

Climate Change Impacts on Health and Best Practices in the Humanitarian WASH Cluster: Some Comparisons¹

João Casqueira Cardoso²

Anthony Alan Buzzini³

Mahfuza Parveen⁴

Ana Carla Lopes⁵

Abstract: The Cluster WASH (Water, Sanitation and Hygiene) is one of the cornerstones of humanitarian action, and a key element for the promotion of health worldwide. The recent years demonstrated the pressure on this humanitarian cluster, as a result of climate change. At the same time, it is also clear that WASH actions have a potential to foster health promotion, preparedness, and resilience among communities affected by humanitarian crisis related to climate hazards. This aspect is visible in both the existing literature of the major international organisations and NGOs networks acting in this field. It is also visible in the best practices promoted in two countries looked at in the paper: Bangladesh and the United States. This comparative analysis allows us to extract conclusions that may be replicable in other national or local contexts. It contributes to a better comprehension of the links between the humanitarian indicators and actions, and the imperative of a work with communities in order to improve even more the preparedness of the health impact of climate change.

Keywords: Climate Change; Health; WASH; Preparedness; Bangladesh; United States of America.

1 This paper is part of the outcomes of the international project RISK-E-SCAPE, "Improving Disaster Health and Climate Resilience at the Expanded Environmental Crisis in Nepal and Bangladesh", Erasmus+, EU Solidarity Corps A.4 – International Capacity Building. Project ID: 101083080, co-funded by the European Union. The authors would like to thank the work of revision of Elvira Barry.

2 University Fernando Pessoa/CEPESE/Porto/Portugal.
ORCID: <https://orcid.org/0000-0002-0894-452X>. Email: jcasq@ufp.edu.pt

3 University Fernando Pessoa/CEPESE/Porto/Portugal.
ORCID: <https://orcid.org/0009-0003-7002-7321>. Email: 2022109260@ufp.edu.pt

4 Daffodil International University/Bangladesh.
ORCID: <https://orcid.org/0000-0002-1491-0481>. Email: mahfuza.esdm@diu.edu.bd

5 University Fernando Pessoa/Porto/Portugal.
ORCID: <https://orcid.org/0009-0006-3861-1095>. Email: anacarlasilvalopes1@gmail.com



Introduction

WASH (sometimes written WaSH) is the abbreviation for Water, Sanitation, and Hygiene. It is one of the “clusters” of humanitarian action, and used as a reference in all the programmes, projects and in general actions in situations of disasters or humanitarian crisis. It is imperatively used at the first stage, the emergencies stage of a humanitarian crisis. The term links different realities and aspects intrinsically interrelated, in fact: the letter W stands for *access to water*, for all, in adequate conditions, and in particular in a sustainable way (WHO, 2018; 2020). In WASH, water access is related to the idea of the “right to water” or “rights to water”, to equity in this field, and to the availability of water that is clean and proper to health (Wilbur, Willetts & Cavill, 2023). The technical aspects of the question are indeed just one part of an overall strategy to achieve sustainable health change in communities affected by humanitarian crisis, especially (but not only) in emergency situations. The right to water consists in having access to sufficient, affordable and physically accessible water of acceptable quality and safety for personal and domestic uses. Water safety and quality are indeed essential to human development and well-being (UN Water, n.d).

The letter S is for *sanitation*. Sanitation is linked to excreta disposal, but implies more, as it is also linked to solid waste disposal and to the prevention of diseases transmitted by vectors such as, typically, mosquitoes. Wherever toilets or sanitation systems are inadequate, untreated human waste pollutes the environment and spreads disease. This is particularly urgent for those who are forced to flee from their homes and lack these services while in transit, or while staying in temporary refugee camps (INEE, 2024).

As underlined by Carter (2015, p. 6) “the purpose of sanitation in the broad sense is to keep the environment in which people live free of hazardous wastes, and to reduce disease transmission by insect and animal vectors”. The right to sanitation is also a fundamental aspect in a humanitarian crisis. It guarantees that everyone is able to have access to physical and affordable sanitation, in conditions that are safe, hygienic, secure, and also socially and culturally acceptable. In fact, sanitation is a health issue, but it is also an unquestionable and fundamental element of human dignity. As such, the sanitation conditions must ensure that everyone has access not only to safe installations, but also to privacy, and is respected in her and his social and cultural customs – such as, typically, the male-female separation.

Finally, H is referring to *hygiene promotion*, which is a whole strategy in itself. As the United Nations High Commissioner for Refugees (UNHCR) defines it, it is a “planned, systematic approach that enables people to act in a manner that ensures that water, sanitation and hygiene facilities and services have a positive impact on health” (UNHCR, 2023). Hygiene promotion includes the planning of basic aspects, such as hand-washing or food hygiene, but also issues that are sometimes forgotten, such as menstrual hygiene management. Menstrual hygiene and menstrual hygiene management is also an essential aspect of WASH. At least 500 million women and girls worldwide lack adequate facilities in this respect. Inadequate WASH facilities, particularly in public places such as schools, can be a major obstacle for women and girls (INEE, 2024), and it can increase the already existing gap in equality between men and women worldwide.

What are the instruments concerning WASH, at the international level? First, the World Health Organization (WHO) publishes *Guidelines on sanitation and health* (WHO, 2018; WHO, 2020). The aim of these guidelines is to promote safe sanitation systems and practices in order to promote public health. They present a synthesis of the state of the available evidence on the links between sanitation and health, make evidence-based recommendations, and offer guidance to encourage international, national and local sanitation policies and measures to protect public health.

The guidelines also aim to support and clarify the role of health actors and other entities in sanitation policy and programming, to ensure that health risks are identified and managed effectively. The guidelines are primarily directed to national and local authorities responsible for the safety of sanitation systems and services, including decision-makers, planners, those responsible for the development, implementation and monitoring of standards and regulations, such as the health authorities and, to the extent that sanitation is often managed outside the health sector, other bodies with responsibilities for sanitation. This last aspect is more important than it seems, because health preparedness *cannot be solely the responsibility of public authorities in this field*. It also has to be an issue known in the communities, among the population, and in some way a shared responsibility (which does not in any way mean a deresponsabilization of public authorities, which are the ultimate legally responsible persons).

In addition, the Sphere project (or Sphere association, more precisely) (Sphere Association, 2018) has a handbook with a full range of recommendations and practical guidelines in this field: *The Sphere Manual: The Humanitarian Charter and Minimum Standards in Humanitarian Response*. WASH is the first topic covered by the Manual, which is significant of its relevance. The main users of the *Sphere Manual* are practitioners directly concerned with the planning, management or implementation of humanitarian responses. These may include staff and volunteers of humanitarian agencies at local, national and international levels, as well as affected people themselves responding to a crisis.

The Manual is also used for humanitarian advocacy purposes, to improve the quality and accountability of aid and protection, in line with humanitarian principles. It is also increasingly used by governments, donors, the military and the private sector, in order to guide their actions and work constructively with humanitarian organizations. Despite the fact that the Manual does not focus much on climate change and environmental issues, at least not in a direct way, the recent 2018 edition reflects the awareness of the climate change issues in WASH. In the “Essential concepts in water supply, sanitation and hygiene promotion”, the Manual refers to “reducing environmental health risks” as one of the key activities (Sphere Association 2018, p. 16). Indeed, the constraints caused by climate change in the context of humanitarian crisis and humanitarian work are a growing issue.

1. WASH and the constraints imposed by climate change

The impacts of climate change are increasingly evident worldwide, causing significant adverse effects on WASH services, demonstrating in particular a close nexus between climate change and access to water (WHO, 2019; Marcus, 2022; UNICEF, n.d.(b)). Prolonged droughts can intensify the demand for water, deplete water resources and even lead to conflicts over insufficient supplies. Individuals are compelled to seek alternative water sources, such as rainwater harvesting, groundwater extraction, or streams (Ahmad *et al.*, 2018), and the absence of control of such sources can endanger their health. Conversely, extreme climatic events like heavy rainfall and flooding have the potential to damage water sources and sanitation infrastructure, resulting in water contamination and exacerbating food and water insecurity (UNICEF, n.d.(a)). Furthermore, certain human activities such as agriculture and livestock rearing contribute to both water scarcity and contamination of available drinking water sources (Ahmad *et al.*, 2018).

In its 2022 report, the World Meteorological Organization (WMO) verified, using data spanning from 1991 to 2021, that all regions of the world experienced hydrological extremes in the form of droughts and floods (WMO, 2022). Regions like South Asia, Latin America, and much of Africa, while contributing less to greenhouse gas

emissions, faced the most extreme events, resulting in destruction and numerous fatalities. As a direct outcome of these catastrophes, access to potable water in these territories became seriously constrained. In 2022, around 3.6 billion people lacked adequate water access at least once a year. Other factors were also severely impacted, including diminished river flows, which challenged sanitation and hygiene practices for local communities. Amidst food insecurity, and using contaminated water, communities became more susceptible to contagious diseases, especially when information was lacking (WaterAid, 2022).

The analysis of challenges related to water security, particularly concerning access to adequate WASH services and their implications, uncovers in reality an intricate interplay of diverse factors. Among these, three aspects are worth mentioning: first, the geographical specificities and their influence, including the social and environmental determinants; second, the degree of population vulnerability to the often devastating impacts of climate change; third, the national (and local) policies (Caretta et al., 2022).

The IPCC's 2023 report comprehensively addresses the link between climate change and water availability. The document underscores the reality of regions fighting with the consequences of severe droughts, while others endure the devastating aftermath of flooding that impacts entire communities (IPCC, 2023). The picture is global, and although we have other indicators that serve to emphasize the variability of water-related threats and the amplifying influence of climate change (e.g. Arias *et al.*, 2021), it is useful to detail and compare the case of two highly populated countries: Bangladesh and the United States.

2. The case of natural disasters in Bangladesh and the solutions for WASH

Bangladesh is a disaster-prone country due to its complex geographical location. The country is facing several natural disasters like flood, cyclone storm surge, landslide, riverbank erosion, earthquake, salinity intrusion, groundwater contamination, to mention the most common. Apart from the natural hazards, the country also faces human-induced hazards such as environmental pollution, and (human caused) salinity intrusion, among other aspects. Due to the increasing climate change effects (temperature increase, sea level rise), the frequency and magnitude of disasters is increasing day by day (Huq *et al.*, 2024).

The country has been ranked seventh most affected country in the world from extreme weather events according to the Global Climate Risk Index (Eckstein, Künzel, & Schäfer, 2021, p. 13). The impact of disasters is indeed more severe in Bangladesh because of its high-density population (around 1,116 people/sq. km), and also as a result of poverty. Due to the fact that a high number of people are living in disaster prone areas and rural areas, the country is currently facing several climate change and disaster-related impacts on WASH services. The major challenges to improve WASH services are to increase water quality, to provide safe disposal of human excreta, and to fully understand health and wellbeing outcomes for the poorest. In addition to such challenges, Bangladesh has to overcome climate change impacts affecting the very sustainability, continuity, and quality of WASH services.

It is important to underline that WASH also helps to achieve a certain number of Sustainable Development Goals (SDG) in Bangladesh, both directly (SDG 6: Clean water and sanitation) and indirectly, as relates to SDG 3 (Good health and well-being) and SDG 10 (Reduced inequalities) (World Bank, 2017). According to the Bangladesh National Strategy for Water Supply and Sanitation (2014), the national vision is to achieve universal access to safe and affordable drinking water for all, and to ensure access to sufficient and equitable sanitation and hygiene by 2030.

Climate change is actually one of the key components to induce the WASH strategy. In the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), Arias *et al.* (2021) indicated that “urban areas will be affected by more frequent occurrence of extreme climate events, such as heatwaves, with more hot days and warm nights, as well as sea level rise and increases in tropical cyclone storm surge and rainfall intensity that will increase the probability of coastal city flooding”. The high temperature will decrease the surface water availability as well as groundwater elevation, and increase the salinity intrusion along the coastal belt of Bangladesh. The frequency of tropical cyclones also increased along the coastal belt of Bangladesh, while flooding is occurring almost all over the country. WASH also depends on disaster types and categories. The entire water supply systems are either destroyed or contaminated when disaster hits, and disasters also increase drastically the risk of water borne disease like typhoid fever and cholera. According to the UNICEF, in 2022 alone, floods destroyed over 100,000 boreholes in Bangladesh, leaving children at risk of deadly waterborne diseases (overall, children are particularly at risk in the country, that ranks 15 in the Children’s Climate Risk Index) (UNICEF, 2021).

In Bangladesh, the use of specific technologies for WASH during disaster rehabilitation has been a relevant contribution. Such technologies are a variety of usual tools related to water supply technologies. It refers more specifically to three categories of technologies:

- First, technologies linked to water supply during the disaster period, such as: Temporary tube wells applicable during flood/disasters; hand Pump tube wells applicable in areas affected by flash floods, storm surge, or water logging; water trucking for water distribution applicable in areas where people are recovering from disasters; emergency household water treatment applicable as an early recovery strategy during/after an emergency; ultrafiltration systems applicable in areas with groundwater or surface water pollution, arsenic or iron contamination, or in areas with frequent droughts and freshwater scarcity; solar desalination cum rainwater harvesting system applicable in coastal areas prone to cyclone/storm surge and drought-prone areas.
- Second, sanitation technologies. This refers to technologies for sanitation facilities during a disaster period, such as temporary latrines applicable in the areas affected by floods and water logging, or in areas with a high water table; floating latrine applicable in haor areas and areas affected by floods or water logging, especially for temporary use during an emergency situation; communal latrines with plastic ring that can be established in the initial phase of an emergency for the displaced population.
- Third, hygiene technologies. These technologies maintain hygiene facilities during the disaster period: this can consist, for example, in tippy taps that can be established for hand washing for displaced populations in the initial phase of an emergency.

Bangladesh has been so far rather successful in the application of WASH. But there is still a long way to go to achieve full success and meet the SDG goal to provide access to clean water and sustainable sanitation for all the people by 2030. To achieve the targets, the country requires not only financial resources and adequate investment in infrastructure to provides proper sanitation facilities, but also to increase awareness of people and encourage hygiene at every level, and to work with adequate and skilled manpower in this direction.

3. The case of the United States of America and the solutions for WASH

The United States of America (USA), like much of the international community, has made it a priority to include WASH in global humanitarian initiatives. WASH is sometimes referenced as a preventive action rather than an immediate solution. Misconceptions like this have led legislators, donors, corporations, and the tech industry to become hesitant to support WASH. However, the attitude has been slowly changing over the last years, and more emphasis has been placed on including sustainable and impactful water initiatives in humanitarian efforts. Climate change and advocacy have been the largest factor in shifting the consensus towards WASH.

International initiatives have boosted this trend. One of the most important was the World Humanitarian Summit (WHS), that was convened in Istanbul, Turkey in 2016 to address the global climate crisis and humanitarian alarms around the planet. The summit consisted of 9,000 representatives from the United Nations Member States, non-governmental organizations, civil society, and the private sector. The summit created an “Agenda for Humanity” in which the USA recommended and participated in numerous plans to tackle the ongoing global challenges (World Humanitarian Summit, 2016). The USA had at the the WHS no less that 63 non-profit organizations in attendance displaying their commitments and agendas for discussion and implementation (InterAction, 2016).

Severe droughts, increasing flooding, and contaminated drinking sources are all major global concerns that highlight the importance of WASH as both a domestic and an international problem. When flooding occurs, boreholes, dug wells, and even sewage systems can become inoperable. Places with little infrastructure and emergency services in place lack the means to rapidly respond to flooding disasters. Droughts and extreme heatwaves also put strain on water supplies and can quickly deplete or dry up resources. Shortages are not just confined to the disaster zones themselves. After a crisis occurs, many migrate to displacement camps that in turn distress the water sources of the hosting nation. Weather phenomena are not just associated with resource shortages, they also impact water quality and contamination. Agriculture is one of the most important and life-sustaining resources in the world, including in the USA, and the byproduct of animal waste can be easily spread into water foundations.

The USA has implemented policies that address WASH, and American non-profits have been increasing their programs as the climate has changed. The most influential governmental health organizations in the United States are the Centers for Disease Control and Prevention (CDC) and the United States Environmental Protection Agency (EPA). The USA is not immune to the changing climate and has seen an increased number of hurricanes and droughts. Both the CDC and the EPA send out “Drinking Water Advisories” when scientist and governmental officials believe water sources are unsafe. They both also have robust programs in implementing and enforcing safe personal hygiene and creating emergency storage water supplies. To avoid oversight criticism, these government agencies work closely with the American Water Works Association (AWWA), the National Oceanic and Atmosphere Agency (NOAA), and the Association of State and Territorial Health (ASTHO) (CDC, 2019).

It is true that the USA has a long history of ensuring that sanitation standards are met and that policies are enacted to monitor the health of the population. One ground-breaking legislation was the “Clean Water Act” of 1972. The Act established basic infrastructure and standards for pollution and water quality in the USA (EPA, 1972). However, despite continuous revisions to legislation, the United States still has over 2 million people without access to water at home. Public funding for infrastructure is at only 9% of the overall spending (McGraw, 2020).

To address this problem, the United States Congress enacted the “Water, Sanitation, and Hygiene Sector Development Act of 2022”. The Act plans to develop a robust working group that will survey and research the countries water and sanitation needs, while also identifying the infrastructure and communities in jeopardy (Congress, 2022). The water problems in the USA have not yet been receiving enough attention to justify large nationwide domestic non-profit overhaul. Only a few domestic organizations exist, including “Dig Deep”, the “US Water Alliance”, and the “Right to Water Project.” Hundreds of smaller faith-based and community organizations also exist, but operate at a local level (McGraw & Fox, 2019). Last but not least, American universities are highly relied upon to provide data and research for WASH concerns around the country.

The current global context seems favourable to more positive changes, as the USA has made WASH and water security a top priority, internationally. In 2019, President Donald Trump introduced a bill to increase international WASH funding. The bill increased USA investments to \$435 million dollars (WaterAid, 2019). In March 2023, at the UN Water Conference in New York City, the USA announced that it will commit \$49 billion dollars to global water security and sanitation. The announcement followed President Joe Bidens’s “White House Action Plan on Global Water Security” (White House, 2022).

The United States Agency for International Development (USAID) will be the primary entity responsible for ensuring the objectives are executed. The Plan also included input from numerous department leaders, CEOs, and subject matter experts. Much of the new legislation recognizes climate change as a triggering factor for the increase in funding, and specifically addresses sustainable water practices as a necessity for the future. According to the White House, investments have helped 5.4 million people since June of 2022. A portion of the money will also go to menstrual health and hygiene for vulnerable populations (Biden, 2022). Indeed, this plan comes as a continuation and strengthens previous initiatives. Since 2008, USAID alone has helped 64.9 million people gain access to sustainable drinking water services, and 50.8 million people to gain access to sustainable sanitation (USAID, 2023).

One of the areas where the USA is able to make the most positive changes in this sector is technology. Technology will for sure play a significant role in addressing the global water crisis, and this area will certainly benefit WASH strategies. For example, the USA is directing the National Aeronautics and Space Administration (NASA) program to closely monitor satellite imagery of water levels, temperatures, and climates around the world. NASA has developed a new Surface Water and Ocean Topography (SWOT) satellite that is able to closely evaluate the effects of climate change (NASA, s.d).

Many of the United States military branches will also be working in conjunction with academic and government agencies to provide data on climate varying activity. The National Alliance for Water Innovation (NAWI) at the Department of Energy (DOE) is currently funding desalinization technology. These tools hope to be a byproduct of the newly created “Nexus of Energy and Water for Sustainability Research, Development & Demonstration” program. DOE and NOAA are also initiating grant and funding opportunities to monitor and predict climate behaviour (USUN, 2023).

The United States non-profit organizations have also adapted to include WASH in their humanitarian missions. The veteran run organization specializing in disaster response domestically and internationally “Team Rubicon,” has recently added their own WASH team to its Emergency Medical Teams deployments. In response to Cyclone Freddy, Team Rubicon was able to distribute thousands of aqua tabs and hundreds of sawyer water filters to community members across Malawi. The water filters can provide water for thousands of individuals and last for years. Each one-gallon bag contains a user-friendly water filter at the bottom of the container. The bag can be continuously filled up and used by disaster-affected communities.

The widely recognized “Bill and Melinda Gates Foundation” also collaborates with government leaders, innovators, and business leaders to develop sanitation technology and services and has also adapted to climate change (Gates Foundation, 2023). Another key organization from the USA is the “Blood:Water” non-profit. They provide access to safe drinking water and also specialize in safe sanitation methods around the world.

Over the years, “Blood:Water” has supported 12 countries and provided nearly 1 million people with access to safe water and with training in hygiene practices (Blood:Water, 2023). In addition, one of the most influential American non-profits is the “Planet Water Foundation”. The foundation has supported 3.5 million people in 26 countries across Asia and Latin America (Planet Water, 2023). The “thirst project” uses a different approach by employing and resourcing individuals from their respective countries to address WASH needs. Over their history, the “thirst project has funded over 3,000 water projects in 13 countries” (Thirst Project, 2023).

Another organisation, “WaterAid”, has been working on WASH programs for more than 40 years, and has assisted 29 million people with clean water and hygiene education since 1981. They hope to support 400 million people within the next decade. “WaterAid” implements many resources in their work, such as solar panel installation for water pumps, well drilling, and rainwater tanks (WaterAid, 2023).

A mention must also be made of the organisation Water.org, which is funded by the famous Hollywood actor Matt Damon, and this entity has addressed the global water crises for over 30 years (Water.org, 2019). Regarding exclusively hygiene, the USA based “Global Handwashing Partnership” has been a strong coalition of international stakeholders who work explicitly to promote handwashing and hygiene. The partnership recognizes hygiene as a pillar for international development and public health. Within the organization, the Steering Committee has produced educational kits and has promoted activities such as the “Global Hand Washing Day” (Global Handwashing, 2023).

Indeed, the richness of the non-profit organisations in the USA, and their experience, may be a unique example, and it may be difficult to compare. But it shows that solutions to the global water crises will have to include large amounts of innovation and funding. One organization called “Infinitum Humanitarian Systems (IHS)(IHS, n.d.), specializes in *vulnerability reductions* for systems and populations. Along with other partners, they analyse disaster risks and assist communities with *mitigation strategies*. Infinitum Humanitarian Systems, the Roddenberry Foundation and the MIT Lincoln Laboratory created the “Water Aid and Renewable Power (WARP) system.

WARP provides solar power and clean water in a very small and robust package designed for disaster areas. The system produces 850 gallons a day and can easily be maintained by local communities. Adding to this example, the organization “Gravity Water” has also innovated interesting technology that is being implemented around the world. Their system is a decentralized rainwater harvesting and filtration system that provides access to improved water. The system stores water caches six feet above ground and uses gravity for filtration. The procedure does not rely on any electricity or pressure to raise ground water to the surface (Gravity Water, 2023). In the same direction, “Innovative Water Technologies” is a company that has developed global water treatment facilities to be used in disaster relief efforts. Their solar and wind-powered water filtration systems can process 5,000-250,000 gallons (22,700-945,000 liters) of water a day.

Universities and those in academia have been tirelessly working on innovative systems to address humanity concerns. Recently, Guihua Yu and his team of researchers at the University of Texas created a device that uses water-absorbent hydrogels, which release water when heated. When the hydrogels are exposed to sunlight, the water is released from the existing liquid in the air. The product also runs on solar energy, making it affordable and

sustainable (Thelwell, 2021). Education and exposure to new innovations, like the ones mentioned above, have been challenging. Information sharing will always be a hurdle, when addressing climate change and discussing solutions to the global water crisis.

Fortunately, the US Environmental Protection Agency (EPA) has created the “Clean Water Technology Center”. The agency is committed on providing access to affordable and sustainable infrastructure and water solutions. The “Searchable Clearinghouse of Wastewater Technology” (SCOWT) acts as an information-sharing platform for wastewater systems. SCOWT includes centralized and decentralized techniques (EPA, 2023). Another actor in the push for information sharing is FHI 360. The organization, based in the USA but including many partners outside the country (including in Portuguese-speaking countries), mobilizes research, resources relationships, and promotes collaboration in a variety of subject areas that include WASH (FHI 360, 2023).

The USA has endeavoured to be the model for humanitarian leadership, innovation, and policy. Early agencies like the EPA and CDC inspired much of the world to institute health and sanitation legislation and protection. Work done around the USA in places like colleges and universities, laboratories, non-profits, and within the government has been strenuous and tedious. While the country is not immune to its own WASH challenges, it will continue to be the largest monetary funder for the global water crisis. The USA has also prioritized improving, simultaneously, internal practices and the stability of the international community, but this task is hard. Disparity within America's population will always be a detriment to cooperation with its international partners. As political parties shift, initiatives are scrapped or overhauled to appease the respective office's constituents. However, the new bipartisan legislation from the White House, coupled with popular support from the public towards climate change, appear to be an optimistic sign in ensuring the USA prioritizes WASH and sustainability around the globe.

Conclusion: Promoting Best Practices

Water accessibility, shortages, and insecurities are expected to threaten millions in the decades to come. Severe natural disasters are expected to damage existing water supplies and infrastructure. By 2050, it is estimated that 40% of the world's population may be living in severe water stress (WHS Secretariat, 2016). According to the World Health Organization's report (WHO, 2019), half of the global population still lacks access to safe drinking water, sanitation, and hygiene, particularly in low-income regions. This situation leads to contamination from various diseases, some of which can be fatal (Wolf *et al.*, 2023). In response to this challenge, the WHO, in collaboration with United Nations agencies, the governments, the private sector, and the civil society organizations, has proposed a set of best practices to enhance access to safe WASH and thereby reduce the incidence of associated diseases.

Among these recommended strategies, the pursuit of universalizing safe WASH takes precedence, aiming to cater to all individuals. An essential facet also involves directing efforts towards the *most economically disadvantaged communities*, which bear a heavier burden of diseases due to inadequate access to safe WASH.

Furthermore, the need for governments to align their national monitoring systems with the guidelines established by the Sustainable Development Goals (SDGs) is emphasized, along with enhancing the availability of data on population exposure to WASH services. This is particularly crucial since detailed information regarding the levels of these services remains scarce in many countries. Within the realm of best practices and effective assistance to affected communities, it is imperative to consider three factors of utmost significance: governance, the adaptation of implemented technologies, and also the knowledge and skills of the very communities.

Efficient governance implies the *engagement of the affected communities in political decisions*, with *gender equity* being a vital incorporation. The *adaptation skills* of the communities are also pivotal. Authorities must regularly provide information to the community about risks and safe practices, thereby mitigating the vulnerabilities frequently faced by these communities (Ahmad *et al.*, 2018), but also involving them, and be open to the exchange of knowledge – as traditional knowledge must and can combine with modern technologies.

The use of technological advancements, such as rainwater harvesting and potable water monitoring, can securely and sustainably aid communities. However, knowledge and skills must be shared, openly. This just one example, but there are many others where the sharing of information and knowledge can be improved in this field.

Among the best practices, regional initiatives like the European Union have contributed to improving the quality and the *assessment* of existing practices. Not only is the European Union “one of the largest humanitarian donors of WASH assistance worldwide” as “it contributes around €200 million each year” (ECHO, n.d), but it also promotes the *human rights-based approach* summarised with the so-called “AAAQ criteria: availability, accessibility, affordability, acceptability, and quality” (*id.*).

The European Union prioritises three areas in the field of WASH:

- speed of response: the increasing frequency and scale of sudden-onset disasters require better reaction capacities. The EU improves logistical support for the humanitarian community to facilitate experts and equipment on-site as early as possible;
- coordination: a fast response also depends on good coordination, which is essential for assessing and prioritising needs. The EU is working closely with the Global WASH Cluster – the main international platform led by UNICEF to coordinate humanitarian operations in WASH assistance;
- working with civil protection actors: the complementary roles of humanitarian aid and civil protection are key in the WASH sector. For example, growing WASH needs in urban humanitarian crises often require a technically adapted response. This can be provided through civil protection actions (...) (ECHO n.d).

One of the key aspects that this initiative underlines is the need to improve the implementation of an efficient WASH cluster approach. In this case, we need to understand that WASH is not only a mainstream element of humanitarian action, but also one where community engagement, education and transparency in practice should be part of the main strategies.

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Recebido para publicação: 5 de maio de 2024

Aceite após revisão: 9 de junho de 2024

Received for publication: 5 May 2024

Accepted in revised form: 9 June 2024