



WASH Poverty Diagnostic | SERIES

WASH DIAGNOSTIC BRIEF

# Unlocking Service Delivery for Water Supply, Sanitation, and Hygiene in Liberia

LIBERIA



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# Unlocking Service Delivery for Water Supply, Sanitation, and Hygiene in Liberia

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# 1. The Toll on Liberia of Inadequate Water Supply, Sanitation, and Hygiene

Water supply, sanitation, and hygiene (WASH) are crucial to poverty reduction, health and human capital, and development in Liberia, yet efforts to improve access and strengthen delivery of WASH services face particular challenges, some persistent and some new (box 1).

## A Succession of Shocks

Liberia is a fragile state that has experienced numerous shocks in the past several decades, including a fourteen-year-long civil war, outbreaks of infectious disease, economic downturns, and negative impacts of climate change. Together, these shocks have made Liberia one of the poorest countries in the world. Its gross national income (GNI) per capita in 2019 was US\$580,<sup>1</sup> and Liberia is ranked 175 out of 189 countries under the 2020 United Nations Human Development Index (UNDP 2020).

Liberia's already fragile systems were under enormous pressure at the start of the coronavirus disease 2019 (COVID-19) pandemic. Poverty rates have been rising due to consecutive years of declining demand across major economic sectors, leading to falling gross domestic product (GDP), and rapid increases in the rate of inflation that reached 27 percent in 2019, severely eroding household income (World Bank 2020). The economy was expected to rebound in 2020, but the health and economic impacts brought on by the COVID-19 pandemic will instead translate into an additional 335,000 to 526,000 Liberians falling into poverty. More than half (55.5 percent) of the population (an estimated 3.02 million Liberians) was living below the national poverty line in 2019 (World Bank 2020), and this share was expected to rise to about two-thirds (65.2 percent) in 2020.<sup>2</sup> Poverty is more than twice as high in rural areas (71.6 percent) than in urban areas (31.5 percent) (World Bank 2018a). Economic prosperity is largely concentrated in the capital of Monrovia.

### Box 1: The World Bank WASH Sector Diagnostic for Liberia

This policy brief is based on the findings of a comprehensive diagnostic conducted by the World Bank Water Global Practice. Drawing on nationally representative data sources, desk review, and original research and analysis, the diagnostic analyzes the delivery of water supply, sanitation, and hygiene (WASH) services in Liberia and their central role in improving child health, human capital, and development outcomes. The diagnostic also evaluates the performance of water services and agencies and benchmarks performance within Liberia and between Liberia and other Sub-Saharan African countries and globally. It closely examines service coverage, service characteristics, water service efficiency, financing, and public expenditure, and builds on these findings to assess the governance and institutional constraints to service delivery in the WASH sector. It also draws on these findings and comparative cases from country peers to extract lessons and identify potential policy, institutional, and regulatory levers that can help improve service delivery in Liberia. The diagnostic culminates in a series of four main messages and associated recommendations, which are summarized in this document.

The Liberian civil war between 1989 and 2003 severely weakened public institutions and inflicted enormous material, economic, and social devastation. More than 250,000 people died and 850,000 people were displaced by the conflict. Efforts at postwar reconciliation have been largely successful thus far, but they remain incomplete, and the government continues its efforts to consolidate peace and stability (World Bank 2018b).

The civil war had a disproportionate impact on the poor and left deep rifts between communities and social groups. Vital infrastructure, including electricity, roads, and water & sewerage, was badly damaged. It is estimated that Liberia has an annual infrastructure funding gap of between \$250 million and \$500 million (World Bank 2011). The civil war not only destroyed existing water and sanitation infrastructure, but severely eroded the capacity of water sector institutions to provide services. In addition, conflict-induced migration from rural areas of the country into the cities put pressure on urban utilities to expand services.

## **Costs to Liberia's Health and Education (Human Capital) of Deficiencies in WASH Services**

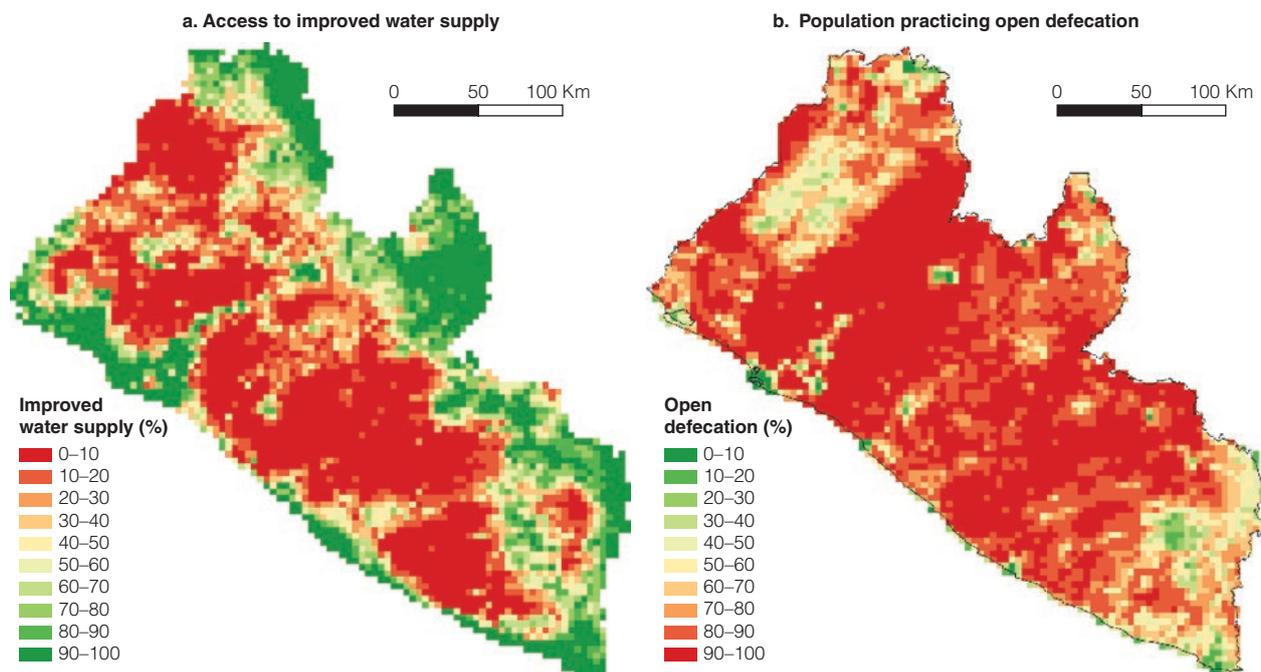
Levels of health and education are low. Liberia performs below regional and income level averages on most indicators that make up the Human Capital Index, implying lower future productivity relative to the benchmark of full health and complete education. As a result, a child born in Liberia today will only be 32 percent as productive when she grows up as she could be if she enjoyed complete education and full health.<sup>3</sup> Liberia's poor performance on the Human Capital Index is driven by high levels of stunting and low expected years of schooling, among other factors such as high child mortality<sup>4</sup> and poor learning outcomes.

Deficiencies in WASH services are taking their toll on Liberians' health. Malnutrition is rife in Liberia, with nearly 30 percent of children under 5 stunted and stunting even more widespread among the poorest households (Liberia Demographic and Health Survey 2019). Lack of access to clean water and improved toilets are key factors driving higher prevalence of stunting. The 2019 Global Burden of Disease study reports that lack of access to WASH and malnutrition were the top two risk factors driving all deaths and disability in Liberia in 2019 (GBD 2019 Risk Factors Collaborators 2020).

Water-borne and water-related diseases remain challenges, especially given the large disparities in exposure to poor WASH conditions. Children remain highly susceptible to diarrheal disease, especially those in poorer groups and in rural areas: 15.7 percent of children under 5 suffered from diarrheal disease as of 2019 (Liberia Demographic and Health Survey 2019) and diarrheal disease is the second leading cause of death in Liberia for children under 5, after malaria. In 2003, there was a significant outbreak of cholera (a water-borne disease), sparked by the ongoing civil war and centered on the capital Monrovia. However, since 2013 there have been no significant outbreaks of cholera (UNICEF 2019). The water-borne eye and skin disease Onchocerciasis (river blindness) was found to be the top cause of disability in the same study. People living near streams are most likely to be infected, and women may be at higher risk given their disproportionate washing and water collection responsibilities.

Water sector constraints to human capital and economic development are substantial (see map 1 and part 2). As of 2017, about three-quarters (73 percent) of the population in Liberia was estimated to have access to basic drinking water supply, but that was the case for less than two-thirds (62 percent) of the population in rural areas. Only 17 percent of the population had access to basic sanitation and 40 percent of Liberia's population practiced open defecation (UNICEF and WHO 2019). Access to WASH services in schools and health facilities is lacking. Water collection—or in the case of the capital city, Monrovia, waiting for water to be delivered—remains a daily task for most Liberians, diverting productive time and energy.

**Map 1: Geostatistical Estimates of Population with Access to Improved Water Supply and Population Practicing Open Defecation**



Source: Liberia Demographic and Health Survey (DHS) 2013.

The 2014–16 Ebola Virus outbreak highlighted the continued vulnerability of Liberia’s society and institutions. The virus infected over 10,000 Liberians and claimed 4,810 lives (CDC 2017). The human impact was aggravated by crippling economic repercussions as GDP growth contracted from 8.7 percent in 2013 to zero in 2015 and fell by another 1.6 percent in 2016 (World Bank 2017). A post-crisis review found that a “lack of access to safe water [and] proper hygiene...contributed to the propagation of the [Ebola] virus” and was even a “critical factor” in the spread of the disease in schools. The same review emphasized the importance of increasing “access to environmental sanitation in low-income urban areas,” including “on-site sanitation” and “excreta collection and disposal” (UN, World Bank, EU, and AfDB 2015).

Given the contextual and health system challenges, Liberia is highly vulnerable to the public health and economic impacts of the ongoing COVID-19 pandemic. Most recent data from April 2021 report 2,099 confirmed cases of infections and 85 deaths with 7,492 vaccine doses administered. In October 2020, WHO reported that 15.7 percent of the cases at the time were in health workers (WHO 2020). In addition to the devastating human toll, the pandemic has increased economic instability, health inequalities, and social disparities.

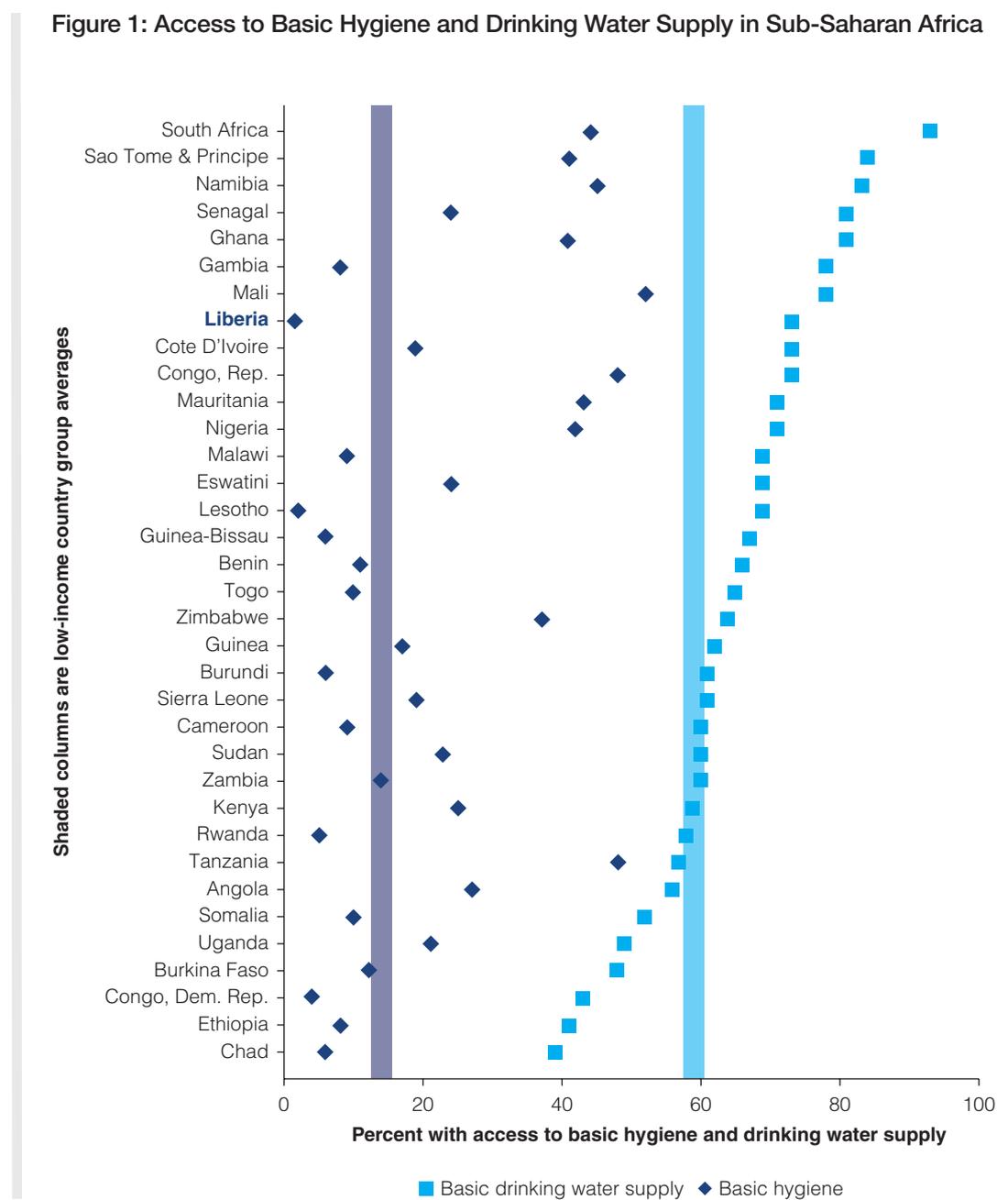
Recognizing the central importance of WASH services for the country, Liberia’s development strategy, the “Pro-Poor Agenda for Prosperity and Development” (2018–23) calls for a major increase in the share of households, institutions, and communities that have access to sustainable WASH facilities. In tandem, the Ministry of Health will implement an integrated approach to child survival and development focusing on convergence and integration of health, nutrition, and WASH activities, while the National Investment Plan for a Resilient Health System 2015–21 targets water, sanitation, and environmental hygiene services for 100 percent of health facilities.

# 2. Overview of WASH Services in Liberia

## Drinking Water Supply

Despite abundant water resources, Liberia lacks the WASH infrastructure and services to reach everyone. Liberia ranks in the bottom ten of all countries in Sub-Saharan Africa in access to basic sanitation, last in access to basic hygiene, and eighth overall in access to basic drinking water (JMP 2017) (see figure 1).

Figure 1: Access to Basic Hygiene and Drinking Water Supply in Sub-Saharan Africa



Source: JMP 2017.

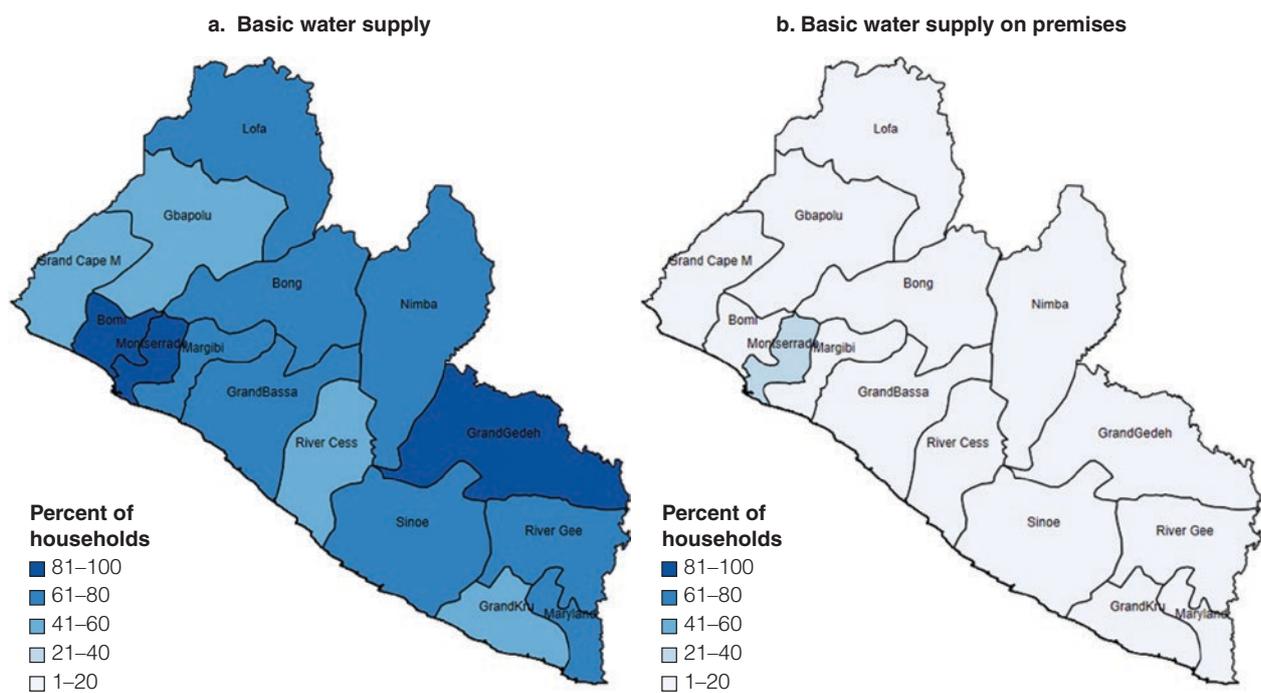
**Access to drinking water supply.** Liberia has made steady progress increasing access to basic levels of drinking water supply: that is, an improved water source with collection time less than 30 minutes round-trip. Between 2000 and 2017, access to basic drinking water increased nationally from 62 percent to 73 percent. Only two other low-income countries in the Sub-Saharan Africa region surpass these levels—Mali and The Gambia. Yet although a sizeable share of the population enjoys access to basic water, only 13 percent have access on premises to an improved water source that is free of fecal and priority and chemical contamination (map 2).

With the vast majority of Liberians relying on non-networked water supply, functional water points are essential to provide most of the population with a reliable source of safe drinking water. Most urban areas of Liberia have good coverage of functional water points, especially around the capital Monrovia, according to a water point mapping exercise conducted in 2011 and 2017. However, in many rural areas more than half the water points were not functional at the time of the mapping (map 3).

In Monrovia, in lieu of piped water, the use of packaged water has increased fivefold since 2013, and although classified as an improved source, it is potentially unreliable and costly. Moreover, an overreliance on water deliveries may be unsustainable in the longer term, especially in the absence of supportive policy and regulation, disproportionately affecting poorer households that lack access to piped systems. Water collection—or in the case of Monrovia, waiting for water delivery—remains a daily exercise for the majority of the population in Liberia regardless of geographic location. The burden falls mainly on females, but the time spent collecting water each day is low in comparison to neighboring countries.

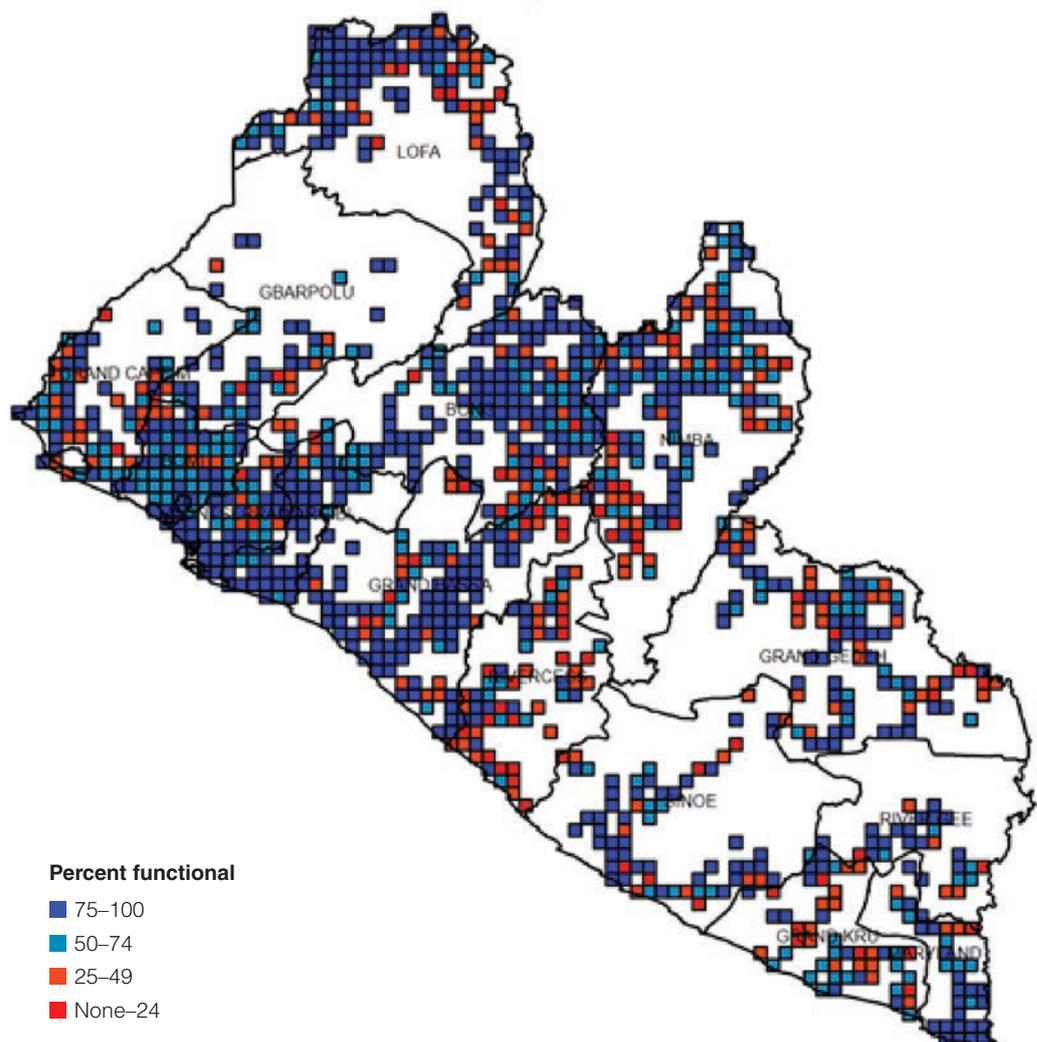
**Quality of drinking water.** Although there is no routine testing of water quality and data on water quality are not widely or routinely available, the evidence suggests serious cause for concern. Separate research studies found most water samples contained harmful bacteria and the water was not suitable for drinking without treatment. Given that fewer than one-quarter of households report treating their drinking water, it is plausible that most water consumed by Liberians contains harmful pathogens. Poor water quality is likely a major contributing factor to death and disease in Liberia.

**Map 2: Access to Basic Drinking Water Supply and Basic Water on Premises, 2019**



Source: Liberia Demographic and Health Survey (DHS) 2019.

Map 3: Water Point Coverage, 2017

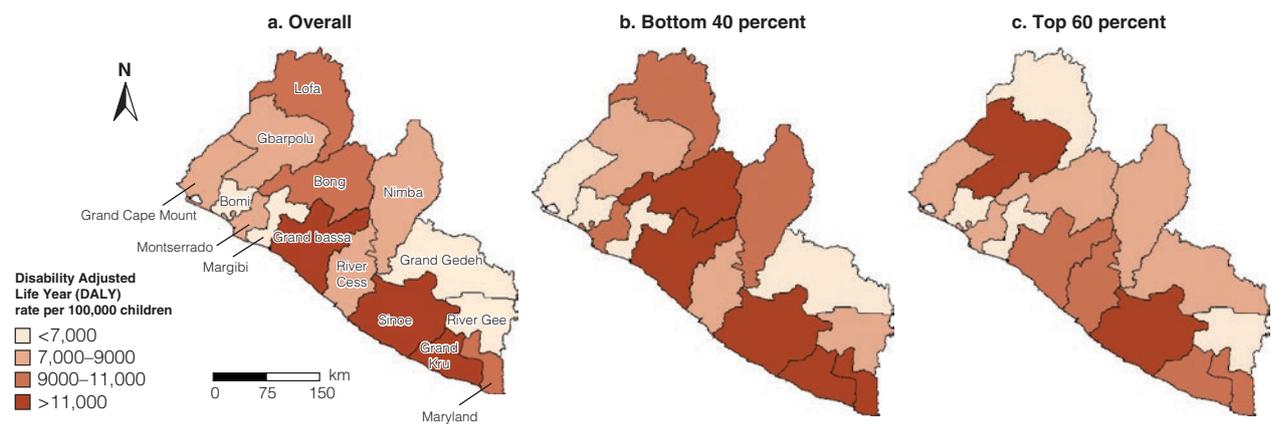


Source: Government of Liberia, water point mapping 2011 and 2017.

**Disparities in access.** There are significant disparities in access to WASH services between rural and urban households in Liberia and across income groups, placing children under 5 in poorer income groups and in rural areas at greater risk of diarrheal disease, compared with their wealthier and urban counterparts (map 4). Progress has been strongest for urban populations living outside of Monrovia, while residents of Monrovia have already been enjoying high levels of access, compared with the rest of the country. Nearly one-quarter (24 percent) of households in some parts of Liberia report switching their water source between the wet and dry season. In addition to geographic location, access to WASH services is correlated with poverty levels, the extent of urbanization, and household wealth and education, with few exceptions.

**Affordability.** Affordability of WASH services is a key constraint for low-income households. Data suggest that a minority of households are paying for drinking water, with just 35 percent of urban and 15 percent of rural households reporting paying for drinking water. Those using bottled water and water vendors are most likely to pay. Only about half (52 percent) of those using piped water in the home paid for it, spending approximately US 2 cents on average over the two weeks prior to the survey. Average spending on bottled water is higher (US 13 cents), suggesting ability to pay.

Map 4: Enteric Burden Attributable to Inadequate WASH for Children under 5



Source: Liberia Demographic and Health Survey (DHS), 2019–20.

## Sanitation and Hygiene

Improvements in sanitation and hygiene have largely stalled for more than a decade in Liberia (map 5). Access to basic sanitation increased only 3.5 percent between 2000 and 2017—from 13.5 percent to 17 percent, while access to basic hygiene did not change during this period. Coverage of functional handwashing facilities in households is only 4 percent, according to the most recent data. Schools and health care facilities do comparatively better on access to basic hygiene, but as many as half of all schools and health facilities lack basic water service; one-third of schools (33 percent) and nearly one-quarter of health facilities (24 percent) have no sanitation service.

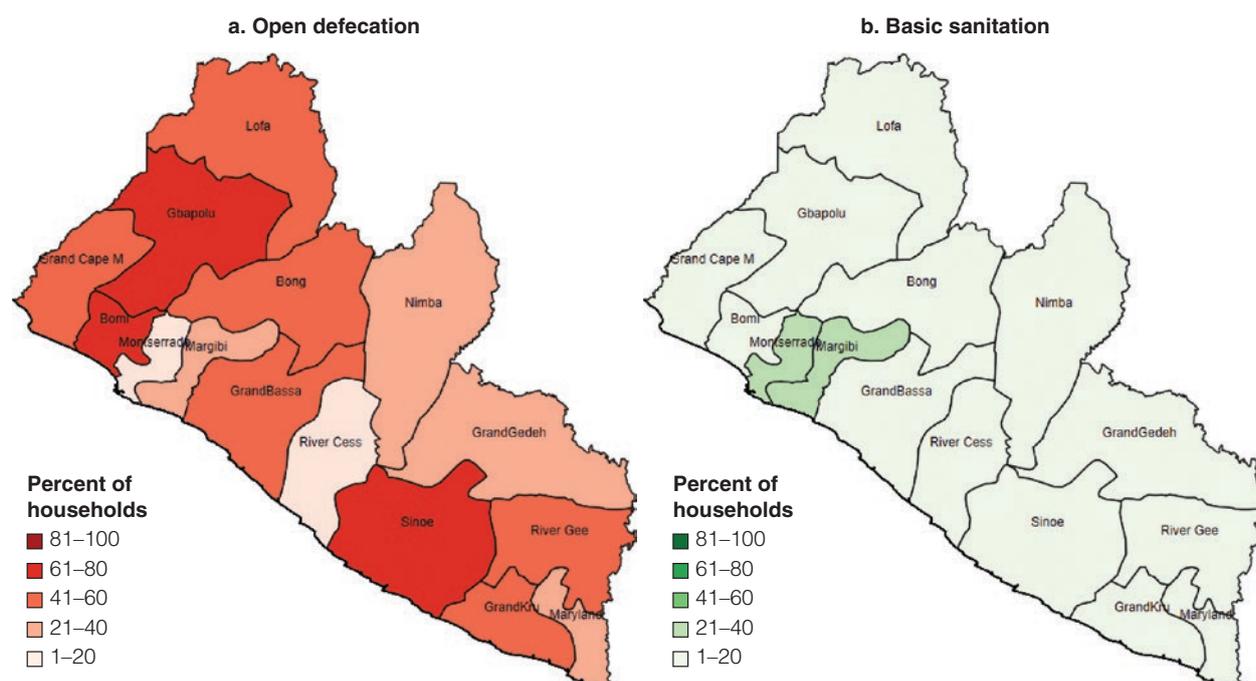
Lack of access to sanitation and open defecation are key drivers of childhood stunting in Liberia and are a major cause of infant and child mortality. Human capital objectives cannot be achieved without attention to the sanitation crisis, most adversely affecting women and girls, schoolchildren, and the poor in rural areas and slums.

Liberia remains in the bottom 10 of all countries in Sub-Saharan Africa in access to basic sanitation (figure 2). This lack of progress can be explained by the predominant shift from open defecation to unimproved or limited service-levels of sanitation. Moreover, many people are sharing toilets between two or more households—especially in Monrovia, where an estimated 36 percent of the population is sharing an improved toilet, compared to 13 percent in rural areas. Open defecation remains most common in rural areas, where 61 percent of the population defecates in the open.

Disparities in access to sanitation are pronounced for households at different extremes of the wealth distribution, with just a fraction of the poorest households (those in the bottom 20 percent of the wealth distribution) having access to improved sanitation, whether in urban or rural areas, compared with households in the top 20 percent. These figures suggest a special emphasis is needed to bring rural populations and impoverished populations up the sanitation ladder.

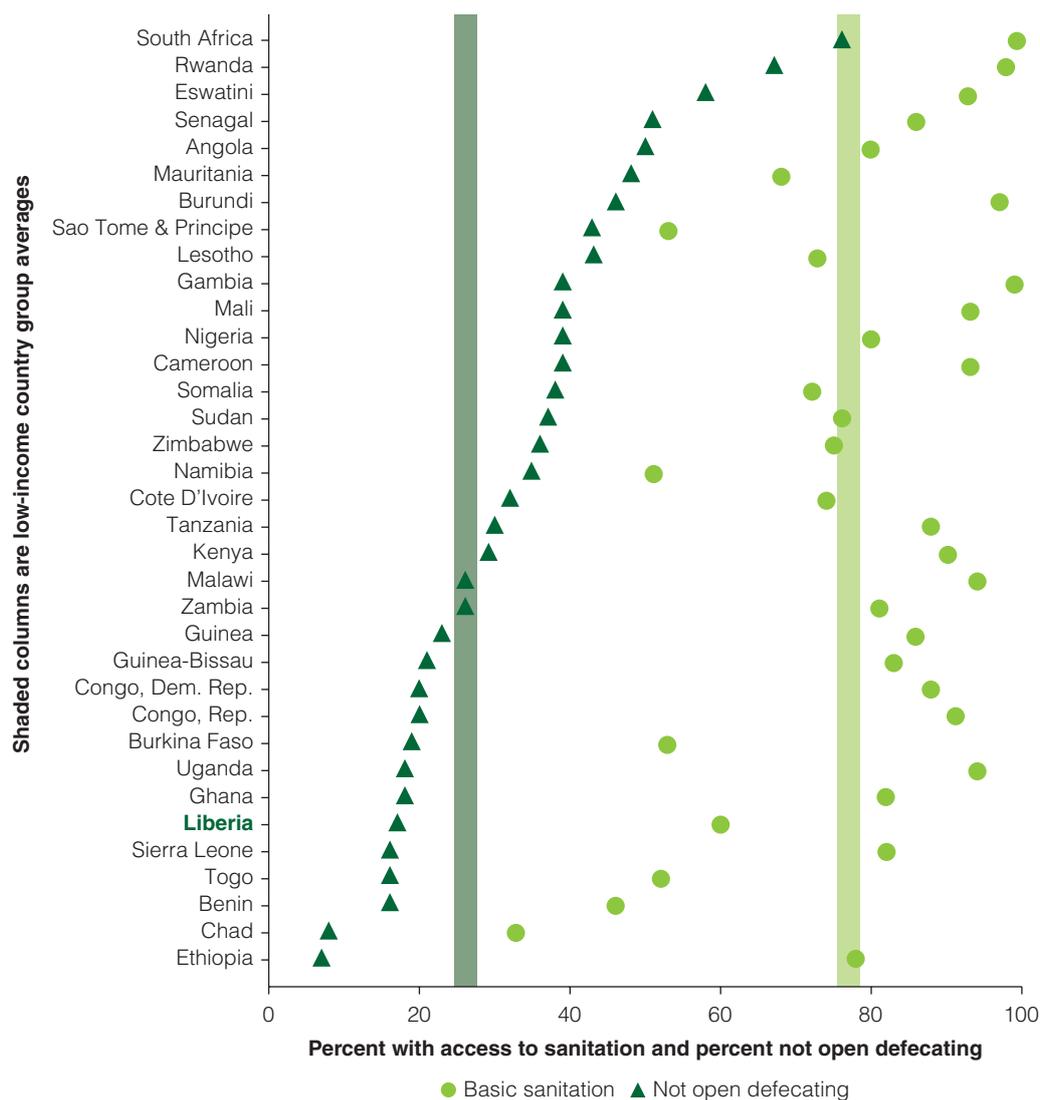
An open defecation free (ODF) Liberia is envisioned in the 2019 roadmap, *Liberia Ending Open Defecation by 2025* (Government of Liberia 2019a), which is meant to serve as a guide to all actors involved with sanitation service provision in Liberia.

Map 5: Prevalence of Open Defecation and Access to Basic Sanitation, 2019



Source: World Bank calculations using Liberia Demographic and Health Survey (DHS) 2019.

Figure 2: Access to Basic Sanitation and Open Defecation Practices in Sub-Saharan Africa



Source: JMP 2017.

# 3. Policies, Institutions, and Regulations for WASH Services

## Policy Landscape

Over the last decade, Liberia has produced several policy and strategy documents outlining the future direction of the WASH sector (see box 2). Though the WASH sector policies and plans have provided the strategic direction for the sector, implementation has fallen short of expectations. The policies helped clarify and make explicit the ambition of the government—and its development partners—for the water sector, and in many cases, practical provisions have been made for implementation. However, the gap between policy commitments and concrete outcomes can be explained by a number of factors.

- Although the policy objectives have been generally relevant and clearly stated, they are not time bound and do not indicate when the objectives are expected to be achieved. This hinders the capacity for monitoring and evaluation and does not reflect recent developments such as the Sustainable Development Goals (SDGs),<sup>5</sup> as the policies are still based on the Millennium Development Goals (MDGs).
- Is it not clear from the policy how funding and financing are provided to the sector. Though there is a sector investment plan, it does not commit the government to a specific national budgetary quota or fund allocation to the sector.
- While there are standards clearly outlined for water and sanitation facilities, there are no clear guidelines for service standards and tariff setting. The regulator—the National Water Sanitation and Hygiene (NWSHC/WASH) Commission—is supposed to develop these guidelines, but it has not been able to do so. Standards and tariff setting are currently issued by the Liberia Water and Sewer Corporation (LWSC), which is a provider rather than a regulator.

## Institutional Landscape

Formal institutional development in the WASH sector in Liberia can be traced back to the 1970s, when key entities were established, including the Liberia Water and Sanitation Cooperation (LWSC), created as a public corporation in 1973 with responsibility for water services in urban areas (LWSC 2021).

The institutional evolution of the WASH sector in Liberia indicates unsuccessful efforts to reduce the problem of fragmentation, despite multiple policy and strategy documents that address this issue (see box 2). In some respects, this fragmentation is a direct result of the two civil wars (1989–2003) and the post-war emergency response by development partners (World Bank 2019). Reconstruction relied heavily on non-state entities directly funded by the Ministry of Finance to provide WASH services, sidelining ineffective institutions (World Bank 2015).

The post-conflict institutional reconstruction of the WASH sector in Liberia has been marked by overlaps in mandates and the dispersal of sector activities across multiple ministries and agencies without a central authority. The Water Supply and Sanitation Policy 2009, the WASH Compact, and the WASH Sector Strategic Plan 2012–17 all led to the creation of multiple entities with roles in the water sector, sometimes with overlapping mandates. The NWRSB was supposed to bring under one umbrella all WASH-related ministries hitherto poorly coordinated. This role has been muddled with the establishment of the NWSHC/WASH Commission as a sector lead and regulator in 2018.

## Box 2: Recent Policy and Strategy Documents for the WASH Sector

Liberia's first comprehensive policy dedicated to Water Supply and Sanitation Services (WSS), the Water and Sanitation Policy, was approved in 2009. The policy set the pace for establishing a single institution, the National Water Resources & Sanitation Board (NWRSB), to drive the WSS sector (Government of Liberia 2009).

In 2011, the government of Liberia established a WASH Compact that outlined institutional reforms aimed at a whole-of-government response for improved WASH services, practices, and health outcomes. However, the Compact's impact was disappointing (Nwafor et al. 2012). The WASH Compact was followed by a WASH Sector Strategic Plan (2012–17), a Sector Investment Plan (2012–17), and a Sector Capacity Development Plan (2012–17). A roadmap issued in 2019, *Liberia Ending Open Defecation by 2025*, serves as a guide to all actors involved with sanitation services provision in Liberia as a way of achieving an open defecation free Liberia.

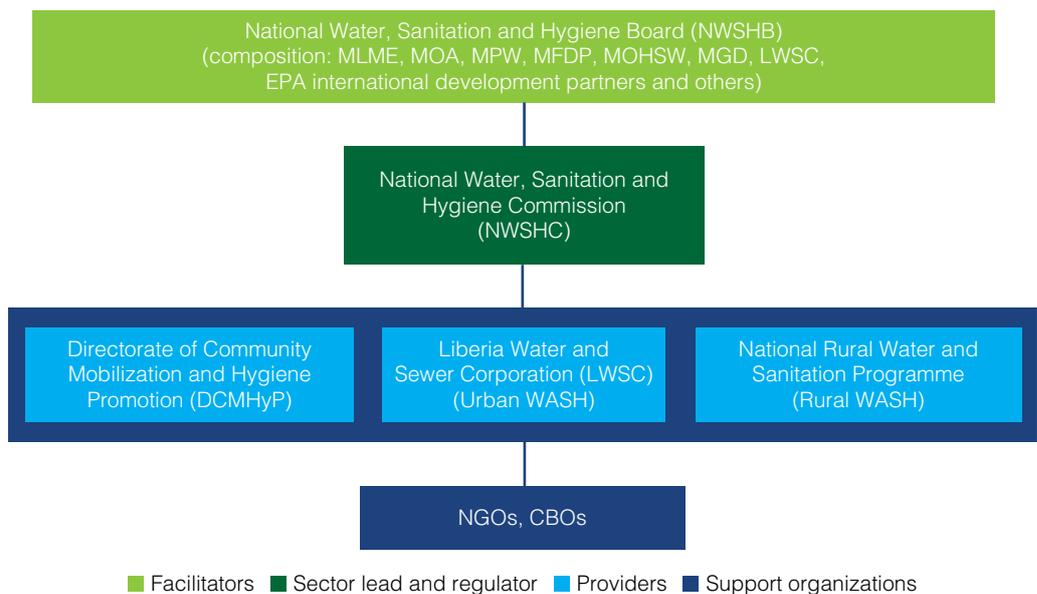
In 2018, the Government of Liberia launched the One WASH Program following recommendations stemming from the country's joint sector review. The Program aims to modernize the way WASH services are delivered to communities in Liberia by providing a platform for a single annual work plan, annual budget, information system, monitoring and evaluation system, and reporting system.

Also in 2018, the National Water Sanitation and Hygiene Commission (NWSHC/WASH Commission) was established to take on the regulatory function of the WASH sector. A roadmap to facilitate WASH regulations was launched in 2019 for the 2019–24 period. The plan aims to improve WASH regulations, the enforcement of the regulations, WASH data and information management systems, monitoring, evaluation and sector financing.

Significant ambiguity and overlap remain in areas such as the sector policy formulation and monitoring roles (figure 3). Four key ministries play active roles in the sector's oversight and policy formulation at the national level: the Ministry of Lands, Mines, and Energy (MoLM); Ministry of Public Works; Ministry of Health and Social Welfare; and Ministry of Education). The WASH Board is expected to act as a cross-ministerial coordination body that brings together the water-related activities of all Ministries in a coherent manner. However, the role of the NWRSB/WASH Board duplicates the leadership and sector coordination role of the NWSHC/WASH Commission, especially since it is not clear where the mandate of policy formulation lies.

There is no well-defined sector institution with responsibility for WASH service provision in rural communities, peri-urban settlements, and slums. Although the RWSSB in the Ministry of Public Works (MPW) is mandated for rural WASH, it only provides technical and capacity-building support. The overall management and development of counties is the responsibility of the County Administrations (CA), according to the Local Government Act of 2018 (Government of Liberia 2018a). However, although CAs are assigned WASH coordination mandates, budget allocations to the CAs are very low, and transfers are slow and unpredictable. In addition, the CAs with their WASH county teams have inadequate capacity to provide and manage WASH services in slums, peri-urban settlements, and rural communities outside the purview of the LWSC (Water and Sanitation Program 2011).

**Figure 3: De Facto Institutional Structure of the Water Supply, Sanitation, and Hygiene-Related Sector**



*Source:* Based on World Bank staff interviews with NWSHC/WASH Commission, June 2021.

*Note:* CBOs = community-based organizations; EPA = Environmental Protection Agency; MFDP = Ministry of Finance and Development Planning; MGD = Ministry of Gender and Development; MLME = Ministry of Lands, Mines and Energy; MOA = Ministry of Agriculture; MOHSW = Ministry of Health & Social Welfare; NGOs = nongovernmental organizations; WASH = water supply, sanitation, and hygiene.

Compounding the inadequate clarity in institutional functions is the conflation of regulatory functions with service provision by both the NWSHC/WASH Commission and LWSC (see next section).

## Regulatory Landscape

WASH regulation in Liberia is limited and in a developing phase. Implementation has been significantly slow.

- Having faced delays in getting established, the NWSHC/WASH Commission estimates that approximately US\$1.6 million is needed to build its capacity, clarify its remit, and begin exercising its functions fully and efficiently (Government of Liberia 2019b).
- The NWSHC/WASH Commission developed a strategic plan as a guideline in 2019, but this is yet to be implemented amidst inadequate capacity.
- Furthermore, the NWSHC/WASH Commission is gradually stepping into a service delivery role across the WASH sector (World Bank 2019). Its gradual role in service delivery, as well as its multiple roles in sector coordination, policy formulation, and regulation, disrupts accountability as objective check and balances become fuzzy (World Bank 2019).
- Further complicating the regulatory landscape in Liberia is the role played by LWSC. It is the entity responsible for providing water supply and sewer services to the urban areas. By a revised Act of 2017, the LWSC is also imbued with regulatory roles over commercial water producers, including tariff setting. This creates a conflict of interest with its role as a service provider and potentially overlaps with that of NWSHC/WASH Commission. The LWSC's dual service provision and regulatory roles can lead to inefficiencies in both functions (see next section).

## Special Challenges with the Liberia Water and Sewer Corporation

Despite substantial investments in water infrastructure and capacity building of the Liberia Water and Sewer Corporation (LWSC), the utility has struggled to improve performance on key measures of service delivery. Compared to utilities in Sub-Saharan Africa and globally, the Liberia Water and Sewer Corporation (LWSC) performs poorly across all available performance indicators. World Bank calculations for this diagnostic based on IBNET and LWSC data indicate the following.

- *Staff productivity*: LWSC's staff per 1,000 connections (66) is multitudes higher than the global (4) and regional (6) averages.
- *Water consumption*: Liberia's 52 liters per connection per day is about half the average for Africa (108 liters) and one-third the global average (148 liters).
- *Service continuity*: LWSC averaged 9.5 hours per day of water supply, much less than the African average (20 hours) and about one-third the global average (23 hours/all day).
- *Water loss*: LWSC's percentage of non-revenue water (79 percent of water loss) is about twice as high as the averages for Africa (34) and globally (36 percent).

LWSC service performance has been declining over the past several years in most municipal areas despite investments in infrastructure and capacity building, and the introduction of a performance contract with the Government of Liberia that was active between 2015 and 2018. None of the targets established at the outset of the performance agreement were achieved. Fiscal pressure brought on by COVID-19 will make it increasingly difficult for LWSC to meet the targets of its Strategic Plan 2018–23, which include increasing the customer base five-fold to 30,000 and reducing non-revenue water (NRW) from 77 percent in 2018 to 17 percent in 2023.

The government, in its WASH policies, intends to develop a financially self-sustaining sector in the long term. However, efforts towards the commercialization (service sustainability through full cost recovery) (Government of Liberia 2009, p. 13) of the LWSC to improve efficiency have been elementary.

Based on this assessment, LWSC is in an urgent need of a turnaround plan, not only to help improve performance but also ensure that water provision that is transparent, financially sustainable, and responsive to citizens' needs. Rather than enter another performance contract, recent efforts have been aimed at improving the internal management of LWSC in a phased approach toward utility turnaround.

# 4. Main Messages and Recommendations on the WASH Sector in Liberia

The diagnostic study presents four main messages and associated recommendations for unlocking service delivery for water supply, sanitation, and hygiene in Liberia. The recommendations are centered on investments for human capital (Message 1); governance and institutions (Message 2); financing (Message 3); and data and information (Message 4).

## WASH and Human Capital

**Message 1: Low levels of access to WASH services and the poor quality of those services inhibit human capital and impede the ability of Liberia to defend against public health emergencies, including highly infectious diseases such as COVID-19.**

As discussed in section 2, poor water quality is likely a major contributing factor to death and disease in Liberia. As noted, lack of access to WASH and malnutrition were the top two risk factors driving all deaths and disability in Liberia in 2019, the 2019 Global Burden of Disease study reports (GBD 2019 Risk Factors Collaborators 2020). The second leading cause of mortality for children under 5 in Liberia is diarrheal disease; unclean water is a major contributor. Combined with woefully inadequate access to basic hygiene services, children in Liberia face a daily risk of infectious disease, particularly those in the lowest wealth quintile nationally and in the capital city area of Montserrado county. The high prevalence of stunting among Liberia's children (30 percent of children under 5) is worsened by lack of access to clean water and improved toilets.

Lack of access to basic sanitation and hygiene compounds the health risks. Taken together, deficiencies in WASH access and services mean that Liberia is poorly prepared to respond effectively to emergencies and outbreaks of infectious disease, despite recent experience with cholera (a water-borne disease) and the deadly Ebola epidemic.

**Recommendation 1A: Make continuous, long-term investments in WASH infrastructure, directed at priority areas.**

**Develop a long-term investment plan.** Liberia has been characterized by a “panic-and-neglect” cycle of investing in WASH infrastructure (see Message 3, on funding). To move beyond this cycle, the government of Liberia should develop a long-term plan of action to improve essential public health infrastructure and services, including WASH in schools and health care facilities and universal access to basic hygiene.

**Prioritize improvements for the poorest households facing the greatest health risks.** For the greatest health impact, the government of Liberia should prioritize improving WASH infrastructure in the poorest households in the counties with the highest burden of enteric (intestinal) diseases attributable to WASH. The World Bank diagnostic for Liberia estimates that improving WASH access among the poorest households in counties with the highest WASH-attributable enteric disease burden could avert on average an estimated 12,889 disability adjusted life years (DALYs) for every 100,000 children—roughly half the total DALY losses due to communicable, neonatal, maternal, and nutritional diseases in Liberia as of 2017.

**Systematize WASH investments for schools and health care facilities.** To improve access to WASH in schools and health care facilities, budget allocations—whether to the health, education,

or water sectors—should earmark spending for capital investments in WASH infrastructure and increase the allocation to recurrent budgets or establish cross-subsidies to allow for necessary operations and maintenance of WASH facilities. The NWSHC/WASH Commission should retain regulatory oversight of WASH services in schools and health facilities, including ensuring routine data collection to support monitoring and reporting (see Message 4), and adherence to technical standards at the service level. The NWSHC/WASH Commission could provide technical support and capacity building to the health and education sectors on construction, operations, and maintenance of WASH services. To inform budget allocation, the government of Liberia should undertake a costing exercise using published evidence on the cost of WASH services in schools and health facilities.

### **Recommendation 1B: Make improvements to sanitation a national-level priority.**

**Provide political support at the highest levels of government.** National-level attention to the sanitation crisis is urgently needed, accompanied by political and financial backing in support of a national campaign to end open defecation in Liberia. While the *Ending Open Defecation* roadmap (2019) provides a solid basis and technical grounding for a successful approach, experience in other countries shows that political support at the highest levels of government is essential for addressing the taboo subject of sanitation, as is tapping into the emotional and social drivers of behavior change.

**Provide adequate funding.** Financial support is needed in the form of hardware (latrine components and materials) and service provision subsidies (such as to transport and treat fecal sludge), to enable poor households with cash and liquidity constraints to adopt sanitation.

**Mainstream good hygiene practices.** Hygiene behaviors that are important for safeguarding health of children, such as handwashing with soap, safe household water treatment and storage, food hygiene, and maintaining a clean household environment should be mainstreamed as part of household-level interventions across the water, health, and social protection sectors. Change in hygiene behavior should also be adopted under a national campaign to end open defecation. These behavior change campaigns also need adequate funding to reach all Liberians.

**Improve monitoring.** To track progress at the county level and encourage accountability, funding should be provided to support a robust monitoring and verification system for communities that achieve open defecation free status.

**Broaden the approach to reach marginalized populations.** The ODF roadmap should articulate objectives and plans to enhance gender equity and inclusion of disabled and vulnerable populations.

**Tie into other efforts to reduce poverty and enhance human capital.** Ending open defecation should be recognized as an essential driver of human capital outcomes and prioritized beyond the sanitation sector, such as through the inclusion of ending open defecation as a target in Liberia's next Poverty Reduction Strategy.

## **WASH Sector Governance and Institutions**

### **Message 2: Governance and institutional constraints are severely hindering effective development in the WASH sector.**

As noted, there is an urgent need for clarity in the institutional roles around sector coordination, policy formulation, service provision and regulation. At present, the sector leadership role played by NWSHC/WASH Commission remains ambiguous due to the fragmentation of WASH across multiple ministries.

Decentralization is at a nascent stage in Liberia, and although County Administrations have been assigned WASH coordination mandates, budget allocations are very low, and transfers to the counties are slow and unpredictable.

Beyond licensing, there are no clear regulations on tariff setting, client satisfaction, M&E, performance, and reporting frameworks for the WASH sector. The regulator, in 2019, developed a strategic plan as a guideline, but not yet been implemented amidst inadequate capacity.

**Recommendation 2: Establish clear sector institutional roles and responsibilities, invest in capacity building, and make resources available for WASH.**

**Clearly establish sector institutional roles and responsibilities.** As a first step to address the governance and institutional constraints in the WASH sector in Liberia, the Government of Liberia should enact legislation to clearly delineate the institutional roles and responsibilities for WASH to encompass policy development, service provision, and regulation across urban, peri-urban, and rural areas.

Clear lines of responsibility and accountability also need to be established for functions that are devolved to local government (County Administrations), but that have some dependencies on national-level institutions. As part of this exercise, the issue of dual responsibility for service provision and regulation held by the NWSHC/WASH Commission and LWSC should be sorted out so that a well-defined regulator can emerge with the capacity and independence to effectively carry out its regulatory function.

**Strengthen sector institutions and County Administrations and ensure that sufficient financial resources are available to effectively carry out mandates with regard to WASH service delivery.** A critical follow-up to the clear establishment of sector institutional roles and responsibilities will involve the strengthening of sector institutions through capacity building, including technical and managerial capacity. In addition, the capacity of the CAs through their country WASH teams should be strengthened to provide and manage WASH services. Effective fiscal decentralization—ensuring that funds are available for service providers in the CAs—is also required (see Message 3).

## WASH Sector Financing

**Message 3: The WASH sector is chronically underfunded, with allocations making up a fraction of what is needed to achieve the SDG goals on water supply and sanitation.**

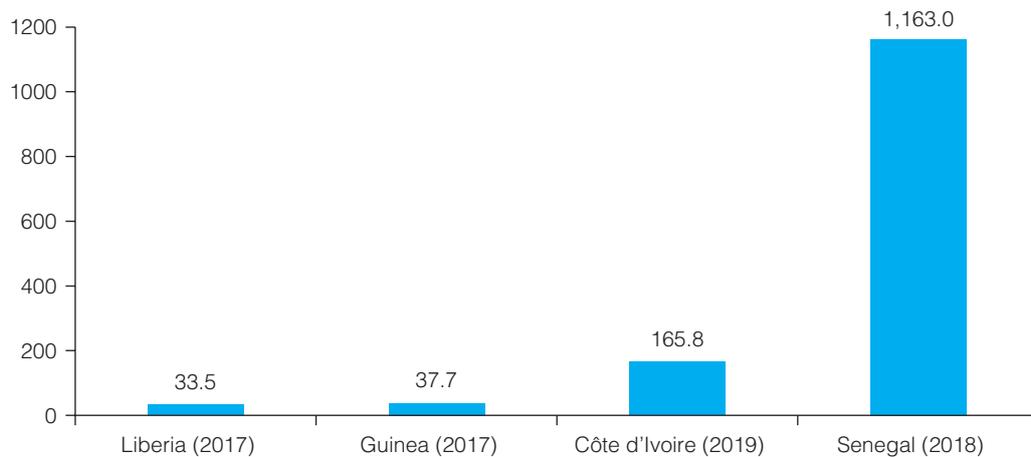
At current levels of spending, Liberia will not achieve the SDGs on water supply and sanitation by 2030. The total budget allocation to the WASH sector from the government of Liberia and donor funds averaged US\$45.9 million per year for FY2015–18 (World Bank 2019), which is a fraction of what is required to meet the SDG targets for water supply and sanitation. Spending on infrastructure and basic services, including for water supply and sanitation, is low and trending lower.

Although on a per capita basis Liberia's spending on WASH is on par with neighboring Côte d'Ivoire, and is double that of Guinea, infrastructure deficits in sanitation are much greater in Liberia (18.2 percent of the population with access to at least basic sanitation in Liberia, compared with 29.8 percent in Guinea and 34.6 percent in Côte d'Ivoire) (figure 4).

The crisis brought on by the COVID-19 pandemic has dealt a further blow to Liberia's fragile economy, resulting in reallocation of government budget and an apparent decline in budget allocation to the WASH sector agencies. These budgeting decisions are in direct contradiction to the central role of WASH for human capital development, and the increased global attention to the importance of WASH services in light of the COVID-19 pandemic, increasing climate uncertainty, and future threats to global health security.

Not only is public spending low and trending lower, but it is erratic. Budget expenditures for LWSC fluctuate between overspending and underspending. The gap between the approved and executed budget of LWSC suggests underlying weaknesses in public investment planning and management, poor governance and technical inefficiencies. Moreover, much of the budget allocated to the NWSHC/WASH Commission in recent years has been spent on staff salaries,

**Figure 4: Liberia’s Government WASH Budget Compared to Peers**  
US\$ million



Source: Data for Côte d'Ivoire, Guinea, and Senegal in 2017 constant US dollars are from GLAAS 2019. Data for Liberia are from Government of Liberia 2018b.

Note: WASH = water supply, sanitation, and hygiene.

squeezing resources for capacity building, technical assistance and monitoring activities that are captured under its mandate.

Liberia is highly dependent on donor financing for WASH. Analysis of the most recent year of data reveals that only 1 percent of the WASH sector expenditure is provided through public financing. The remainder is provided through development partners. Moreover, the role of the private sector is virtually nonexistent in financing WASH infrastructure and services.

Given the high dependence on foreign donors, the scope to increase resources for the sector may be limited without a corresponding increase in budget allocation from the national government—that would signal a higher priority and commitment to WASH sector objectives, and improvements in the efficiency of current spending. While a sector pooled fund has been considered, the arrangement has yet to be implemented.

### Recommendation 3: Increase funding, make it more efficient, and widen the sources of funding.

**Prioritize the efficiency of current spending.** Higher levels of spending are needed to achieve the SDGs on water supply and sanitation. First steps to address the funding gap should focus on improving the way current spending is utilized. This could include operational and performance improvements of LWSC and shifting budget allocations toward activities that directly contribute to service coverage and quality. Suggested near-term actions for LWSC include:

- Developing internal procedures and systems
- Rationalizing staff numbers
- Improving data management and training for water asset maintenance and repair, billing and collections.

For other recommendations on data monitoring and reporting by LWSC, see Message 4.

**Launch an annual report on WASH sector financing.** Second, greater transparency and visibility of resources going toward the WASH sector is needed. In the short term, an annual report on sector financing could be established. It could capture the various budget streams; report the amount of resources going toward each subsector of urban and rural water supply and urban and rural sanitation; and analyze trends and funding gaps. The information could be used to

increase the visibility of the sector in the national budgeting exercise and serve as a tool for sector institutions to make the case for greater resources.

**Update the WASH Sector Investment Plan.** The last Plan was produced in 2012. More recent estimates could be included of financing requirements for meeting sector goals and objectives, including to capture changes in financing needs in the SDG period and the financing required for operations and maintenance of water and sanitation systems. This update could be a complementary tool to help sector institutions make the case for increased funding.

The updated WASH Sector Investment Plan could also lead to a proposed target and strategy to increase domestic funding for the WASH sector, with the aim of decreasing the dependence of the WASH sector on donor funds and enabling it to take a more active role in driving sector priorities.

**Provide a flow of stable funding for slums and informal settlements.** An arrangement that pools funding for WASH in deprived areas is needed to secure a guaranteed and sustainable flow of funds for WASH interventions in Liberian peri-urban areas and slums. This will align with the NWSHC/WASH Commission's strategic objective of equitable access and sustainable water and sanitation services through improved WASH financing (Government of Liberia 2019b). A Community Upgrading Fund (CUF) that was established in 2019 to fund small infrastructure projects for the urban poor provides a tested template for how such a pooled fund would work. With the CUF expected to close in 2021, it is critical that the structures established are not disbanded and that sustainable means of funding are identified to ensure continuity of the Fund and keep it independent after 2021. Box 3 highlights some promising arrangements to fund WASH in slums undertaken by two other African countries.

**Pursue new directions for funding for rural areas.** To stimulate delivery of WASH services in rural areas in Liberia, there is a need for a new policy direction and program for rural WASH to replace the National Rural Water Programme (NRWP) of 1974. The Government of Liberia has outlined a vision of rural water and sanitation that is led by the private sector and managed by the county governments (Government of Liberia 2012). To realize this vision, it

### **Box 3: Funding for WASH in Slums: Experience from Ghana and Kenya**

Two arrangements for sustaining WASH funding in slums explored in the full diagnostic study offer Liberia some options. In Ghana, the Public Utilities Regulatory Commission (PURC) is committed to providing a leadership role in resolving pro-poor issues in the urban water sector, as enshrined in legislation and regulation. PURC guarantees a 20 percent levy on electricity and natural gas transmission services to their pro-poor water programs. Since 2018, PURC has undertaken pro-poor water projects to improve the accessibility of water to communities facing challenges with potable water supply.

A similar intervention is the Water Sector Trust Fund (WSTF) to finance services in low-income areas in Kenya. Kenya has established the so-called Water Fund, to provide conditional and unconditional grants to counties and help finance the development of and management of water and sanitation services in marginalized and underserved areas. Since its inception, the Fund has entered into financing agreements and memoranda of understanding (MOUs) totaling K Sh18 billion and has cumulatively (as of 2019) received K Sh14 billion out of this total for projects to underserved areas in Kenya, reaching 4.1 million Kenyans.

is necessary to provide alternative approaches of financing, service provision, and management to incorporate a role for private sector actors to bolster WASH service delivery in rural areas. Useful lessons can be drawn from the experience of other countries in tackling the challenge. For example, in Benin the use of partnership arrangements has helped to stimulate rural WASH financing (performance-based *affermage* contracts to incentivize delivery efficiency), while Senegal employs performance-based lease agreements with the private sector for rural services.

## WASH Sector Data and Information

**Message 4: Progress is being impeded by the lack of routine and representative information on WASH services, limited information on availability and quality of service, and lack of transparent reporting on WASH sector financing.**

The bulk of the WASH diagnostic has relied on pockets of information to piece together a narrative of WASH access and quality of service in Liberia. This includes information on water point functionality from 2011 and 2017, budget and expenditure data available between 2015 and 2018, and LWSC performance data for 2016–19. Demographic and Health Survey (DHS) data from 2019 provide the bulk of evidence on service coverage, but even these data are limited to broad estimates at the national and county level and for urban versus rural areas, and the surveys are typically conducted only every five or six years. Furthermore, information is lacking on WASH services at the neighborhood level, such as for urban informal settlements where 70 percent of Liberia’s urban population resides.

Information on safely managed water supply and sanitation, including water quality, availability, and disposal of excreta, is not routinely or systematically available for Liberia.

**Recommendation 4: Fill data gaps about WASH services and improve information about WASH utility management and performance.**

**Make water quality testing routine.** Inclusion of low-cost, rapid water quality testing as part of routine monitoring could provide needed information on contamination by priority chemicals that are especially toxic. Given the close relationship with the regulatory function, this activity could be adopted by the WASH sector regulatory institution. Collaboration with other national institutions such as the Liberia Institute of Statistics and Geo-Information Services (LISGIS) and Ministry of Health could help strengthen the capacity of the regulatory institution to conduct routine monitoring and water quality testing.

**Institutionalize a water point mapping exercise.** Building on systems and processes that have already been established, the Government of Liberia should institutionalize a water point mapping exercise to enhance monitoring of water point functionality, provide an inventory of water assets, and better understand the drivers of sustainable water points. The water point mapping could also help inform the establishment of targets and investment needs and hold service providers accountable.

**Map WASH infrastructure and gaps in urban informal settlements.** In informal settlements in urban and peri-urban areas and slums, the Government of Liberia should undertake a detailed mapping of WASH infrastructure and gaps to facilitate informed decisions and help target investment. At its simplest, this involves merely accurate boundary mapping and more sophisticated poverty-density-based mapping in cities in which poor households are more scattered. A step beyond this is internal mapping and census enumeration, which again can facilitate provision of WASH services to low-income households.

Efforts supported by Cities Alliance in the country can serve as a critical starting point. Such efforts have led to the creation of slum profiles, detailed mapping, and enumeration of low-income households. Further lessons from a comprehensive mapping and award system in Kenya shows how to leverage data collection and informal institutional arrangements for better outcomes. Kenya has a well-developed mapping of low-income urban communities (the Majidata database maintained by the Water Services Regulatory Board and Water Sector Trust Fund).

Such mapping is a central requirement for developing well-targeted incentivization mechanisms to provide WASH services to poor households.

The slum profiles supported by Cities Alliance highlight community priorities, but this needs to be complemented with an inventory of WASH infrastructure and service delivery gaps to inform investment decisions. Based on Kenya's experience, improving access to WASH in slums will first require an understanding and data on the scope and state of WASH infrastructure.

**Improve reporting by LWSC.** An assessment of LWSC conducted by the World Bank in March 2021 using the Water Utility Turnaround Framework (Soppe, Janson, and Piantini 2018) included actions to develop procedures and systems for annual reporting on utility management and performance and to implement measures to reduce data gaps leading to outdated consumption and connection data. To complement these and other measures for utility performance improvements supported by donors including the World Bank, the government of Liberia should require LWSC to track and publicly report on performance indicators covering efficiency, availability, quality, and financial sustainability. In addition, LWSC should include water quality testing as part of routine monitoring.

**Increase the transparency of WASH sector financing and make it more comprehensive.** For specific recommendations, see Message 3 and Recommendation 3.

# 5. Conclusion

## Refining the Recommendations with Stakeholders

The recommendations presented in the preceding section are expected to undergo further consultation with WASH sector stakeholders in Liberia, with the aim to prioritize the recommended actions, identify the institution(s) responsible, and set a time frame for action. These inputs will contribute to a comprehensive roadmap for improving WASH sector performance and outcomes.

## Filling Gaps in Understanding WASH Services in Liberia to Guide Better Policy

As noted in Message 4, considerable gaps in data about WASH services in Liberia exist. Of necessity, the analysis in the World Bank WASH Sector Diagnostic for Liberia was limited to the available secondary data and evidence and one-on-one interviews with stakeholders. No additional primary data collection was undertaken. In addition to filling data gaps, future work is needed to better understand some of the findings and knowledge gaps identified in the study. These include:

- Drivers and barriers to protective household WASH behaviors, such as relatively high access to basic drinking water on the one hand and extremely low access to functional handwashing facilities on the other; and low levels of drinking water treatment.
- Factors driving improvements in basic drinking water access and decreasing reliance on surface water sources in urban areas.
- Conditions in urban informal settlements/slums, including access to and quality of drinking water and sanitation; the landscape of service providers, including those in the private sector; and interactions with urban infrastructure and services, including drainage, solid waste management, housing, and electricity.
- Levels of water quality across water source types and factors contributing to good/bad water quality. Examining the quality of packaged water is particularly urgent given the rapid increase and reliance on this as a main source of drinking water in urban areas.
- Further understanding the sanitation service chain, including fecal sludge management, conveyance, treatment, and reuse; and the policy, institutional, regulatory, financial, and technical dimensions of sanitation services.

# Notes

1. <https://data.worldbank.org/>
2. SSAPOV/Global Micro Database, World Bank forecasts, and United Nations Department of Economic and Social Affairs (UNDESA) population estimates.
3. The Human Capital Index data represent status before the COVID-19 pandemic.
4. Liberia has one of the highest maternal and newborn mortality ratios in the world, at 949 deaths per 100,000 live births and 32.4 deaths per 1,000 live births, respectively (World Bank 2019).
5. SDG 6 on water has 8 global targets and 11 indicators, which cover the full spectrum of access to water services, including drinking WASH, proper management of wastewater, efficiency of the water sector, integrated water resources management, and protection of aquatic ecosystems. Targets 6.1 and 6.2 focus on access to household infrastructure for WASH: <https://sustainabledevelopment.un.org/sdg6>.

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