Reducing Inequalities in Water Supply, Sanitation, and Hygiene in the Era of the Sustainable Development Goals

Synthesis Report of the WASH Poverty Diagnostic Initiative

Executive Summary

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WORLD BANK GROUP

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Abbreviations

B40	bottom 40 percent *(of asset wealth distribution)*
DALYs	Disability-Adjusted Life Years
DHS	Demographic Health Survey
DNAAS	National Directorate of Water Supply and Sanitation
DRA	demand-responsive approach
GBD	Global Burden of Disease
GDP	gross domestic product
HAZ	height-for-age Z score
HOI	Human Opportunity Index
JMP	Joint Monitoring Programme
LGUs	local government units
MDGs	Millennium Development Goals
O&M	operation and maintenance
ORT	oral rehydration therapy
PPPs	public-private partnerships
PRM	Poverty Risk Model
SDGs	Sustainable Development Goals
T60	top 60 percent *(of asset wealth distribution)*
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WASH	water supply, sanitation, and hygiene

The WASH Poverty Diagnostic Initiative covers 17 countries and the West Bank and Gaza. For purposes of convenience, this report refers to the 18 entities collectively as countries or, less frequently, as economies.

Key Facts by Country

New evidence from 18 countries around the world shows significant inequalities in water between rural and urban, poor and non-poor, and regions within countries.

Haiti

Children in the bottom 20% (household income group) have **2.4x the risk** of contracting an enteric disease than children in the top 20%.

Guatemala

Only **33%** of indigenous populations have access to improved sanitation, compared to **70%** of non-indigenous populations.

Panama

Under a conditional cash transfer program, schools with **better WASH services** have **lower dropout rates,** esp. among girls.

Ecuador

42% of people in the bottom 40% lack access to improved sanitation, compared to only **17%** of the top 60%.

Tunisia

The bottom 20% receive only **11%** of water & **10%** of sanitation subsidies, whereas the top 20% receive nearly **27%** of water and **33%** of sanitation subsidies.

Niger

90% of rural Nigeriens defecate in the open; **51%** don't have access to improved water. But most donor funding for WASH goes to the urban areas.

Nigeria

Access to piped water in urban areas declined from **32% in 1990 to 7% in 2015.**

Congo, Dem. Rep.

Improved access to water in cities towers at **81%,** compared to only **31%** in rural areas.

Mozambique

90% of underweight mothers only have access to unimproved sanitation.

Pakistan

District WASH budgets are not correlated to residents' need and poverty level.

Bangladesh

41% of improved water is contaminated with *E. coli* at the source.

Tajikistan

Households in the Sughd region have piped water only **1 day per week.**

West Bank & Gaza

Despite near universal access to piped water, access to non-contaminated improved sources of water averages only **10%** in Gaza.

Ethiopia

Wealthier households in urban areas are **4 times** more likely to have piped water on premises than poorer households.

Yemen, Rep.

63% of the population in the top 20% (household income group) has access to piped water, compared to **35%** of the poorest.

India

56% of the population in the top 20% (household income group) has access to piped water, compared to **6%** of the bottom 20%.

Indonesia

During the first 1,000 days of life, children are **11 percentage points** more likely to be stunted if living in communities with higher levels of open defecation.

Tanzania

Within the first year of construction, **40%** of water points were reportedly not working.

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London, United Kingdom, 1858.

Sanitation was considered a private good, and not a concern of the state. The better-off installed flush toilets, while the poor relied on basic amenities. When people complained about declining living conditions, the politicians didn't listen. When evidence of the biological contamination of local water sources was presented, the politicians tried to undermine it. Over time, horse dung on the streets and human waste in cesspits flowed into the capital city's largest river, the source of drinking water, choking it of oxygen. Still, calls for change went unanswered until the political elites literally faced a summer stench at their doorsteps, and the death toll from cholera reached into the thousands. Only then did they act, making major investments in sanitation and water supply infrastructure and institutions. The Great Stink was a watershed moment for London.

The Sustainable Development Goals (SDGs) and the World Bank's corporate goals of ending extreme poverty and boosting shared prosperity call for specific attention to the poor and vulnerable. The overarching objective of the SDGs is to end poverty in all its forms, but their key difference from the earlier Millennium Development Goals (MDGs) is the integration of social, economic, and environmental goals (UN 2015). This has significant implications for reforms aimed at improving service delivery. With this understanding as its guiding compass, the Water Supply, Sanitation, and Hygiene (WASH) Poverty Diagnostic Initiative focuses on what it would take to reduce existing inequalities in WASH services worldwide.

This report, a synthesis of that global initiative, offers new insights on how data can be used to inform allocation decisions to reduce inequalities and prioritize investment in WASH to boost human capital. It also offers a fresh perspective on service delivery that considers how institutional arrangements[1] affect the incentives of a range of actors. When it comes to improving services, politics matters as much today as it did in the London of the mid-19th century.

Importantly, as will be discussed below, the report does not offer prescriptive global solutions for service delivery challenges. Instead, it seeks to encourage a dialogue on ways to think and work differently, using a problem-driven approach and engaging with the constraints imposed by the broader governance environment.

The Time for Action Is Now

The importance of water supply, sanitation, and hygiene obviously transcends time and geography—but even where this is explicitly recognized in policy, the needs of hundreds of millions of citizens remain unmet.[2] In particular, renewed efforts are needed to address those populations at greatest risk of death and disease due to inadequate WASH, which threatens human capital and economic development.

The SDGs set ambitious new targets for WASH: universal access to safe and affordable services by 2030.[3] The SDGs raise the bar by aiming not only to expand access to basic WASH services

but also to close gaps in service quality, with an eye toward long-term sustainability. This means not only providing water in people's homes, but also making sure that the water is safe to drink and continuously available. It means not just constructing more sanitation facilities, but making sure, year after year, that these are used and human waste is properly removed, treated, and disposed of—in all neighborhoods, not just the wealthiest. Beyond their intrinsic value, improved WASH services will ensure the achievement of other development goals. For instance, SDG 3, focused on overall health, includes targets that explicitly relate to improvements in WASH. In their comprehensiveness, the SDGs open the difficult and yet unanswered questions of where to start making improvements, how to prioritize action, and how to overcome existing bottlenecks.

Countries that have struggled to reach the MDGs for WASH[4] will likely need to improve efficiency and invest even more to reach the SDGs. The fourfold increase in investments that is likely needed to meet the SDGs is beyond what most governments can afford (Hutton and Varughese 2016)[5]. Hence, private capital for infrastructure investment will become increasingly important for services, such as urban water supply, where cost-recovery, at least for operations and maintenance, is more feasible. And given that resources, whether public or private, will always be finite, increasing the *efficiency* of investments will be as important as how and where investments are made. In some cases, achieving greater efficiency will mean confronting political obstacles. Often, policy documents say the right things about investing in water supply and sanitation to benefit poor and vulnerable populations, but implementation by governments and donors does not reflect these commitments.

Many countries struggle to maintain current infrastructure, let alone respond to growing demand. In densely populated areas, economies of scale can be achieved by providing piped water rather than leaving individual households to rely on their own sources, such as wells. Providing piped water also allows groundwater, a public good, to be better regulated and controlled against pollution and overabstraction. Surprisingly, this report reveals that the public provision of piped water on household premises is declining as countries struggle to keep up with population growth. In *Nigeria*, it fell from 29 percent in urban areas in 1990 to less than 10 percent by 2015. Similarly, in the *Democratic Republic of Congo*, piped connections dropped from 48 percent of the urban population in 1990 to only 17 percent in 2015. *Haiti*, *Tanzania*, and the *West Bank and Gaza* also suffered a decline in urban areas during this period. In the face of service delivery failures, households take matters into their own hands, sinking private wells if they can afford to (and thereby straining the local aquifer) or buying from unregulated private providers that charge three to four times what public providers do.

In some countries, piped water is hardly any safer than pond water and is a threat to people's health. The SDGs call for safely managed water, which means that improved water is located on premises, available when needed, and free of biological and chemical contamination. Figure ES.1 presents data on *E. coli* contamination in four countries—*Bangladesh*, *Ethiopia*, *Tajikistan*, and *Ecuador*.[6] Contamination levels vary dramatically not only by country, but also by location and household wealth. The figure also reveals a surprising fact about piped water, which is theoretically the safest source: in some locations, it is equally or more contaminated than nonpiped supply.

In Bangladesh, 80 percent of piped water is contaminated with *E. coli*, a level that is just as contaminated as surface water. Reasons for this could be inadequate treatment at the source, and/or the intermittent water supply, whereby porous networks increase the risk of contaminants being drawn in. Giving citizens more information about this problem—making the invisible visible—will be critical for improving accountability of service providers. Improving accountability involves not only giving citizens information, but also creating space to act on that information so that service providers and/or governments have incentives to respond. Thus, it is critical to promote household water treatment in areas where the improvement of infrastructure and service will take time.

Figure ES.1: *E. coli* Contamination Rates at Water Sources
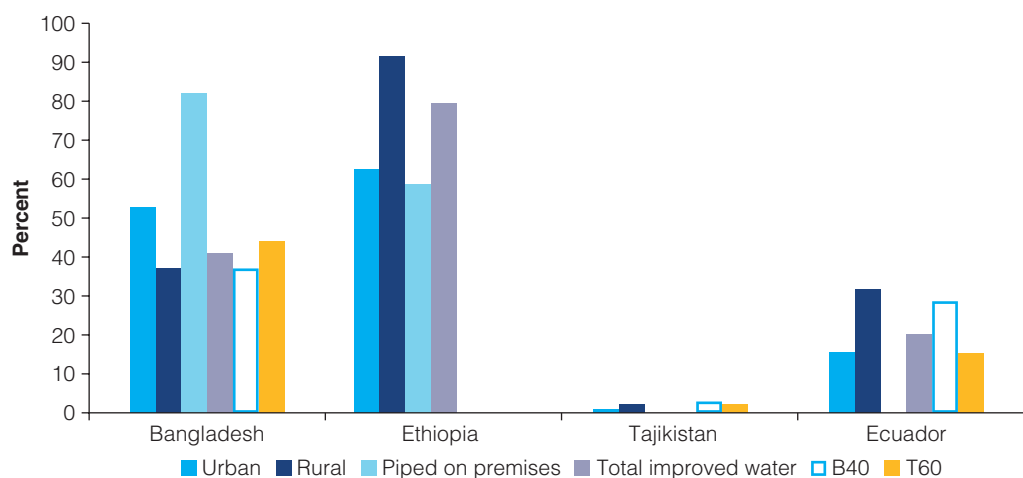
Source: World Bank calculations.

Problem-Driven Diagnostics to Guide the Way Forward

Built on in-depth country-level analysis, the WASH Poverty Diagnostic Initiative aims to provide data-driven recommendations to help policy makers, stakeholders, and donors plan more strategically and equitably. The present report synthesizes multisectoral research from 17 low- and middle-income countries[7] and the West Bank and Gaza, undertaken since 2015. It presents new evidence on inequalities in access to WASH services, examines the impact of unequal services on the poor, and explores context-specific constraints that go beyond technical issues to understand why service delivery continues to be inadequate and inefficient. It highlights findings from individual countries, involves substantial reanalysis of existing data sets in new and innovative ways, brings new evidence on spatial inequalities at the subnational level, and shares insights on SDG parameters that were previously invisible. The work confirms some prior findings, even as it challenges water sector practitioners and decision makers to do business differently.

The report is not prescriptive about how governments should spend their resources—such decisions are the domain of autonomous states, based on local needs, resources, and conditions. Rather, it offers insights on how to better use available information to prioritize and inform investment decisions. The report also does not offer prescriptions for addressing identified constraints but suggests an approach to finding solutions. One of the key learnings from the initiative is that there are no universal off-the-shelf solutions. Not only do politics, institutional arrangements, and norms vary across countries, but so do the different services within the WASH sector. The characteristics of urban water/sanitation and rural water/sanitation differ considerably in terms of their constituencies and the roles of state and private actors, and therefore attract varying degrees of political attention, suggesting diverse strategies to improve performance.

To find solutions that will work within a given context, specific service delivery problem(s) may be used as the starting point for a diagnostic aimed at identifying binding constraints. The next step is to work with local stakeholders to debate and contest issues and solutions that are context specific and fit with local politics and the existing policy environment. This can open the

ambit of reform options that are needed to improve services. (While the desk-based country analysis conducted under the WASH Poverty Diagnostic Initiative highlights why such an engagement process is required, the process itself is beyond its scope.)

The lessons from the Initiative point to the need to *think and work differently*—**business as usual is not an option.** Specifically, three broad shifts in thinking are needed to accelerate progress toward the SDGs' vision for water and sanitation:

- **Investments and interventions need to be coordinated across sectors to improve human development outcomes.**

- **Future investments need to be better targeted and efficiently allocated, given that most countries have limited fiscal space.**

- **A better understanding of the broader governance context within which WASH services are delivered is needed to reduce gaps between policy and implementation.**

All Hands on Deck: Working Together to Protect the Foundations of Development

Regardless of their income level, all countries included in the WASH Poverty Diagnostic Initiative—and indeed most of the countries in the world—face multiple and competing challenges and priorities. In poor countries, poverty cuts across multiple dimensions, WASH being one of them. In fact, the lack of WASH services typically constitutes one of the deepest and most far-reaching deprivations. With this in mind, this study highlights how improving WASH can help protect the foundations of development by supporting nutrition (addressed by SDG 2) and health (addressed by SDG 3), two key pillars of human development.

In several countries studied here, a silent emergency is putting vulnerable sections of the population at risk for nutritional deficiency and diarrheal disease. In *Guatemala*, *Niger*, *the Democratic Republic of Congo*, *Mozambique*, *Yemen,* and *Bangladesh* the rate of stunting[8] among children under 5 is over 40 percent. Stunting is a powerful risk factor associated with 53 percent of infectious-disease-related deaths in developing countries. The undernutrition from which it results can have long-lasting negative effects on children: poor mental development, behavioral abnormalities, and a reduced capacity to work, among others. These disadvantages are detrimental to human capital and to economic development more generally. A growing literature shows how poor WASH contributes to undernutrition by transmitting pathogens and infections that inhibit nutritional uptake.

Directing WASH investment toward public health objectives can help reduce childhood diarrheal disease and undernutrition—and, for this, geospatial mapping data are key. Although the correlation between monetary poverty and children's health is clear enough at the country level, it does not map directly to poor/non-poor or rural/urban categories. Not all children in poor households or in rural areas are undernourished or suffering from diarrheal disease, and not all children in relatively wealthy or urban households eat well and are free from diarrheal disease. While it is a fact that children living in the five largest slums of Bangladesh have the highest rate of stunting in the country (nearly 50 percent), children in relatively well-off households are also at risk. Among the better off, those exposed to drinking water contaminated with *E. coli* are at higher risk than those who are not exposed to such water. The research conducted under the WASH Poverty Diagnostic Initiative demonstrates that WASH investments targeted at areas or groups whose risk of diarrhea and stunting is high are likely to accomplish *more* in improving overall human development outcomes than efforts to achieve universal coverage by reducing the WASH gaps between poor and rich, rural and urban.

An effort to improve WASH, coordinated with other health interventions, can have effects greater than the sum of its parts. Using a conceptual framework from the United Nations Children's Fund (UNICEF) as a guide, the analysis highlights the need to look across the determinants of poor health indicators, such as stunting, to understand the overlapping deprivations of a child. UNICEF identifies four determinants of stunting: a lack of (i) food security, (ii) adequate personal care and feeding, (iii) a healthy environment (that is, WASH), and (iv) adequate health-care services. The Initiative considers whether synergies are generated when more than one of these basic human needs are met. As outlined in this report, stunting can be reduced to a greater degree when children are given simultaneous access to *both* adequate WASH and specific health services than when they gain access to only WASH or only health services.

A combination of WASH-related risk factors increases the likelihood of childhood death from diarrheal disease.[9] The Initiative developed a risk model to assess the co-distribution of risk factors for child mortality from diarrheal disease—one of the most important being poor water supply and sanitation. Understanding where the risk of diarrheal mortality rates is highest also means understanding where children lack access to Vitamin A, are underweight for their age, and lack access to oral rehydration therapy (ORT). The combination of these risk factors determines a child's overall risk of dying from diarrheal disease (figure ES. 2).

WASH investments will have the greatest impact on childhood mortality due to diarrheal disease when they target geographic areas where populations have little access to services plus other vulnerabilities. One of the main benefits of the risk model that the WASH Poverty Diagnostic Initiative developed is its quantification of overall disease risk—and variations in this risk across subnational and income-level divisions.

Map ES.1 highlights the spatial distribution of the exposure index associated with inadequate WASH and the susceptibility index of the factors that amplify or weaken the impacts of inadequate WASH in *Mozambique.* A high value of the exposure index (the blue map) implies poor WASH, while a high value of the susceptibility index (green map) implies high vulnerability (that is, lack of access to Vitamin A and ORT and being underweight). The risk index (red) is a combination of the exposure and susceptibility indices and highlights the provinces where

Figure ES.2: Risk Factors of Diarrheal Mortality: Exposure and Susceptibility
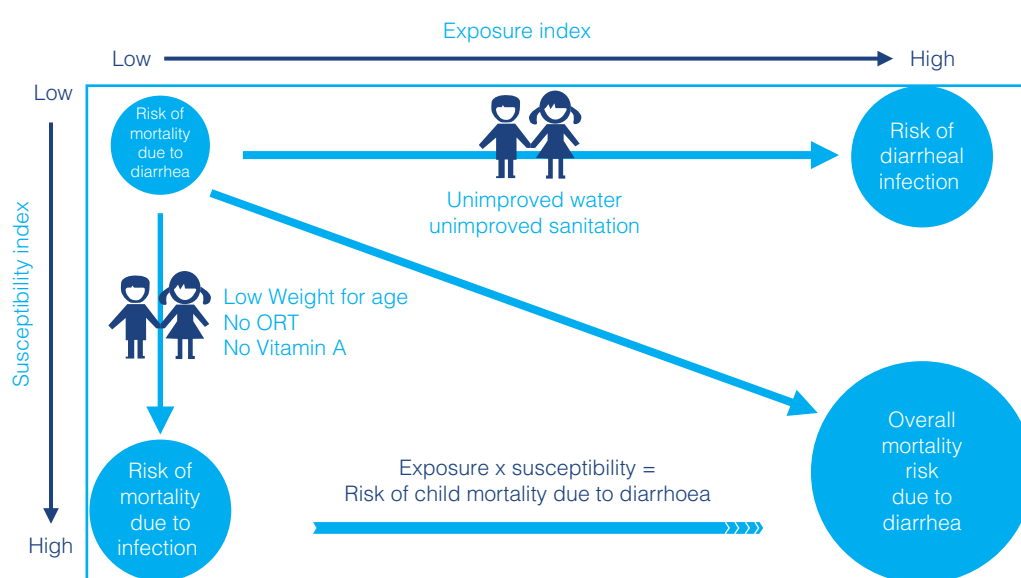
Source: Cumming et al., forthcoming and appendix B.
Note: ORT = oral rehydration therapy.

Map ES.1: Exposure to Inadequate WASH and Susceptibility Factors Combined Increase Risk of Child Mortality Due to Diarrhea in Mozambique

Exposure index
Overall

<2.4
2.4–2.6
2.6–2.8
>2.8

Susceptibility index
Overall

<0.5
0.5–1.0
1.0–1.5
>1.5

Risk index
Overall

Cabo Delgado
Nampula
Tete
Zambezia

<1.0
1.0–2.0
2.0–3.0
3.0–4.0
>4.0
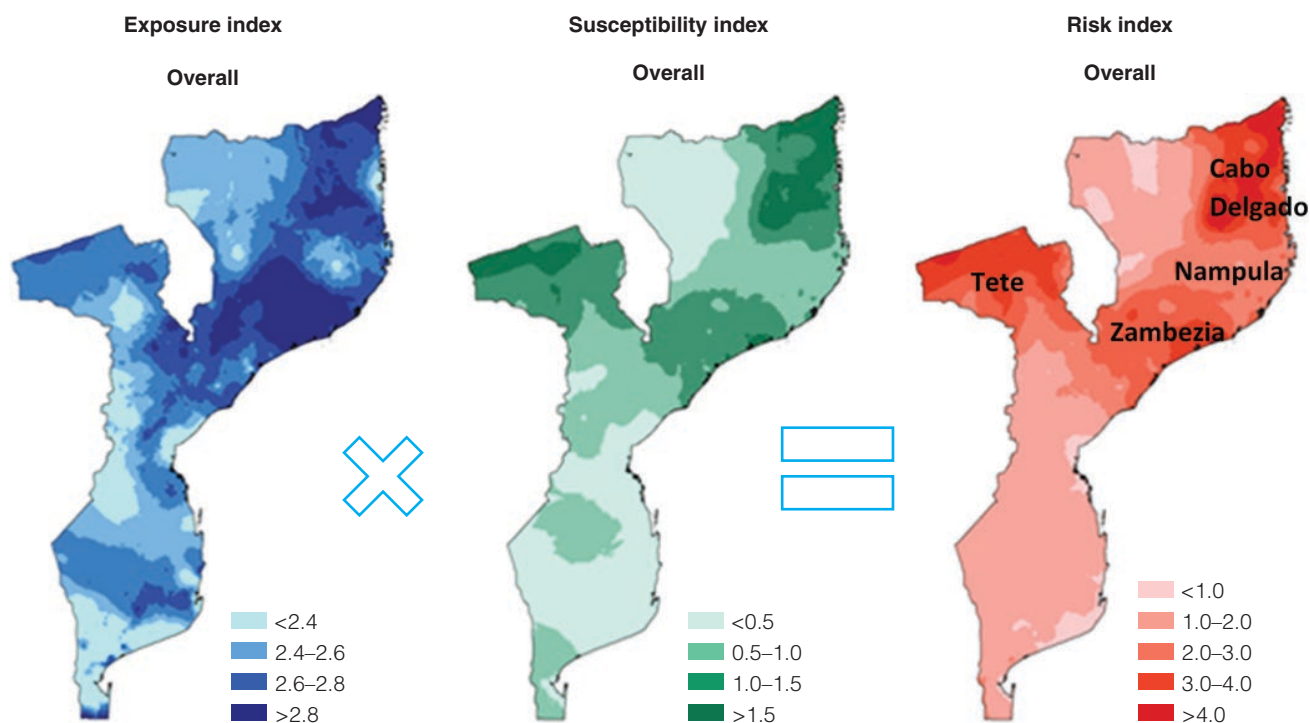
Source: World Bank 2017b.

children are most at risk of dying from diarrheal disease. This and other findings reveal that geographic targeting based simply on poor WASH services (high exposure index) may not be the most effective in terms of reducing diarrhea.

Investments: More and Better Targeted

Significant disparities in WASH quality are associated with differences in wealth level, location, and other demographic characteristics. Specifically, the quality of WASH facilities and services differ between the poor and non-poor, between rural and urban areas, between large cities and small cities, and across and within geographic regions of the same country. Traditionally disadvantaged groups—including women, the indigenous, and the disabled—suffer an additional burden. In some pockets of both rural and urban areas, this burden poses a dire threat to basic health. The WASH Poverty Diagnostic Initiative provides decision makers with more precise information about such inequalities so they can act to better allocate their resources.

Rural areas are particularly lagging: in the countries analyzed, three out of four people who lack improved sanitation and four out of five people who don't have improved water live in rural areas. Of the estimated 2.4 billion people in these 18 economies, 1.5 billion (63 percent) live in rural areas. The poor are disproportionately affected by this lag: approximately 74 percent live in rural areas.[10] Meanwhile, a lack of attention to sanitation and the management of human waste is causing problems in both urban and rural areas. Sanitation-related disease is increasingly a concern in densely populated areas; the urban poor are two to three times less likely to access any type of improved sanitation than their better-off neighbors.[11] To assist decision makers in achieving the policy objectives of equitable access, the WASH Poverty Diagnostic Initiative provides new methods to inform resource allocation.

Map ES.2 shows the overlay of income poverty and improved sanitation and their spatial distribution in *Nigeria.* This reveals that the relationship between poverty levels and access to improved sanitation is not straightforward. Around 22 percent of Nigerians are in low-poverty areas and have low levels of access to improved sanitation, and around 10 percent of Nigerians are in high-poverty areas and have high access to improved sanitation. This type of information can help decision makers identify areas where it may be prudent to employ subsidies due to low income levels, and provides a guide to better understand why some geographic areas do better than others despite a high degree of poverty.

Discrepancies between policies and budget allocations are compounded by inefficient execution and implementation. Policies and voted budgets often look "good" in terms of their commitments to extend WASH services to poor and marginalized populations, but the actual resource allocation decisions do not reflect the policy commitments. While there are no standard objective criteria for judging whether policies are "good" or "bad," for the purposes of this initiative policies are assessed from the perspective of providing affordable, sustainable, and equitable services to the poor and marginalized groups.

For example, the policy in *Niger* (PROHESA 2016-30) clearly articulates the state's commitment to ensuring equal access to WASH services, and their affordability, and would, by this yardstick, be considered "good." While the rate of access to improved water in urban areas stands at 100 percent, in rural parts of the same country only 1 percent of people have access to improved sanitation. While those living in cities saw their access to improved water increase by 39 percentage points between 1990 and 2015, open defecation increased in poor rural areas. These statistics are difficult to ignore given that 75 percent

Map ES.2: Poverty and Access to Improved Sanitation in Nigeria
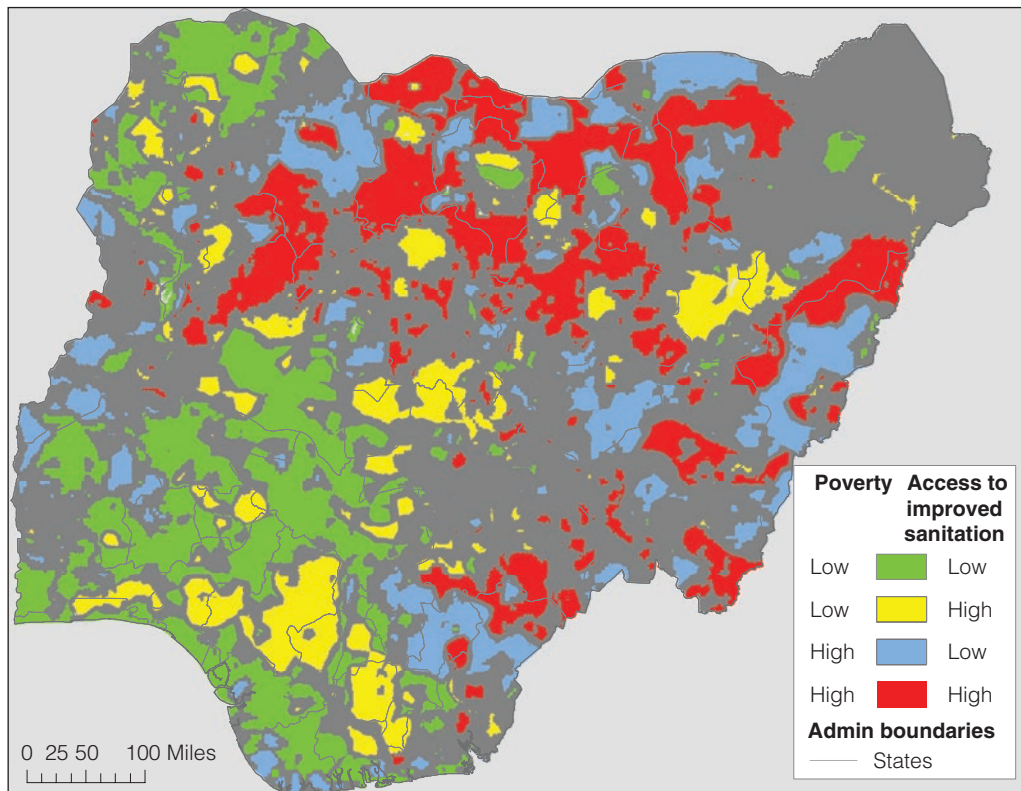
Source: World Bank 2017c.

of residents live in rural areas, as do 90 percent of the poor, who are largely concentrated along the country's southern border.

While this report does not prescribe how governments should spend their resources, if countries and donors truly aspire to attain the SGDs then they will need to *invest more* in WASH and plan carefully to make *more effective* use of the resources available to them.

Mind the Gap: From Policy to Pipes

The failure to provide adequate WASH services to the poor and other marginalized groups results primarily from poor implementation rather than bad policy. For example, in Tanzania the water budget quadrupled in the span of just 12 years (2002–14), due in large part to enhanced coordination and commitments by donors to achieve the MDG for water. Donor support encouraged the country to adopt reforms aimed at devolving resources and authority to local governments and encouraging community participation in operations and management— widely endorsed measures meant to enhance sustainability and promote equity. However, as of 2015, access to basic water services had stagnated at just over 50 percent of the population. In addition, 40 percent of all water points[12] in rural areas are not functional and an estimated 25 percent of all water points in the country break down within two years of construction.

The WASH sector is characterized by persistent failures in providing sustainable services to vulnerable populations—even when the funding to do so is available. This tendency is revealed again in the case of *Tanzania*, but its experience is not unique. Similar situations abound in most of the World Bank's client countries. In addition to the resource allocation issues discussed previously, the kinds of service delivery challenges described in Tanzania point to the critical importance of enhancing the *efficiency of resource use.* There is a need to look beyond technical issues, and even challenge or revisit "best practice" approaches that have been promoted over the years. Improving the efficiency of resources will require sector practitioners to look beyond infrastructure and services and pay more attention to the institutional arrangements and the distribution of power that influences how these institutions perform in practice.

Looking across a subset of 10 economies studied under the WASH Poverty Diagnostic Initiative,[13] a set of common themes emerge. First, we see that information asymmetries and a lack of transparency frequently make it difficult for citizens to know what they can reasonably expect and demand from service providers and politicians. Such a lack of information is compounded by constraints on the ability of those without significant wealth to effectively voice their concerns. As a result, the visibility of outputs tends to drive the priorities of policy implementation. Among other things, this creates incentives to construct new infrastructure, rather than invest in the operation and maintenance of existing infrastructure or focus on improvements to water quality.

The fact that water and sanitation services have been only partially decentralized in many of the cases also creates challenges for implementation. Several country cases reveal a lack of clarity in the allocation of responsibilities and poor coordination across different implementing agencies. This results in local governments failing to adequately discharge the responsibilities assigned to them. This is frequently the result of a transfer of responsibilities to the local level without a commensurate transfer/availability of financial and human resources. The failure to sufficiently resource local governments is frequently political—reflecting a reluctance on the part of the central government to meaningfully share power, an outcome of intergovernmental interactions within what the 2017 *World Development Report* calls the "policy arena" (World Bank 2017a). Thus, in addition to the cross-government coordination discussed above, there are efficiency gains that can be had from improving coordination across levels/tiers of government.

Critically, the identification of common constraints does not justify the application of common solutions. A problem-driven approach is necessarily context driven, and—perhaps frustratingly— means that would-be reformers cannot begin with a prepackaged toolkit of tried-and-tested

reforms. Rather, the proposed approach necessitates beginning with a well-identified service delivery problem and identifying the broader governance context within which it manifests. Political economy analysis can help to identify the relevant actors whose incentives can potentially be shifted to facilitate more efficient and equitable outcomes. Instead of trying to rework the whole operating environment, the goal is to navigate it, while being cognizant of political and technical constraints.

Looking Toward the Sustainable Development Goals

The Initiative points to the importance of thinking (and working) differently, not only about inequality in WASH services, but also about how investment in WASH can have added impact on human development outcomes. It draws from all possible data sources, contributing new ones (notably in relation to water quality) to triangulate the analysis and objectively ascertain the facts and proposed recommendations. The lessons from this initiative highlight the following:

- If policy objectives are to reduce inequities in human development outcomes with WASH investment, then going at it alone and taking a spatially blind approach will not do. Coordinated efforts that consider investment in health services and nutrition investment are critical. These can also help reinforce cross-sectoral coordination more broadly in efforts to reduce undernutrition, stunting, and morbidity and mortality due to diarrheal disease.

- To reduce inequalities in WASH services between more and less vulnerable groups, resources need to be targeted in a more efficient manner; the Initiative offers a compass for achieving those policy objectives.

- To strengthen institutions and improve efficiencies, there is a need to look at the broader governance environment to understand binding constraints beyond technical issues specific to the WASH sector.

- More money is required, but investing more money in inefficient institutions will not always result in better outcomes; improving efficiencies and strengthening institutions is paramount.

- Harmonizing and improving data collection efforts at the country level will be critical to monitoring the SDG indicators. This means more consistency across national surveys, but also better use of administrative data. Making information such as water quality available to the public can reduce information asymmetries.

The lessons from 1850s' London resonate today: politics matter when developing policies and allocating and spending resources. The tasks that countries and donor institutions must consider as they look ahead at the SDGs may be considered herculean. They need not be undertaken alone. A key reflection from this initiative is that building cross-sectoral collaborations among water, poverty, health, and governance specialists brings a diverse range of perspectives and new insights, and opens up the possibility to think and work differently. This report hopes to inspire decision makers and practitioners to do just that for goals to be more than words, with tangible benefits for the most vulnerable.

Notes

1. Institutions are the "humanly devised constraints that shape human interaction" (more commonly referred to as the "rules of the game") and organizations are "groups of

individuals bound by some common purpose to achieve objectives" (North 1990). Combined, the two constitute the "institutional arrangements," or governance environment, observed in a particular area. Intergovernmental arrangements, regulations, and such compose the "institutional architecture."

2. As of 2015, 663 million people lacked access to improved drinking water (http://www .who.int/water_sanitation_health/monitoring/jmp-2015-key-facts/en/).

3. It is important to note that these are global aspirational targets and that countries are expected to customize and adapt them to the local context.

4. According to the Joint Monitoring Programme of the World Health Organization and the United Nations Children's Fund (WHO/UNICEF) (JMP 2015), 147 countries met the drinking water goals and 95 countries met the sanitation goals, but only 77 countries met both.

5. The unit costs on which these estimates are based implicitly include prevailing inefficiency. Costs would be lower if these inefficiencies are reduced.

6. In the Democratic Republic of Congo, not included in this figure, *E. coli* contamination is common across improved (piped and nonpiped) and unimproved sources; is high in the capital, Kinshasa; and near-universal in rural areas.

7. Indonesia, Bangladesh, India, Pakistan, Tajikistan, Yemen, Tunisia, Ethiopia, Tanzania, Mozambique, the Democratic Republic of Congo, Nigeria, Niger, Haiti, Guatemala, Panama, and Ecuador. Criteria such as income status, income inequality, regional representation, state fragility, WASH coverage, data availability, and ability to inform the World Bank's Systematic Country Diagnostic were considered in the selection process. Final decisions were based on demand from World Bank country offices. Thus, the selected countries are not a representative sample of the regions of the world, but they do include a mix of low-income, fragile, and middle-income economies. Individual country reports prepared under the WASH Poverty Diagnostic Initiative can be accessed at www.worldbank. org/washpdinitiative.

8. The World Health Organization (WHO) defines stunting as a height-for-age value less than two standard deviations from the WHO-defined median.

9. It is worth noting that there are numerous other benefits that extend beyond health.

10. This estimate is based on the distribution of the poor in each country using national poverty lines. The rural share of the poor ranges from 54 percent in Tunisia to 93 percent in Mozambique.

11. This estimate is based on urban income quintiles in the Sub-Saharan African and South Asian countries that were part of this study.

12. That is, the point sources that account for most water supply infrastructure in rural areas in many developing countries. These include communal standpipes, hand pumps, and improved springs.

13. Bangladesh, Ethiopia, Guatemala, Indonesia, Mozambique, Niger, Nigeria, Panama, Tanzania, and the West Bank and Gaza.

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