Water under Fire

For every child, water and sanitation in complex emergencies
Horriya, 12, carries a jerrycan of water in a makeshift camp near Raqqa in the Syrian Arab Republic. Horriya and her family made a three-day journey from Raqqa in 2017 to escape the ongoing conflict in the area.

“I wasn’t afraid on the way,” Horriya said. “We heard airplanes and shelling, but we’re used to that. We see them and hear them every day.”

UNICEF trucks water to the camps where people displaced by the conflict have temporarily settled. UNICEF also installed latrines, showers and water storage tanks in the camps and distributed family hygiene kits to protect children against waterborne diseases.
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Many days, Charity faces a terrible choice: Give her three children dirty water, or no water at all.

“When I think about giving them the dirty water, then my heart is not feeling well,” Charity said.

In a neighbourhood on the outskirts of Juba where Charity found refuge from the ongoing conflict in South Sudan, only one overextended hand pump provides safe water. A lack of safe water has forced Charity to seek medical help for her children, Rumering, 7, Baraka, 5, and Grace, 2. But sometimes, dirty water from a well or river is her only option.

“If there is no water, then there is no food,” Charity said. When that happens, “I call my children, I hold them to me and we will sleep ... because there is nothing.”
In times of crisis, children face many dangers: They are forced from home, separated from family, deprived of food, barred from school, and exposed to exploitation and violence. In crises involving armed conflict, children are threatened by injury and death.

But bullets and bombs are not always the deadliest threats to a child’s life.

In protracted conflicts, children younger than 15 are, on average, nearly three times more likely to die from diarrhoeal disease linked to unsafe water and sanitation than violence directly linked to conflict and war. For younger children, the impact of unsafe water, sanitation and hygiene is greater: Children under 5 are more than 20 times more likely to die from diarrhoeal disease linked to unsafe water and sanitation than violence in conflict.

In these conflicts – and other emergencies – providing rapid, comprehensive and safe water and sanitation is a matter of life and death. Unfortunately, emergency responses are too often under-resourced, dependent on underdeveloped water and sanitation systems and incapable of addressing complex needs.

A right denied

Around the world, water and sanitation is recognized as a right and acknowledged as an essential part of life-saving humanitarian responses. When that right is denied, the consequences can be tragic.

Without safe water, sanitation and hygiene (WASH), children’s health, nutrition, safety and education are at risk: They are exposed to preventable diseases including diarrhoea, typhoid, cholera and polio; they are at risk of malnutrition; they are vulnerable to sexual violence as they collect water or venture out to use latrines; and they deal with affronts to their dignity as they bathe and manage menstrual hygiene.

In hospitals and community clinics, a lack of water and sanitation hampers treatment of injury and disease, and it compounds the health and nutrition risks caused by waterborne diseases. Without WASH services in learning environments, children face security risks and difficulties managing menstrual hygiene – dangers that can interfere with their success in school.

Explaining the figures

To illustrate the dangers that stem from a lack of safe water and sanitation, mortality estimates in 16 countries experiencing protracted conflict were compared: Afghanistan, Burkina Faso, Cameroon, the Central African Republic, Chad, the Democratic Republic of the Congo, Ethiopia, Iraq, Libya, Mali, Myanmar, Somalia, South Sudan, Sudan, the Syrian Arab Republic and Yemen. World Health Organization mortality estimates were used for ‘collective violence’ and ‘diarrhoeal disease’.

Though patterns differed in each country, on average, mortality estimates were higher for diarrhoeal disease than collective violence in children younger than 15. In Libya, Iraq and the Syrian Arab Republic, however, children younger than 15 were more likely to die from collective violence. But children younger than 5 were more likely to die from diarrhoeal disease in all countries except Libya and the Syrian Arab Republic.
Multiple challenges

Emergency WASH services are required in areas facing multiple kinds of challenges: One out of every four children lives in a country that faces violence, hunger or disease due to conflicts or other disasters.³

The sheer numbers of people in need of emergency WASH services is a challenge for the sector. Consider that:

- Globally, an estimated 2 billion people live in fragile and conflict-affected areas.⁴
- From 2005 to 2017, the number of crises that demanded a response from international partners doubled from 16 to 30.⁵
- In 2017, 68.5 million people were displaced, mostly by conflict – and half were children.⁶

In many areas, the duration of crises also creates difficulties. And in 2019, the average emergency is expected to last about nine years.⁷

Conflict

Conflict is a major driver of crisis.⁸ Indeed, more countries have experienced violent conflict than at any time since 1989.⁹

In conflict, deliberate and indiscriminate attacks destroy infrastructure, injure personnel and cut off the power that keeps WASH systems running.¹⁰ Armed conflict also limits access to essential equipment and consumables such as fuel or chlorine – which can be depleted, rationed, diverted or blocked from delivery. Far too often, essential services are intentionally denied.

Particularly in cities, where communities depend on a complex, interconnected set of services, attacks on water, sanitation and power systems can be instantly debilitating – with long-term consequences.

Attacks on water and sanitation are attacks on children. In the Syrian Arab Republic, for example, attacks on water networks cut services for weeks at a time, forcing children to fetch water in extreme temperatures.¹¹ During a water crisis in Aleppo in the summer of 2015, three children were killed as they collected water for their families.¹²

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On average, children under 15 are nearly 3x more likely to die from diarrhoeal disease linked to unsafe WASH than violence in conflict.

On average, children under 5 are more than 20x more likely to die from diarrhoeal disease related to unsafe WASH than violence in conflict.
**Children under 15:**  
Deaths from diarrhoea linked to unsafe WASH and deaths from collective violence

![Graph showing average deaths per year in children under 15](#)

- **Green bar:** Diarrhoeal death  
- **Red bar:** Collective violence death

**Notes:** Afghanistan, Burkina Faso, Cameroon, the Central African Republic, Chad, the Democratic Republic of the Congo, Ethiopia, Iraq, Libya, Mali, Myanmar, Somalia, South Sudan, Sudan, the Syrian Arab Republic and Yemen. Data are the average for 2014–2016.


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**Children under 5:**  
Deaths from diarrhoea linked to unsafe WASH and deaths from collective violence

![Graph showing average deaths per year in children under 5](#)

- **Green bar:** Diarrhoeal death  
- **Red bar:** Collective violence death

**Notes:** Afghanistan, Burkina Faso, Cameroon, the Central African Republic, Chad, the Democratic Republic of the Congo, Ethiopia, Iraq, Libya, Mali, Myanmar, Somalia, South Sudan, Sudan, the Syrian Arab Republic and Yemen. Data are the average for 2014–2016.

Underdeveloped systems

Attacks during conflict are one part of the complex set of challenges facing water and sanitation responses in emergency situations. Commonly, though, emergency responses occur in countries with underdeveloped water, sanitation and power systems – often countries that struggle to meet the targets set out in the Sustainable Development Goals. In these countries, when emergency strikes, the WASH and power systems are not resilient enough to handle the shock.

As a crisis wears on, the problems are compounded, and service providers face safety concerns and shortages of personnel and materials needed to operate and maintain systems. The decline has a cumulative effect, and systems can be crippled by neglect and long-term degeneration. As a result, progress towards achieving the Sustainable Development Goals can be reversed.

The power of partnerships

Building strong WASH systems capable of addressing increasingly complex and protracted crises demands expertise, resources and commitment. None of this can be achieved alone.

The United Nations Secretary-General’s Agenda for Humanity, One humanity: Shared responsibility, underscores the call for partners to come together to build sustainable and resilient WASH systems that can withstand crises. Governments, local authorities and partners from the humanitarian and development sectors all play a vital role. The WASH Cluster, led by UNICEF, is a critical partnership responsible for coordination of water and sanitation responses in emergencies. Public-private partnerships can also offer a way to establish resilient services that continue operating during and after crises, help in relief efforts and assist in post-crisis recovery.

WASH services themselves can serve as a starting point for cooperation among parties in conflict – even in the heat of battle. For example, an agreement was struck in Aleppo to continue water services after a power station was incapacitated. For a period, fighting stopped daily so UNICEF’s partner could cross lines of conflict to deliver fuel to keep water flowing to residents.

Finding solutions

Though challenging, the task of linking humanitarian responses to sustainable development is not impossible. In crises around the world, humanitarian and development organizations have shown that it can be done.

This alert provides examples from Ukraine, Bangladesh and Yemen that highlight how partners are successfully addressing critical needs, saving lives and protecting futures. Each of these case studies also points towards improvements that can help secure the right to safe water, sanitation and hygiene for every child.
Since 2011, when conflict began in the Syrian Arab Republic, children and families have suffered the consequences of long and sometimes deliberate interruptions to water supply. In Aleppo, for example, fighting repeatedly damaged key water, sanitation and electricity infrastructure in 2015 and 2016. Disruptions included a deliberate 48-day shutdown of a water treatment plant that served 2 million people.\(^\text{17}\)

In the Al-Midan neighbourhood of Damascus, Bashir and his family have running water for about two hours every three or four days.

“When my father tells us it’s our turn to receive water, we prepare everything we can fill at home; bottles, jerrycans, pots and pans,” said Bashir, age 12 in this photo. “When the water comes, it’s just like a party for us!”
Since 2014, Dima and his family have lived near the contact line between government- and non-government-controlled areas of eastern Ukraine. One day, Dima was caught in a firefight as he searched near the family well for grass for his pet rabbit. The experience still haunts him at night and his family hears him call out, “Stop! Stop!” in his sleep.

Dima, now 15, does not only relive the danger in his dreams: When household water service is disrupted, Dima must fetch water at the same well where he was caught in the attack. In this photo from 2018, he is shown fetching water by bike on a route that takes him past anti-tank barriers.
Case Study: Ukraine
Stop attacks on water and sanitation

Every morning, employees of the Voda Donbasa water company board a bus that transports them across dangerous ground to the Donetsk Filter Station, where they help supply water to 378,000 residents of the nearby area.18

The job is as vital as it is risky.

The filter station straddles the ‘contact line’ that marks territory in the armed conflict that has engulfed eastern Ukraine.19 Far too often, the station and its employees have been caught in the middle.

In 2018, shelling or shooting had an impact on the Donetsk Filter Station multiple times. In April 2018, five workers were injured when their bus was fired on as they journeyed home after their shift.

The station is just one of the many facilities in eastern Ukraine struggling to provide water despite the ongoing conflict. In 2018, shelling, small arms fire and other disturbances interrupted water supply 89 times throughout eastern Ukraine.20

The danger has continued into 2019. In January, three workers were attacked while clearing snow near a pumping station north of the village of Kruta Balka.21 In February, a suspected grenade narrowly missed a bus carrying employees home after their shift at the pumping station.

Despite the risk, the WASH Cluster helped local authorities keep water flowing for more than 2.3 million people in 2018, coordinate emergency repairs and maintain the supply of water treatment chemicals.22 UNICEF assisted more than 1.3 million people in the area by providing water treatment mechanisms and emergency repairs to water system infrastructure.

Keeping track of attacks is also an important part of the response. A monitoring and reporting system in eastern Ukraine uses social media to update residents about service interruptions and alert water workers to danger. This immediate and transparent reporting of attacks draws public attention to the issue, ensures that attacks are monitored and their impact recorded.

But there is more to do.

A 2018 assessment highlighted tariff, debt and security issues that face Voda Donbasa, a state-run company. It showed that urgent repairs would require US$170 million between 2018 and 2022.23

Despite the difficulties, courageous workers continue the job of providing safe water. In Artema, part of the Luhansk region of Ukraine, Inna Krasnyakova does her part.

When the conflict broke out in 2014, Krasnyakova was on the job at the Petrovskaya pumping station.24 Before taking cover, she ran to the chlorine warehouse and covered the cylinders to prevent leaks.

Though the conflict has displaced her from home and left her with an injured leg, she remains committed to her mission at the pumping station.

“If I do not do it, who will?” she asked.
Bangladesh

Rofika’s story

Despite many successes of the response in Cox’s Bazar, WASH needs remain great. With the long-term status of refugees in Bangladesh uncertain, medium-term solutions are required – solutions that are more durable and cost effective than short-term interventions.

In this photo from the Balukhali Refugee Camp in Cox’s Bazar, Rofika, 7, plays inside a concrete drain pipe that was slated for installation before the monsoon season in 2018. In the background, a young girl fetches water from a pump. Though they probably do not know it, the two children are drawing attention to key actions that go beyond humanitarian need to provide more durable, safe and dignified water and sanitation solutions in the district.
The Government of Bangladesh activated a massive humanitarian response in 2017 to the surge of Rohingya refugees arriving in the Cox’s Bazar district. By the end of 2018, nearly 730,000 new refugees had arrived in Bangladesh, fleeing persecution and conflict in neighbouring Myanmar. More than half were children.

The humanitarian response involved multiple United Nations agencies and scores of local and international non-governmental organizations. It engaged at least 10 sectors including WASH.

In many ways, the effort to provide safe WASH services to the refugee camps was unprecedented and impressive. But the scope and complexity of the humanitarian crisis highlighted critical gaps in the WASH sector’s capacity to handle faecal sludge management and hygiene promotion – gaps with the potential to harm the health and lives of vulnerable children and families.

Successes included the sector’s work to stave off major outbreaks of waterborne disease and stabilize diarrhoea rates during monsoon season, when the danger from waterborne disease is high. Partners worked together to reduce the risk of exposure to contamination from unsafe water and sanitation with measures that included: elevating latrines above flood level; desludging latrines; decommissioning hazardous latrines; and increasing outreach about safe hygiene practices. A mechanism was established to report incidents of unsafe water and sanitation, which were addressed by mobile response teams. As of August 2018:

- More than 720,000 people in settlements benefitted from safe water for domestic purposes
- Nearly 700,000 people had access to functional latrines of agreed-on standards
- More than 850,000 people received hygiene materials or a voucher for them in the last three months

However, the sector’s response faced multiple challenges: the vast number of refugees; congestion in the camps; overwhelmed host communities; limited space; dangerous weather; difficult terrain; and a population of children and families who were profoundly stressed by forced displacement and who carried with them a specific set of hygiene practices and attitudes.

Despite the presence of 107 small and mid-sized management facilities, the absence of comprehensive faecal sludge management presented potential health and environmental dangers, including water contamination and disease outbreak.

In addition, the needs of vulnerable populations – including women, adolescent girls and people with disabilities – often were not well understood or addressed in the design and construction of WASH services. Challenges with safety and menstrual hygiene management were common. Women and girls were at increased risk for gender-based violence as they collected water or used latrines.

Finally, the response in Bangladesh highlighted the need for coordinated community outreach to improve safe hygiene practices in households. An April 2018 evaluation indicated that 35 per cent of households had no soap; many households used contaminated water; and in 65 per cent of households, children younger than 5 usually defecated in the open.

As the humanitarian response continues to evolve in the Cox’s Bazar district, opportunities exist to close these gaps in the WASH sector – and better protect the rights, health and safety of children in emergency settings.
In Yemen, ongoing conflict has taken a dangerous toll on community health facilities. To address the problem, UNICEF and the World Bank rehabilitated WASH facilities in 29 rural health centres, installing water tanks and upgrading toilets, wash basins and sewage systems, and distributing more than 2,900 basic hygiene kits.

Narima Ahmed Saeed, 7, has noticed the difference. “Our village health centre is cleaner than before, and we now have water,” said Narima, whose mother takes her to the village medical centre for treatment of malnutrition.
With the escalation of conflict in 2015, bolstering Yemen’s underdeveloped WASH systems became a matter of life and death.³⁴

The largest documented cholera epidemic in modern times infected more than 1.3 million individuals and claimed the lives of 2,732 between April 2017 and December 2018.³⁵ Nearly 29 per cent of estimated cholera cases were in children younger than 5.³⁶

Attacks in parts of Yemen resulted in extensive damage to infrastructure, contributing to the disintegration of an already burdened water and sanitation system and increasing the risk of cholera outbreak.³⁷ The combination of attack and chronic neglect brought the water, sanitation and power systems – and the health care system that relies on them – to the brink of collapse. The crisis was compounded as civil servants were paid inconsistently, supplies became scarce and WASH experts’ entry to Yemen was delayed and denied.

By the end of 2018, an estimated 16 million people in Yemen were in acute need of WASH services. More than half were children.³⁸

Though overstretched and understaffed, UNICEF and partners worked to establish rapid response mechanisms to control the spread of disease. With Yemen’s General Authority for Rural Water Supply Projects, partners activated more than 750 rapid response teams.³⁹ Using ‘real-time’ data on the spread of disease and a targeted approach, the teams reached out to 8.4 million people in more than 1.2 million households with critical hygiene supplies and information. The effort created both short-term and long-term defences against disease.

Partners also worked to prevent the collapse of WASH systems throughout the country by providing critical supplies, power sources and funding so the government could continue to operate and maintain large-scale water and sanitation systems. Urgent steps featured chlorination programmes to improve water safety and strengthened efforts to monitor private-sector water trucking operations. Operational support included fuel, electricity, spare parts and direct help to water and sanitation providers.⁴⁰ From January to December 2018, the WASH Cluster provided safe water to nearly 6 million people.

To prevent collapse in the long term, UNICEF and partners embarked on plans to rebuild and expand public WASH systems with the capacity to serve 9 million people.⁴¹

One of these efforts involves renewable energy sources. The goal is to provide reliable, uninterrupted services that customers are willing to pay to receive – an essential component of sustainability.

In Yemen – and countries around the world plagued by protracted crises – strengthening WASH systems so they are resilient in times of emergency must be a major priority. When strong WASH systems are in place, they can help stem the outbreak of disease and limit damage caused by humanitarian shocks such as conflict. As a result, these shocks may not derail a country’s progress towards achieving sustainable development.
The prolonged humanitarian crisis in northeast Nigeria has internally displaced 1.8 million people as of December 2018 and threatened children’s health, education and lives.

In 2018, cholera outbreaks affected more than 12,000 people and claimed nearly 200 lives in the states of Adamawa, Borno and Yobe. In 2019, an estimated 368,000 children will be at risk of severe acute malnutrition and 727,000 children, of moderate acute malnutrition.42

Aisa, shown here, lives in the Bakassi camp for internally displaced people in Maiduguri, the capital of Borno. She drinks water provided by a solar-powered borehole, one of the innovative ways to provide sustainable water solutions in humanitarian responses. Safe water can protect children like Aisa by preventing the spread of disease and curbing malnutrition.
Change Agenda

The right to safe drinking water and sanitation is reflected in the Convention on the Rights of the Child, United Nations resolutions and the Geneva Conventions.\textsuperscript{43} It is a right that is as critical to the survival of children as food, medical care and protection from attack.

In emergencies, children’s lives depend on rapid and comprehensive humanitarian responses that include safe water, sanitation and hygiene. Reaching children and families with essential and reliable WASH services is a complex task. But as the examples show, it is not impossible.

However, as crises become increasingly protracted and conflict threatens interconnected urban service systems, the WASH sector is called on to evolve and grow – to develop resilient systems that can handle the stress of emergencies and avert the need for humanitarian responses. UNICEF and its partners have gained valuable knowledge and experience that point to three fundamental issues that can improve WASH systems and save countless lives. These issues will be explored in detail in an upcoming multi-part UNICEF report.

But change can start now.
UNICEF calls on governments, partners and parties in conflict to:

**Stop attacks on water and sanitation infrastructure and personnel**

**Build a WASH sector that can consistently and predictably provide high-quality water and sanitation services in emergencies**

**Link life-saving humanitarian responses to the development of sustainable water and sanitation systems for all**
Deliberate and indiscriminate attacks on water and sanitation infrastructure and personnel, and on power supplies, can be a violation of international humanitarian law. The intentional and arbitrary denial of services vital to communities can also be a violation. And efforts to restore service and provide emergency relief are often blocked by fighting and political or logistical barriers. These actions are attacks on water and sanitation infrastructure and personnel; and they are attacks on children. They must stop.

In addition:
• Humanitarian aid must be allowed to reach children and families in need
• Improved methods are needed to monitor attacks on WASH systems
• Policies and legal measures are required to protect vital civilian infrastructure and personnel

To provide comprehensive and life-saving services, the WASH sector needs to build technical, operational and personnel capacity to address increasingly complex and protracted crises. The sector must improve and reach out to more children and families; it must increase its quality and coverage.

To achieve this goal, resources are essential. But building capacity also requires:

• Commitment to addressing water and sanitation needs in increasingly complex and protracted emergencies and in hard-to-reach areas
• Information and methods required to address gender-sensitive vulnerabilities
• Flexible and multi-year funding that provides for immediate and long-term needs
• Strengthened monitoring and analysis of water and sanitation in emergencies to better prioritize and meet needs

Preventing WASH systems from deterioration and collapse in protracted crises must be a major priority of humanitarian responses – and closely connected to sustainable development projects.

Achieving this goal means addressing short-term needs while strengthening long-term capacity. It requires building systems that can ensure the right to safe water and sanitation and prevent outbreaks of disease. And it demands that humanitarian and development organizations collaborate from the start to establish systems that will remain resilient – even after the last emergency response worker leaves the scene. To address the challenge, partners must work together to:

• Establish multi-year solutions that move from delivering aid to ending need
• Make long-term investments in sustainable water and sanitation systems that will be resilient when emergency strikes
• Intervene before conflict or crisis arises with long-term approaches that prevent the large-scale collapse of WASH systems
• Promote public-private partnerships that allow for independent and financially sustainable WASH services capable of withstanding crises
Endnotes


4 Ibid.


7 OCHA, Global Humanitarian Overview 2019.

8 Ibid., p. 23.


10 In this section, the following sources were consulted: Zeitoun, Mark, and Michael Talhami, ‘The Impact of Explosive Weapons on Urban Services: Direct and reverberating effects across space and time’, International Review of the Red Cross, vol. 98, no. 901, pp. 53–70; International Committee of the Red Cross, Urban Services During Protracted Armed Conflict: A call for a better approach to assisting affected people, ICRC, Geneva, September 2015; International Committee of the Red Cross, “I Saw My City Die”: Voices from the front lines of urban conflict in Iraq, Syria and Yemen, ICRC, Geneva, May 2017.


13 ICRC, Urban Services During Protracted Armed Conflict.


17 Statement of Omar El Hattab, UNICEF Regional Advisor for WASH.


29 Strategic Executive Group, Joint Response Plan for Rohingya Humanitarian Crisis, p. 19.
32 Strategic Executive Group, Joint Response Plan for Rohingya Humanitarian Crisis, pp. 78.
Opposite page: Bijou, 13, washes her hands at a handwashing station provided by UNICEF and partners as part of an effort to stem the spread of Ebola in at-risk areas of the Democratic Republic of the Congo.