Managing Water-Related Health Risks: Improving quality of and access to water, sanitation and hygiene to eliminate health risks

Adequate WaSH is the difference between morbidity and mortality.

The Challenge

Each of the 17 Sustainable Development Goals in the 2030 Agenda are ambitious. Successfully achieving each goal depends on recognizing the cross-cutting nature of some goals, for example, SDG 6: clean water and sanitation and SDG 3: good health and well-being.

Poor quality of and access to water, sanitation and hygiene (WaSH) can present significant health risks by exposing populations to various microbial and chemical hazards. Poor water management can lead to a rise in disease outbreak, specifically, neglected tropical diseases (NTDs). Additionally, a lack of research and poor financing further exacerbate the problem in many countries. Poor quality water can also affect populations who consume water contaminated with naturally occurring compounds such as Arsenic or Fluoride, which can cause significant negative health outcomes.

Disease outbreaks and spread, and poor WaSH conditions are particularly likely to occur during humanitarian crises. Resilient health systems, “the capacity of health actors, institutions, and populations to effectively respond to crises and maintain core functions during a crisis hits”, would ensure better service provision during such emergencies. Yet, in low and middle-income countries, 1/3 of all healthcare facilities lack a safe water source.

The Solution

Given that poor quality of and access to WASH can present significant health risks, including during humanitarian crises, the impact of water on health is clear, but more work needs to be done. This includes:

- Identifying relevant geographic areas for targeted action to prevent the spread of NTDs, especially within vulnerable populations;
- Improving health outcomes, especially for women and girls, and water treatment options for poor water quality due to natural contaminants;
- Assessing trade-offs between building resilience in health care facilities and addressing current needs; and
- Offering an evidence-base to guide policy making on service delivery and spending, particularly around WASH in humanitarian crises.

The Project

There are numerous challenges related to water-related health risks. This project seeks to address three specific aspects: Neglected Tropical Diseases, natural chemical contaminants, and health systems resilience during humanitarian crises.

Initiative 1: Neglected tropical diseases affect more than one billion people every year. But, due to intense focus on more prominent disease like HIV and malaria, this group of diseases has lacked funding and research. On the ground, water management and financing in both, the health and water sectors, are far from adequate in many countries further exacerbating the problem. This initiative will explore the relationship between various environmental factors (e.g., infrastructure, extreme weather events) and population vulnerability to specific waterborne pathogens that can cause outbreaks of water-borne disease. In doing so, the studies will contribute to three SDG targets - SDG 6.1 on access to safe and affordable drinking water; SDG 6.2 on access to adequate sanitation and hygiene; and SDG 3.3 on ending the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.
Initiative 2: Contaminated water can pose significant health risks to various populations. Although large investments have been made into technologies to treat these types of naturally contaminated water, neither the effectiveness of technologies themselves, nor the effectiveness of investments into those treatment options has been ascertained. This initiative will examine the effectiveness of investments into the health outcomes of population affected by contaminated water, specifically natural contaminants, such as arsenic. In doing so, this initiative will contribute to SDG 3.9 on substantially reducing the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

Initiative 3: Humanitarian crises can push local health centers beyond their limits. It has been suggested that humanitarian crises will increase given climate change, bringing with them the spread of diseases. One key focus for improving health systems resilience would be through improved WaSH intervention in health care settings. Ensuring these interventions are in place and effective before a crisis, as well as during and after, will contribute to resilience. Moreover, contextualizing WaSH indicators would benefit health centers. The SDGs expected to be impacted from this research would be SDG 3.1 reducing the global maternal mortality ratio to less than 70 per 100,000 live births and SDG 3.2 ending preventable deaths of newborns and children under 5 years of age.

The following approaches and activities will be achieved:

- A synthesis of social and environmental drivers impacting the distribution of selected water-related neglected tropical diseases;
- An assessment of investments and health outcomes of natural chemical contaminants, like arsenic, in drinking water; and
- An assessment of how WaSH interventions contribute to the resilience of health systems after a humanitarian crisis.

The project plans to produce a range of useful outputs designed to inform future policy and investment decisions:

- Maps based on the global drivers of neglected tropical diseases and disease movement;
- Policy recommendations to implement solutions that better manage specific disease outbreaks and risks in vulnerable regions and populations;
- Regional analysis of NTD movement due to urbanization and migration;
- Effectiveness of investments into technologies used to treat chemical contaminants (e.g. arsenic) in water and the related health outcomes;
- Guidelines on how to better implement WaSH interventions to increase health systems resilience; and
- Indicators contextualized for WaSH interventions in urban health centers during and after humanitarian crises.

Vulnerable groups like women and children, and refugees, are particularly at risk for poor health outcomes due to poor WaSH. Gender mainstreaming will therefore be accounted for in the development and implementation of all projects. Topics for special consideration include: health care provisioning, health seeking behavior, household management as it relates to water, e.g. water collection, WaSH needs, level of education, and community engagement.

The project's beneficiaries are policy makers and government officials, particularly those dealing with health systems and financing; private-sector collaborations, particularly with water-related industries, that could invest/promote technologies that invest in remediation of natural chemical contaminants; humanitarian actors who are responsible for implementing WaSH interventions that are effective and long-lasting; and UN bodies and international organizations who can provide inputs to global policy processes by developing research collaborations. More importantly, emphasizing the roles of women and girls in case study countries and regions, will highlight their place in the development and sustainability agenda by recognizing them as important agents of change.

Initiated in July 2017, the project will contribute to UNU-INWEH's mission to help resolve pressing regional and global water challenges that are of concern to the United Nations, its Member States and their people.

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