# Water4SDGs Knowledge Hub Position Paper

# Alignment of Water Related RDI Strategies in light of COVID-19 Challenges to Support the Implementation of UN SDG 6: Clean Water and Sanitation

## Revisiting Research Priorities and Call Structures for Achieving SDG 6 during COVID-19 Pandemic

As of 2021, less than ten years remain to reach the UN Sustainable Development Goals (SDGs) set by the Agenda 2030. Although the targets have been set with a clear ambition, the required actions to reach them are varying. In addition to the prevailing structural barriers, the COVID-19 pandemic has raised new concerns in public health, welfare, and education areas that are key to the implementation of SDGs.

As put forward by a recent UN Report that calls for global solidarity, contributions from the research and innovation community are expected to play a pivotal role to bring emerging technologies into practice to mitigate the crisis.[1] Besides developing new technologies, scientific community can also contribute with suggestions to implement novel crisis management models and governance approaches. Thus, it becomes necessary to adapt and improvise our research strategies and agendas to cope with this unique global phenomenon.

**This position paper aims to propose recommendations for public research and innovation funding agencies** to adapt their research programmes and funding structures related to water in response to the COVID-19 pandemic. These recommendations are built upon the outcomes of the Water4SDGs Knowledge Hub workshop, which was held digitally on July 9, 2020 with the attendance of the expert group of the Knowledge Hub, Water JPI's funding agency members and invited speakers from **EurEua, UN Water** and **European Commission.**[2] In this context, the position paper addresses three key questions:

- Has the COVID-19 outbreak affected the global capacity of implementing "SDG 6: Ensure availability and sustainable management of water and sanitation for all"? If so, what are the challenges and opportunities to look for?
- What are the research needs to mitigate COVID-19's impact on SDG 6?
- How can research programs and call structures be improved to respond to crises outbreaks similar to COVID-19 in the future?

## 1. How has COVID-19 affected the implementation of SDG 6? Challenges and Opportunities

Due to COVID-19's enormous impact in a very short period on health, education and income, it is no surprise that global human development progress has been interrupted, as has progress towards the SDGs. It is expected that a prolonged global economic recession will impact implementation of all 17 SDGs at varying levels.[3] It is more critical than ever that achieving SDG 6 and universal access to water and sanitation should be a top priority for containing the spread of COVID-19, for eradicating poverty and realising basic human rights.

Although it is too early to measure the concrete impact of COVID-19 on achievement of the SDGs, there are several possibilities to consider. These vary from eroding some of the

[1] United Nations, 2020. SHARED RESPONSIBILITY, GLOBAL SOLIDARITY: Responding to the socio-economic impacts of COVID-19
[2] http://www.waterjpi.eu/implementation/thematic-activities/water-jpi-knowledge-hub-1/knowledge-hub-on-un-sdgs
[3] United Nations, 2020.

progress made towards SDG targets thus far, to slowing down the prospective progress due to setbacks to national economies, resource reallocations and shifting priorities that became inevitable for some countries.[4] Whereas it is tempting to consider such crises as breeders for new challenges, it is also possible to hold a more optimistic stance and look for unexpected opportunities that come along with these challenges.

Within less than a year, it has become clear that seeking solutions via isolated silos is not a successful approach for dealing with a grievous challenge that knows no boundaries. This understanding is deeply inherent within the SDGs that are structured with a highly interconnected and interdependent spirit. In fact, the successful implementation of the SDGs in an integrated manner can mitigate many of the long-term effects of COVID-19. The recent joint study by UNDP and University of Denver reveals that under the extreme scenario 251 million people could be pushed into extreme poverty by 2030 due to COVID-19. However, by realizing the necessary investments for achieving SDG targets it is possible not only to reverse the process, but to accelerate the development trajectory the world was on before the pandemic, in so doing lifting an additional 146 million people out of extreme poverty.[5]

International solidarity efforts for combating the virus are a case in point to highlight the connection between COVID-19 and SDGs. During the early days of the pandemic, cross boundary mobility of people and products had to be restricted by national authorities. Nonetheless several international research consortiums were formed in parallel to carry out joint research on developing vaccines, which yielded quick results. As of early 2021 several countries have launched vaccination campaigns. Now is an opportunity to demonstrate this same spirit of solidarity as the way to ensure that no one is left behind in reaching the SDG targets by 2030.

## 2. What are the research needs to mitigate COVID-19's impact on SDG 6?

On the water research front, the initial studies have focused on the investigation of infection spread via contingence with contaminated water resources. By building upon the findings of earlier studies on the SARS virus family, new case studies have revealed that SARS-COV-2[6] virus can be found in feces.[7] Whereas existing chemical disinfection processes applied at wastewater treatment plants can remove SARS-COV-2 virus from wastewater, the risk remains especially in low-income countries where open sewers and direct discharge into the environment is a common practice.[8]

Besides the studies on virus presence in and spread through water and wastewater resources, there are other pressing issues that require multidisciplinary studies to improve our societal and economic resilience in response to current and future pandemics. Water4SDGs Knowledge Hub underlines the following research areas in particular:

1. **Accessible, affordable and adaptable water and sanitation services for low-income countries:** From day one of the COVID-19 pandemic, handwashing was proposed as the easiest and most effective way to protection against the virus. The 2017 figures provided by UN show that only 60% of global population had access to handwashing with soap at

[4] Md. Manuar Mukarram, 2020. Impact of COVID-19 on the UN Sustainable Development Goals (SDGs), Strategic Analysis, 44:3, 253-258.
[5] Frederic S. Pardee Center for International Futures and UNDP, 2020. Impact of COVID-19 on the Sustainable Development Goals: Pursuing the Sustainable Development Goals (SDGs) in a World Reshaped by COVID-19
[6] In this paper, SARS-CoV-2 term is used to describe the virus that causes COVID-19 disease, whereas COVID-19 term is used to refer to the disease and the pandemic caused by the disease.
[7] La Rosa, Giuseppina, et al., 2020. Coronavirus in water environments: Occurrence, persistence and concentration methods - A scoping review. Elsevier Public Health Emergency Collection. Water Research 179.
[8] Bogle, Anne, et al., 2020. Rethinking wastewater risks and monitoring in light of the COVID-19 pandemic. Nature Sustainability 3: 981-990.

household level and the figure is an even more drastic 28% for the least developed countries[9]. These figures call upon us to take this essential challenge into consideration urgently. Local communities, decision makers and investors should be integrated as key partners of the research process to scale up affordable and applicable water supply and sanitation solutions.

2. **Early warning systems linked to better sampling, testing and monitoring techniques:** Knowledge capacity to monitor the persistence and viability of SARS-COV-2 virus in wastewater resources is growing rapidly with new studies.[10] This capacity can be used for public health surveillance of communities that are served by wastewater treatment plants. Analysis of incoming wastewater samples can yield promising results to follow the evolution of the pandemic by enabling us to estimate the number of virus infections in a population. The findings can be integrated with early warning systems to inform public health measures such as confinement in the event of new outbreaks. In addition to that, studies on atmospheric dispersion and sampling should be supported further to increase our early warning capacity.

3. **Water governance solutions to increase resilience against long term socio-economic impacts of the pandemic outbreaks:** Beyond the physical scarcity of water, governance failures are often the root cause of inadequate access to water and sanitation in many countries. Good governance of water is associated with coherence between institutions, regulations, policies and financing mechanisms to maintain water security for people, environment and economic sectors.[11] During the pandemic, shrinking economic activity has led to significant job losses and inability to pay for water and sanitation services for the vulnerable communities.[12] Furthermore, at a macro scale, the global funding and official development assistance (ODA) for developing the institutional water management capacity still remains below the targeted figures. Consequently, the majority of the countries have reported already in 2018 low levels of implementation of integrated water resources management (IWRM) under SDG 6.5.1.[13] Experience with emergency procurement has reinforced the importance of embedding integrity, transparency and accountability into all aspects of water governance. There is a need to support more interdisciplinary studies with the engagement of scientists working on socio-economic challenges to develop innovative policy and funding mechanisms to achieve SDG 6 targets. Further, there is a need to understand how to deploy resources towards SDG 6 targets in ways that optimise outcomes across the SDGs, recognising the centrality of SDG 6 for achieving other SDG targets.

4. **Capacity building for uninterrupted water and sanitation services:** Water and sanitation services are considered critical for public health and should be prioritized by authorities to maintain operations. These services require significant fiscal, material and human resources for operating. Pandemic outbreaks can cause interruptions in supply-chain, thus additional research to contribute for resource optimization and self-reliance in service provision is needed. Optimization studies should compare different scenarios for resource efficiency, such as securing staff-hours, energy and consumables supply for the continued operation of treatment facilities. Finally, advanced studies to scale up automation and digitalization applications to manage treatment plants and networks remotely could

[9] https://unstats.un.org/sdgs/report/2020/goal-06/
[10] Bogle, Anne, et al., 2020.
[11] https://www.oecd.org/governance/oecd-principles-on-water-governance.htm
[12] International Finance Corporation, 2020. The Impact of COVID-19 on the Water and Sanitation Sector
[13] https://unstats.un.org/sdgs/report/2020/goal-06/

safeguard service provisions during crises by enabling lower physical interaction among staff, while ensuring their safety and health.

## 3. How can research programs and call structures be improved to respond to crises outbreaks similar to COVID-19 in the future?

Knowledge gap identification is a necessary first step to the bridge between science and policy. Equally important is to set up and improve the call structures that can turn these research ideas into practice. To increase the impact and capacity of call programs in response to the current and future pandemic crises, the funding agencies are recommended to take the following steps:

1. Design call structures that **encourage formation of international multidisciplinary consortiums** to develop comprehensive solutions. Complement the multidisciplinarity with **inclusive cooperation among academia, industry, policy makers and civil society** as an essential aspect of call programs. Administrative support should be integrated into call programs to enhance matchmaking and dialogue between these actors.

2. Whenever possible, **coordinate call processes in a quicker way** for delivering impact more rapidly. To accelerate the call processes the funding agencies can save time by **(a) reducing the excessive paper-shuffling** especially in international calls with dual application processes, **(b) launching quick, successive, task-oriented calls**, and **(c)** establishing **more populated expert panels** to accelerate evaluation processes.

3. Implement call programs that **invest in open access/open data principles** to make sure that data becomes 'as open as possible and as closed as necessary'. Access to good data is crucial to understand the underlying drivers of crises and manage them on a timely manner. Furthermore, data on the socio-economic impacts of crises will support policies to respond the crises and develop recovery plans in a safer, inclusive, and sustainable manner. It is important that research programs call for **new partnerships across the public and private sectors of data producers, as well as citizen science initiatives** to promote formation of new data sources and technologies.

4. There is more need for **international solidarity and political commitment to promote accessibility of research infrastructures and outcomes**. Research programs should especially be accessible for partners in developing countries and foster mobility options to increase the capacity for the implementation of SDGs. In addition to enhanced accessibility of funds, research programs should also support **intellectual property rights and patent systems that do not hamper the accessibility of know-how and innovations, which are essential for human life.**

5. Allocate a dedicated budget in call programs for **dissemination and exploitation activities**. Clarify the expected impacts from the projects as much as possible for obtaining tangible outcomes. **Utilize existing demonstration sites and living labs and promote establishing new ones** for scaling up the impact across different contexts.