

Water & COVID-19 Literature Review

Prepared for the UfM Consultation Meeting on
the UfM Water Agenda and Financial Strategy in view of SDG6 and the Green Deal: Policy
Actions, Economic Responses, and Ways Forward in the post-COVID 19 context

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A global water crisis

In 2019, about 25% of the world's population was confronted with a water crisis. The increasing demand for water in the last 50 years, due to the demographic growth and the consequences of climate change, make it a scarce natural resource. We know that freshwater supplies are limited as easily accessible sources (streams, rivers, lakes) represent only 0.3% of all water on the planet.

The sixth Sustainable Development Goal ([SDG6](#)) adopted by the United Nations in 2015, reminds us the importance of the availability and sustainable management of water and sanitation. Yet 3 billion people were still living without handwashing facilities and drinking water at home in 2017.

The COVID-19 crisis we are facing today intensifies the already existing challenges. Worldwide, we are called to rethink our lifestyles towards environmentally responsible behaviours. More than ever, water is a crucial resource to address the difficulties of this unprecedented situation. A simple gesture such as washing our hands to limit the transmission of the virus requires water. Health facilities rely on safe water to comply with hygiene recommendations. These vital needs seem already secured in many developed countries, but for millions of people, it remains out of reach.

The Mediterranean area is particularly affected and vulnerable. More than 180 million people in the region are considered 'water-poor' and this figure is estimated to reach 250 million within 20 years. Rising temperatures, increasing drought events, population growth as well as migration flows are challenges that increase pressures on water resources. Ensuring continuity in water and sanitation services becomes a critical issue in this time of pandemic, not only in the Mediterranean but also globally.

The Water sector highly impacted by the COVID-19 crisis

The water sector is in the front line of the COVID-19 crisis. This pandemic is prompting questions for the water supply and sanitation sector especially in some areas of the Euro-Mediterranean region already under stress due to water scarcity. It has been essential to evaluate the risks and identify the main services and populations impacted.

Provision of safe water, sanitation and hygiene conditions are essential to protecting human health during all infectious disease outbreaks, including the COVID-19 outbreak. Ensuring good and consistently applied WASH and waste management practices in communities, homes, schools, marketplaces, prisons, worship places and health care facilities is vital to prevent human-to-human transmission of the COVID-19 virus.

Presence of the virus in water and wastewater

One of the main concerns is the presence of the virus in drinking water. COVID-19 or SARS-CoV-2, which is a single-stranded RNA virus, is likely to inactivate in treated water.

Researches highlighted its high dependence on temperatures, being much more infective in colder temperatures than warmer temperatures. Studies conducted in 2008 on coronaviruses resistance in water and wastewater, have shown that it takes about 6 to 7 days to reach 99% reduction in infectivity in filtered tap water at room temperature (23°) against >100 days at 4°. The virus inactivation is also higher in filtered tap water than unfiltered tap water.

The World Health Organization confirmed that the virus has not been detected in drinking-water supplies, in surface or groundwater sources and the risk of its presence is low. However, the risk is higher in countries without solid filtration and treatment plants.

Even if wastewater and sewage constitute a hostile environment for the virus, its presence has been detected in wastewater. It can survive in hospital wastewater or domestic sewage for 2 to 3 days but is not actively spreading through wastewater.

Water shortages

Immediate responses to tackle the pandemic were primarily focused on Health aspects, but availability and access to water is at least as important. Authorities recommended washing hands more frequently to prevent the spread of the virus. Knowing that a single handwashing consumes about 2 litres of water, the result of this recommendation increases pressure on water supplies. 9 to 12 additional litres are required per day and per person in order to apply the sanitary measures.

The lockdown situation had a significant impact on the water consumption. Overuse of water has already led to water shortage and scarcity in many countries. Jordan, Turkey, India and African countries are among the most affected.

Water is also vital for industries. The agriculture and food sector is one of the most at risk, as agriculture accounts for 70% of freshwater withdrawals worldwide. Immediate solutions are needed to increase the resources, especially in the Mediterranean, the Middle East and Central Asia areas.

WASH Services

Safely managed WASH services are critical during the recovery phase of a disease outbreak to mitigate secondary impacts on community livelihoods and wellbeing. These secondary impacts—which could include disruptions to supply chains, inability to pay bills, or panic buying—have negative impacts on the continuity and quality of water and sanitation services.

They could also affect the ability of households to access and pay for WASH services and products (for instance, soap, point of use water treatment or menstrual hygiene products) and the ability of schools, workplaces and other public spaces to maintain effective hygiene protocols when they re-open. If not managed, secondary impacts can increase the risk of further spreading water borne diseases, including potential disease outbreaks such as cholera, particularly where the disease is endemic.

Health-care and Sanitation

Water in hospitals and health facilities has been a key component in tackling this pandemic. Not only in providing care for patients but also in preventing the infection risk for caregivers by applying hygiene and sanitation recommendations. Health-care facilities should ensure hygiene measures and adequate infrastructures to do so.

We understand the determinant role of drinking water and wastewater surveillance systems in protecting public health. Availability of safe water is essential to limit the spread of the virus.

Human and economic impact

The COVID-19 pandemic is not only affecting human lives, but also jeopardising the economic situation in all countries and for the most vulnerable and marginalized people in society. Human and economic costs are likely to be larger for Fragile, Conflict, and Violence (FCV)-affected countries and lower and middle-income countries, which generally have limited coverage and capacity of water supply and sanitation systems, lower health care capacity, larger informal sectors, shallower financial markets, limited fiscal space, and poorer governance.

As such, for all interventions, it is important to target FCV-affected countries—home to about two-thirds of the world’s extreme poor. Although it is still early and complex to determine the economic costs of the pandemic, the costs of inaction will be disastrous.

In this regard and as an immediate response to the Covid-19 crisis, several countries around the world have taken initiatives to ensure that WASH remains a key priority. Financing mechanisms will ensure that services are available to all, especially the poor and most vulnerable communities. The following measures have been highlighted:

- Ensuring that vulnerable and marginalized people have access to water, even when they cannot pay water bills and protecting the water service providers to ensure that they can continue delivering services during the pandemic.
- Following a better management of water resources to reduce the transmission of diseases and make recreational water bodies safe can save many lives. It represents direct and indirect economic benefits, from the household level to national economies.
- Keeping the borders open, for trade and transportation of WASH supplies in order to strengthen and speed up supply chain for critical items like soap and sanitizer.
- Pledging worldwide aid and joining forces to develop a Coronavirus vaccine.
- Establishing coalition between private companies, research and learning institutions and civil society with governments.
- Some government will absorb water bills for households, hospitals and health facilities.
- Locating water tanks and washing facilities for households amidst vulnerable and marginalised people.

A proactive response from organisations and institutions

In this context of emergency, we rapidly observed the mobilisation of international organisations and institutions. By working with countries that benefit from the global sanitation fund, they deliver a message of protection and prevention. Improving health, education and women empowerment is crucial in time of pandemic.

The World Health Organization (WHO) has published a series of Technical briefs on Water Sanitation and Hygiene (WASH), intended for health-care professionals and water and sanitation practitioners, to provide guidance and information about the risks.

The recommendations emphasise on the following points:

- Safe management of drinking-water services
- Improving access to hand hygiene facilities
- Frequent and correct hand hygiene
- Water disinfection, wastewater and sanitation treatment
- Safe management of health care waste
- Training and access to personal protective equipment (PPE)
- Solutions like chemical disinfection with chlorination, boiling, ultrafiltration and UV light disinfection can be easily implemented for households and populations who lack access to safe water supplies and treatment plants

UNICEF provided the technical note WASH Programme contribution to COVID- 19 prevention and response, with strategies for implementing the WASH response.

UNICEF's WASH scope of action is essential to support at-risk populations and health care facilities. The results expected by its measures include:

- An increase of capacities to ensure continuity of WASH services and improve IPC (Infection Prevention and Control) measures
- Hygiene promotion activities, availability of WASH services and products for households, vulnerable groups, in collective sites and public spaces
- Implementation of safe school protocols
- Continuity of services in local water and sanitation utilities

A joined-up approach between governments, UN agencies and partners is required to effectively coordinate the interventions.

UN Water and UN-Habitat are actively working with government and local communities. Their network based on a not-for-profit approach, supports by providing safe drinking water and handwashing facilities in slum areas and public places.

Barely seen by the general public, many experts and analysts are still intervening every day on site to secure our water systems. Water sector professionals should remain updated about the measures to implement in order to maintain public health. Information from the Global Water Research Coalition (GWRC) and the International Water Association (IWA)'s expert panel, points out the efficiency of controls on wastewater treatment plants. Protocols in place guarantee workers enough safety in case of exposure to "much more readily transmissible" pathogens and still apply with COVID-19 virus.

Wastewater surveillance operations are being conducted worldwide to assist in monitoring the transmission of the virus among the communities. The Joint Research Centre (JRC), the Directorate-General for Environment (DG ENV) and their partners are working together to collect and analyse data from wastewater treatment plants. They aim to facilitate the exchange of knowledge among research groups. This will allow authorities to have better estimations of the spread, considering that many people are not being tested. The digital sector and innovation play a considerable role here. They provide advanced technologies that are essential to ensure environmental safety.

The platform Sanitation and Water for All (SWA) has addressed some key messages to policy makers, reminding us the importance of financial investment to support WASH services, providers and workers, and guarantee sustainability of services.

Sanitation and hygiene are becoming critical building blocks in time of pandemic. Improving health, education and women empowerment is crucial for a stronger climate change and resilience. The common goal of these international organisations is to work on their future strategies and showing more concern and willingness on building up a stronger WASH sector

beyond COVID-19. By working with partners and countries, they ensure the development of national strategies and provide funds and additional resources to leave no one behind.

The common goal of these organisations is to work on their future strategies and to show more concern and willingness on building up a stronger WASH sector beyond the COVID-19 crisis. Collaboration with partners and countries ensures that national strategies are developed and provides funds and additional resources to leave no one behind.

A joint effort to implement action plans in the Mediterranean

In addition to the measures taken on an international level, Mediterranean Governments have also mobilised their resources.

The UFM Secretariat is engaged with its Partners to reflect on several water issues and to solve them collectively. In this regard, they are developing a new clear Nexus between Water and Public Health and provide a road map to ensure that the WASH sector is at the forefront to fight against such pandemic.

It is important to assess the socio-economic and public health impact of the water infrastructures in the Mediterranean to achieve a good response to climate change and the emerging pandemic situation.

The UFM Recovery phase

Water -including coastal water- is a key component of the productive systems, from agriculture, energy production and industrial production to transport and tourism. Today, 3 out of 4 jobs are water dependent. To face this, the UfM is launching a study on the impact of COVID-19 on the water sector and will support the implementation of the recovery strategy by providing a platform for policy dialogue and up-scaling of exemplary projects.

The UFM Water Community, including GWP-Med, IME, UNESCO-WWAP, CMI Water, CEDARE, EWA, and all other Member states already brainstormed together to realise the response plan as per the UFM water Agenda.

The water sector should be a contributor to the economic situation by advancing the Water Employment and Water Energy Nexus to create more investment, jobs and entrepreneurial in the Mediterranean which is in bad need to such approach as states our Water Policy framework of action 2030

The UFM policy recommendation, and many international financial institutions such as the World Bank, the African development bank, the inter-American development bank, the World Bank Water Global Practice, have provided a menu of solutions, including concrete actions to mitigate secondary impacts and future resilience to similar epidemics.

1. Financial support to water and sanitation utilities to monitor and support cash reserves, the availability of water and wastewater treatment chemicals, the availability of electricity fuel for pumping and treating water, staffing levels and routine/capital maintenance.
2. Providing technical assistance to governments to strengthen country systems including: (i) 'agile' service delivery mechanisms that may turn to local private sector entities to deliver safe water through 'turnkey' solutions under design-build-operate (DBO) contracts; (ii) enhanced water quality assurance/monitoring; (iii) preparation of utility emergency plans (absenteeism may be a serious risk); (iv) safely managing wastewater and fecal sludge; (v) emptying latrines and safely disposing excreta; (vi) monitoring secondary impacts.
3. Financial support to beneficiaries to ensure the continuity of WASH services including financing for fee waivers to mitigate service disruption for households and institutions (schools, health care centres, government agencies, etc.). Ensure funding for WASH services and related products (soap, etc.) are included in Social Protection operations targeting poorer households. In fragile countries that lack social safety nets and wherein fiduciary arrangements do not allow for DPOs, in-kind distributions to vulnerable populations identified as most at risk (e.g. distribution hygiene and cleaning kits, water distribution, etc.).
4. Ensuring the viability of critical supply chains such as for hygiene product availability in markets (e.g. soap, disinfectant, point of use water treatment supplies etc.), as well as import/export restrictions on critical equipment needed by utilities or households.

Selected institutional responses

The European Commission is committed to support its partners and member states. As part of its emergency response action, €2.8 billion have been provided to bolster research, health and water systems. Financial assistance to MENA countries, western Balkans and Turkey, is ensuring continuity of health services, trainings and surveillance.

The Catalan Water Partnership (CWP), in its action to address the COVID-19 crisis, organised a series of virtual sessions. Local experts presented the measures implemented in Catalonia. They exchanged about digitalisation, circular economy and water management in the food sector. Public and private actors were invited to cooperate and to support R&D in the health-water nexus.

The Parliamentary Assembly of the Mediterranean (PAM) and the World Bank are financially helping the water sector. They already allocated funds to support Egypt, Lebanon, Morocco, Tunisia, Turkey, the West Bank and Gaza, and to provide technical assistance. These contributions will strengthen the emergency response in the healthcare and agricultural systems where water supply is essential.

The United Nation is implementing an Inter-Agency Response Plan in Gaza that includes the WASH cluster. Through this initiative, local NGOs and partners have been able to distribute hygiene kits, bottles of water, protection materials for health workers.

The Swedish International Development Cooperation Agency (SIDA), UNHCR, International Rescue Committee (IRC) and Médecins sans frontières (MSF) are contributing in refugee camps in Greece, Italy and Syria. They intend to improve access to WASH facilities, to provide water-trucking and to communicate among refugee population. This humanitarian effort improves the living conditions of the most vulnerable, as access to water is extremely limited in the camps.

Selected responses from individual countries

The Palestinian Water Authority (PWA), with the support of the Red Cross and the Norwegian Refugee Council (NRC), is working to secure access to water and sanitation services, and to ensure the protection of health workers and water service providers.

The National Office of Electricity and Drinking Water (ONEE) of Morocco has made a major investment in the city of Ouarzazate. The national programme for drinking water supply and irrigation will allow the construction of adequate infrastructures and secure clean water supply for the population.

Recommendations and role of local communities

Engaging the local population by raising awareness about WASH practices is necessary to limit the spread of the virus. Handwashing is also important at home and is recommended after coughing, sneezing, before preparing food, before and after eating or when returning from public places.

Clear information should be accessible for all across multiple supports. UNICEF provides hygiene recommendations and [guidelines](#) to 'keep the COVID-19 virus out of your home'. Many online platforms and social media groups reinforced communication within neighbourhoods. Volunteers have been able to connect with isolated and vulnerable people.

Solidarity has been a key factor since the beginning of the pandemic and especially during the lockdown. Sustainability has also been highlighted by local and international actors. A sustainable response to the COVID-19 crisis must emphasise on water and sanitation and be focused on the Green Economy.

The water-energy-food nexus is an integral part of this model. Integrating these three components will ensure an efficient use of natural resources and limit environmental degradation. With the technologies available today, this approach seems achievable. Cooperation between public and private sector is required, along with contingency funding plans and long-term investments.

A change in consumers' behaviour is also expected. The aftermath of this global crisis is already observed in our economies and the outcome of the recovery phase will depend on our ability to rebuild a sustainable and equitable society. We are reminded to do better instead of trying to do more.

Selection of consulted resources

WHO

Water, sanitation, hygiene, and waste management for the COVID-19 virus

Pan American Health Organization - WHO

Key Recommendations on Water Sanitation and Hygiene: COVID-19. Healthcare facilities

Food and Agriculture Organization of the United Nation

Integrated agriculture water management and health - April 20

UNICEF

UNICEF WASH Programme contribution to COVID- 19 prevention and response

UN Water

Water and sanitation-related information from UN-Water Members and Partners

Union for the Mediterranean

Mediterranean countries share water emergency and recovery plans to tackle the aftermath of COVID-19

European Commission

Coronavirus: EU global response to fight the pandemic

World Economic Forum

Interactive Graph - Key Issues on COVID-19

Global Water Research Coalition

COVID-19 Virus Water - Sanitation and Wastewater Management

TU Delft - Global Drinking Water

12 facts about the COVID-19 virus in water

IWA

Information resources on water and COVID-19

UNECE

COVID-19: the role of the Water Convention and the Protocol on Water and Health

Smart Water Magazine

Water in the Post-COVID-19 Green Economy

Stockholm International Water Institute - SIWI

You can't wash your hands without water – how governments are responding to Covid-19

Sanitation And Water For All

Making WASH a political and financial priority in a time of COVID-19

Sanitation And Water For All

Webinar: Eliminating Inequalities in the Water, Sanitation

IWA

COVID-19: A Water Professional's Perspective

AUB Food Security Program

Webinar: COVID-19 lessons for Water and Climate