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Using Monitoring Data to Identify Water and Sanitation Service Delivery Improvement Opportunities in Low- and Middle-Income Countries

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Universal access to basic sanitation and water services and their progressive improvement are important for human development, health, and human rights; and are recognized in program, national, and international policies such as the Sustainable Development Goals (SDGs). Monitoring data are important for measuring progress toward universal access and improvements in service levels. In the SDG era, substantially more data will become available with new and expanded monitoring. These data can be analyzed beyond their immediate purpose to answer policy-relevant questions. However, these data are underused for service delivery research and there are opportunities to improve the reliability and quality of monitoring. To address these challenges, I analyzed monitoring data to identify opportunities to improve monitoring and water and sanitation service delivery.

Using infrastructure data from Central America, Bayesian networks predicted high quality water supply infrastructure and year-round water availability were more influential on continuity than management variables such as external technical support and system rehabilitation funds. I systematically compiled health care facility (HCF) datasets to produce coverage estimates for 21 indicators of environmental conditions in HCFs in low- and middle-income countries, where 52% of HCFs lack piped water and 30% lack improved sanitation. Statistically significant inequalities in coverage exist between HCFs by: urban-rural setting, managing authority, facility type, and administrative unit. Using frontier analysis, I transformed household monitoring data into indicators of water and sanitation performance. Water and sanitation performance analysis provides policymakers with a new instrument to inform investment decisions and provides an accountability instrument to assess country progress on meeting full realization of human rights obligations. There are many simple data collection improvement opportunities that do not add substantial cost or burden which would make monitoring data more valuable for service delivery research. Improvement opportunities include the use of: relevant and appropriate survey questions, clear definitions, and quality assurance/quality control measures.

Together, these studies demonstrate substantial, unrealized value that can be derived from monitoring. Monitoring improvements and analysis of these data are major opportunities to make better use of limited resources, inform evidence-based decision-making for better management, policy, programming, and practice, and improve water and sanitation service delivery.

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