Chapter 12
Covid-19 and Water

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Abstract The Covid-19 outbreak exerts additional pressure on the global water sector, which is already under much strain as a result of climate change, fast expanding populations, aging and inadequate infrastructure and ill-planned urbanisation (especially in many parts of the developing world). Prolonged water scarcity has also enhanced food import dependencies in arid places and, hence, heightened food insecurity in periods of trade disruption (as in the current Covid-19 worldwide recession). The pandemic will likely have a lasting influence on behaviours, policies and research in the Water, Sanitation and Hygiene sector and beyond.

12.1 Introduction

The Covid-19 pandemic has exacerbated many challenges that were already present and prominent especially in many parts of the developing world (although not exclusively). Limited access to piped water supply has been a chronic concern in many arid environments (and fast-expanding urban centres), which hinders hand hygiene and protection against infectious diseases. While climatic conditions and population dynamics contribute to such water scarcities, poor governance has been recognised as the key driver of failures in the water supply and sanitation sector. Various campaigns and initiatives since the outset of the pandemic have aimed at raising awareness of the importance of access to clean water and sanitation, as well as providing water containers and hygiene kits to vulnerable communities. This has been particularly important for low-income households, crowded slums and refugee camps where the probability of infection and the capacity to treat it remain particularly high. The pandemic and limited access to water can lock vulnerable individuals in a reinforcing vicious circle, where water scarcity leads to higher infection

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rates, poor health, constrained abilities to earn income and a further reduced affordability of water services.

The chapter aims at highlighting how interwoven Covid-19 and water issues are. It first provides a discussion on broader (short and long term) water security challenges and how these are likely to be amplified by the ongoing pandemic. It then proceeds to discuss how a combination of poor water governance, worsening climatic conditions, increased financialisation of the sector, growing populations and neglect of domestic agriculture have led to rising food-import dependency in many parts of the world. It then reflects on how the pandemic (with its extraordinary disruption to international agricultural supply chains) heightens risks of food shortages. Next, the chapter moves to discuss necessary macroeconomic policies and interventions for the water sector in times of crisis, when it is likely to experience diversion of funds from investment in water-related projects. Naturally, responsibility also lies with each person individually. For this reason, the last section probes into the more micro-developmental and behavioural dimensions in the water, sanitation and hygiene sector.

12.2 Water Security Challenges and the Covid-19 Pandemic

Covid-19 has a serious direct and indirect impact on human societies. Water management practices and their organisation may ameliorate, as well as aggravate such impacts. Major aspects include access to water supply, sanitation, and hygiene (WASH), urbanisation and increased paved surfaces, balanced allocation of water resources among competing users, prevention of water pollution from agricultural run-off and industrialisation, and adequate and sustained funding of in many places dilapidated infrastructure and management (e.g. Butler et al., 2020). In the short-term, the biggest impact of Covid-19 has been on water utilities and disaster relief agencies tasked with the provision of safe drinking water and hygiene to healthcare facilities (WHO and UNICEF, 2020; Kolker et al., 2020). The mutual impact of the pandemic and water is multifaceted and variegated depending on the context. Table 12.1 sketches some of these impacts along the 2x2 matrix based on the nature and the timeline of the impact.

Short-term direct impacts include the inadequacy of the present WASH facilities to prevent the spread of Covid-19 around the world. Hand-washing has been suggested as the primary response to the pandemic (e.g. Neal, 2020). However, "a quarter of all health care facilities have no basic water services, which means 712 million people have no access to water when they use health care facilities" (WHO/UNICEF, 2020: 1). One in three healthcare points worldwide have no facilities for handwashing (ibid: 1). In lesser developed countries, "half of health care facilities lack basic water services and 60% have no sanitation services" (ibid: 1).

Despite much progress to connect billions to piped water supply in the past two decades, some 25% of the world population still lack adequate water supply (WHO and UNICEF, 2017). Even in the wealthier countries, such as the US, millions live

Table 12.1 Mutual impact of Covid-19 and water management

Impact/ Timeline	Short-term impact	Long-term dangers
Direct impact	Water, sanitation and hygiene (WASH) provision to healthcare institutions; WASH provisions in dense (semi)-informal urban areas; Humanitarian supply of (bottled) water to vulnerable populations (e.g. refugee camps); Water utilities' struggle to maintain financial and operational viability	Priority to WASH at the expense of other crucial challenges such as climate change adaptation, land use patterns, ecosystem health and energy; Lesser public funds for water infrastructure and management and the danger of oversized influence of private financial capital in the water sector
Indirect impact	Global supply chains under pressure, including water-intensive crops and products; Competition for water between increasing demands from agricultural and domestic uses; Increasing pollution from agricultural run-off	Securitisation of WASH that may lead to day-to-day and fragmented management; Private financial take-over of water infrastructure and services; Attention to techno-fixes with a relative neglect of social and political aspects of water management and governance

without piped water supply (Tortajada & Biswas, 2020). The urban poor are disproportionately affected and the governments should provide subsidies for bottled water or water trucks in these areas in the short term and piped water supply in the longer term (Neal, 2020; Butler et al., 2020).

While people with no access to sanitation declined from 1229 to 892 million between 2000 and 2015, sub-Saharan Africa has not progressed much (WHO and UNICEF, 2017). In some 20 countries the basic sanitation has actually worsened in this period. These countries require additional support from international donors and charities in order to protect vulnerable populations (see Fig. 12.1).

Covid-19 hit water utilities around the world hard, their revenues have decreased and operational disruptions increased (Butler et al., 2020; Neal, 2020). For example, water companies in Chile and Brazil agreed to postpone or exempt vulnerable households from water payments (Butler et al., 2020). Kolker et al. (2020) suggested to freeze water tariffs and temporarily prohibit disconnections, with financial implications for water utilities. In the U.S., some 57 million people across the country have been allowed to continue receiving water despite their inability to pay for it (Tortajada & Biswas, 2020: 441).

The task of shielding water utilities rests overwhelmingly on the state. However, the private sector can also play a role; Kolker et al. (2020) and Butler et al. (2020) discuss ways of mobilising private capital to finance utilities. There is already much appetite for private sector involvement; Merrill Lynch and the Bank of America estimated that the water industry market could be worth US$800–1000 billion by 2030 (Ahlers & Merme, 2016: p. 768). Furthermore, the World Bank offers various guarantees to investors including assurances against political risks (e.g. Kolker

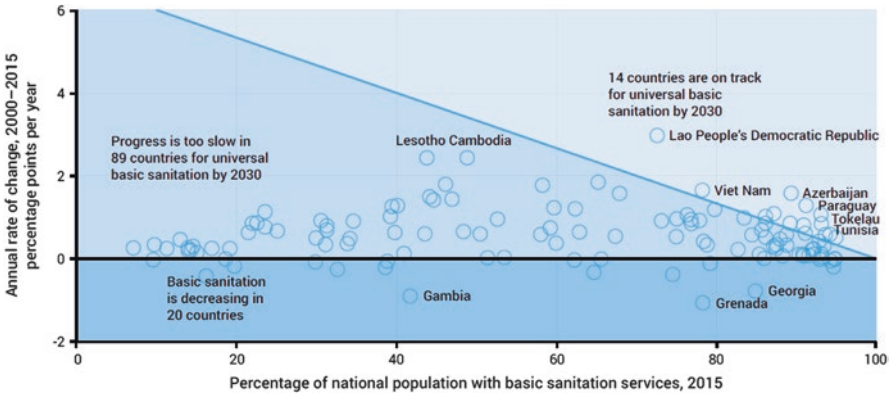

Fig. 12.1 Progress towards universal basic sanitation services (2000–2015) among countries where at least 5 per cent of the population did not have basic services in 2015. (*Source:* WHO and UNICEF (2017, p.14))

et al., 2020). This environment has facilitated an increased competition between industrialised nations and their (private) water sector to occupy the new global water markets (Mukhtarov et al., 2021). However, the pandemic should not become a pretext for a speedy transfer of publicly managed WASH facilities to private hands as it has sometimes been in the past (Klein, 2017). Instead, such transfers must be carefully considered and gradually implemented depending on the regulatory capacity of the governments, and where relevant, include guarantees from donors or the state in case privatisation and financialisation of water backfire (e.g. Bayliss, 2014; Schmidt & Matthews, 2018).

The indirect impacts of the pandemic are mostly felt in the pressures and disruptions of the global flow of goods and services that require much water to produce. As the industrial use of water is expected to drop in the next 2–3 years by 27% and extend across the whole water supply chain, there will be less funds available to support water-intensive industries (Global Water Intelligence cited in Butler et al., 2020). At the same time, the demand for agricultural water use has been steadily growing in the past decades and is likely to continue growing during the pandemic, see Fig. 12.2. The increased demand for water from the agricultural sectors brings two issues to bear on water governance systems, namely:

(a) the serious impact on water quality due to irrigation run-off and soil erosion; and
(b) the lesser availability of water for fast growing cities and changing consumption patterns (e.g. expectations to access safe water 24 h a day).

In terms of indirect and long-term impacts of Covid-19 on water resources, there is a risk of further securitisation of water within the frame of WASH. However crucial for public health and human development, water supply and sanitation services have to be considered within a larger framework of integrated water management,

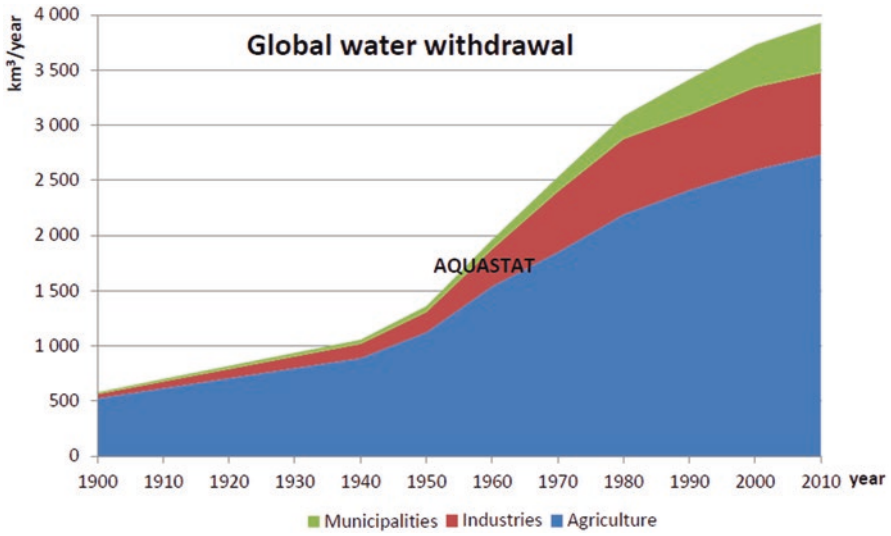

Fig. 12.2 Trends in global water withdrawal by sector between 1990 and 2020 (km^3 per year). (*Source*: FAO (2018))

water quality, ecosystem health and governance (e.g. Gaddis et al., 2019). Securitisation of water is almost always accompanied with an emphasis on the financial gap, and hence calls for more private capital; this may bring about risks in the form of price-hikes, cherry-picking in service provisions, as well as financial speculation in shares (e.g. Bayliss, 2014; Ahlers & Merme, 2016). Whenever private actors participate in the provision of public goods, a strong regulatory framework and capacity of the state is essential (e.g. Mukhtarov, 2007; Akhmouch & Kauffmann, 2013).

Finally, with the growing challenges around water access and safety (partly in view of climate change), technological solutions, such as satellite imagery, water treatment technology and desalination and water reuse technology, have become increasingly important (e.g. AAAS, 2019). The pandemic is likely to provoke the instinct of public managers to cling to technological solutions that seem easy and within reach. However, attention to complex and culturally and politically sensitive issues of water allocation, land use choices, as well as issues around funding infrastructure and planning, remain as important as application of new technologies in the post-pandemic world (e.g. Gaddis et al., 2019; Watkins, 2006). Good water management requires technical as well as adequate governance and managerial approaches, which are also very context dependent. Hence, an experimental and adaptive approach will need to be applied with a clear realisation that there are no universal panaceas to this complex challenge (Ingram, 2013).

12.3 Food Import Dependency

In many developing countries (and often for some of the most vulnerable ones, regarding their ability to feed their fast rising populations), external food dependency has substantially increased during the last few decades. Growing food dependency and food-import bills can exert particular pressure to marginalised low-income communities that face much higher risks of malnutrition and nutrient deficiencies. At the same time, food-dependent nations can avoid food insecurity, as long as their export revenues from other economic sectors suffice to meet their food import demands; even then, this can come at the expense of crowding-out imports of more productive capital goods. In periods of severe disruptions to the global economy (as in the 2007–8 global financial crisis, see Brinkman et al., 2010, and the current Covid-19 worldwide recession, see Laborde et al., 2020), falling export volumes threaten the ability of food-importing countries to remain self-reliant.

Figures 12.1 and 12.2 provide an idea of the significant rise in food dependency over time for some developing nations. Both figures use historical data from the FAO website (FAO, 2021). Figure 12.3 depicts the increase in cereal import dependency between the periods 2000–2 and 2015–7 for Benin, Kenya, Venezuela and Zimbabwe (expressed as the percentage of domestic food supply of cereals that is imported). Figure 12.4 presents a similar pattern for the value of food imports expressed in relation to exports (for the same economies and periods of analysis).

Water scarcity, widely seen in most contexts as the outcome of poor water governance, is likely to be further exacerbated in the near future as a result of climate change and population growth (Watkins, 2006). The cumulative impact of such

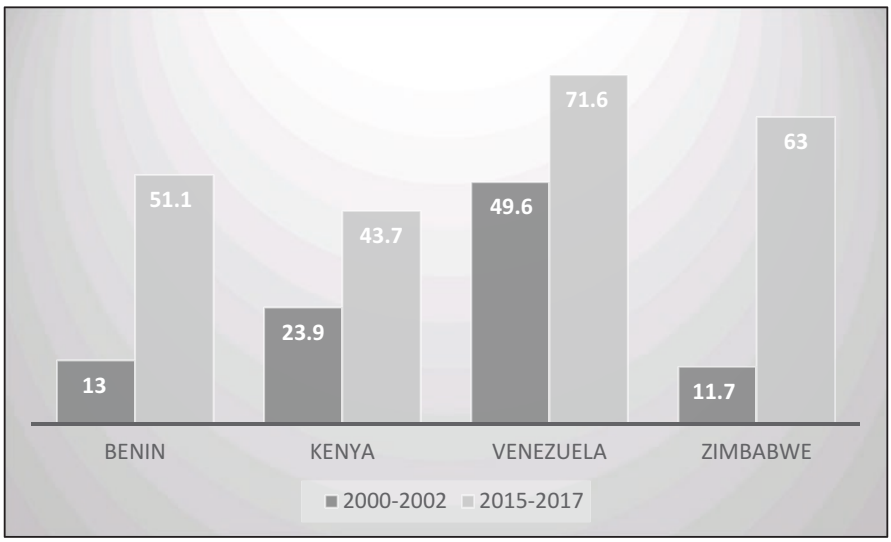

Fig. 12.3 Cereal imports dependency ratio. (Source: FAO (2021))

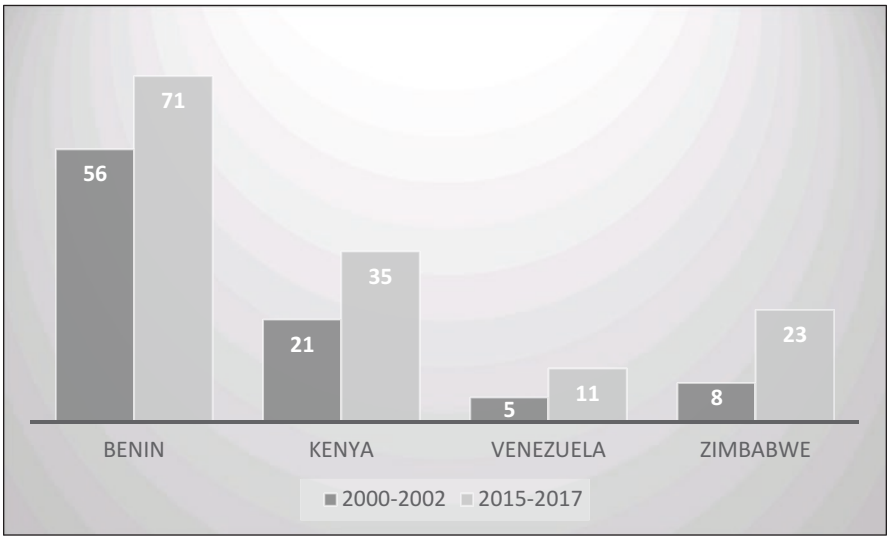

Fig. 12.4 Food imports as a share of export value. (Source: FAO (2021))

scarcity encourages high dependence on food imports for countries located in arid/semi-arid regions (Misra, 2014). Climatic variability and extreme weather incidences also pose additional challenges to the ability of countries to maintain their own food sufficiency (based on local produce). A recent study by Chouchane et al. (2018) predicts that water-scarce economies are expected to become increasingly more reliant on trade to meet their internal demand for staple crops, with a projected increase in trade flows by 40–80% towards 2050 in relation to the 2001–2010 average values.

Naturally, there are many other interlinked factors that have contributed to this higher food-import dependency for certain parts of the world. Over the past decades, trade liberalisation and globalisation resulted in the elimination of many food tariffs and gradual substitution of domestically produced food with cheaper food imports (Otero et al., 2013). This is often perceived as a much more efficient policy in comparison to the much more costly option of subsidising domestic farmers, especially for economies with a positive trade balance that can generally afford such a long-term strategy. Food import dependency is further intensified by patterns of increasing trade specialisation (i.e. economies concentrating efforts and specialising in certain products in exchange for other imported goods, based on their comparative advantage). Specialised production of a limited range of goods can result in efficiency gains and a more productive use of domestic production factors. Even in the case of rural economies, this suggests that specialising in few agricultural commodities can generate increasing returns to scale for the expanding sectors (Costinot & Donaldson, 2012); at the same, specialisation in high-value but water-intensive commodities (as in the case of the floriculture industry in Kenya and Ethiopia, for instance) causes faster depletion of aquifers and constraints the opportunities for

conventional farming (Mekkonen et al., 2012). In many cases, reliance on food imports was promoted as a more successful development strategy in relation to small-scale farming, which was largely seen as non-conducive to sustained economic growth. Long-term development plans placed more emphasis on the promotion of manufacturing and technology-intensive sectors, given the overall expectations of declining terms of trade for economies dependent on their primary sectors (i.e. a declining price ratio for the agricultural vs manufactured goods – commonly referred to as the Prebisch-Singer thesis in economics, see Hallam, 2018).

Under normal circumstances, excessive food dependency would not have posed disproportionate risks to food security, especially for vulnerable low-income communities. However, the Covid-19 pandemic has caused an extraordinary disruption to global merchandise trade (with few exceptions, as in the case of medical equipment); early estimates point to approximately a value loss of approximately 20% (UNCTAD, 2020). As the COVID-19 disrupts international agricultural supply chains by restricting transportation and trade flows, food import dependent economies are facing increasing risks of local food shortages (especially in relation to staple food products, as in the case of wheat, rice and maize, see Falkendal et al., 2021). Food shortages are further aggravated by food export restrictions (by producing nations that, as a precaution, stock up reserves for own use), as well as disruption in farming as a result of Covid-19 preventive measures (Benton, 2020). Food inflation, especially for perishable products, in combination with reduced income levels and purchasing ability, impact the poor by limiting access to affordable and nutritious products (Malpass, 2021). These recent developments should raise alarm bells; rising population pressures and accelerating global warming will exacerbate water stress in many parts of the world and intensify external food dependencies. Consequently, this will also further raise the vulnerability of their populations to future disruptions in trade flows that stemm from other impending epi(pan)demics or external shocks.

12.4 Macroeconomic Policies for the Water Sector in Times of Crisis

Even before the Covid-19 outbreak, the global water sector was under much pressure as a result of climate change, fast expanding populations, aging and inadequate infrastructure and ill-planned urbanisation especially in many parts of the developing world (Hanjra & Qureshi, 2010). There are several policy reports predicting a drop in public investment in the global water sector in the years to come (IFC, 2020; World Bank, 2020). As national and local governments (and municipalities) prioritise spending on emergency response and income support for affected communities, there is a high risk that investment in new water projects is likely to be delayed (see also Kalfagianni & Papyrakis, 2021). A recent survey conducted by the Chartered Institution of Water and Environmental Management (CIWEM) with water experts

highlighted the common concern of reduced future public investment, cancellation of projects and relocation of centralised funding towards other priorities (Cotterill et al., 2020). Nevertheless, increased interest from private investors, as we discussed in Sect. 12.2, will potentially counterbalance the slowdown in public investment, at least for as long as the economic downturn does not severely constrain the supply of private funds and investment.

The revenues of water utility companies are also likely to be negatively affected, allowing hence less room for future infrastructural investment. In some cases, water consumption increased as a result of increased demand for hand washing; in many cases, however, utilities faced a drop in demand as a result of reduced commuting, lower industrial activity and subdued tourism performance (with revenues falling as much as 50% in some tourism-dependent municipalities; see Cheval et al., 2020).

Given the critical role of handwashing and sanitation in limiting the spread of Covid-19, several countries have resorted to a partial suspension of water billing. These measures were largely adopted as a means to safeguard the uninterrupted use of water for vulnerable communities (and partly mitigate the income loss during prolonged periods of lockdown; see Antwi et al., 2020; Cooper, 2020). Naturally, these are measures in the right direction, aiming at providing some financial relief for those in need, as well as mitigating the spread of the virus. However, they also exert additional pressure to the finances of water utility companies, at least for those cases, where this is unaccompanied by sufficient financial compensation.

Given the combined health and economic crisis of the Covid-19 pandemic, governments (especially those in the developing world) should take a number of alleviating measures. The historically-low interest rates offer an opportunity for countercyclical expansionary fiscal policies that can simultaneously stimulate the economy and lessen chronic shortages of the water sector. Given that public investment in the water sector is often labour intensive, such initiatives would generate employment and reduce the duration and intensity of the economic downturn. The scale of the epidemic and associated human loss has reinforced the need to improve access to safe and affordable water. In addition, while water projects after many decades of neglect are likely to stimulate the economy and prevent the spread of the virus in the short term, they will also help address imminent water shortages as a result of climate change. Clear communication strategies should highlight the multifaceted benefits of such green recovery schemes to the public and, hence, help achieve a broader social acceptance of the urgency in investing in water and other renewable resource projects (OECD, 2020). Governments in developed economies should also resist tempting proposals to cut foreign aid (as compensation for the domestic cost of the pandemic); in an interconnected world, reduced aid to developing countries weakens the fight against the virus both abroad as well as home (Kobayashi et al., 2021). Last, tax reliefs and incentives should incentivise investments in the water sector, especially given the severity of credit constraints many utility companies are likely to face.

12.5 Behavioural and Micro-developmental Dimensions in the Water, Sanitation and Hygiene Sector During and After the Covid-19 Crisis

International organisations (such as the World Bank/UNICEF[1]) and other actors[2] in the field were quick to point out the link between Water, Sanitation and Hygiene (WASH) and COVID-19, as well as potential lasting effects. This subsection argues that the Covid-19 pandemic is likely to have behavioural effects, while further sharpening the policy and research focus on WASH. It also argues that this in turn might have downstream effects on other key development goals, such as improving child nutrition.

WASH infrastructure and behaviours are intricately linked to the management of the pandemic. Handwashing is one of the key measures against Covid-19, requiring both the possibility and habit do so. How was the pre-pandemic situation in developing countries? Figure 12.5 shows a simple time trend in the percentage of the population with basic handwashing facilities including soap and water, aggregated over low income countries in the period 2008–2017. In 2008, a mere 11.7% of people in low-income countries had such facilities. By 2017 this fraction almost doubled but remained at a low 19.6%. It will be interesting to follow and study these trends in a post-pandemic world; one can hope that Covid-19 has further underlined the need to increase this percentage both via the supply and demand side. On the one hand, policymakers and donors have now additional and very salient arguments for investment in the WASH sector. However, returns to investments in WASH in low-income countries have already been very high prior to the pandemic. For instance, UN Water (2021) cites a return of $5 for each $1 invested in the case of basic sanitation in rural areas. However, these returns have been primarily local. Given the global nature of Covid-19 and likely future pandemics, local investments in WASH will generate global externalities and benefits. On the other hand, individuals have been exposed to a public health information campaign of global proportions, highlighting the need of handwashing for instance. It remains to be seen to what extent all this has changed individuals' habits across geographies and subpopulations. One key dimension from a behavioural point of view are the establishment of more positive social norms, which are important in the WASH context (see for instance the work on India by Gauri et al., 2020). Given the global and complex nature of Covid-19 and information campaigns (and thus no clear counterfactuals),

[1] See for instance: World Bank, WASH (Water, Sanitation & Hygiene) and COVID-19, April 6, 2020, available at: https://www.worldbank.org/en/topic/water/brief/wash-water-sanitation-hygiene-and-covid-19 [Accessed 15 April 2021].

[2] See for instance: Stockholm International Water Institute, How is the WASH sector responding to COVID-19? Overview of COVID-19 Responses in 84 Countries, August 22, 2020, available at: https://www.siwi.org/latest/how-is-the-wash-sector-responding-to-covid-19-overview-of-covid-19-responses-in-84-countries/ [Accessed 15 April 2021].

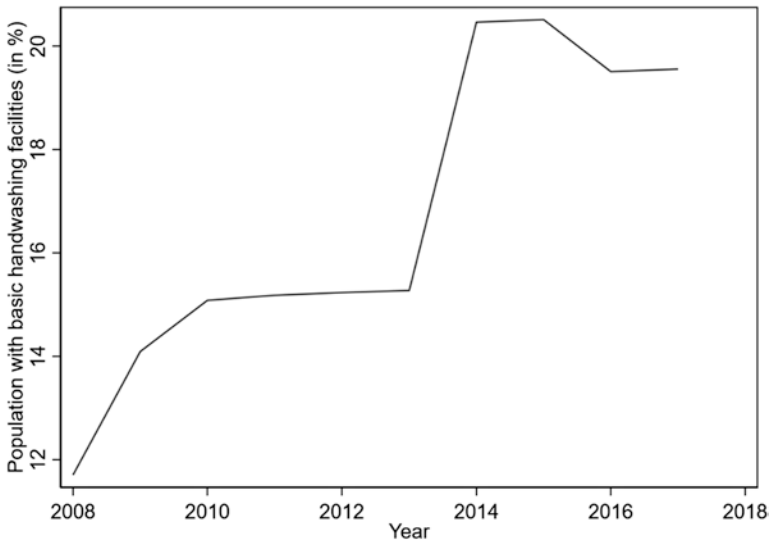

Fig. 12.5 Population with basic handwashing facilities (in %) in low-income countries (2008–2017)
Note: Own graph. Data are from the World Development Indicators curated by the World Bank and have been downloaded via *wbopendata* in STATA on March 17, 2021. The underlying source is WHO/UNICEF,Joint Monitoring Programme for Water Supply and Sanitation. The indicator code in *wbopendata* is SH.STA.HYGN.ZS ("People with basic handwashing facilities including soap and water (% of population)"). The aggregate for low-income countries is based on the World Bank's country classification.

as well as secular trends in hygiene practise, establishing causal effects will be challenging from a statistical point of view.

From a research and policy perspective, Covid-19 has further underlined the importance of behavioural economic and science insights. Key measures, such as regular hygiene, mask-wearing or vaccination campaigns, rely crucially on individual motivations, while having positive societal returns or externalities (for instance getting a vaccination shot can be modelled as pro-social behaviour, see Korn et al., 2020). Early on in the pandemic, numerous economists have highlighted the value of behavioural economics in fighting the pandemic. Behavioural economics advocates for nudges to address biases related to information avoidance, distorted risk preferences, present bias, social influence and the like (Soofi et al., 2020). The pandemic will therefore undoubtedly generate novel insights as to how to impact behaviour in the WASH sector and beyond. We argue that the pandemic will further magnify the trend in development economics as a discipline to depart from neoclassical models of decision making and to incorporate insights from psychology and related fields (for a review of behavioural development economics see Kremer et al., 2019). That said, effective behavioural interventions in WASH require comprehensive or systemic approaches. For instance, the Integrated Behavioural Model for Water, Sanitation, and Hygiene (IBM-WASH) by Dreibelbis et al. (2013)

rightly underlines that interventions need to take into account "*contextual*", "*psychosocial*" and "*technology factors*" at the levels of individuals, households, communities and society as a whole.

The prominence of role of hygiene in the pandemic period also matters for international development moving forward: WASH investments remain key to reaching the UN's Sustainable Development Goals (SDGs), in particular goals 2 and 6 6: "*End hunger, achieve food security and improved nutrition and promote sustainable agriculture*" and "*Ensure availability and sustainable management of water and sanitation for all*" respectively. Globally, about a fifth of all children under the age of 5 are still stunted, i.e. too small in stature for their age. Billions of people do not have the basic sanitary necessities needed for handwashing at home (see UN, 2021).[3] There is comprehensive and robust evidence that SDGs 2 and 6 are strongly associated with each other (for prominent examples in this broader literature see Spears, 2013, 2020; see also a review by Cumming & Cairncross, 2016). From a mechanistic point of view, Spears (2020, p.1) underlines that: "…*germs from feces cause diarrhea and other diseases, which can consume energy and harm the overall nutrition of growing children and of the mothers who nurture them in pregnancy and early life*." To make this point at a very basic level, consider Fig. 12.6, where we plot the two bivariate associations between stunting rates of under-5 s in low and lower-middle-income countries with two key WASH indicators: the percentage of the population practising open defecation (not using a toilet) and having handwashing facilities, respectively. Note that indicators have been averaged over the period 2000–2017. Stunting is strongly and positively correlated with open defecation (corr = 0.366; p-value = 0.001). The slope (0.188, se = 0.049) of the linear fit suggests that moving from an open defecation rate of 23.6% (the sample mean) to zero, comes with a significant 4.4%-points decrease in stunting, which amounts to a decrease of 13.1% in stunting relative to its sample mean. Conversely, stunting is negatively correlated with handwashing (corr = −0.453; p-value = 0.000). The slope is −0.162 (se = 0.039) and implies that an increase in handwashing facilities from a sample mean of 35.5% to 100% is accompanied by a 10.5%-point decrease in the stunting rate, a sizeable 30.9% fall in stunting relative to its sample mean. Needless to say, these are correlations that may vary across geographies and contexts, and they also have not been adjusted for confounding factors and age-profiles as is done in the literature (Spears, 2013, 2020; see also Rieger & Trommlerová, 2016; Rieger

Fig 12.6 (continued) defecation and for stunting are WHO/UNICEF,Joint Monitoring Programme for Water Supply and Sanitation, as well as UNICEF/WHO,/World Bank, Joint child malnutrition estimates. The indicators codes in *wbopendata* are SH.STA.STNT.ZS ("Prevalence of stunting, height for age (% of children under 5)"), SH.STA.ODFC.ZS ("People practicing open defecation (% of population)") and SH.STA.HYGN.ZS ("People with basic handwashing facilities including soap and water (% of population)"). The sample is restricted to low-income and lower-middle income countries based on the World Bank's classification. Indicators have been averaged over the period 2000–2017, ignoring gaps in the time series. Sample size is 76 in the top figure and 65 in the bottom figure

[3] See goals and related statistics at UN (2021), as well as van der Hoeven and Vos (2021).

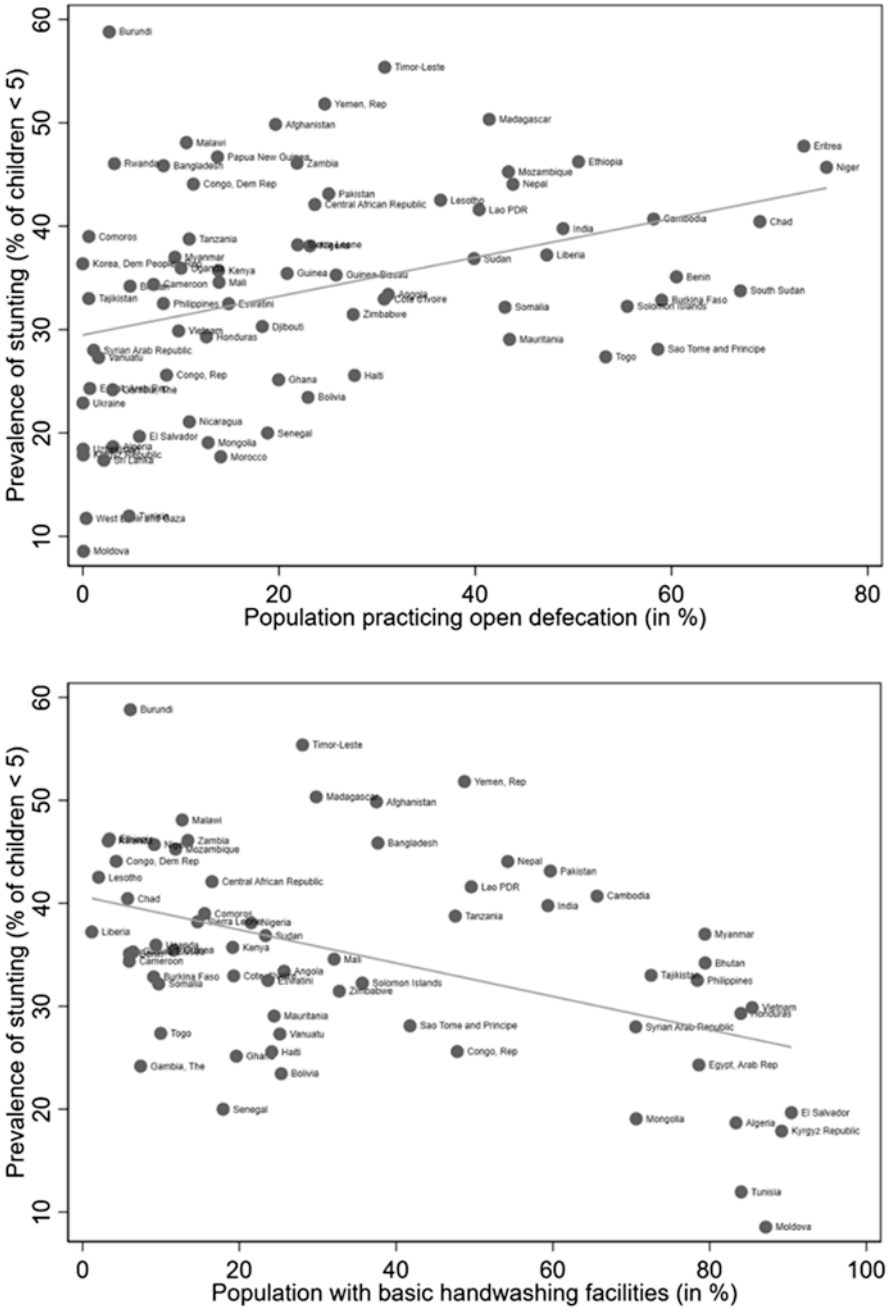

Fig. 12.6 Child Stunting, Open Defecation and Handwashing Facilities (Averages, 2000–2017) Note: Own graph. Data are from the World Development Indicators curated by the World Bank and have been downloaded via *wbopendata* in STATA on March 17, 2021. Underlying sources for open

et al., 2019). But these figures do drive home the basic point that these two SDG domains, WASH and nutrition, are empirically associated (Cumming & Cairncross, 2016). This in turn is relevant to the Covid-19 era. The UN (2021) advocates that Covid-19 is directly linked to both goals via food chains and hygiene. But the pandemic might also have downstream effects on the strong association between both goals in the short and medium term. If handwashing rates go up due to increased awareness and improved facilities, this may have positive implications for child health.

In sum, we hope that one positive side or aftereffect of the pandemic is that it may render the need for WASH investments and behaviour change more salient to individuals and policy makers around the world. Economic returns to WASH investments are global in times of a pandemic. Poor WASH conditions in developing countries will diminish global mitigation efforts of future pandemics. Local communities and the world as a whole need to be prepared for the inevitability of future pandemics. But WASH investments are equally vital to achieving the SDGs, in particular when it comes to child health (SDG 2).

12.6 Conclusions

The ongoing pandemic has brought renewed attention to issues of poor water governance. As handwashing and proper sanitation have become key tools in the fight against the pandemic, government officials and policymakers need to strengthen the provision of water services, especially in areas with chronic problems of water shortages. Properly-designed water policies can secure improvements in multiple fields: uninterrupted (safe) water provision, affordability of clean water for everyone, health benefits, food security and Covid-19 protection. This is, however, no easy task. It would require a rise in investment and international aid dedicated to water services, which may be unrealistic during a period of severe economic contraction and worsening public finances. Similarly, it would demand generous transfers of funds towards water utilities under financial strain and significant support towards vulnerable communities that lacked access to clean water much before the pandemic further reduced their incomes. The urgency is becoming, though, increasingly clear and some donors are already taking some steps in the right direction (as in the case of the Nordic Development Fund that provided $8.8 million to the African Water Facility in late 2020 for water supply and sanitation projects in arid parts of the Shale and the Horn of Africa to limit the spread of Covid-19.

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