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THE PROTOCOL ON WATER AND HEALTH AND THE COVID-19 PANDEMIC: RELEVANCE, LESSONS LEARNED AND FUTURE PERSPECTIVES

Note by the secretariat

1. Introduction

The coronavirus disease (COVID-19) outbreak was declared a Public Health Emergency of International Concern by the WHO Director-General on 30 January 2020. It became clear early on that the pandemic was more than a health crisis; it is also a socioeconomic crisis, a humanitarian crisis, a security crisis and a human rights crisis, as recognized in the *United Nations comprehensive response to COVID-19*.

The pandemic has clearly highlighted the critical role of water, sanitation and hygiene (WASH) services as a first line of defence in preventing and controlling the spread of infectious disease, including COVID-19. Investment in WASH is a central policy prescription for a healthy and green recovery from the pandemic. Such “no-regrets” investment pays a rich dividend in health, human rights and inclusive economic growth.

The 2020 World Health Assembly resolution WHA73.1 *COVID-19 response* identified WASH as a central component and called upon countries “to take measures to support access to safe water, sanitation and hygiene, and infection prevention and control, ensuring that adequate attention is paid to the promotion of personal hygienic measures in all settings, including humanitarian settings, and particularly in health facilities”. The important role of hand hygiene is further accentuated by the global initiative Hand Hygiene for All led by WHO and the United Nations Children’s Fund (UNICEF).

WASH plays a central role in disease prevention, and this basic premise remains a powerful driver for current and future work under the Protocol on Water and Health. Through its target setting and

accountability framework, the Protocol can play a vital role in “building forward better and fairer” from the pandemic – ensuring a recovery process towards a healthier post-COVID-19 world. This can be achieved by promoting safe, resilient and equitable WASH services for all in all places, maintaining effective public health surveillance and response systems, and offering a pan-European platform for exchange of good practices and mutual support across countries.

This information note primarily aims to provide a summary of WASH-related considerations and recommended measures in relation to COVID-19 based on existing WHO technical guidance documents, as well as some insights into preparedness and response actions taken by governments. It also offers a conceptual overview of the current and possible future role of the Protocol in prevention and control of epidemics and pandemics of infectious disease, including COVID-19.

2. WASH considerations in the context COVID-19¹

The provision of safe WASH services and conditions is essential for preventing infectious disease outbreaks and for protecting human health. Ensuring evidence-based and consistently applied WASH practices in communities, homes, workplaces, schools and health-care facilities will help prevent human-to-human transmission of pathogens, including SARS-CoV-2, the virus that causes COVID-19. In the following, the note further summarizes the relevance and significance of WASH in relation to COVID-19.

Hand hygiene. Frequently applied and correct hand hygiene is one of the most important public health measures to prevent respiratory illness. The need to improve hand-hygiene practices to help prevent transmission of SARS-CoV-2 is broadly recognized. Access to a reliable source of water is critical to allow for regular handwashing with soap. Also the provision of handwashing facilities in key public places (e.g. at the entrance of public buildings and public transport facilities) is an important intervention. Political leadership is needed to build a supportive institutional and policy environment to improve and sustain access to handwashing facilities and to motivate and support good hand-hygiene behaviour.

Sanitation. SARS-CoV-2 is an enveloped virus and is less stable in the environment compared to non-enveloped human enteric viruses with known waterborne transmission. While viral RNA fragments were found in untreated wastewater and open water bodies contaminated by untreated sewage, infectious SARS-CoV-2 has not been detected in untreated or treated sewage or open water bodies. Standard treatment processes are effective for enveloped viruses, including SARS-CoV-2. Wastewater utility personnel are essential for operational support and continuation of services during the COVID-19 pandemic. They should be briefed on COVID-19 preventive measures and have access to personal protective equipment (PPE).

Drinking-water supply. While the presence of SARS-CoV-2 in untreated water is possible, there is no indication that infectious virus can persist in drinking-water. Conventional water treatment methods that utilize filtration and disinfection significantly reduce the concentration of SARS-CoV-2. In places where safe piped-water supplies are not available, several household water treatment technologies are effective in removing or destroying viruses (e.g. technologies that meet performance standards of the WHO International Scheme to Evaluate Household Water Treatment Technologies). Water supply personnel are essential for operational support and continuation of services during the COVID-19 pandemic.

Water supply in buildings. Due to the temporary closure of public or private buildings as part of the pandemic response (including workplaces, schools and kindergartens), premises may experience low or no water flow over a period of weeks or months. This may result in water stagnation and an associated deterioration of water quality, for example through the growth of microbial pathogens such as *Legionella* and leaching of harmful metals from pipework. This deterioration may pose a public health risk when such

¹ The wording in this section is based on guidance resources listed in section 7, in particular the WHO/UNICEF *Interim guidance: Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19* (29 July 2020); the United Nations Educational, Scientific and Cultural Organization (UNESCO)/UNICEF/WHO *Considerations for school-related public health measures in the context of COVID-19* (14 September 2020) and the WHO interim guidance *Environmental surveillance for SARS-CoV-2 to complement public health surveillance* (14 April 2022).

premises are re-inhabited. To minimize such risks, a site-specific programme of flushing pipes and disinfection should be undertaken within the premises before re-occupancy.

WASH in health-care facilities. WASH provisions and waste management measures in health-care settings are important for providing adequate care for patients and protecting patients, staff and caregivers from infection risks. This includes departments that have been temporarily opened for COVID-19 testing, vaccination or care purposes. To prevent SARS-CoV-2 transmission, a range of WASH-related standard measures are particularly important, including: ensuring personal hygiene practices (including frequent hand hygiene for patients, staff and caregivers using appropriate techniques); carrying out regular and adequate environmental cleaning and disinfection; regularly laundering bedlinen and patients' clothing; providing functional, private and accessible toilets separated for staff and patients (including separate facilities for confirmed and suspected COVID-19 cases); managing excreta and health-care waste safely; and providing sufficient and safe drinking-water to staff, caregivers and patients.

WASH in schools. Hand hygiene and environmental cleaning are key measures to limit exposure to infection in school settings, among other precautionary measures. Essential actions for their implementation include integrating key health and hygiene messages, including on the prevention of COVID-19, in school curricula and professional development programmes for teachers and school staff. It is indispensable to provide handwashing facilities with sufficient soap and clean water or alcohol-based rub at entrances, exits (or classrooms), toilet areas, gyms and canteens. It is also important to increase the frequency of cleaning, while ensuring the availability of sufficient cleaning materials and hygiene consumables, adequate staffing and updated cleaning protocols, including for toilets and for cleaning and disinfecting frequently touched surfaces.

Environmental surveillance of wastewater. During the pandemic, an increasing number of countries have adopted sewage surveillance programmes for detecting non-infective SARS-CoV-2 RNA fragments in communal wastewater. Such surveillance can be used as early warning for the emergence and re-emergence of SARS-CoV-2 circulation in communities, the identification of hot spots, tracking back of first occurrences of the virus by investigating conserved wastewater samples for SARS-CoV-2 RNA, and determining the presence of mutations and SARS-CoV-2 variants of concern. Complementary to clinical surveillance of COVID-19, information on spatial and temporal trends of SARS-CoV-2 RNA in wastewater can be used to inform public health decisions in managing the response to the pandemic.

3. Prevention, preparedness and recovery from COVID-19 in the context of the Protocol

In order to achieve the Protocol's objective of protecting human health and well-being through improving water management and preventing, controlling and reducing water-related disease (Article 1), countries should pursue the aim of ensuring access to drinking-water and provision of sanitation for everyone (Article 6). The fundamental requirements stemming from the above provisions are important pillars in responding to the COVID-19 pandemic and in guiding recovery efforts, while promoting the progressive realization of human rights.

The Protocol requires Parties to set national targets on water, sanitation and health, regularly review them and report upon their implementation (Articles 6 and 7). As targets will be periodically revised, countries can use such opportunities to review and amend them to address the priorities and needs that have arisen from the COVID-19 pandemic.

In accordance with Article 8, countries should establish, improve and maintain comprehensive national and/or local surveillance and early warning systems, and prepare national and local contingency plans for responses to outbreaks of water-related disease, and water quality incidents and risks. Surveillance of SARS-CoV-2 RNA in wastewater has emerged as an important tool for timely and effective public health decision-making during the pandemic and can therefore be considered in further improving routine surveillance and early warning systems as required by Article 8.

Possible actions to support public health preparedness, and response to and recovery from COVID-19 in the context of the Protocol are presented in Table 1. These provide a conceptual framework that may support planning, financing, implementing and monitoring WASH interventions to prevent and control COVID-19

outbreaks, as well as other infectious diseases. Countries and partners may choose from the proposed action list and integrate them into national, local and setting-specific response and recovery plans.

Table 1. Conceptual framework of work under the Protocol in the context of COVID-19

Relevant Protocol provisions by programme area	Possible actions
<p>Programme area 1: Improving governance for water and health: support for implementing the 2030 Agenda for Sustainable Development through setting targets and implementing measures</p>	
<p>Art. 4 (5). The Parties shall take all appropriate action to create legal, administrative and economic frameworks which are stable and enabling and within which the public, private and voluntary sectors can each make its contribution to improving water management for the purpose of preventing, controlling and reducing water-related disease.</p> <p>Art. 5 (i). Access to information and public participation in decision-making concerning water and health are needed, inter alia, in order to ... give the public the opportunity to express its concerns and to enable public authorities to take due account of such concerns. ...</p> <p>Art. 6 (2). ... Parties shall each establish and publish national and/or local targets for the standards and levels of performance that need to be achieved or maintained for a high level of protection against water-related disease. ...</p> <p>Art. 7 (5). Each Party shall provide to the secretariat ..., for circulation to the other Parties, a summary report of the data collected and evaluated and the assessment of the progress achieved. ...</p> <p>Art. 10 (1). As a complement to the requirements of this Protocol for Parties to publish specific information or documents, each Party shall take steps within the framework of its legislation to make available to the public such information as is held by public authorities and is reasonably needed to inform public discussion of: (a) The establishment of targets and of target dates for their achievement and the development of water-management plans in accordance with article 6; ...</p>	<p>Review and revise national and/or local targets on water, sanitation, hygiene and health and associated action plans, taking into account aspects related to COVID-19, considering the aspects listed in the sections below under the respective programme areas</p> <p>Link the (revised) targets to national and/or local preparedness, response and recovery programmes and measures for COVID-19 and secure appropriate investment and funding</p> <p>Monitor the implementation of COVID-19 focused WASH targets, including financial aspects, and take corrective measures to address any deficiencies in implementation</p> <p>Make information on the implementation of the COVID-19 focused targets available to the public</p>
<p>Programme area 2: Prevention and reduction of water-related diseases</p>	
<p>Art. 4 (2.e). The Parties shall, in particular, take all appropriate measures for the purpose of ensuring: Effective systems for monitoring situations likely to result in outbreaks or incidents of water-related disease and for responding to such outbreaks and incidents and to the risk of them.</p> <p>Art. 6 (5.e). In order to promote the achievement of the targets referred to in paragraph 2 of this article, the Parties shall each: Establish and maintain a legal and institutional framework for monitoring and enforcing standards for the quality of drinking-water.</p> <p>Art. 8 (1.a). The Parties shall each ... ensure that: Comprehensive national and/or local surveillance and early-warning systems are established, improved or maintained ...</p>	<p>Improve surveillance of water supply and sanitation systems in the community, including in places where vulnerable groups are present, and in temporary settings opened for responding to the COVID-19 emergency (for testing, vaccination and care)</p> <p>Establish procedures for the safe recommissioning of buildings to prevent the occurrence of water-related disease as a secondary consequence of the temporary closure of buildings in COVID-19 affected areas and the associated non-use of water and sanitation systems</p> <p>Establish procedures for prevention and control of Legionella in building plumbing systems, including relevant monitoring requirements</p>

Relevant Protocol provisions by programme area	Possible actions
<p>Art. 8 (2). Surveillance and early-warning systems, contingency plans and response capacities in relation to water-related disease may be combined with those in relation to other matters.</p> <p>Art. 9 (4.b). The Parties shall encourage: Development of integrated information systems to handle information about long-term trends, current concerns and past problems and successful solutions to them in the field of water and health, and provision of such information to competent authorities.</p>	<p>Develop capacity-building programmes on drinking-water, sanitation and wastewater surveillance in the context of COVID-19 and other emergencies</p> <p>Develop guidelines and protocols for environmental surveillance of SARS-CoV-2 and other disease agents in wastewater of communities and vulnerable institutions</p> <p>Build institutional capacity to support the establishment of a systematic programme for surveillance of SARS-CoV-2 in wastewater</p> <p>Define operational mechanisms to integrate wastewater data with clinical surveillance data and use it in public health decision-making for preparedness and response actions</p>
Programme area 3: Institutional water, sanitation and hygiene	
<p>Art. 5 (k). Special consideration should be given to the protection of people who are particularly vulnerable to water-related disease.</p> <p>Art. 6 (1). In order to achieve the objective of this Protocol, the Parties shall pursue the aims of: (a) access to drinking water for everyone; (b) provision of sanitation for everyone ...</p> <p>Art. 9 (3). The Parties encourage the education and training of the professional and technical staff who are needed for ... operating systems of water supply and sanitation This education and training shall include relevant aspects of public health.</p>	<p>Develop a national roadmap to ensure universal hand hygiene for all, aligned with the WHO/UNICEF global initiative and recommendations</p> <p>Set requirements for the installation and maintenance of handwashing facilities and ensure provision of such facilities (with water and soap) in different settings (e.g. health-care facilities, schools, markets, places of worship, transport facilities) and regularly monitor</p> <p>Revitalize a culture of hand hygiene and promote hygiene behaviour change in schools and communities by using, simultaneously, the existing guidance and tools developed under the Protocol, specifically <i>Improving health and learning through better water, sanitation and hygiene in schools: an information package for school staff</i></p> <p>Issue national guidance on reopening schools to support them in restoring WASH services</p> <p>Set requirements to establish and implement WASH policies and plans in schools and health-care facilities, incorporating WASH-related COVID-19 response measures</p> <p>Establish requirements and ensure regular surveillance of WASH conditions in schools and health-care facilities</p> <p>Undertake systematic national assessments of WASH conditions in health-care facilities and schools to identify improvement needs and inform programming, in general and in the context of COVID-19, by using the existing guidance and tools developed under the Protocol: <i>Water, sanitation and hygiene in health-care facilities: a practical tool for situation assessment and improvement planning</i> and <i>Surveillance of water, sanitation and hygiene in schools: a practical tool</i></p>

Relevant Protocol provisions by programme area	Possible actions
	<p>Ensure safe WASH and adequate waste management, environmental cleaning and disinfection practices in health-care facilities for improved infection prevention and control (IPC), including consideration of securing supplies for appropriate types of disinfectants, cleaning and hand-hygiene materials, and PPE</p> <p>Establish special training programmes for personnel responsible for cleaning, plumbing and waste management in health-care facilities, and ensure adequate numbers of staff are available during pandemics and other emergencies when workloads are increased</p> <p>Monitor IPC and WASH implementation and environmental and engineering controls in health-care facilities by using WHO tools, such as Water, sanitation and hygiene in health-care facilities: a practical tool for situation assessment and improvement planning and WASH FIT: a practical guide for improving quality of care through water, sanitation and hygiene in health care facilities</p> <p>Develop educational and health promotion materials on different WASH topics, including COVID-19-related measures, targeting different audiences in schools and health-care facilities</p>
Programme area 4: Small-scale water supplies and sanitation	
<p>Art. 5 (l). Equitable access to water, adequate in terms both of quantity and of quality, should be provided for all members of the population, especially those who suffer a disadvantage or social exclusion.</p> <p>Art. 6 (1). In order to achieve the objective of this Protocol, the Parties shall pursue the aims of: (a) access to drinking water for everyone; (b) provision of sanitation for everyone ...</p> <p>Art. 9 (2.a). The Parties shall promote: (a) understanding of the public-health aspects of their work by those responsible for water management, water supply and sanitation; ...</p>	<p>Ensure that small-scale water supplies provide safe drinking-water free of contamination by using A field guide to improving small drinking-water supplies: water safety planning for rural communities developed under the Protocol. Consider complementing this by promoting water treatment in households where safe water supplies are (temporarily) unavailable</p> <p>Implement local health education programmes, including a focus on community action to promote and improve hand-hygiene behaviours</p> <p>Advocate for small-scale providers to provide sufficient amounts of safe water to allow for IPC measures in health-care facilities and hand hygiene in homes and public and institutional settings</p> <p>Establish requirements for the safe management of on-site sanitation systems, including containment, emptying, transport, treatment and disposal</p> <p>Establish, enforce and/or improve surveillance of small-scale water supply and sanitation systems, including individual/private supplies and on-site sanitation systems</p>

Relevant Protocol provisions by programme area	Possible actions
Programme area 5: Safe and efficient management of water supply and sanitation systems	
<p>Art. 4 (2.a). The Parties shall ... take all appropriate measures for the purpose of ensuring: Adequate supplies of wholesome drinking water which is free from any micro-organisms, parasites and substances which, owing to their numbers or concentration, constitute a potential danger to human health. This shall include the protection of water resources which are used as sources of drinking water, treatment of water and the establishment, improvement and maintenance of collective systems.</p> <p>Art. 4 (2.b). The Parties shall ... take all appropriate measures for the purpose of ensuring: Adequate sanitation of a standard which sufficiently protects human health and the environment. This shall in particular be done through the establishment, improvement and maintenance of collective systems.</p> <p>Art. 9 (2.a). The Parties shall promote: (a) understanding of the public-health aspects of their work by those responsible for water management, water supply and sanitation; ...</p>	<p>Review and update national regulations and guidelines for safe management of water supply and sanitation systems, including consideration of pandemic aspects to ensure safety and continuity of water supply, sanitation and wastewater treatment services</p> <p>Stipulate adoption of WHO-recommended water safety plans (WSPs) and sanitation safety plans (SSPs) to ensure safe management practices by operators of drinking-water supply and sanitation systems, including under pandemic circumstances</p> <p>Review and update emergency response and contingency plans for water supply and sanitation systems, taking into account the lessons learned from the COVID-19 pandemic, including consideration of occupational health aspects, “essential staffing” arrangements and ensuring of unhindered movement of personnel during times of restrictions due to the epidemiological situation</p> <p>Establish procedures to maintain supply chains (procurement and delivery) and adequate stocking of water treatment chemicals, disinfectants and other essential supplies, including PPE for water supply and sanitation workers</p> <p>See programme areas 2 and 3 for recommissioning of buildings</p>
Programme area 6: Equitable access to water and sanitation	
<p>Art. 5 (k). Special consideration should be given to the protection of people who are particularly vulnerable to water-related disease.</p> <p>Art. 5 (l). Equitable access to water, adequate in terms both of quantity and of quality, should be provided for all members of the population, especially those who suffer a disadvantage or social exclusion.</p> <p>Art. 6 (1). In order to achieve the objective of this Protocol, the Parties shall pursue the aims of: (a) access to drinking water for everyone; (b) provision of sanitation for everyone ...</p>	<p>Prioritize providing inclusive WASH services for marginalized and vulnerable groups as the most vulnerable to COVID-19, including people with disabilities, the elderly, the homeless, dwellers in informal settlements, migrants and refugees, long-term care populations and populations affected by humanitarian crises</p> <p>Ensure access to water and sanitation in public spaces to allow access to WASH services by the general public and the homeless during lockdown measures</p> <p>Undertake post-COVID systematic equity assessments by using the Equitable access score-card developed under the Protocol and the Guidance note on the development of action plans to ensure equitable access to water and sanitation to develop policy/technical interventions addressing special challenges faced by vulnerable and disadvantaged population groups in the context of COVID-19</p> <p>Advocate for the inclusion of WASH services in economic response packages to support vulnerable, crisis-affected</p>

Relevant Protocol provisions by programme area	Possible actions
	households facing financial difficulties due to the pandemic (e.g. cover service fees). See programme area 3 for ensuring universal access to handwashing facilities.
Programme area 7: Increasing resilience to climate change	
Art. 6 (2.f). The application of recognized good practice to the management of water supply and sanitation, including the protection of waters used as sources for drinking water.	Promote climate-resilient WSPs to ensure reliable and sustainable drinking-water service provision that continues to prevent water-related disease in a changing climate Promote uptake of SSPs to ensure safe management of wastewater reuse (e.g. in agriculture) as a frequent adaptation measure to climate-induced water scarcity
Programme area 8: Assistance to support implementation at the national level	
Art. 11 (a). The Parties shall cooperate and, as appropriate, assist each other: in international actions in support of the objectives of this Protocol; ... Art. 14. When cooperating and assisting each other in the implementation of national and local plans ... the Parties shall ... consider how they can best help to promote: (a) preparation of ... schemes for improving water supply and sanitation; (b) improved formulation of projects ... in pursuance of such ... schemes, in order to facilitate access to sources of finance; (c) effective execution of such projects; (d) establishment of systems of surveillance and early-warning systems, contingency plans and response capacities in relation to water-related disease; (e) preparation of legislation needed to support the implementation of this Protocol; (f) education and training of key professional and technical staff; (g) research into, and development of, cost-effective means and techniques for preventing, controlling and reducing water-related disease; ...	Develop and implement targeted programmes to support national action to strengthen preparedness, response and recovery in relation to WASH and COVID-19 Develop appropriate project proposals and mobilize necessary resources for response to and recovery from COVID-19 Exchange experience on setting and implementing COVID-19-focused targets through the Protocol's intergovernmental framework and through twinning activities
Programme area 9: Compliance procedure	
Art. 15. The Parties shall review the compliance of the Parties with the provisions of this Protocol on the basis of the reviews and assessments referred to in article 7. ...	Articulate the connection between the relevant provisions of the Protocol and the concept of hand hygiene, drawing on the expertise of the Compliance Committee of the Protocol

4. WASH inclusive national plans and actions for preparedness and response to COVID-19

The UN-Water Global Analysis and Assessment of Sanitation and Drinking-water (GLAAS) 2021–2022 country survey included specific questions on whether governments had developed a COVID-19 preparedness and response plan, and to what extent it addressed WASH. The majority of the 20 countries² from the pan-European region that participated in the survey have integrated WASH aspects into their national plans, with increased focus on hand-hygiene behaviour change and hand hygiene in public places,

² Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Estonia, Georgia, Greece, Hungary, Italy, Kazakhstan, Kyrgyzstan, Montenegro, Norway, Romania, Serbia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

and WASH and waste management in health-care facilities. Around two thirds of participating countries specifically included WASH for vulnerable population groups, and sanitation services, in their national plans for COVID-19.

Countries reported a number of challenging implications of the COVID-19 pandemic for the provision of WASH services, including:

- operational and financial challenges for water supply and sanitation systems due to high service demand associated with increased hospital admissions and interruption of services due to workforce shortages;
- increased water consumption, combined with deficient recharge of aquifers, resulting in restrictions of water supply;
- supply chain disruptions leading to shortages of water-treatment chemicals, disinfectants, flocculation agents for wastewater treatment and other essential supplies;
- response measures that are not always targeted to vulnerable groups who are most at risk of infections;
- temporary closure of buildings during epidemiological restrictions potentially leading to water quality incidents and health risks (i.e. Legionella, hazardous chemicals leaching from pipes) and requiring procedures for safe recommissioning of buildings.

Table 2 provides information on different measures planned and/or undertaken by the surveyed governments to ensure the provision of WASH services as part of national and local preparedness and response for COVID-19.

Table 2. Examples of WASH interventions during the COVID-19 pandemic reported by countries (based on findings of the GLAAS 2021–2022 survey)

WASH dimension	Examples of interventions reported by countries
Hand hygiene	<p>Development of guidelines for hygienic sanitary measures in preschools, kindergartens, schools, nurseries, public administration buildings, supermarkets and shopping centres</p> <p>Inclusion of requirements for provision of hand-hygiene equipment in different facilities and promotion of hand hygiene in outbreak management regulations</p> <p>Provision of handwashing stations and hygiene kits (soaps, disinfectants) and/or local production of alcohol-based hand sanitizer</p> <p>Procurement agreements to ensure continued availability of hand-hygiene products</p>
Drinking-water and sanitation service provision	<p>Specific guidance for drinking-water suppliers on how to ensure continued supply of safe drinking-water</p> <p>Interim recommendations on water and sanitation service provision and risk assessment in the context of COVID-19</p> <p>Recommendations for building water supply systems during temporary closure and reopening</p> <p>Measures to ensure continued water supply and sanitation services are included in local preparedness and response plans</p> <p>Measures to protect workers' health and sustain safe operation of water and sanitation systems</p>
Wastewater surveillance	Undertaking environmental surveillance of SARS-CoV-2 in wastewater to complement clinical surveillance of COVID-19

Equity	<p>Recommendations for enhanced hygiene and sanitation for vulnerable groups</p> <p>Making public hand-hygiene facilities accessible for people living with disabilities</p> <p>Prohibition of the suspension of water and sanitation services if service fees are not paid or the payment is delayed</p>
Targeted actions for different settings	<p>Development of epidemiological norms to control COVID-19 in public places</p> <p>Measures to improve IPC, WASH and waste management in health-care facilities</p> <p>Issuing of specific requirements and allocation of additional funds for environmental cleaning, laundry, disinfection and PPE in health-care facilities</p> <p>Monitoring of WASH service provision in schools and health-care facilities</p> <p>Ensuring basic infrastructural and operational conditions (safe drinking-water supply, adequate ventilation, sufficient number of toilets etc.) in all health-care facilities, including in temporary outbreak hospitals</p> <p>Planning of adequate storage and transport capacities to manage increased volumes of medical waste generated during outbreak situations</p>

The selected best practice case studies presented below were provided by Parties to the Protocol and other countries during a series of technical webinars and in response to the call announced at the 12th meeting of the Working Group on Water and Health (14–15 April 2021) to share experience of work on WASH in response to the COVID-19 pandemic.

- **Prioritizing hygiene in different settings in Albania.** The Ministry of Health and Social Protection (MoHSP) of Albania issued an order on hygienic sanitary measures in preschools, kindergartens, nurseries and other educational institutions, including on making provisions for handwashing. The MoHSP also developed the *Guideline on care and anti-COVID-19 measures in pre-university educational structures for the academic year 2020–2021*, and local governments made procurement agreements to ensure the continued availability of hand-hygiene products and PPE.
- **Establishing regulatory requirements to prevent the spread of COVID-19 in public places in Kyrgyzstan.** A provisional sanitary epidemiological code of practice for preventing the spread of COVID-19 in public places was adopted in May 2020 by the government regulation “On further measures to reduce the risks of COVID-19 spread”. It set requirements to ensure hand-hygiene practices during the state of emergency, which included installation of “entry filters” – making available hand-hygiene facilities with water and soap (or hand sanitizers) at the entrance of buildings and hand sanitizer dispensers at the entrances of public transport hubs. The Ministry of Health continues to prioritize undertaking needs assessment and developing a phased national plan to achieve universal access to hand hygiene.
- **Implementing incentives for WASH service personnel and developing national recommendations to prevent the spread of COVID-19 in different settings in Georgia.** The Government of Georgia implemented incentive measures for WASH sector personnel to ensure provision of uninterrupted and safe services for the population. The Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs adopted a series of WASH-related recommendations to prevent the spread of COVID-19 infections, including for workplaces – on electricity supply, drinking-water provision and waste management – and for preschools, childcare facilities and schools.
- **Establishing legal requirements for monitoring of individual drinking-water sources in Kazakhstan.** In rural Kazakhstan, 36% of the population use decentralized water supply systems. A new legal code on the “Health of the population and health-care systems” was issued in July 2020, for the first time providing normative requirements for drinking-water sources located in private properties, which

enables authorities to undertake sanitary and epidemiological monitoring of such supplies. It is an important step in ensuring the safety and continuity of water supplies in pandemic circumstances.

Environmental surveillance of pathogens in wastewater can serve as an early warning tool for detecting the circulation of COVID-19 (and other infectious diseases, such as polio) in the population and monitoring trends. Such surveillance thus supports the identification of appropriate pandemic response measures and thus plays an important role in the protection of public health (see also section 2). An increasing number of countries have been implementing and/or enhancing such surveillance programmes in response to the pandemic.

- **Setting up a surveillance network for SARS-CoV-2 in Greece.** A surveillance network has been established since May 2020 for monitoring the spread of SARS-CoV-2. It is supervised by the General Directorate of Public Health and the National Public Health Organization. Based on WHO guidance documents, the General Directorate issued a circular requesting wastewater treatment plant (WWTP) operators to examine the possibility of monitoring for the presence of SARS-CoV-2 in untreated wastewater. For the period July 2020 to June 2021, 52 WWTP operators submitted results of 269 analyses. The available data was sufficient to examine time-related fluctuations in the virus concentration in wastewater, thus allowing important conclusions about the spread or recurrence of the virus in a community. In all cases (220) when the virus was detected, the Ministry of Health was promptly notified in order to decide whether additional measures to contain the spread of SARS-CoV-2 were required.
- **Monitoring the evolution of SARS-CoV-2 in wastewater in Luxembourg.** The Luxembourg Institute of Science and Technology (LIST) runs a comprehensive wastewater surveillance scheme with the aim of tracking the presence of SARS-CoV-2 in the Grand Duchy's wastewater. LIST identifies where, when and in what concentration SARS-CoV-2 is present. The near real-time results are reported to the government on a weekly basis to provide a detailed overview of the evolution of the pandemic and to facilitate informed decision-making.
- **Development of a diagnostic method for detection of SARS-CoV-2 in wastewater in Slovakia.** In June 2020, the National Reference Centre for Environmental Microbiology (NRC) at the Public Health Authority under the Ministry of Health initiated the development of a diagnostic method for the detection of SARS-CoV-2 in wastewater and its validation and application to real-world samples. The methodological procedures established by the NRC can be used for targeted monitoring of SARS-CoV-2 in wastewater and epidemiological investigations. Furthermore, the National Water Reference Laboratory at the Water Research Institute of the Ministry of Environment has also been engaged in the analysis of wastewater samples across Slovakia within the European Commission study "SARS-CoV-2 Surveillance Employing Sewers EU Umbrella Study".

5. Activities under the Protocol in response to COVID-19

The pandemic has impacted work under the Protocol. Adjustments had to be made to the implementation of the programme of work for 2020–2022; meetings had to be cancelled, postponed or re-arranged to fit a virtual format; and the staff of the WHO Regional Office for Europe secretariat to the Protocol had to shift priorities to support the pandemic response.

Experience in implementing the Protocol's programme of work during this period has shown that its scope and operational modalities can be adapted to the changing situation. Remote working arrangements and virtual events allowed for broad outreach, timely exchange of critical information and the involvement of various stakeholders and partners in the implementation of the Protocol's activities. Despite some limitations (e.g. lack of person-to person interactions) such arrangements could be used in combination with physical events in the future.

The scope of the Protocol has been expanded to support country actions related to the COVID-19 emergency response and post-pandemic recovery. As a means of immediate response, the WHO Regional Office for Europe secretariat provided rapid technical advice and communications on COVID-19-related WASH issues at the request of countries. It also organized a webinar on WASH measures for the prevention

of COVID-19 (8 April 2020) with the aim of disseminating the key messages of the WHO/UNICEF interim guidance, [Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19](#), and providing a platform for exchange of best practices in countries. The webinar resulted in the preparation of practical advice in a questions and answers (Q&A) format, which was immediately disseminated to countries to support their work on the COVID-19 response. The UNECE/WHO Regional Office for Europe joint secretariat further disseminated relevant WHO technical guidance documents on COVID-19 to the Protocol community to support country actions.

To maintain the flow of information and interaction within the Protocol community, the joint secretariat, in cooperation with the lead parties of the programme areas, established the Protocol webinar series, which addressed several thematic areas of work, including WASH-related aspects of the COVID-19 pandemic. The following webinars were organized:

- [Don't forget the small ones](#) (8 July 2020): the session was dedicated to the launch of the publication [Costing and financing of small-scale water supply and sanitation services](#) and showcased examples of action taken by countries in the pan-European region in the area of small systems.
- [Equity in access to WASH](#) (22 July 2020): the session focused on how the tools developed under the Protocol in the area of equitable access to water and sanitation could support governments in achieving an inclusive COVID-19 response and recovery, and sharing experiences of countries in ensuring equitable access in times of pandemics.
- [Surveillance of COVID-19 virus in wastewater: where we stand](#) (15 October 2020): the session introduced the concept of surveillance of SARS-CoV-2 in wastewater, presented the experience of spearheading countries, and explored the potential benefits and limitations of this surveillance approach in public health decision-making on COVID-19.
- Universal access to hand hygiene and practices: how to make it a reality? (21 April 2021): the session launched the WHO/UNICEF Hand Hygiene for All initiative in the pan-European region and showcased national initiatives and activities towards ensuring hand hygiene for all in all settings, in particular in public spaces.

Furthermore, the WHO Regional Office for Europe organized two expert consultations (online, 23 July 2020 and 30 November 2020) that aimed to support Member State authorities by facilitating exchange on the use, usefulness and limitations of SARS-CoV-2 surveillance in wastewater from a public health perspective, based on scientific evidence and practices and experiences emerging in countries. The outcomes of these meetings informed the scope of the publication [Wastewater surveillance of SARS-CoV-2: questions and answers \(Q&A\)](#) and will support further work in the context of the Protocol.

The 11th meeting of the Task Force on Target Setting and Reporting (3 November 2020) included a specific session on COVID-19, which reviewed experiences on measures taken by countries on WASH and health in the context of the pandemic. These included challenges faced, lessons learned and possible ideas for setting COVID-19 sensitive targets under the Protocol in order to increase resilience against the spread of infectious disease.

At the sixth meeting of the Expert Group on Equitable Access to Water and Sanitation established under the Protocol (online, 24–25 March 2021), the participants exchanged experiences and lessons learned in enhancing equitable access during the COVID-19 pandemic.

The 12th and 13th meetings of the Working Group on Water and Health (14–15 April 2021, online, and 20 May 2022, hybrid) discussed the role of the Protocol and its programmatic work in strengthening the COVID-19 national preparedness, response and recovery actions. The Working Group endorsed the plans for future work for 2023–2025, confirming the need for establishing new thematic priorities on environmental surveillance of wastewater and hand hygiene in public places.

6. Future perspectives

- The Protocol's framework, objectives and programmatic priorities are consistent with the need to strengthen national and local prevention, preparedness and response capacities for infectious disease

emergencies and pandemics. The Protocol is a well-positioned operational instrument to advance the implementation of World Health Assembly resolution WHA73.1 *COVID-19 response*, the prescriptions stipulated by the *WHO Manifesto for a healthy recovery from COVID-19* and the WHO/UNICEF technical recommendations on COVID-19 preparedness and response.

- The Protocol's well-established intersectoral and intergovernmental mechanism allows for networking, exchange of experience and coordinated action to strengthen and sustain WASH-related work in combating COVID-19, contributing to the prevention and control of the spread of COVID-19 and other emerging threats at national and international levels.
- Countries are encouraged to set and revise their national targets and action plans under the Protocol, considering lessons learned in the response to and recovery from COVID-19, while ensuring adequate preparedness capacity for other infectious diseases and emergencies. Concrete targets and measures can include ensuring universal hand hygiene; increasing attention to vulnerable and disadvantaged populations; safely operating WASH services in communities, health-care facilities, schools and other settings; and strengthening early warning, response and contingency planning capacities. These aspects are duly addressed in the programme of work for 2023–2025 to support overcoming the health crisis caused by the COVID-19 pandemic.
- The technical tools and guidance developed under the Protocol can be used and adapted to support governments and partners in defining and implementing context-specific public health responses to the COVID-19 pandemic and other infectious diseases. A list of relevant tools is provided in section 7.
- The Protocol supports governments to ensure access to safe drinking-water, sanitation and hygiene for all, including ensuring that the populations most affected by COVID-19 (such as people living in informal settlements, homeless people, the elderly, prisoners, people with disabilities, migrants, refugees and people on low incomes) are not left behind. The Protocol is therefore a tool to further support progressive realization of the human rights to water and sanitation.
- Hand hygiene is the first line of defence against the transmission of infectious diseases, including COVID-19. The provision of universal access to handwashing facilities in public places is clearly a “no-regrets investment” and the expansion of a “culture of hand hygiene” deserves due attention in policy and practice. While the legal text of the Protocol does not explicitly refer to hygiene, apart from the mere mention in the definition of “drinking-water” in Article 2, which refers to the availability of sufficient quantities of water as a prerequisite for safe hygiene practices, it appears vital to pay increased attention to hygiene, and particularly hand hygiene, practices in the context of the Protocol, also by linking it to its water and sanitation related provisions.
- With regard to public health emergencies and pandemics such as COVID-19, increased attention will need to be paid in the upcoming programme of work to the implementation of Article 8 of the Protocol, in particular to strengthening and maintaining effective surveillance and early warning systems, contingency planning and response capacities at national and local levels.

7. Selected further reading and resources³

Publications and tools developed under the Protocol

A field guide to improving small drinking water supplies: water safety planning for rural communities.

Copenhagen: WHO Regional Office for Europe; 2022 (<https://apps.who.int/iris/handle/10665/363510>).

Costing and financing of small-scale water supply and sanitation services. Copenhagen: WHO Regional

Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/331843>).

Delivering safe sanitation for all. Areas for action to improve the situation in the pan-European region.

Copenhagen: WHO Regional Office for Europe; 2022 (<https://apps.who.int/iris/handle/10665/363512>).

³ Web links to all documents accessed on 3 November 2022.

- Drinking-water, sanitation and hygiene in the WHO European Region: highlights and progress towards achieving Sustainable Development Goal 6. Copenhagen: WHO Regional Office for Europe; 2022 (<https://apps.who.int/iris/handle/10665/360428>).
- Guidance note on the development of action plans to ensure equitable access to water and sanitation. Geneva and Copenhagen: United Nations Economic Commission for Europe and WHO Regional Office for Europe; 2016 (<https://apps.who.int/iris/handle/10665/329563>).
- Improving health and learning through better water, sanitation and hygiene in schools: an information package for school staff. Copenhagen and Geneva: WHO Regional Office for Europe and United Nations Economic Commission for Europe; 2019 (<https://apps.who.int/iris/handle/10665/329531>).
- Making water and sanitation affordable for all: Policy options and good practices to ensure the affordability of safe drinking water and sanitation services in the pan-European region. Geneva and Copenhagen: United Nations Economic Commission for Europe and WHO Regional Office for Europe (https://unece.org/sites/default/files/2022-03/ece_mp.wh_20_web.pdf).
- National situational analysis of water, sanitation and hygiene in health-care facilities in Serbia. Summary report. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/354708>).
- Protocol on Water and Health and the 2030 Agenda: a practical guide for joint implementation. Geneva and Copenhagen: United Nations Economic Commission for Europe and WHO Regional Office for Europe; 2019 (<https://apps.who.int/iris/handle/10665/329547>).
- Strengthening drinking-water surveillance using risk-based approaches. Copenhagen: WHO Regional Office for Europe; 2019 (<https://apps.who.int/iris/handle/10665/329396>).
- Surveillance and outbreak management of water-related infectious diseases associated with water-supply systems. Copenhagen and Geneva: WHO Regional Office for Europe and United Nations Economic Commission for Europe; 2019 (<https://apps.who.int/iris/handle/10665/329403>).
- Surveillance of water, sanitation and hygiene in schools: a practical tool. Copenhagen and Geneva: WHO Regional Office for Europe and United Nations Economic Commission for Europe; 2019 (<https://apps.who.int/iris/handle/10665/329394>).
- Taking policy action to improve small-scale water supply and sanitation systems: tools and good practices from the pan-European Region. Copenhagen and Geneva: WHO Regional Office for Europe and United Nations Economic Commission for Europe; 2016 (<https://apps.who.int/iris/handle/10665/329544>).
- The equitable access score-card: supporting policy process to achieve the human right to water and sanitation. Geneva and Copenhagen: United Nations Economic Commission for Europe and WHO Regional Office for Europe; 2013 (<https://unece.org/environmental-policy/events/third-session-meeting-parties-protocol-water-and-health/equitable-access-score-card-supporting-policy-process-achieve-human-right-water-and-sanitation>).
- The Protocol on Water and Health. Driving action on water, sanitation, hygiene and health. Geneva and Copenhagen: United Nations Economic Commission for Europe and WHO Regional Office for Europe; 2022 (<https://unece.org/environment-policy/publications/protocol-water-and-health-driving-action-water-sanitation-hygiene>).
- Water safety plan manual. Step-by-step risk management for drinking-water suppliers. Geneva: World Health Organization and International Water Association; 2009 (<https://apps.who.int/iris/handle/10665/75141>).
- Water, sanitation and hygiene in health-care facilities. A practical tool for situation assessment and improvement planning. Copenhagen: WHO Regional Office for Europe; 2022 (<https://apps.who.int/iris/handle/10665/363511>).

Other resources and guidance documents related to COVID-19

- Checklist to support schools re-opening and preparation for COVID-19 resurgences or similar public health crises. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/337576>).

Cleaning and disinfection of environmental surfaces in the context of COVID-19. Interim guidance. 15 May 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/332096>).

Commission recommendation of 17.3.21 on a common approach to establish a systematic surveillance of SARS-CoV-2 and its variants in wastewaters in the EU. Brussels: European Commission; 2021 (https://ec.europa.eu/environment/pdf/water/recommendation_covid19_monitoring_wastewaters.pdf)

Considerations for school-related public health measures in the context of COVID-19. Annex to Considerations in adjusting public health and social measures in the context of COVID-19. 14 September 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/334294>).

COVID-19: occupational health and safety for health workers. Interim guidance. 2 February 2021. World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/339151>).

COVID-19 response. Seventy-third World Health Assembly; WHA 73.1. 19 May 2020. Geneva: World Health Organization; 2020 (https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_R1-en.pdf).

COVID-19 strategic preparedness and response plan. 1 February 2021 to 31 January 2022. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/340072>).

COVID-19 strategic preparedness and response plan. Operational planning guidelines to support country preparedness and response. 22 May 2020. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/draft-operational-planning-guidance-for-un-country-teams>).

Environmental surveillance for SARS-CoV-2 to complement public health surveillance. Interim guidance. 14 April 2022. Geneva: World Health Organization; 2022 (<https://apps.who.int/iris/handle/10665/353158>).

European Commission (2021/472) recommendation on a common approach to establish a systematic surveillance of SARS-CoV-2 and its variants in wastewaters in the EU (https://ec.europa.eu/environment/pdf/water/recommendation_covid19_monitoring_wastewaters.pdf)

Expert consultation on public health needs related to surveillance of SARS-CoV-2 in wastewater. Summary report. Virtual meeting, 30 November 2020. Copenhagen: WHO Regional Office for Europe; 2021 (<https://apps.who.int/iris/handle/10665/339487>).

Hand hygiene for all. Geneva: World Health Organization and UNICEF; 2020 (<https://www.unicef.org/reports/hand-hygiene-for-all-2020>).

Infection prevention and control guidance for long-term care facilities in the context of COVID-19. Interim guidance. 8 January 2021. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/338481>).

Preparedness, prevention and control of coronavirus disease (COVID-19) for refugees and migrants in non-camp settings. Interim guidance. 17 April 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/331777>).

Rapid expert consultation on environmental surveillance of SARS-CoV-2 in wastewater. Summary report. Virtual meeting, 23 July 2020. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/334305>).

Recommendations to Member States to improve hand hygiene practices to help prevent the transmission of the COVID-19 virus. Interim guidance. 1 April 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/331661>).

Schooling during COVID-19. Recommendations from the European Technical Advisory Group for schooling during COVID-19. Copenhagen: WHO Regional Office for Europe; 2021 (<https://apps.who.int/iris/handle/10665/340872>).

United Nations comprehensive response to COVID-19: saving lives, protecting societies, recovering better. United Nations; 2020 (<https://unsdg.un.org/resources/united-nations-comprehensive-response-covid-19-saving-lives-protecting-societies-0>).

Wastewater surveillance of SARS-CoV-2: Questions and answers (Q&A). Copenhagen: WHO Regional Office for Europe; 2022 (<https://apps.who.int/iris/handle/10665/353058>).

Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19. Interim guidance. 29 July 2020. Geneva: World Health Organization and UNICEF; 2020 (<https://apps.who.int/iris/handle/10665/333560>).

WHO Manifesto for a healthy recovery from COVID-19. Prescriptions and actionables for a healthy and green recovery. Geneva: World Health Organization; 2020 (<https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>).

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