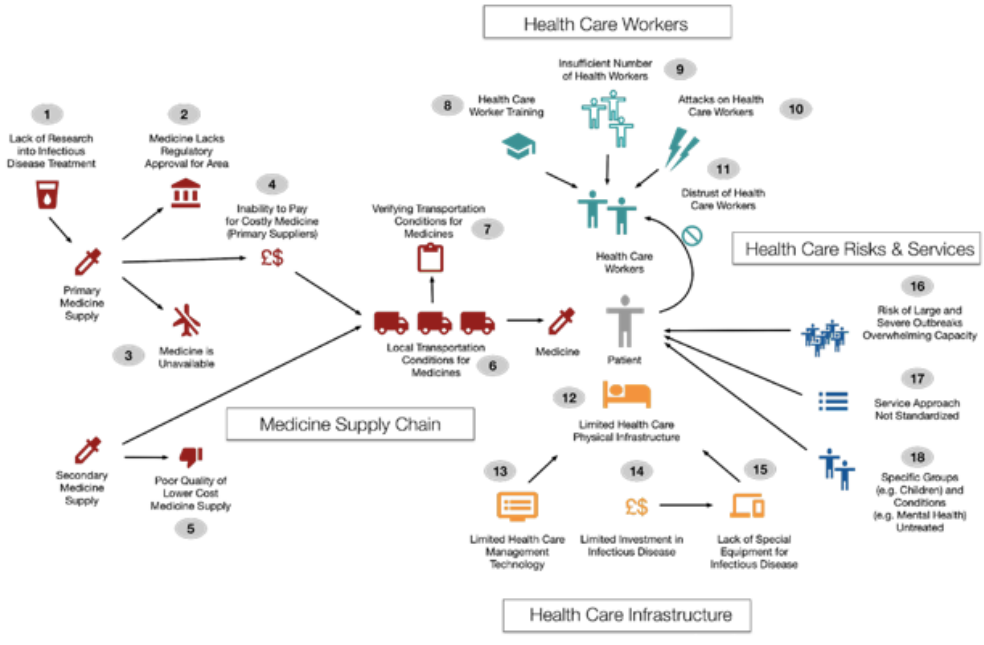
The barriers to the provision of healthcare services and supplies are grouped into four categories:

1. Medicine supply chain;
2. Healthcare workers;
3. Healthcare risks and services; and
4. Healthcare infrastructure.

The challenges of delivering health care services in conflict affected areas begins with the delivering of healthcare supplies through a long and often costly supply chain. Many points of failure exist in this delivery system, resulting in shortfalls, high prices, and low quality or counterfeit goods entering the supply chain. Services are delivered by healthcare staff who have limited access to training, or who are sometimes targeted by conflict belligerents, or distrusted by the affected community. There are additional challenges associated with establishing and maintaining facilities with working equipment and sufficient supplies.

Finally, disease outbreak is particularly difficult to manage and treat given the limited resources and the lack of capacity for healthcare delivery in crisis settings. Mass displacement, combined with a lack of healthcare workers, and destruction of health infrastructure leads to an increased size and severity of outbreaks.

FIGURE 2: BARRIER DIAGRAM FOR THE PROVISION OF HEALTHCARE SERVICES AND SUPPLIES



MEDICINE SUPPLY

1. Lack of research into infectious disease treatment: There is low investment in new cures for neglected tropical diseases that disproportionately affect the poorest and most vulnerable, and those in hard to reach areas. Research and development in the pharmaceutical industry overwhelmingly focuses on five of the 45 priority diseases – malaria, HIV/AIDS, tuberculosis, Chagas disease and leishmaniasis – targeting that reflects international donor priorities.[4] When health systems break down in conflict- affected areas, the affected population is at increased risk of outbreaks across the full spectrum of neglected tropical diseases, without effective preventative measures or treatment.

2. Medicine lacks regulatory approval for area: Humanitarian agencies cannot always import essential pharmaceuticals.[5] Regulatory constraints prevent or delay agencies from importing medicines into many disaster-affected countries (particularly in the Middle East) quickly and at a reasonable cost.[6] The range of approved alternatives (e.g. opioids, anti-convulsant and hormonal medications) can be ineffective.

3. Medicine is unavailable: Medicine may be unavailable locally or it may take significant time to get medicine to the populations that need it most. Due to the challenges and constraints of operating in humanitarian crisis, most of the pharmaceutical suppliers close, or reduce operations, and the remaining pharmacies are left to operate with reduced supplies and long processing times.

4. Inability to pay for costly medicine: Medicine may become too expensive to procure locally, due to increased logistic and transportation costs, and/or increased demand for a rapidly diminishing supply. In terms of primary medicine supply, there are few insurance and pharmaceutical companies which continue to operate in humanitarian contexts, which fuels informal or “black” markets, and soaring prices.

5. Poor quality of medicine supply: In cases where medical service providers rely on local procurement or suppliers by way of a secondary supply chain, there can be problems maintaining the quality of medications. In conflict settings, broken supply chains can result in poor quality medication and/or smuggled medicine that do not adhere to regulatory approvals. As such, quality control mechanisms are often eroded, and priorities may shift to using second-best alternatives rather than maintaining quality standards and adhering to regulations.

6. Local transportation conditions for medicines: Transportation vehicles and storage facilities may not be readily available, due to being repurposed or being destroyed during conflict. As a result, logistics costs for secure transportation and storage of goods are very high in conflict zones. Medical supplies are often sensitive to temperature fluctuations, and the lack of temperature-controlled vehicles is highly challenging for vaccine delivery, or for any supplies that require temperature-controlled storage. Offices and storage facilities are also often situated away from the most affected people for safety and security reasons. In addition, roads may be blocked or become impassable, thus creating serious challenges for transporting medical supplies.

7. Verifying transportation conditions for medicines and vaccines: Healthcare providers may be unable to test whether vaccines, insulin and medicines have suffered from temperature fluctuations,

or poor handling. Moreover, there is a lack of data from manufacturers on how long the aforementioned medical supplies can remain outside temperature control, and few incentives for pharmaceutical companies to undertake research and development to make them more resistant to temperature fluctuations.

HEALTHCARE WORKERS

8. Healthcare worker training: There is a lack of access to high quality education in many conflict zones, as training programs either never existed or shut down du To insecurity and lack of personnel to lead or participate in the training. As populations flee the conflict zones, the number of trained healthcare workers decreases. Even in situations where training opportunities continue, maintaining enough trained personnel can be challenging due to danger or economic factors displacing trained personnel.

9. Insufficient numbers of healthcare workers: Conflict depletes an already overstretched healthcare workforce, as healthcare workers may become internally displaced or forced to flee. In Syria, for example, it is estimated that over half of all Syrian doctors (up to 27,000 individuals) have fled the country since 2011.[7] Additionally, healthcare workers in the region may not be able to prove their qualifications when they cross a border, thus preventing trained workers from acquiring work in healthcare, which also contributes to a shortage of trained workers in humanitarian settings.

10. Attacks on healthcare workers: Healthcare workers operating in conflict-affected environments have experienced an increase in targeted attacks,[8] often with tragic consequences, which further depletes their numbers. Risks to workers is a barrier to recruitment of local and international staff.

11. Distrust of healthcare workers. Access to healthcare can be perceived as politically driven and therefore unequally available.[9] Some service users refuse help from healthcare providers because they fear or distrust those providing the services.

HEALTHCARE FACILITIES

12. Limited healthcare physical infrastructure: The shortage of hospitals and clinics is exacerbated by targeting of these facilities, as well as the targeting of other key infrastructure necessary for the provision of care (e.g. electricity, running water). In Syria, for example, half of the health facilities in Aleppo, Hama, and Idlib had been destroyed by February 2018.[10]

13. Limited healthcare management technology: Modern diagnostic tools, blood banks, data management tools, and other essential healthcare services are lacking, or are destroyed during conflict or fall into disrepair, which reduces the effectiveness of the healthcare system. Biotech engineers to repair equipment are rare. In emergency situations, medical equipment can be treated with less care than in stable, calmer situations.

14. Limited investment in infectious diseases: Facilities do not have the necessary healthcare personnel or other resources to respond to increases in the spread of infectious diseases or the emergence of multi-drug resistant diseases. Without resources for effective prevention,

management and treatment of infectious diseases, they spread rapidly among conflict-affected populations.

15. Lack of special equipment for infectious diseases: Local facilities lack the necessary diagnostic or laboratory equipment to respond rapidly to large-scale outbreaks.

HEALTHCARE RISKS

16. Risk of large and severe outbreaks overwhelm capacities: Large scale disease outbreaks are more likely in conflict-affected areas where water, sanitation and hygiene infrastructure are overwhelmed, diagnostic tools are limited, and pharmaceuticals are in short supply. In many instances, this is compounded by weak disease surveillance, a lack of electronic surveillance and a lack of information sharing, which results in slow identification of and response to disease outbreaks.

17. Service approach not standardized: Due to shortages in healthcare personnel, equipment and supplies, it is difficult or impossible to maintain standards of care in conflict settings. Moreover, service availability is inequitable as availability of services is not the only factor determining access – other determinants include demand for care (i.e. an individual recognizing the need for care and wanting to access it), as well as being able to access it (e.g. safe roads, money to travel, other competing priorities such as other responsibilities). Available standards, such as the minimum Sphere requirements in healthcare in humanitarian contexts, are not universally implemented or upheld. Where and when a healthcare organization may decide to respond is often driven by fundraising, access considerations or political objectives more than needs.[11]

18. Specific groups and conditions go untreated: Until recently, much of the humanitarian service delivery centered around infectious disease outbreaks and was dominated by needs in sub-Saharan Africa. An increase in needs in urban settings, slums, in middle income contexts, and the Middle East has led to a greater need to address non-communicable diseases, but this is an area of healthcare provision that remains underserved in humanitarian contexts. In addition, chronic, non-communicable health issues, especially mental illnesses, are stigmatized and often overlooked.

Photo Credit: The White Helmets

BARRIERS TO THE PROVISION OF WATER AND SANITATION

Photo Credit: Jean-Luc Habimana, for The Rainmaker Enterprise

4.3 BARRIERS TO WATER AND SANITATION

The Humanitarian Grand Challenge seeks bold ideas for new technologies, processes and approaches that enable rapid provision of safe water and safe disposal of waste and sewage in the most vulnerable households and/or enable implementers to rapidly scale up programs.

WATER SUPPLY AND QUALITY

Water shortages can be both a source of conflict and a consequence of conflict. Water conflicts normally occur at a sub-national level, between farmers and pastoralists, ethnic groups, and upstream and downstream users of the same rivers. Making sufficient safe water available is therefore crucial for health care, human consumption, basic hygiene and delivery of services. The barriers relating to water supply and quality are grouped into in three categories:

1. Available water supply;
2. Water infrastructure support; and
3. Access to the water supply.

First, there is often a reduced availability of potable water due to high levels of pollution, drought and the cost or technologies required for supplying water. Second, there is a lack of funding and political will to improve water infrastructure. And finally, even when water is available, it may require conflict-affected communities to walk long distances, sometimes at great risk, in order to access it. Trucking in water to meet gaps in supply is similarly expensive and subject to attack.

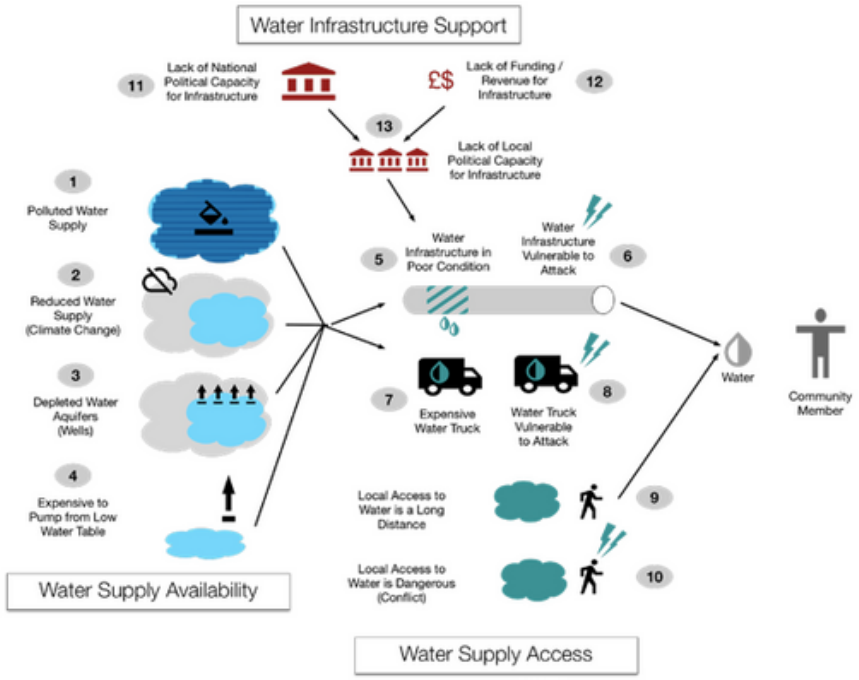
SANITATION AND WASTE MANAGEMENT

Conflict and displacement also lead to increased sanitation and waste management challenges. People affected by disasters are susceptible to diseases stemming from inadequate sanitation, insufficient water supplies and poor hygiene. The very young, the elderly, and people suffering from other health problems are particularly vulnerable to illness and even death resulting from poor sanitation. The challenges relating to sanitation have been grouped into four categories:

1. Access to sanitation;
2. Sanitation practices;
3. Sanitation infrastructure; and
4. Sustainable operations.

First, there are challenges to delivering sanitation across a wide range of settings, including urban, rural, and camp settings, in a way that ensures dignity and protects vulnerable groups from harm. Infrastructure is often in poor condition, with insufficient investment and is vulnerable to attack. This is compounded by unsustainable waste disposal solutions and sanitation facilities. Humanitarians need to support sanitation practices in ways that consider traditional practices.

FIGURE 3: BARRIER DIAGRAM FOR WATER SUPPLY AND QUALITY



WATER SUPPLY AVAILABILITY

1. Polluted water supply: Water sources may be polluted when infrastructure is neglected or overwhelmed. In rare cases, water sources have been intentionally poisoned, polluted or destroyed by armed groups.

2. Reduced water supply: Climate change is leading to changes in temperature and shifts in precipitation and weather patterns. This leads to more severe climate conditions and increases the frequency of flooding and droughts, which affect water supply.

3. Depleted water aquifers: Over the long term, stress on the water supply, including contamination and severe climate events, contributes to the depletion of underground water aquifers. This is not only the result of conflict but can also exacerbate conflicts over water sources. For example, depleted aquifers in Yemen and Gaza are creating serious, long-term water scarcity, which risks prolonging conflict.

4. Expensive to pump from low water table: Geographies with a low water table require expensive pumps and more fuel to extract water, compared to areas with more easily extractable water. For example, in many parts of Yemen, water needs to be pumped from very deep locations, which is very costly and reduces access.

WATER SUPPLY ACCESS

5. Water infrastructure in poor condition: Wells, bore holes, water pipes and processing plants suffer from overuse and limited or poor maintenance.

Photo Credit: Jean-Luc Habimana, for The Rainmaker Enterprise

6. Water infrastructure vulnerable to attack: Wells, processing plants and water infrastructure are targeted in aerial and ground attacks.

7. Expensive water trucking: The costs of truck rental, fuel, purchasing safe water is expensive in conflict settings due to increased demand for limited supply. Maintaining water trucks when equipment and parts are scarce also contributes to increased costs and delays in water delivery.

8. Water trucks vulnerable to attack: Water trucks may be targeted by armed groups or by aerial attacks.

9. Local access to water is a long distance away: When water sources are destroyed or damaged, affected populations must often travel long distances each day to collect water.

10. Local access to water is dangerous: Travelling long distances may carry risk of attack by armed groups. This can be particularly dangerous for women and girls.

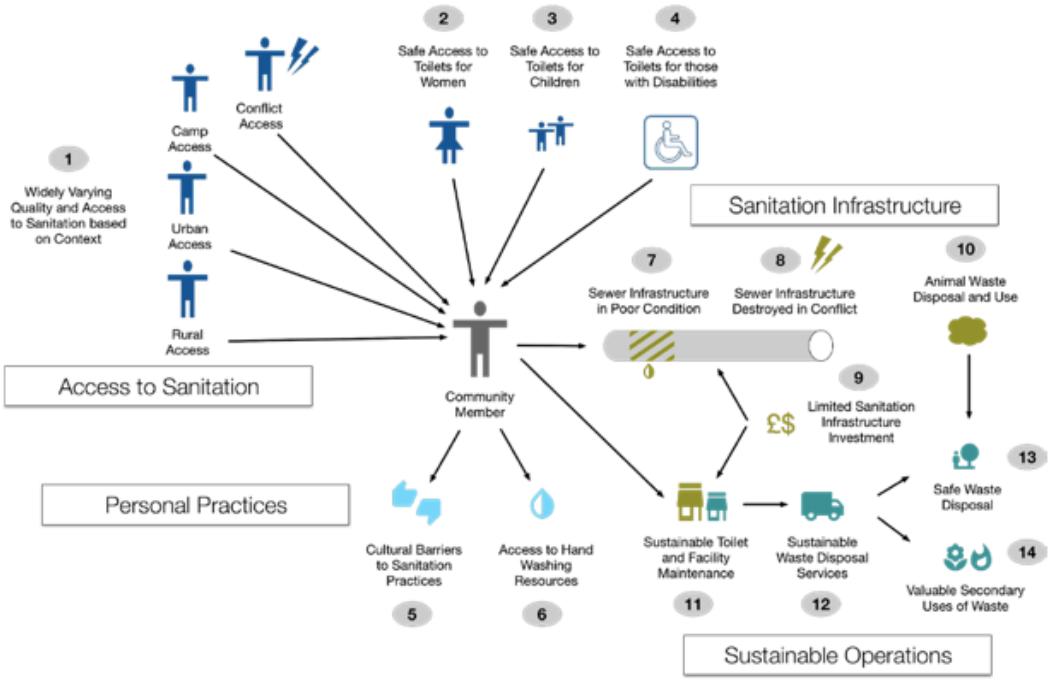
WATER INFRASTRUCTURE SUPPORT

11. Lack of national political capacity for infrastructure: Insufficient political attention to WASH policies at the national level, a lack of political autonomy to control local development and make decisions, as well as the means to generate revenue to invest directly in basic services.[12] Often, municipal budget is reduced to fund war efforts.

12. Lack of funding/revenue for infrastructure: State-owned utilities lack capacity, resources and reach to provide the required necessities to vulnerable communities.

13. Lack of local political capacity for infrastructure: In long-term crises, piecemeal WASH initiatives have resulted in a lack of critical infrastructure and capacity. As a result, access to WASH facilities and services may be limited or inconsistent across populations.

FIGURE 4: BARRIER DIAGRAM FOR SANITATION AND WASTE MANAGEMENT



ACCESS TO SANITATION

1. Widely varying quality and access to sanitation based on context: There are major disparities in sanitation services between rural and urban, poor, and wealthy areas.[13] More resources need to be targeted towards areas with high unmet needs.

2. Safe access to toilets for women: Latrines for displaced people may be constructed in far-off locations with poor lines of sight, security, lighting and segregation, which poses safety risks, especially for women who have to travel to and from the latrines without proper safety and security measures in place.

3. Safe access to toilets for children: Pit latrines can be frightening and dangerous for small children. Latrines in refugee camps may not be close to children's homes, and their safety may be at risk when they travel long distances to and from the latrines without adequate protection or supervision.

4. Safe access to toilets for those with disabilities: Latrines are not always located in buildings or locations that are accessible for people with disabilities.

PERSONAL PRACTICES

1. Cultural barriers to sanitation practices: Cultural practices and norms must be taken into consideration when designing programs to improve hygiene and sanitation. Cultural norms and taboos might discourage women walking far alone, so even physical distance can be a barrier for women.

2. Access to hand washing resources: Living conditions in camps or locations for displaced people may be unsanitary due to the lack of toilets, showers, personal hygiene (i.e., soap), and rationed access to water.

SANITATION INFRASTRUCTURE

3. Sewer infrastructure in poor condition. Lack of investment and funding for sewer infrastructure maintenance is widespread in conflict settings.

4. Sewer infrastructure destroyed in conflict: Sewage treatment plants are also at risk of attack during conflicts. In Syria, for example, a quarter of the sewage treatment plants have been destroyed or partially damaged.

5. Limited sanitation infrastructure investment: Sanitation in houses and hospitals is poor because of a lack of funding to maintain sewer systems.

6. Animal waste disposal and use: Camps may be shaped by the need to accommodate livestock, without the necessary systems in place to dispose of animal waste and carcasses. In addition, foraging animals may eat human/animal excreta that contains pathogens, which are a risk for humans if their meat is eaten.

SUSTAINABLE OPERATIONS

7. Sustainable toilet and facility maintenance: Many water, sanitation and hygiene programs suffer from improper maintenance and misuse, which can lead to bore holes and other facilities becoming unusable and unsafe.

8. Sustainable waste disposal services: Humanitarian settings are characterized by overpopulated living conditions due large numbers of people being displaced by conflict. In overcrowded settings, it is difficult to maintain adequate sanitation and waste disposal due lack of funding and resources.

9. Safe waste disposal: Safe excreta disposal relies on pits being dug, desludging latrines, and proper, safe treatment and disposal of sewage.

10. Valuable secondary uses of waste: There is little investment into technologies that would allow for use of recycled wastewater for irrigation, industry or toilet flushing.

BARRIERS TO THE PROVISION OF ENERGY

Photo Credit: Nuru Congo

4.4 BARRIERS TO ENERGY PROVISION

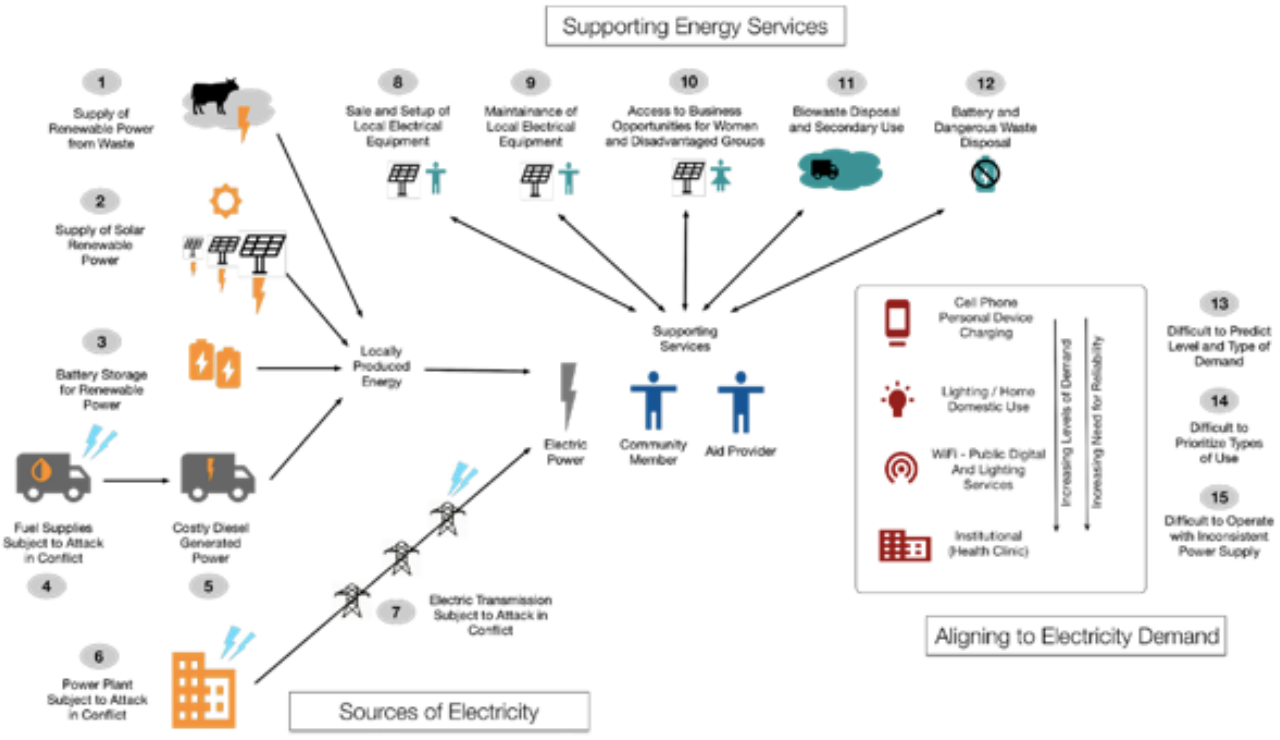
The Humanitarian Grand Challenge seeks bold ideas to generate energy. We are particularly interested in alternative energy solutions that are possible to set up and maintain in conflict situations, and that power life-saving and life-improving services such as health, information, water and sanitation, and education.

Humanitarian agencies rely upon energy to deliver their services. Moreover, refugees and displaced people are among the most energy-poor on the planet. However, there is limited reference to energy in humanitarian frameworks and operational manuals, and energy needs in disaster situations are often missed and overlooked. The barriers in this sector are grouped into three categories:

1. Sources of electricity;
2. Support for energy services; and
3. Aligning services to electricity demand.

First, sources of electricity are underdeveloped, subject to attack, and expensive. Second, there are insufficient numbers of supporting services for maintenance and waste disposal are insufficient. Finally, with many competing demands, it is difficult for energy services to meet the broad set of needs from refugees and the agencies that serve them.

FIGURE 5: BARRIERS TO ENERGY PROVISION



SOURCES OF ELECTRICITY

1. Supply of renewable power from waste: Renewable power infrastructures and technologies are underdeveloped in locations that are affected by conflict. In addition to limited infrastructural development in conflict settings, lack of capacity, skills and expertise to handle these infrastructures and technologies limits the provision and management of renewable power in these contexts. Investment in infrastructure, as well as in skills development remains crucial in conflict-affected communities. Additionally, viable economic models for private actors to invest in renewable energy sources would help address this gap.

2. Supply of solar renewable power: While solar energy can be used as an alternative energy supply in many settings, it does not currently generate predictable supplies needed for larger hospitals and other energy-critical infrastructure in urban settings.

3. Battery storage for renewable power: Batteries are heavy, expensive and relatively inefficient. Batteries are also often toxic and carry a risk of fire.

4. Fuel supplies are subject to attack in conflict: Fuel supply chains are vulnerable to attack, road blockages, and theft in conflict zones.

5. Costly diesel generated power: Fuel stations may be hard to reach and local supplies are expensive due to inefficient and irregular supply chains.

6. Power plants subject to attack in conflict: Power stations are destroyed as a result of nearby fighting and looting, and the dismantling of the facility's metal equipment and auxiliary installations for sale as scrap metal. Natural gas, diesel, and heavy fuel oil shortages at a national-level can also result in underuse of power facilities.

7. Electric transmission subject to attack in conflict: Energy power transfer stations, substations and cables may be targeted for attack or appropriated by a party in the conflict. In Aleppo, Syria, for example, 11 of the 16 energy substations were fully or partially damaged. [14]

Photo Credit:
Energy Peace Partners

SUPPORTING ENERGY SERVICES

8. Sale and setup of local electrical equipment: With limited private or public local supply, humanitarian agencies rely on expensive fuel for generators or military services (leading to challenges relating to neutrality). Batteries are often available in local markets, but there is little information, after-sales support or financing available to marginalized communities, including refugees. Some have low durability despite their high cost. Limited incentive for private actors to invest in this area results in lack of investment in electricity provision for the most vulnerable.

9. Maintenance of local equipment: There are insufficiently trained electricians to establish and maintain reliable energy sources in many contexts. Investments in micro training would be critical to address this knowledge and skills gap.

10. Access to business opportunities for women and disadvantaged groups: Fewer women or people from disadvantaged groups have the training or support to develop innovations or businesses that address energy needs.

11. Bio waste disposal and secondary use: Technologies for waste disposal are underdeveloped in locations affected by conflict, and there are often limited capacities to handle the systems due to lack of expertise in the field.

12. Battery and dangerous waste disposal: Disposing of batteries and other hazardous waste is difficult and expensive for both humanitarian agencies, as well as refugees and displaced people.

ALIGNING TO ELECTRICITY DEMAND

13. Difficult to predict level and type of demand: Humanitarian agencies have little data on the types of energy used in camps or how much they cost end-users.[15] However, there has been some progress to measure key data on energy sources and costs by larger international organizations
operating in these contexts.

14. Difficult to prioritize types of use: There are a wide range of unmet needs for energy provision from humanitarian agencies and displaced populations. This includes a need for reliable energy provision for hospitals as well as demand for domestic needs and charging cell phones.

15. Difficult to operate with inconsistent power supply: Medical facilities and other frontline service providers require a reliable source of energy, and they have limited alternatives when the main power supply is compromised.

CROSS-CUTTING ISSUES IN THE DELIVERY OF HUMANITARIAN ASSISTANCE IN HARD-TO-REACH-CONFLICT ZONES

Photo Credit: MSF

4.5 CROSS-CUTTING ISSUES IN THE DELIVERY OF HUMANITARIAN ASSISTANCE IN HARD-TO-REACH-CONFLICT ZONES

The vast majority of the cross-cutting barriers identified in this analysis are political or contextual in nature. These key challenges are outside of the scope of what the Humanitarian Grand Challenge program can likely influence. However, it is vital that humanitarian actors and innovators consider how they will approach these challenges as they develop solutions to specific humanitarian challenges.

CONTEXTUAL CHALLENGES

1. Corruption: In conflict-affected countries such as the Democratic Republic of the Congo, administrative procedures like agency registration, access to vulnerable people, importation of goods and equipment are subject to bribes. Without bribery, administrative processes can take far longer. Of course, bribes are forbidden by donors and are inevitably illegal and unethical.

2. Political affiliations and agendas: When governments are also conflict belligerents, politics often directly impacts humanitarian access and service delivery. Governments can influence humanitarian decisions to further their own agenda regarding priority needs, selection of target population, budget allocation, etc. Such interference can negatively impact safety of civilians and humanitarian staff.

3. A lack of humanitarian access: Delivering humanitarian solutions is becoming increasingly difficult. Despite their obligations under International Humanitarian Law (IHL),[16] conflict belligerents frequently deny access to humanitarian agencies, attack hospitals and deny or delay permits or access for humanitarian workers or goods. In many places, there is increasing suspicion of humanitarian agencies by both governments and the affected populations. In the most severe cases, international agencies withdraw and deliver their programs through remote management of local partners.

4. A lack of coordination between different humanitarian interventions: Humanitarian agencies deliver programs under significant time pressures and in situations of enormous need necessitating rapid decision making, often with incomplete information. Population needs can rapidly change with the context. Weak coordination between agencies results in a lack of mapping of needs and responses, which can result in some areas not receiving interventions at all, while other areas receive duplicate services.

5. Accounting for cultural dynamics: Humanitarian organizations are inconsistent in their ability to meet cultural needs, priorities and dynamics. Concerns center around the need to adapt approaches to food and cash distribution to local customs, and to account for vulnerabilities of women or other marginalized groups. For instance, healthcare, WASH and life-saving information services are refused in some cases where the approach is not aligned to the local cultural beliefs

and practices. For example, people from the Democratic Republic of Congo initially refused Ebola treatment until the international responders collaborated with local partners on how to communicate health and prevention information.

6. Protection in camps: There is a lack of protection for people fleeing violence. Displaced people in camp settings, especially children and single women, are vulnerable to exploitation, abuse and trafficking. Speaking out against human rights abuses can put local humanitarian staff at risk of violence, and result in punitive action such as revocation of visas for international staff or journalists who report on these cases.

STRUCTURAL ISSUES WITHIN THE HUMANITARIAN AID SECTOR

7. A focus on short term solutions: Despite the increasingly protracted nature of conflicts worldwide, funding cycles are short, and responses tend to focus on short-term needs and solutions. Agencies, often funded to respond in a specific geographical area, do not account for the changing needs of populations as they move across borders, or as the conflict changes and evolves.

8. Humanitarian interventions are implemented in silos: Poor coordination - within humanitarian agencies and UN clusters[17] - makes it difficult to deliver multi-sectoral solutions and leads to fragmented service delivery. Linkages between humanitarian and development programs, and humanitarian and peacebuilding programs, are particularly poor.

9. Unstable market conditions and an underdeveloped private sector: Local businesses are adversely affected by conflict and national and international businesses are often reluctant to invest in locations with unstable market conditions. Moreover, humanitarian agencies have historically opted to import in large quantities rather than purchasing locally available products (often so that they can purchase from one large supplier). A lack of trust between humanitarian agencies and corporations also leads to sub-optimal partnerships and a poor understanding of each other's priorities.

10. Distrust between local/national and international agencies: Local organizations, who are closest to the frontline and often have a better understand the needs and priorities of the populations most affected by the conflict, have limited access to direct funds, influence in decision-making, or inclusion in coordination mechanisms.

11. Inappropriate or unrealistic procurement policies: Rigid NGO procurement policies can be difficult or impossible to uphold in conflict settings, making it challenging to obtain the supplies and services needed to deliver humanitarian interventions. For example, many procurement policies require staff to obtain three quotations from different vendors in order to ensure prices are fair and to minimize corruption, but this may be impossible in conflict settings where many vendors have closed their businesses or are unable to operate as they normally would.

LACK OF CAPACITY AMONG HUMANITARIAN ACTORS

12. Unintentionally doing harm while seeking to do good. Humanitarian agencies can become unintentional facilitators of conflict. Rushed actions that do not give sufficient thought to unintended consequences or ethical considerations can lead to unintended harm. Examples include distributing valuable assets in resource-poor settings, poor safeguarding, ignoring or being unaware of the specific needs of vulnerable people. Women and girls are often especially vulnerable to sexual and gender-based violence if forced into situations where they are isolated - such as travelling long distances to collect firewood or water or using the latrine.

13. Lack of professionalization among humanitarian actors. Humanitarian agencies are subject
to significant time pressures and high levels of need. It can be difficult to recruit experienced staff into the most challenging roles in the most insecure settings. Some roles are filled by under-experienced staff without a good understanding of the wider humanitarian system. In locations without a recent history of humanitarian responses, local organizations and staff can lack the know-how to deliver timely aid.

14. Local organizations face significant barriers when applying to and receiving humanitarian funds. Local organizations face barriers to accessing direct funding. In total, 99.6 percent of humanitarian funding goes directly to international agencies, while 0.4 percent goes directly to local and national agencies.[18] Barriers relate to building international networks, fundraising, reporting, and external communications.

Photo Credit: SUNY Korea

ANNEX I - ENDNOTES

1. ALNAP (2018) The State of the Humanitarian System 2018
2. UNHCR (2018) Displaced and disconnected: connectivity for refugees.
3. GSMA (2017). Mobile is a lifeline: Research from Nyarugusu refugee camp, Tanzania.
4. Access to Medicine Foundation (2018) Access to Medicine Index 2018
5. https://www.msf.org.uk/issues/access-medicines
6. Elizabeth Sukkar (2015) The pharmaceutical journey
7. Ismail S et al (2018) Refugees, healthcare and crises: Informal Syrian health workers in Lebanon. IIED.
8. World Bank Group (2017) Syria damage assessment.
9. Philips M and Derderian K (2015) Health in the service of state-building in fragile and conflict affected contexts: An additional challenge in the medical-humanitarian environment. Conflict and Health.
10. Ismail S et al (2018) Refugees, healthcare and crises: Informal Syrian health workers in Lebanon. IIED.
11. Thompson R and Kapila M (2018) Health in conflict scenarios: leaving no one behind. Report of the WISH Healthcare in Conflict Settings Forum 2018
12. Cummings C, Langdown I and Hart T (2017), Who gives a crap? The politics of improving sanitation in cities, Overseas Development Institute.
13. World Bank (2017) Reducing Inequalities in Water Supply, Sanitation, and Hygiene in the Era of the Sustainable Development Goals
14. World Bank Group (2017) Syria damage assessment
15. Grafham O (2018) Clean Energy for Refugees: Why We Need Data. Chatham House
16. ICRC (2004) What is International Humanitarian Law
17. UN OCHA, What is the Cluster Approach https://www.humanitarianresponse.info/en/about-clusters/what-is-the-cluster-approach
18. ALNAP (2018) The State of the Humanitarian System

ANNEX 2 - BIBLIOGRAPHY

- Access to Medicine Foundation (2018) Access to medicine index 2018. Available at: https://accesstomedicinefoundation.org/publications/2018-access-to-medicine-index
- ACF (2009) The human rights to water and sanitation in emergency situations. ACF on behalf of the global WASH cluster. Available at: http://www.worldwatercouncil.org/fileadmin/wwc/Right_to_Water/Project_8_HRTWS_in_Emergencies_Handbook.pdf
- ALNAP (2018) The State of the Humanitarian System. Available at: https://sohs.alnap.org/
- CDAC Network (2018) Eliminating barriers to meaningful participation in humanitarian response. Available at http://www.cdacnetwork.org/i/20180523113838-80p5y/
- Cummings C, LangdownI, and Hart T (2017) Who gives a crap? The politics of improving sanitation in cities, Overseas Development Institute.
- D'Mello-Guyett et al. (2018) Setting priorities for humanitarian water, sanitation and hygiene research: a meeting report. Conflict and Health https://www.elrha.org/wp- content/uploads/2018/07/D-Mello-Guyett_et_al-2018-Conflict_and_Health.pdf
- Devaraj R (2016) Pioneering market systems for energy access in humanitarian settings – the case of Burkina Faso. Learning brief. Moving Energy Initiative. Available at: https://mei.chathamhouse.org/file/2427/download
- Elizabeth Sukkar (2015) The pharmaceutical journey. https://www.pharmaceutical- journal.com/news-and-analysis/features/supplying-medicines-to-refugees-a-logistical- nightmare/20067972.article
- ELRHA (2015) Evidence review: Executive summary. Available at: https://www.elrha.org/wp-content/uploads/2015/01/Evidence-Review-Exec-Summary.pdf
- ELRHA (2017) Too tough to scale. Available at: https://www.elrha.org/researchdatabase/too- tough-to-scale-challenges-to-scaling-innovation-in-the-humanitarian-sector/
- GAHI (2018) Untangling the many paths to scale. https://www.thegahi.org/news-and- blog/humanitarian-innovation-untangling-the-many-pathways-to-scale
- Grafham O (2018) Clean Energy for Refugees: Why We Need Data. Chatham House. Available at: https://mei.chathamhouse.org/clean-energy-refugees-why-we-need-data
- Grafham O and Lahm G (2018) The cost of fueling humanitarian aid. Available at: https://www.chathamhouse.org/sites/default/files/publications/research/2018-12-10-Costs- Humanitarian-Aid2.pdf
- GSMA (2017) Mobile is a lifeline: Research from Nyarugusu refugee camp, Tanzania. Available at: https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/07/mobile-is-a-life- line.pdf
- GSMA (2018) Mobile for Humanitarian Innovation Annual Report. Available at: https://www.gsma.com/mobilefordevelopment/resources/mobile-for-humanitarian-innovation- 2018-annual-report/
- GSMA (2018) Landscaping the humanitarian digital ecosystem. Available at: https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/12/Landscaping-the- digital-humanitarian-ecosystem.pdf
- GSMA (2018) Key trends from Round 2 of the GSMA Mobile for Humanitarian Innovation Fund. Available at: https://www.gsma.com/mobilefordevelopment/resources/key-trends-from-round-2-of- the-gsma-mobile-for-humanitarian-innovation-fund/

● GSMA (2019) Mobile enabled energy for humanitarian contexts. Available at: https://www.gsma.com/mobilefordevelopment/resources/mobile-enabled-energy-for- humanitarian-contexts/
● GSMA (2019) Recognising Urban Refugees in Jordan: Opportunities for mobile-enabled identity solutions https://www.gsma.com/mobilefordevelopment/resources/recognising-urban-refugees-in- jordan-opportunities-for-mobile-enabled-identity-solutions/
●. GSMA (2019) Bridging the mobile gender gap for refugees. Available at: https://www.gsma.com/mobilefordevelopment/resources/bridging-the-mobile-gender-gap-for- refugees/
● HIF (2013) Gap Analysis in Emergency Water, Sanitation and Hygiene Promotion. Available at: https://www.elrha.org/wp-content/uploads/2015/01/hif_wash_gap_analysis_1.pdf
● HIF (2016) WASH in Emergencies Problem Exploration Report: Solid waste management. Available at: https://www.elrha.org/wp-content/uploads/2016/01/Solid-W aste-Management- WASH-Problem-Exploration-Report.pdf
● ICRC (2004) What is International Humanitarian Law. Available at: https://www.icrc.org/en/doc/assets/files/other/what_is_ihl.pdf
● Ismail, S et al. (2018) Refugees, healthcare and crises: Informal Syrian health workers in Lebanon. IIED. Available at: pubs.iied.org/10856IIED
● MSF (2014) Where is Everyone? Available at: https://www.msf.org/sites/msf.org/files/msf-whereiseveryone_-def-lr_-_july.pdf
● Philips M and Derderian K (2015) Health in the service of state-building in fragile and conflict affected contexts: An additional challenge in the medical-humanitarian environment. Conflict and Health; 9(13). Available at: https://conflictandhealth.biomedcentral.com/articles/10.1186/s13031- 015-0039-4
● Reporters without Borders (2018) Worldwide Round-up of Journalists Killed, detained, held hostage, or missing in 2017 https://rsf.org/en/worldwide-round-journalists-killed-detained-held- hostage-or-missing-2017
● Rowntree O (2018) Connected Women: The Mobile Gender Gap Report 2018. GSMA. Available at: https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/04/GSMA_The_Mobile_Gender_Gap_Report_2018_32pp_WEBv7.pdf
● Thompson, R and Kapila, M (2018) Health in conflict scenarios: leaving no one behind. Report of the WISH Healthcare in Conflict Settings Forum 2018 https://www.wish.org.qa/wp-content/uploads/2018/11/IMPJ6078-W ISH-2018-Conflict-181026.pdf
● Torres J M (2017) Energy in Humanitarian Response: A Case Study on Humanitarian Actors' Perceptions of Energy during Typhoon Haiyan. Institute for Climate and Sustainable Cities. Available at: https://reliefweb.int/sites/reliefweb.int/files/resources/Energy%20in%20Humanitarian%20Respons e.pdf
● UNHCR (2018) Displaced and disconnected: connectivity for refugees. Available at: https://www.unhcr.org/innovation/displaced-and-disconnected/
● World Bank (2017) Reducing Inequalities in Water Supply, Sanitation, and Hygiene in the Era of the Sustainable Development Goals. Available at: http://documents.worldbank.org/curated/en/633171503631095871/Reducing-inequalities-in- water-supply-sanitation-and-hygiene-in-the-era-of-the-sustainable-development-goals-executive- summary
● World Bank Group (2017) Syria damage assessment. Available at: http://documents.worldbank.org/curated/en/530541512657033401/pdf/121943-WP-P161647- PUBLIC-Syria-Damage-Assessment.pdf
● Yates T, Allen J, Leandre Joseph M, and Lantagne D. (2017). WASH interventions in disease outbreak response. Humanitarian Evidence Programme. Oxford: Oxfam GB. Available at: https://fic.tufts.edu/wp-content/uploads/WASH-Systematic-Review.pdf

ANNEX 3 - INTERVIEWEES

Most interviewees agreed to participate in the interviews on the condition of anonymity and in their personal capacity.

Nationalities of interviews included: Australian, American, British, Congolese, Canadian, Dutch, Ethiopian, French, Haitian, Norwegian, South Sudanese, and Yemeni. Interviewees were 30% female, and 70% male.

1. Medical doctor, MPH, with experience of UN and NGO
2. CEO, Yemeni-US Relief NGO
3. Humanitarian WASH expert, innovator, with PhD, NGO and Canadian university
4. CEO with expertise private sector humanitarian innovation
5. Program management expert/humanitarian aid/development
6. WASH UN expert
7.Humanitarian UN expert
8. CEO, South Sudan Social Enterprise
9.Humanitarian innovation NGO, Red Cross, UN experience in conflict zones.
10.Humanitarian innovation expert, UK NGO
11. Health, policy and humanitarian expert, US University
12. Digital communications innovation expert, UK Private Sector Investor
13. Global humanitarian and innovation expert, Multiple UN experience
14. Global health, early childhood expert, international organization
15. Global NGO energy/health/WASH expert
16. Private sector health innovation expert
17. Protection innovation expert
18. Knowledge management expert/NGO
19. Procurement & logistics expert
20. Procurement & logistics expert, disaster risk management
21. Energy UN expert