



A Thirst for Change

The World Bank Group's Support for Water Supply and Sanitation, with Focus on the Poor

AN INDEPENDENT EVALUATION



IEG
INDEPENDENT
EVALUATION GROUP

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An IEG Evaluation of the World Bank Group's Support for Water Supply and Sanitation, with Focus on the Poor, FY2007–16

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*Documents to come.

Abbreviations

ADB	Asian Development Bank
AfDB	African Development Bank
EU	European Union
FCS	fragile and conflict-affected situations
GDP	gross domestic product
GPOBA	Global Partnership on Output-Based Aid
ICR	Implementation Completion and Results report
IDA	International Development Association
IDB	Inter-American Development Bank
IEG	Independent Evaluation Group
IFC	International Finance Corporation
KPI	key performance indicator
LIC	low-income country
LMIC	low- and middle-income country
M&E	monitoring and evaluation
MDG	Millennium Development Goals
MIC	middle-income country
MIGA	Multilateral Investment Guarantee Agency
O&M	operation and maintenance
ODF	open defecation-free
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	public-private partnership
SCD	Systematic Country Diagnostic
SDG	Sustainable Development Goals
UMIC	upper-middle-income country
WHO	World Health Organization
WPP	Water Partnership Program
WSP	Water and Sanitation Program
WSS	water supply and

All dollar amounts are U.S. dollars unless otherwise indicated.

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Overview

Highlights

Sustainable Development Goal 6 (SDG 6) envisions universal and equitable provision of water supply and sanitation (WSS) services by 2030, and this SDG now frames the World Bank Group's support for client countries in the sector. To reach this goal requires World Bank Group client countries to both bridge their existing gaps in access to improved WSS and to reach expected levels of adequacy, reliability, quality, and affordability in their service delivery.

Making meaningful progress toward SDG 6 requires a quantum increase in the scale and speed of WSS access and service provision and an infusion of financial resources three times the current levels. This is an enormous challenge for many low-income countries (LICs) and lower middle-income countries (LMICs), given the sector's poor levels of cost recovery, continuing rural-urban migration, and unaccounted environmental and other cross-sectoral impacts.

Considering these challenges, the nature and degree of World Bank Group engagement with WSS so far cannot be the sole guide for the future. This evaluation highlights the following areas for re-engagement and increased emphasis:

- ❖ **Addressing disparities in access.** Large disparities exist between LICs and middle-income countries (MICs) and between urban, peri-urban, small-town, and rural areas, particularly in several countries in Sub-Saharan Africa, South and East Asia, and Latin America. Continuing migration from rural communities to urban areas exacerbates the disparities, and there is relatively less focus on sanitation in these Regions.
- ❖ **Creating a robust evidence base for service delivery.** The lack of data on WSS service delivery is pervasive across World Bank client countries, hindering actionable policy assessments of service provision, performance targets, incentives for performance, and accountability for results. The World Bank must align its results frameworks and key performance indicators with SDG 6 expectations and support client countries in doing the same for their WSS sectors.
- ❖ **Re-engaging on financial viability and tariff reform.** Many LMICs and LICs have been unwilling to use tariffs as an economic instrument to promote cost recovery and demand orientation, and this has been a key constraint to financial viability in client WSS sectors. The World Bank must engage intensely with client governments on tariff reforms to strengthen the foundation for financial viability of service providers, and to create conditions for attracting commercial finance and the latest sector expertise in keeping with the new Cascade Approach. The World Bank's upstream policy engagement is crucial for IFC and MIGA to play a collaborative and wider role in the sector in LICs as well as MICs.
- ❖ **Addressing growing environmental and other cross-sectoral issues.** Environmental and other cross-sectoral impacts from poorly managed solid waste and urban flood management have generally received low attention in the design of wastewater and sanitation projects among client countries, especially LMICs and LICs. The World Bank needs to provide knowledge support and promote cross-sectoral collaboration to find solutions to the complex problems of municipal pollution, groundwater over-abstraction, and resilience to climate-induced events.
- ❖ **Enhancing knowledge generation and sharing.** The World Bank has an important role in generating and sharing knowledge, including innovations in the WSS sector through analytical work—notably by the Water and Sanitation Program—and through technical assistance and capacity building together with investment projects. The World Bank needs to maintain and enhance this edge after the WSP transitions to a new Partnership Framework and merger with operations, and by ensuring that capacity building through projects does not become routine and that it links to project outcomes in results frameworks.

The Importance and State of Water Supply and Sanitation Worldwide

The state of water supply and sanitation (WSS) access and services strongly influences human and economic development.

Worldwide, 663 million people lack access to improved water supply; the majority of these are in low-income countries (LICs), mainly in the Sub-Saharan Africa Region. Furthermore, 2.4 billion lack access to improved sanitation, living mostly in LICs and low- and middle-income countries (LMICs) mainly in Sub-Saharan Africa, most countries in the South Asia Region, and several countries in the East Asia and Pacific Region.

Raising the Standards in Access to Service Delivery

Global policy attention in the WSS sector transitioned in 2015 from the Millennium Development Goals to the Sustainable Development Goals (SDGs). SDG 6 seeks to “ensure access to water and sanitation for all.” Its ambitious targets are to achieve universal and equitable access to safe and affordable drinking water, and adequate and equitable sanitation with an end to open defecation—both by 2030.

SDGs are the core business of the World Bank Group, and thus SDG 6 now frames the World Bank Group’s strategy for WSS.

The higher performance benchmarks of SDG 6 will need an investment estimated at \$1.7 trillion in the next 15 years, which is three times historic levels—a difficult gap for many World Bank client countries to address, given the sector’s poor cost recovery record, dependence on public funds, and low and uncertain fiscal transfers. Bridging the gap that separates SDG 6 from the current state of WSS access and service delivery in World Bank client countries will need a large increase in investment scale and speed.

The World Bank Group’s Country Assistance Strategies (CASs), and Country Partnership Frameworks (CPFs) have devoted progressively greater attention to WSS service delivery outcomes during Fiscal Year (FY)2007–16, the period this evaluation covers. However, the CAS and CPFs have less emphasis on reliability and affordability than on access.

Evaluation Questions and Approach

This evaluation addressed two main questions: How effective has the World Bank Group been in supporting client countries’ efforts to improve access to adequate, reliable, and sustained water and sanitation services? How well is it equipped to support the countries in moving toward sustained water and sanitation services for all, with a focus on the poor and in keeping with SDG 6?

The theory of change underlying this evaluation recognizes the World Bank Group (along with other lenders and donors) as one of two pillars supporting client countries in making credible progress toward SDG 6. The other pillar is the private sector, which mobilizes market-based financing and contributes the latest industry knowledge. Policy and project interventions in the WSS sector lead to key intermediate outcomes: equitable access, financial viability of service providers, and environmentally sustainable water resources. These intermediate outcomes, when accompanied by institutional accountability for service delivery, result in desirable adequacy, reliability, quality, and affordability outcomes. Changes in beneficiary behavior regarding hygiene and sanitation influence the delivery outcomes, leading to development impacts in human and economic welfare and environmental sustainability.

The evaluation methodology includes a review and assessment of the lending, investments, and guarantees portfolios, along with knowledge partnerships, a

literature review, and 13 field- and desk-based country case studies. The IEG team interviewed several government and implementing agency officials in field study countries, and World Bank Group task team leaders, managers, and staff.

Portfolio Performance

The World Bank Group provided \$30.3 billion for WSS to client countries during FY2007–16. The World Bank accounted for the largest share with \$28.4 billion (93 percent), followed by the International Finance Corporation (IFC) with \$1.5 billion (5 percent), and the Multilateral Investment Guarantee Agency (MIGA) with \$0.4 billion (2 percent).

World Bank Group programs and projects placed much greater emphasis on access to WSS and on augmenting bulk water supply than on addressing objectives of reliability, quality, and affordability of services to consumers. It was more effective in improving basic WSS access than in achieving adequacy, reliability, quality, and affordability of service delivery outcomes.

About 71 percent of World Bank WSS projects completed during FY2007–16 had moderately satisfactory or better outcomes. However, 42 percent of those projects also had significant or high risk to project development outcomes ratings. The main sources of risk were lack of financial sustainability of service providers and inadequate institutional capacity, especially in rural areas. Both factors often link to insufficient government leadership and commitment. Monitoring and evaluation quality was substantial or high for only 22 percent of the projects.

Most IFC investments and MIGA guarantees are in middle-income countries (MICs), though IFC executed some advisory services in LICs. Only half of IFC investments and advisory services showed moderately satisfactory or better results, because of realized risks; weak government

execution capacity; lack of political will; and a politicized tariff adjustment system.

World Bank performance in expanding access to water supply was favorable (moderately satisfactory or better performance with respect to targets) and somewhat better in urban and rural areas than in peri-urban areas. Providing access to sanitation fared somewhat better in rural and peri-urban areas than in urban areas, and water supply reliability was better in rural areas than in urban areas. Performance for improving water quality was relatively low overall compared with performance in securing basic access, and significantly worse for rural areas than for urban areas.

World Bank engagement in developing solutions for sustainable WSS services in small towns and rapidly urbanizing villages in LMICs and LICs is low relative to its engagements in larger urban areas.

World Bank efforts to improve the financial sustainability of service providers through financial covenants in investment projects yielded disappointing results. Many utilities in client countries are unable to recover operating costs, thus perpetuating a culture of dependence on financial support from oversight ministries and sovereign guarantees for external borrowings.

Salient Issues

Focusing on disparities in WSS access.

World Bank lending volume is highly skewed toward MICs instead of LICs, which have the least access to improved WSS. By contrast, the World Bank Group has a robust knowledge presence in LICs mainly regarding tackling emerging WSS challenges, such as sustainable management of on-site sanitation and promoting domestic private WSS service providers. Addressing regional disparities in WSS access between and within large cities, small towns, and rural communities remains a challenge, particularly for LMICs and LICs in Asia and Africa, which continue to

OVERVIEW

experience significant population movement from rural communities to urban areas. The World Bank Group focuses less attention on sanitation in urban, peri-urban, and rural areas than it gives to water supply.

Evidence base for WSS service delivery. IEG's analysis of project objectives and key performance indicators from project results frameworks shows that the World Bank Group's programs and projects placed greater emphasis on tracking user access to WSS and enhancing bulk water supply, and less emphasis on measuring service quality delivery parameters (reliable and affordable services of good quality responding to consumer demand). World Bank client countries do not track service delivery systematically and continuously in their WSS sectors (except for well-run utilities).

A lack of data on WSS service delivery outcomes is a serious impediment to making meaningful policy assessments of service provision, formulating performance targets, designing incentives for improved performance, enforcing the accountability of service providers, and fostering citizen engagement and feedback.

Financial viability and tariff reform. The lack of willingness in many LMICs and LICs to use tariffs as an economic instrument to promote cost recovery and demand orientation is a key constraint to financial viability in client WSS sectors. Achieving SDG 6 requires fundamental tariff and regulatory reforms that enable service providers to achieve adequate cash flow from operating the WSS infrastructure. Without tariff reforms in LMICs and LICs, most households in these countries will not receive modern network services by 2030. Existing self-provisioning practices are becoming increasingly less sustainable as urban population density increases. The World Bank's upstream policy engagement is crucial for IFC and MIGA to play a collaborative and wider role in the sector in LICs as well as middle-income countries.

Growing importance of cross-sectoral issues relating to WSS. Cross-sectoral impacts of poor solid waste and urban flood management received low attention in the design of wastewater and sanitation projects. The evaluation finds that regulatory drivers for safeguarding long-term environmental impacts of WSS-related activities are weak except in most upper-middle-income countries. Typically, actions to mitigate environmental and climate risks are delayed for future consideration. If environmental crises became political liabilities, World Bank engagement was invited through megaprojects. However, without addressing the underlying policy and institutional constraints, the efficacy of such interventions will likely be low. This highlights the importance of sequencing policy reforms together with physical investments.

Maintaining the edge on knowledge generation and sharing. The recent merger of the Water and Sanitation Program (WSP) with the Water Partnership Program, with operations under the new partnership framework, engages this expertise in the entire project cycle. Maintaining and enhancing the WSP's value added in the new arrangement is important, as is ensuring that the partnership framework's results framework tracks the new arrangement's contribution to project outcomes.

World Bank and UN agencies share a convening role for SDG 6 in which the World Bank is a recognized, important partner because of its knowledge and operational insights. The World Bank's convening role at the country level seems low and uneven and needs strengthening in line with the scale of its lending and knowledge presence in client countries.

Recommendations

Recommendation 1: Increase the World Bank Group's diagnostic efforts for enhanced engagement on reducing

disparities in WSS access between and within regions, countries, and urban and rural areas. This is especially relevant for LICs and LMICs of Sub-Saharan Africa, Asia, and Latin America, with large concentrations of the poor in several sub-regions, and peri-urban and rural areas. In particular, rural WSS schemes need increased and dedicated technical and management support.

Recommendation 2: Align the results frameworks and key performance indicators of World Bank projects with SDG 6 needs and increase support to client countries to build their evidence base for WSS access and service delivery. Results frameworks and key performance indicators of World Bank projects should track service delivery outcomes (that is, adequacy, reliability, quality, and affordability), and the extent of access and services to the poor. The World Bank should help client countries to set up systems to track WSS access and service delivery, drawing upon its experience with harnessing information and communications technology for the purpose.

Recommendation 3: Engage intensely with client governments on WSS sector reforms to strengthen the financial viability of service providers and to create conditions for increased access to commercial finance, in keeping with the new Cascade Approach. This could be pursued by increasing the engagement with client governments on establishing legislation or regulation requiring consumers to pay tariffs that enable service providers to operate with greater financial autonomy. Customized WSS funding models could be created in consultation with country-level stakeholders to increase access to commercial finance, and to provide wider scope for IFC and MIGA engagement in the sector.

Recommendation 4: Increase cross-sectoral collaboration to address complex WSS-related challenges (such as municipal pollution, groundwater over-abstraction, and resilience to climate-induced events) in lending, technical assistance, and knowledge support. This could be achieved through increased coordination within units of the Water Global Practice, with other concerned Global Practices (Social, Urban, Rural and Resilience; Environment and Natural Resources; and Health, Nutrition and Population) and the cross-cutting solution areas for Climate Change at the level of country strategy, and throughout the project cycle. In addition, the World Bank should increase engagement with client countries to create coordination, planning, and implementation mechanisms between relevant ministries and implementing agencies.

Recommendation 5: Enhance knowledge and learning in the WSS sector in client countries through effective partnerships and capacity building. Maintain and enhance the World Bank's distinctive role in generating and sharing knowledge through analytical work—notably by the Water and Sanitation Program (WSP) and Water Partnership Program (WPP)—and technical assistance and capacity building through investment projects with a clear link to project outcomes in their results frameworks.

Management Response

(Document to come.)

Management Action Record

IEG Findings and Conclusions	IEG Recommendations	Acceptance by Management	Management Response
<p>Addressing disparities in access. WB's lending volume is highly skewed towards MICs, rather than LICs, which experience the lowest levels of access to improved access to WSS. By contrast, the WBG has a robust knowledge presence in LICs mainly around tackling emerging WSS challenges - such as sustainable management of on-site sanitation, and promoting domestic private providers of WSS services. Addressing regional disparities in WSS access between and within large cities, small towns and rural communities remains a challenge. This is particularly relevant for LMICs and LICs of Asia and Africa, which continue to experience significant movement of population from rural communities to urban areas. Less attention is given to sanitation compared to water supply in urban, peri-urban and rural areas.</p>	<p>Recommendation 1: Increase the World Bank Group's diagnostic efforts for enhanced engagement on reducing disparities in WSS access between and within regions, countries, and urban and rural areas. This is especially relevant for LICs and LMICs of Sub-Saharan Africa, Asia, and Latin America, with a large concentration of the poor in several sub-regions, and peri-urban and rural areas. In particular, rural WSS schemes need increased and dedicated technical and management support.</p>		
<p>Creating a robust evidence base for service delivery. IEG's analysis of</p>	<p>Recommendation 2: Align the results frameworks and key</p>		

IEG Findings and Conclusions	IEG Recommendations	Acceptance by Management	Management Response
<p>project objectives and key performance indicators from project results frameworks indicates that the World Bank Group's programs and projects placed greater emphasis on tracking user access to WSS, and on enhancing bulk water supply, and less emphasis on measuring service quality delivery parameters (reliable and affordable services of good quality responding to consumer demand). World Bank client countries have no systematic provision for tracking service delivery regularly in their WSS sectors (with the exception of well-run utilities).</p> <p>The paucity of data on WSS service delivery outcomes is a serious bottleneck for: making meaningful policy assessments of service provision; formulating performance targets; designing incentives for improved performance; enforcing the accountability of service providers; and fostering citizen engagement and feedback.</p>	<p>performance indicators of World Bank projects with SDG 6 needs and increase support to client countries to build their evidence base for WSS access and service delivery. Results frameworks and KPIs of World Bank projects should track service delivery outcomes (i.e. adequacy, reliability, quality, and affordability), and the degree of access and services to the poor. The World Bank should support client countries to set up systems to track WSS access and service delivery, drawing upon experience with harnessing information and communications technology for the purpose.</p>		
<p>Engaging on financial viability and tariff reform. A key constraint to financial viability in client WSS sectors is the lack of willingness in many LMICs and LICs to utilize tariffs as an</p>	<p>Recommendation 3: Engage intensely with client governments on WSS sector reforms to strengthen the financial viability of service providers and to create</p>		

MANAGEMENT ACTION RECORD

IEG Findings and Conclusions	IEG Recommendations	Acceptance by Management	Management Response
<p>economic instrument to promote cost recovery and demand orientation. Achieving SDG 6 requires fundamental tariff and regulatory reforms that enable service providers to achieve adequate cash flow from operating the WSS infrastructure. Without tariff reforms in LMICs and LICs, most households in these countries will not receive modern network services by 2030. Existing practices of self-provisioning are becoming increasingly less sustainable as urban population density increases.</p>	<p>conditions for increased access to commercial finance, in keeping with the new Cascade Approach. This could be pursued by increasing the level of engagement with client governments for establishing legislation/regulation requiring consumers to pay tariffs that enable service providers to operate with greater financial autonomy. Customized WSS funding models could be created in consultation with country level stakeholders to increase access to commercial finance, and to provide wider scope for IFC and MIGA engagement in the sector.</p>		
<p>Addressing growing environmental and other cross-sectoral issues. Cross-sectoral impacts of poor solid waste and urban flood management have received low attention in the design of wastewater and sanitation projects. The evaluation finds that regulatory drivers for safeguarding long-term environmental impacts of WSS related activities are weak outside UMICs. Typically, actions to mitigate environmental and climate risks are put off for consideration in the future. In situations where environmental crises have become political liabilities, World Bank</p>	<p>Recommendation 4: Increase cross-sectoral collaboration to address complex WSS-related challenges (such as municipal pollution, groundwater over-abstraction, and resilience to climate-induced events) in lending, technical assistance and knowledge support. This could be achieved through increased coordination within units of the Water GP, with other concerned GPs (Social, Urban, Rural and Resilience; Environment and Natural Resources; and Health, Nutrition and Population) and the cross-cutting solution areas</p>		

IEG Findings and Conclusions	IEG Recommendations	Acceptance by Management	Management Response
<p>engagement has been invited through mega-projects. But without the underlying policy and institutional constraints being addressed, the efficacy of such interventions is likely to be low. This highlights the importance of sequencing policy reforms in coordination with physical investments.</p>	<p>(CCSA) for Climate Change at the level of country strategy, and throughout the project cycle. In addition, the World Bank should increase engagement with client countries to create coordination, planning, and implementation mechanisms between relevant ministries and implementing agencies.</p>		
<p>Enhancing knowledge generation and sharing. The recent merger of WSP and WPP with operations under the new Partnership Framework (PF) engages this expertise in the entire project cycle. It is important that the WSP's value-added is maintained and enhanced in the new arrangement, and that the PF's results framework tracks the contribution of the new arrangement to project outcomes. World Bank and UN agencies share a convening role for SDG 6, where the World Bank is recognized as an important partner because of its knowledge and operational insights. The World Bank's convening role at country level appears to be low and uneven, and needs to be strengthened in line with the scale of its lending and knowledge presence in client countries.</p>	<p>Recommendation 5: Enhance knowledge and learning in the WSS sector in client countries through effective partnerships and capacity-building. Maintain and enhance the World Bank's distinctive role in generating and sharing knowledge through analytical work – notably by the Water and Sanitation Program (WSP)/Water Partnership Program (WPP) – and technical assistance and capacity building through investment projects with a clear link to project outcomes in their results frameworks.</p>		

Chairperson's Summary: Committee on Development Effectiveness

(Document to come)

1. Developmental Context and Evaluation Approach

Highlights

- ❖ Sustainable Development Goal 6 (SDG 6) sets a target of universal and equitable water supply and sanitation (WSS) by 2030, with defined service attributes of adequacy, reliability, quality, and affordability.
- ❖ This goal is a challenge for many World Bank Group client countries because of their current low access levels, rural-urban migration, middle-class aspirations for improved service, environmental impacts, and climate change effects.
- ❖ SDG 6 requires an estimated investment of \$1.7 trillion in the next 15 years (three times historical levels)—a difficult gap to overcome, given the sector's poor cost recovery, dependence on donor funding, and inadequate fiscal transfers in many client countries.
- ❖ Sector experience and literature show that sustainable WSS service delivery involves balancing three elements: equity in WSS access, financial viability of service providers, and sustainable water resources.
- ❖ Comparable data on WSS access for World Bank Group client countries are available, but WSS service delivery data are scarce, making it difficult to track performance.

Rationale for the Evaluation

The state of water supply and sanitation (WSS) access and services is strongly linked to human health and development (Berry 2009). The literature well documents the effects of poor WSS access and services: stunting from diarrhea-caused malnutrition, linkage to infectious diseases,¹ reduced life expectancy, children's reduced school attendance (especially girls), reduced income-earning potential because of poor health, and lack of opportunity for businesses requiring water inputs.

Global policy attention in WSS transitioned in 2015 from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs).² The MDGs' primary concern was to provide access to WSS within a reasonable distance of a safe water supply source or hygienic sanitation facility. By contrast, SDG 6 has now raised the standards beyond access to more clearly defined attributes and requirements for equitable WSS service delivery: adequacy, reliability, quality, and affordability (box 1.1).

In moving toward SDG 6, many World Bank Group client countries face a difficult challenge in closing their large gaps in access to improved WSS while also improving service delivery attributes.³ Worldwide, 663 million people lack access to improved water supply, most of whom live in low-income countries (LICs), mainly

in the Sub-Saharan Africa Region. Furthermore, 2.4 billion people lack access to improved sanitation – these people live mostly in LICs and low- and middle-income countries (LMICs), mainly in Sub-Saharan Africa, most countries in the South Asia Region, and several countries in the East Asia and Pacific Region (figure 1.1).

Box 1.1. Sustainable Development Goal (SDG) 6 – Emphasis on Service Delivery

SDG 6 aims to “Ensure access to water and sanitation for all” by 2030, with the following sub-goals.

- Achieve universal and equitable access to safe and affordable drinking water for all (target 6.1)
- Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations (target 6.2).

SDG 6 also defines the following service delivery attributes and targets for service delivery:

- **Access:** easily reached water and sanitation facilities, available when needed
- **Equity:** progressive elimination of inequalities between population subgroups (urban, rural, and peri-urban), income level, and so on
- **Adequacy:** sufficient water for domestic needs; for sanitation, a system that hygienically separates excreta from human contact, and safe transport and treatment off-site
- **Reliability:** water that meets national drinking quality standards and is available on a continuous basis with adequate pressure; for sanitation, meet consumer needs for water and sanitation services reflected in the available water and sanitation collection, treatment, and disposal capacity
- **Quality:** drinking water free of pathogens and elevated levels of chemicals at all times
- **Affordability:** consumer demand or willingness to pay for services may be reflected in the pricing of water and sanitation services; extent to which subsidies have been effectively targeted to fill the affordability gap for low-income consumers; pricing factors in the costs of investing in the water and sanitation infrastructure and operation and maintenance costs.

Source: Please see <http://www.un.org/sustainabledevelopment/water-and-sanitation/> for more information on SDG 6, and <http://www.un.org/sustainabledevelopment/sustainable-development-goals/> to read more about all the SDGs.

Most of the poor live in rural areas, where access is distinctly lower than in urban areas. The access gap is most striking in LICs (40 of the world’s 51 LICs are in Sub-Saharan Africa), where 88 percent of the population have access to improved water supply in urban areas and 61 percent have access in rural areas. For improved sanitation in LICs, 39 percent have access in urban areas and 21 percent in rural areas; in LMICs, 71 percent of urban residents have access and 52 percent of the rural population have access (figure 1.1).

Figure 1.1. Urban-Rural Access Disparities in Improved Water Supply and Sanitation

Country Income Category	Share of population with access to improved water supply and sanitation					
	Water Supply (%)			Sanitation (%)		
	All	Urban	Rural	All	Urban	Rural
Upper middle	93	96	88	85	89	77
Lower middle	84	93	78	61	71	52
Low	70	88	61	27	39	21

Source: WHO and UNICEF 2015.

The financing requirements for augmenting WSS trunk and feeder infrastructure to meet SDG 6 in World Bank Group client countries are an estimated \$1.7 trillion by 2030, amounting to an average of \$140 billion per year, or three times the amount historically invested in this sector from all sources (Hutton and Varughese 2016).⁴ For perspective, investment flows from the World Bank Group and the regional development banks – Asian Development Bank (ADB), African Development Bank (AfDB), and the Inter-American Development Bank (IDB) – were \$125.2 billion for the *entire* nine-year period FY2007–15, and private sector investments during the same period were \$31.4 billion. LICs received a negligible amount of private flows because many of them lacked an enabling policy and regulatory environment (table 1.1).

Table 1.1. Sector Resource Flows, FY2007–15 (US\$, billions)

Source	LICs	LMICs	UMICs	All
Private sector	0.001	2.4	29.0	31.4
World Bank Group, ADB, AfDB, IDB	24.3	52.2	48.7	125.2
Total	24.3	54.6	77.7	156.6

Source: Public-Private Infrastructure Advisory Facility Database; World Bank Business Intelligence; ADB; AfDB; IDB.
Note: ADB = Asian Development Bank; AfDB = African Development Bank; IDB = Inter-American Development Bank; LIC = low-income country; LMIC = low- and middle-income country; UMIC = upper-middle-income country.

The World Bank Group’s strategy for WSS during the past 15 years, articulated in several sector documents, has emphasized innovative service delivery, targeting the poor, improving the performance of WSS service providers, facilitating public-private partnerships, and addressing environmental and other intersectoral factors affecting WSS. The Independent Evaluation Group’s (IEG) review of World Bank Group country assistance strategies and Country Partnership Frameworks (CASs/CPFs) for a sample of 37 countries during 2005–16 shows good coverage of WSS issues. Although nearly all the sampled countries covered WSS access and service delivery attributes (adequacy and quality), they gave relatively less attention to reliability (64 percent of the sampled countries) and affordability (36 percent). The World Bank Group’s Systematic Country Diagnostics attempt a broader analysis of

WSS issues and suggests strategies to address them, as seen from four sampled documents (appendix A).⁵

In the context of SDG 6, it is timely to conduct a forward-looking evaluation of the World Bank Group's role in WSS to draw lessons from experience and provide insights for guiding strategy early in a renewed WSS effort. The last major IEG evaluation in the water sector, "Water and Development" (World Bank 2010), covered the World Bank Group's role in WSS during FY1997–2007 in the context of the MDGs.⁶ It highlighted issues relating to lack of cost recovery, less attention to sanitation relative to water supply, and insufficient attention to water supply affordability and quality; and poor linkage between monitoring & evaluation (M&E) design, implementation and utilization, all of which are among the major issues highlighted by this evaluation (appendix B).

Political Economy of Access and Service Delivery

Most World Bank Group client countries view clean water as a social good rather than an economic good for profit (Murthy 2013). Generally, public sector utilities manage urban water supplies and community-based organizations manage rural supplies. Governments are generally politically averse to allowing public utilities to pass the full cost of service on to consumers, and community-based organizations rarely charge remunerative tariffs because the beneficiaries cannot afford them. Therefore, service providers cannot finance asset rehabilitation and the investments necessary to meet growing consumer demand, or even recover their operation and maintenance (O&M) costs.⁷ Consequently, service providers have little ability and often no incentives to manage their WSS assets efficiently, resulting in progressively deteriorating service quality and rising costs linked to deferred maintenance.

The financing gap that results from a lack of remunerative tariffs needs donor funding and government subsidies to cover it. However, donor funding has limits, especially for LICs, which also lack the fiscal space to bridge the financing gap. The World Bank Group's new Cascade Approach estimates that a significant share of infrastructure needs across all project types could theoretically be financed commercially, based on the feasibility of generating user fees in the sector – the backbone of commercial finance.⁸ Feasibility is a technical issue that depends on the ability to charge individual users, but desirability will vary depending on externalities and social or political economy considerations.

Faced with financing constraints, many governments of LICs and LMICs have resorted to providing minimal WSS services to the poor at a relatively low price (Satterthwaite 2016). More affluent homeowners who are dissatisfied with existing

utility services and aspire for higher service levels are left to work out private solutions for continuous water supply and provide their own on-site sanitation solutions (Chun 2010). Further, the incomplete status of decentralization in many countries, and the traditionally limited involvement of stakeholders in the sector, compounded by capacity gaps, add to the challenges in this complex sector.

Salient Issues in Access and Service Delivery

The rise in self-provision of water supply on a large scale in urban areas through bore wells and overhead tanks places increasing stress on groundwater resources. Expansion of on-site sanitation solutions in densely populated urban neighborhoods with unregulated fecal sludge disposal, combined with inadequate solid waste disposal, clogs water bodies and storm water drains in and around larger cities, polluting drains and waterways (Mungai 2011). Furthermore, poor enforcement of industrial waste regulation affects the quality of water sources. Small and medium enterprises in particular discharge effluents directly into water bodies, further contaminating drainage and wastewater collection systems – in some cases with heavy metals and other toxic substances (UN 2015).

Continuing rural-urban migration, mostly to low-income squatter settlements in several countries in the South Asia, East Asia and Pacific, and Sub-Saharan Africa Regions, translates into growing challenges for extending basic WSS access while overburdening service providers already constrained by insufficient financial and operational autonomy. Selected Sub-Saharan African countries provide examples of these challenges – despite strong growth in the number of people in urban areas gaining access to improved water supply in these countries, the share with access to improved water sources and household piped connections has declined (table 1.2).

A lack of benchmarks and data to track service delivery performance contributes to the widespread lack of accountability for service delivery outcomes in many World Bank Group client countries. Except for some well-run water utilities in some middle-income countries (MICs), metrics on WSS service adequacy, reliability, and quality are also lacking (Satterthwaite 2016).

Low citizen engagement prevents WSS issues from rising in national political priorities. Although the importance of WSS in consumers' daily lives is indisputable, civil society in many LMICs and LICs lack active engagement in demanding better services, which perpetuates a culture in which service providers lack accountability to their customer base. Exceptions include reactive outrage in extreme situations resulting from health epidemics, natural disasters, or drought (as experienced in Haiti's 2010 cholera outbreak, the ongoing drought in São Paulo, Brazil, and

persistent poor service delivery in parts of South Africa (Stauffer 2016; Akinboade, Mokwena, and Kinfact 2014).

Table 1.2. Access to Urban Water Services in Selected African Countries, 1990 and 2015

Country	Urban Dweller Access					
	Improved water sources (millions)		Improved water sources (percent)		Household piped connections (percent)	
	1990	2015	1990	2015	1990	2015
Namibia	0.39	1.10	99	98	82	69
Tanzania	4.80	12.8	92	77	31	28
Zimbabwe	3.03	4.70	100	97	98	74

Source: Adapted from International Institute for Environment and Development. 2016.

Cultural and social norms that take time to evolve often frame WSS practices. Promoting behavior change for handwashing with soap to gain WSS's favorable health impacts has proved difficult in many country situations. Similarly, open defecation practices continue because of habit, convenience, or the strength of cultural norms, even where support for improved sanitation provides subsidies to build toilets (Sigler, Mahmoudi, and Graham 2015).

Theory of Change

The main issues and links for WSS service delivery suggest a theory of change to guide this evaluation of the World Bank Group's role in the WSS sector and its support to it (figure 1.2). The theory of change recognizes that the World Bank Group and other multilateral banks and bilateral donors are two pillars supporting client countries in making progress toward SDG 6. The other pillar is the private sector, which mobilizes market-based financing and introduces the latest industry knowledge. Policy and project interventions lead to the following key intermediate outcomes:

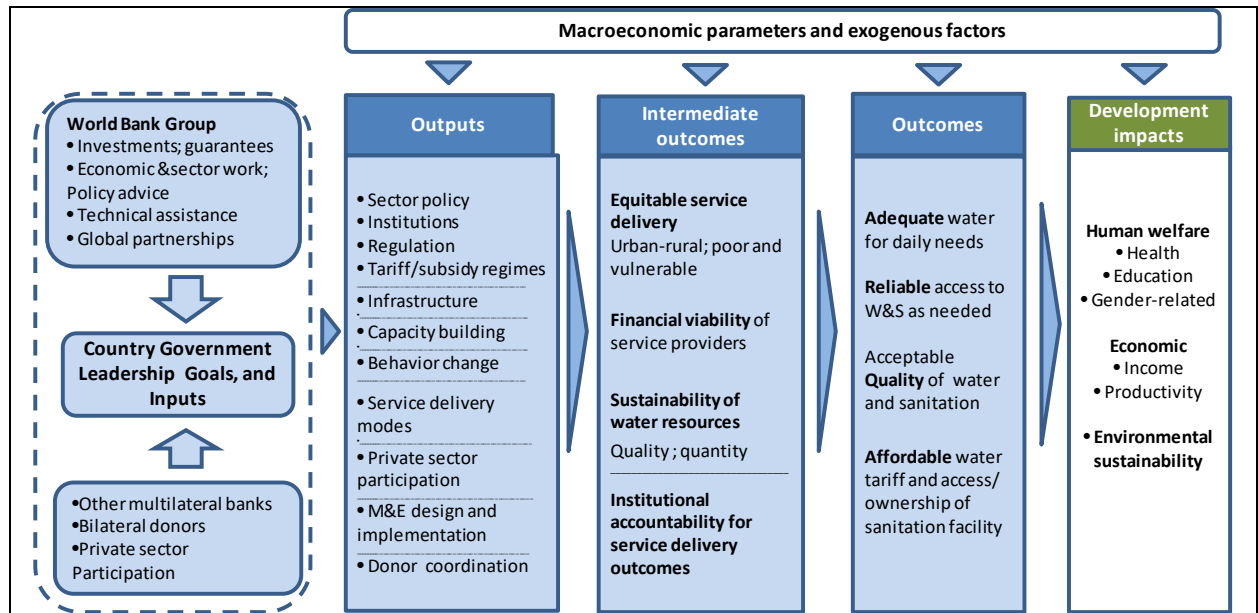
- Equitable access between LICs and MICs, advanced and lagging regions and subregions, and the rural-urban spectrum (including small towns)
- Financial viability of service providers through remunerative tariffs, targeted subsidies, donor support, commercial finance, and operational efficiency
- Sustainable water resources in quality (wastewater discharges into water bodies) and quantity (managing available water resources for consumption).

Evaluation Question and Methodology

This evaluation addressed two main questions: How effective has the World Bank Group been in supporting client countries' efforts to improve access to adequate, reliable, and sustained water and sanitation services? How well is it equipped to

support the countries in moving toward sustained water and sanitation services for all, with a focus on the poor and in keeping with Sustainable Development Goal 6? Subordinate questions and the portfolio review methodology are in appendix C.

Figure 1.2. Theory of Change for the Water Supply and Sanitation Sector



Note: M&E = monitoring and evaluation; W&S = water and sanitation.

The following components make up the evaluation methodology:

- Portfolio review of projects, investments, advisory services, and guarantees
- Mapping of key project performance indicators to outcomes and analysis
- Review of internal (advisory services and analytics) and external literature
- Preparation of field-based country case studies (the Arab Republic of Egypt, India, Indonesia, Nigeria, Sri Lanka – jointly with ADB and Japan International Cooperation Agency [JICA] – Tunisia, and Zambia) and country desk studies and briefs (Brazil, Colombia, Haiti, Peru, the Philippines, and Uganda)
- Focus group discussions with beneficiaries in Peru, Sri Lanka, and Zambia
- Interviews with government and implementing agency officials in seven field study countries, and World Bank task team leaders, staff, and management.

The evaluation draws on background papers on service delivery and behavior change prepared by IEG working groups. The study team coordinated with a concurrent, ongoing IEG evaluation of the World Bank Group's assistance in pollution management, *Toward a Clean World for All: An Evaluation of World Bank Group Support for Pollution Management*, especially regarding field studies in Egypt and Ghana (World Bank 2017c). Recent IEG evaluations on the Program for Results

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DEVELOPMENTAL CONTEXT AND EVALUATION APPROACH

instrument and systematic diagnostic reviews also provided useful insights (World Bank 2016; 2017a).

¹ Especially zoonotic disease through the environment interface and the control and eradication of many neglected tropical diseases such as dengue, guinea worm, onchocerciasis, schistosomiasis, trachoma and helminthiasis etc.

² The target of Millennium Development Goal (MDG) 7c is to “halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.” For more information on the MDGs, visit <http://www.un.org/millenniumgoals/>.

³ An improved drinking water source (water supply) is protected from outside contamination, particular fecal matter contamination, by nature of its construction or through active intervention (for example, bore wells, piped water versus surface drinking water sources). An improved sanitation facility hygienically separates human excreta from human contact.

⁴ Trunk infrastructure in this context refers to bulk water production and transmission pipelines, and wastewater collection and transmission through sewer mains and drains to wastewater treatment plants. Feeder infrastructure relates to water supply distribution and wastewater collection in consumer neighborhoods either through WSS utilities or through other informal arrangements.

⁵ The World Bank Group staff conducts Systematic Country Diagnostics in close consultation with national authorities and other stakeholders to identify the most critical constraints and opportunities facing countries as they work to end extreme poverty and promote shared prosperity sustainably.

⁶ Appendix B summarizes the findings from previous IEG evaluations covering WSS.

⁷ World Bank 2015. *The IBNET Water Supply and Sanitation Performance Blue Book: The International Benchmarking Network for Water and Sanitation Utilities Databook*

⁸ The World Bank Group adopted the cascade approach in 2017. The “Cascade” approach to infrastructure finance seeks to expand the options available to governments to finance and deliver infrastructure: making judicious use of scarce public and concessional resources to crowd in commercial capital and minimize the public debt burden on governments, while delivering sustainable and affordable infrastructure services.

2. Portfolio Focus and Performance

Highlights

- ❖ World Bank Group lending support for WSS during FY2007–16 was predominantly from the World Bank (93 percent), followed by IFC (5 percent) and MIGA (2 percent).
- ❖ World Bank projects performed well, but 42 percent of the projects faced significant or high risk to development outcome, undermining their potential long-term impacts.
- ❖ Monitoring and evaluation quality was high or substantial for only 22 percent of the World Bank's completed projects, which calls into question the ability of client countries to track results after project completion and ensure that service providers are accountable to beneficiaries.
- ❖ About half of the IFC Investments and Advisory Services projects rated show favorable outcomes, underscoring the challenges of enhancing the private sector's role in WSS in many client countries.

This chapter examines the World Bank Group's WSS portfolio and overall project development outcomes covering lending, investments, and guarantees approved or closed during the 10-year evaluation period (FY2007–16).¹ Chapters 3 through 6 elaborate further on this chapter's findings.

World Bank Group Commitments, Portfolio, and Performance

The World Bank Group provided \$30.3 billion for WSS to client countries during 2007–16 through World Bank lending and technical assistance, IFC investments, and Multilateral Investment Guarantee Agency MIGA guarantees. The World Bank accounted for the largest share of the total with \$28.4 billion (93 percent), followed by IFC with \$1.5 billion (5 percent) and MIGA with \$0.4 billion (2 percent).

Table 2.1. Water and Sanitation Projects and Guarantees, Approved FY2007–16

Institution	Projects(number)			Net WSS Commitment (US\$, billions)
	All	Active	Closed	
World Bank	458	264	194	28.4
<i>Water Global Practice</i>	163	101	62	20.2
<i>Other global practices</i>	295	163	132	8.2
IFC investments	49	31	18	1.5
MIGA guarantees	9	5	4	0.4
Total	516	300	216	30.3

Source: World Bank Business Intelligence; IFC and MIGA databases.

Note: WSS = Water Supply and Sanitation.

The World Bank shared assistance for WSS between the Water Global Practice (GP) and other GPs. During FY2007-16, the Water practice approved 163 WSS projects totaling \$20.2 billion, which is 71 percent of the World Bank's total WSS assistance during the period. The remaining 29 percent went to projects with one or more WSS

components managed by other GPs – mainly Social, Urban, Rural and Resilience, Environment and Natural Resources, and Agriculture – which collectively approved 295 projects with a net WSS commitment of \$8.2 billion. Projects in Social, Urban, Rural, and Resilience cover urban projects managed by municipal governments and rural subprojects through social funds. Agriculture GP projects support water supply in rural areas, and the Environment and Natural Resources GP works with pollution and urban flood control components (table 2.1). A list of Water GP projects is in appendix D.

Among 163 projects approved during FY2007–16 in the Water GP, 86 (53 percent) had urban water supply objectives and 75 (46 percent) had urban sanitation objectives, including wastewater. Another 55 projects (34 percent) targeted rural water supply, and 45 projects (28 percent) focused on rural sanitation. Of the 49 IFC investments approved during FY2007–16, 22 projects (45 percent) targeted urban water supply and 20 projects (41 percent) focused on urban sanitation, including wastewater management. Only five IFC investments (10 percent) targeted rural water supply, and two projects (4 percent) focused on rural sanitation (table 2.2).

Table 2.2. Objectives in Water Global Practice Water and Sanitation Projects, FY2007–16

Category	World Bank		IFC investments	
	Number	Share* (%)	Number	Share* (%)
Urban water	86	53	22	45
Urban sanitation (including wastewater management)	75	46	20	41
Rural water	55	34	5	10
Rural sanitation	45	28	2	4

Source: World Bank Business Intelligence; IFC database.

* Individual projects can cover multiple sectors.

Of the World Bank commitments for WSS during FY2007–16, water supply represents the largest share (35 percent), followed by sanitation and wastewater management (37 percent), and the general WSS and flood protection category of projects (28 percent), which also includes development policy lending (table 2.3).

This evaluation reviewed development outcomes for 152 World Bank WSS projects implemented by the Water GP and completed during FY2007–16, and for which IEG ratings were available. Of these projects, 71 percent had development outcomes that were moderately satisfactory or better.^{2, 3} The Sub-Saharan Africa Region showed the best performance (84 percent), but results for Latin America and the Caribbean (66 percent) and the Middle East and North Africa (44 percent) were lower (table 2.3). There was no statistically valid difference in performance between projects with similar objectives managed by different GPs.

Table 2.3. Development Outcome Ratings for Water Global Practice Projects, Closed FY2007–16

Region	Projects (number)	Projects Rated ModSat or Better (percent)
Sub-Saharan Africa	31	84
South Asia	15	80
East Asia and Pacific	33	73
Europe and Central Asia	25	72
Latin America and the Caribbean	32	66
Middle East and North Africa	16	44
All	152	71

Note: MS = moderately satisfactory.

Government commitment drove Sub-Saharan Africa’s performance, where 21 of the 26 well-performing projects reported moderately satisfactory or better government performance, and 15 projects cited strong government commitment to adhering to policy, institutional, staffing, and funding commitments, along with substantial efficacy of WSS access in 23 of the 26 well-performing projects. In the Middle East and North Africa Region, a variety of factors contributed to poor project performance, including challenging field conditions in fragile and conflict-affected situations (Iraq and the Republic of Yemen); land acquisition issues, inadequate preparatory work, and attempting complex institutional reforms (the Islamic Republic of Iran and Morocco); and insufficient commitment to institutional reforms (Tunisia). In the Latin America and the Caribbean Region region, some countries (Argentina, Brazil, Colombia, and Peru) had mixed performance in World Bank WSS projects. Changing government priorities and unfulfilled political commitment to planned reforms affected the less well-performing projects.

Of the well-performing cohort of WSS projects, 45 projects (42 percent) had significant or high ratings for risk to development outcome.⁴ IEG’s analysis shows that this risk derives mainly from financial and, more broadly, political economy factors (such as resistance to tariff increases), followed by institutional factors (such as inadequate regulation), and planning capacity, which seriously undermine the sustainability of the project results.

IEG reviewed the overall M&E design, implementation, and utilization for 152 completed Water GP projects and found that only 22 percent had favorable ratings (high or substantial) for overall M&E quality.⁵ The remaining 78 percent had modest or negligible ratings because of inadequate M&E design, lack of baseline data, inadequately defined parameters, and poor implementation and feedback to operations. There is no significant trend in M&E ratings over the evaluation period (appendix L).

IFC Investments and Advisory Services and MIGA Guarantees

IFC approved 58 investment operations in the WSS sector during FY2007–16, of which nine nondisbursing projects were canceled or prepaid, leaving 49 operations that were reviewed by IEG, and addressed mostly urban water supply, and some addressed wastewater management. Rural WSS do not appear in IFC's portfolio. All IFC investments were in MICs, concentrated in China (13), Brazil (7), India (6), and the Philippines (4), along with four operations in the Middle East and North Africa Region. The location of IFC's WSS investments overlaps considerably with the wider private sector's investments. IFC's largest client countries, China and Brazil (25 percent and 15 percent shares of total IFC investments overall, respectively) also account for 14 percent and 46 percent, respectively, of worldwide private sector flows for WSS.⁶

IEG rated 22 of the 49 investment projects (47 percent) as achieving mostly successful or better performance and the remaining 25 projects (53 percent) as mostly unsuccessful or worse.⁷ Three main factors explain underperformance: expected tariff increases or subsidies (to which authorities agreed) did not materialize; targeted increases in the customer base were unrealized; and customers prepaid loans early because they found less expensive sources elsewhere.

IFC approved 45 advisory services for WSS during FY2007–16. The majority (34 advisory services, or 75 percent) were as advisor to governments on public-private partnership transactions; eight advisory services (18 percent) provided advice to governments on structuring public-private partnerships or implementing privatization transactions; and the rest addressed WSS capacity-building advice to sector institutions or research and policy analysis that was not project-specific. Only five advisory services (10 percent) were in LICs; the rest (90 percent) were in UMICs. Overall, 21 of the 39 rated advisory services (56 percent) had partially or fully successful outcomes. All projects in LICs rated so far have performed well, though the success rate in the rest was about 50 percent. A rollback in client government commitment is a key reason for less-than-satisfactory outcomes. Appendix D lists the IFC investments and advisory services, and appendix E analyzes their performance in more detail.

MIGA involvement in the WSS sector has been limited. The current portfolio of active and nonactive projects consists of nine guarantees approved during FY2007–16. Seven of these operations were in China, and the remaining two were in Ghana and Jordan. Based on available evaluation reports for three projects in China, MIGA support was important to proceeding with the investment and for project enterprises to operate the project in one case. However, the support was unsuccessful in another project and was not required for the third.

¹ For IFC investments, the evaluation examined matured projects.

² According to the World Bank and IEG harmonized guidelines, a project's development outcome is a compound rating based on ratings for relevance of objectives and project design, efficacy, and efficiency. IEG rates project development outcome on a six-point scale: highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, and highly unsatisfactory.

³ The corresponding figure for projects managed by nonwater global practices and with at least 25 percent of project commitments for WSS objectives was 74 percent (52 projects with moderately satisfactory or better development outcomes out of 69 rated projects).

⁴ IEG rates a project's risk to development outcome on a four-point scale: low, moderate, significant, and high (per World Bank and IEG harmonized guidelines).

⁵ IEG rates a project's monitoring and evaluation quality on a four-point scale: negligible, modest, substantial, and high (per World Bank and IEG harmonized guidelines).

⁶ PPIAF database. <http://www.ppiaf.org>.

⁷ IEG and IFC use a harmonized, six-point rating scale for assessing investment development outcomes: successful, mostly successful, partly successful, partly unsuccessful, mostly unsuccessful, and unsuccessful.

3. Access and Service Delivery Equity

Highlights

- ❖ Low-income countries, which have the lowest WSS access, receive the lowest share of World Bank lending in the sector.
- ❖ The World Bank's portfolio does not align well to rural-area needs in the Sub-Saharan Africa Region and urban area needs in East Asia and Pacific and South Asia, partly because of countries' own priorities.
- ❖ World Bank projects have focused more on access than on service adequacy, reliability, quality, and affordability, which are the focus of Sustainable Development Goal 6.
- ❖ World Bank project results frameworks lack emphasis on measuring impacts on the poor.
- ❖ The World Bank has remained engaged in a range of fragile and conflict-affected situations, but the partly favorable development outcomes achieved face high risks.

Equity in WSS access and service delivery is a core element of SDG 6. This chapter assesses the World Bank Group's focus and performance in supporting client countries in addressing equity across country income categories and the urban-rural spectrum. It also examines the support for behavior change among beneficiaries and for gender-related issues. The analysis draws on the World Bank Group's project portfolio, lending patterns, and available key performance indicators (KPIs) in project results frameworks.

World Bank Group Focus on Access and Service Delivery Equity

LENDING PATTERNS

LICs, which have the lowest WSS access, received 12 percent of World Bank Group commitments during FY2007–16, almost all of which were from the International Development Association (IDA), with a small contribution from IFC (table 3.1). The low share of lending for LICs relates to the limited envelopes for IDA funding and to competing sector priorities in IDA countries. The large share of WSS commitments claimed by MICs is concentrated in seven large countries (Argentina, Brazil, China, Egypt, India, Indonesia, and Vietnam), which together account for half of World Bank WSS commitments. Two countries (Brazil and China) and multi-country projects in Eastern Europe account for half of IFC investments. China accounts for half of MIGA guarantees (table 3.1).

A reasonable assumption is that lending for the WSS sector from public sources (the World Bank Group, other multilateral banks, bilaterals, and other donors) is unlikely to grow soon at a rate much greater than in recent years. Government budgetary support for the sector is constrained in most LICs and in several LMICs. Therefore, meeting the large finance needs for SDG 6 requires strategies and enabling

conditions in the sector to make tariff increases more acceptable and attract greater private sector participation. Chapter 4 (covering the financial viability of service providers) and chapter 6 (on institutional accountability for service delivery outcomes) examine the World Bank Group’s support for such efforts.

Table 3.1. World Bank Group Water and Sanitation Commitments, FY2007–16

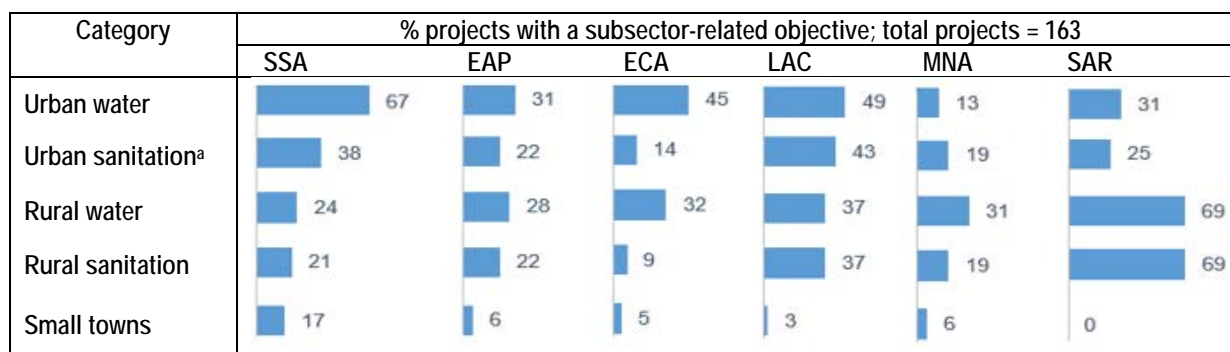
Income Category	Commitments (US\$, billions)					Share of World Bank Group Total (%)
	IBRD and IBRD blend	IDA	IFC investments	MIGA	World Bank Group total	
HIC and UMIC	10.6	0.0	0.6	0.4	11.6	39
LMIC	11.7	2.6	0.6	-	14.9	50
LIC	0.2	3.4	.. ^a	-	3.5	12

Source: World Bank Business Intelligence; IFC, and MIGA databases.

Note: HIC = high-income country; LIC = low-income country; LMIC = low- and middle-income country; UMIC = upper-middle-income country.

a. \$3 million.

Figure 3.1. Urban-Rural Focus of World Bank Projects Approved FY2007–16



Source: World Bank Business Intelligence.

Note: Each project can have multiple objectives.

EAP = East Asia and Pacific [Region]; ECA = Europe and Central Asia [Region]; LAC = Latin America and the Caribbean [Region]; MNA = Middle East and North Africa [Region]; SAR = South Asia [Region]; SSA = Sub-Saharan Africa [Region].

a. Includes wastewater management.

URBAN AND RURAL AREAS

An analysis of World Bank project objectives by Region shows that project focus does not always align with the relative needs of client countries’ urban and rural areas and small towns. Of 163 projects approved during FY2007–16, 44 percent had objectives for urban water supply compared with 34 percent for rural water supply. In Sub-Saharan Africa, where rural areas lag greatly in access to both water and sanitation, the proportion of projects with objectives directed to urban water supply (67 percent) far exceeds that for rural water supply (24 percent). The reverse is true in South Asia: the share for rural WSS (each 69 percent) far exceeds the shares for urban WSS (31 percent and 25 percent, respectively), which also face serious issues

in service delivery adequacy and reliability. In other Regions, the relative emphasis on urban and rural WSS is geared to address disparities in urban and rural access. Small towns receive a low share of attention overall, with the highest share in Sub-Saharan Africa (figure 3.1).

Factors Driving Country Priorities and Focus

The World Bank Group's efforts at aligning project objectives with equity should be viewed within the context of individual country priorities. IEG analyzed the World Bank's project portfolio and findings from country case studies conducted for this evaluation. The analysis found several factors that drive borrowing patterns for client countries across income categories and Regions and influence the World Bank Group's efforts to foster equity in WSS access and service provision, as follows:

- Sub-Saharan African countries (both LICs and LMICs) prioritized the expansion of bulk water supply and basic access in informal settlements of fast-urbanizing cities. Although this helps to expand access to the urban poor, rural residents remain disadvantaged.
- LMICs (such as India, Indonesia, Nigeria, Pakistan, and the Philippines) have low borrowing levels for improving service delivery in WSS utilities that are decentralized to subnational units, such as state or local governments (relative to other purposes). Most subnational WSS utilities in these countries might not operate on commercial principles.
- UMICs, which have a greater proportion of WSS utilities managed on commercial principles, leveraged World Bank support to improve the quality of services and to mitigate urban WSS-related pollution. Examples include China in East Asia and the Pacific region; the Islamic Republic of Iran, Morocco, and Tunisia in MNA region; and Brazil, Colombia, and Mexico in the Latin America and the Caribbean Region.
- Countries in the Europe and Central Asia Region that are applying for European Union (EU) membership and must meet the European Water Framework Directives have used World Bank engagement to upgrade urban wastewater collection and treatment to EU standards (Danube Water Program 2016).
- East Asia and the Pacific, Latin America and the Caribbean, and South Asia did not engage significantly with the World Bank to improve services in small towns and urbanizing villages, though this category is the fastest growing segment in many countries in these Regions.

The patterns suggest that for balanced support toward reducing disparities in WSS access and service delivery, the World Bank needs to adopt strategies that are more

nuanced (especially in LICs and LMICs) through informed policy dialogue and policy and institutional analysis. The World Bank’s systematic diagnostic frameworks are a promising means to develop such strategies.

World Bank Group Performance for Equity in Access and Service Delivery

IEG compiled key performance indicators (KPIs) from the results frameworks of all projects approved or closed during FY2007–16 and rated their performance on a four-point scale against target values. Appendix C details the KPI analysis methodology. The analysis mapped the KPIs to access and service delivery attributes, distinguishing between urban and peri-urban locations when possible. Table 3.2 describes typical KPIs.

KPIs for access were the most plentiful, showing that access has been the primary focus so far, which is in line with the Millennium Development Goals. The service attribute of adequacy was the next most represented category of KPIs. Identifiable indicators for affordability were few for either water supply or sanitation and for sanitation quality and reliability (table 3.3).

Table 3.2. Typical Key Performance Indicators in World Bank Project Results Frameworks

Attribute	Water Supply	Sanitation
Access	Number of beneficiaries provided with access to improved water sources (piped connections, water kiosks, community tap)	Number of beneficiaries provided with access to improved sanitation facilities (latrines, sewerage connections)
Adequacy and reliability	Number of hours of water service per day; compliance with minimum service standard	Upgraded or rehabilitated sanitation facilities (sewerage connections, latrines)
Quality	Water samples that comply with quality standards (fecal coliform and so on)	None
Affordability	Share of household expenditure	Installment payment for microfinance or other assistance for the cost of toilet construction

The KPI analysis found that the provision of access for both water supply and sanitation in urban, peri-urban, and rural areas was moderately satisfactory or better in 73 percent to 82 percent of the projects where it was an objective (performance was rated moderately satisfactory when 67 percent or more of the target value was achieved). Performance for adequacy was somewhat better for sanitation (87 percent for urban and 88 percent for rural) than for water supply (73 percent for urban and 77 percent for rural). Reliability for water supply fared well in both urban and rural areas at 74 percent and 86 percent, respectively. Quality of water supply in rural areas showed the lowest performance—only 58 percent of 12 projects that measured this attribute had moderately satisfactory or better results. IEG could not assess the

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performance for affordability (water supply or sanitation) or quality and reliability of sanitation because not enough projects measured those attributes. (table 3.3).

Table 3.3. Access and Service Delivery Performance of World Bank Projects, Closed FY2007–16

Subsector	Projects	Access			Service Delivery Attribute (percent rated moderately satisfactory or better)											
					Adequacy			Quality			Reliability			Affordability		
		U	PU	R	U	PU	R	U	PU	R	U	PU	R			
Water supply	Projects rated (no.)	67	15	45	45	*	22	35	*	12	27	*	7	*	*	*
	MS+ (%)	81	73	78	73	*	77	69	*	58	74	*	86	*	*	*
Sanitation	Projects rated (no.)	44	11	36	15	*	8	*	*	*	*	*	*	*	*	*
	MS+ (%)	73	82	83	87	*	88	*	*	*	*	*	*	*	*	*

Source: World Bank project documents; IEG analysis.

Note: The number of projects might overlap in the access category and in each service attribute category. MS+ = moderately satisfactory or better; PU = peri-urban; R = rural; U = urban. * = insufficient data for analysis.

RURAL WATER SUPPLY AND SANITATION

World Bank projects have used a community-based model for improving rural WSS access and achieved moderately satisfactory or better results in 78 percent of 45 completed and rated projects. These achievements contributed to reducing disparities between rural and urban areas. Prominent examples include Indonesia's Third Water Supply and Sanitation for Low-Income Communities Project, or PAMSIMAS (the national program for rural water supply and rural sanitation in Indonesia), several provincial projects in India (Uttarakhand, Maharashtra, Punjab, and Kerala). Sri Lanka's Second Community Water Supply and Sanitation Project (built on the Fund Board approach used in Nepal's First and Second Rural Water Supply and Sanitation Projects) is another prominent example. A combination of World Bank investments, capacity building, and knowledge transfers from the World Bank's global experience achieved positive results in reducing subnational disparities in access. However, as discussed in chapter 5, the long-term sustainability of these outcomes depends on provision for ongoing financial and technical support from local government or similar sources, and the availability of a transition strategy as villages grow into small towns and peri-urban communities.

By contrast, results using the same community-based approach were less than satisfactory in Peru's National Rural Water Supply and Sanitation Project because parallel government grant-based programs adversely affected implementation. Unlike the World Bank project, these parallel programs did not require any in-kind or cash contribution. Uzbekistan's Water Supply, Sanitation, and Health Project underestimated the difficulty of building community self-help in a society accustomed to state institutions making decisions.

WATER SUPPLY AND SANITATION IN PERI-URBAN AREAS

The analysis shows that in low-income urban and peri-urban areas, the local water utilities faced constraints in meeting the demand for WSS services because of a lack of resources, the informal nature of settlements, and continuing in-migration from rural areas. In these circumstances, market-driven solutions (such as vended water, investments in private boreholes, overhead tanks, and on-site sanitation systems using informal private service providers) emerged to fill WSS needs. This is the experience in most Sub-Saharan Africa countries and in other LICs, such as Bangladesh and Cambodia, and MICs like India, Indonesia, and Peru. Although informal domestic water providers offer a valuable service to underserved consumers, they usually end up paying unit costs that are substantially higher than the costs paid by customers connected to utility-managed piped systems. In Nigeria, informal providers commonly charge 10 to 100 times more than a utility would charge, which is about \$0.06–0.12 for a 20-liters.¹ In informal settlements in the Lima-Callao metropolitan area in Peru, for example, many customers without access to the main water supply buy water from private vendors at prices up to 12 times the price of water from public service providers (Aguilar-Barajas et al. 2015).

Two examples from World Bank experience illustrate the opportunities and difficulties in providing WSS services in peri-urban areas. The World Bank's Water Sector Performance Improvement Project in Lusaka, Zambia, financed privately operated water kiosks that buy piped water in bulk and sell it at a slightly higher regulated price (about \$0.01 per 20 liters). Beneficiaries in IEG focus group discussions considered the price reasonable, but expressed dissatisfaction with service interruptions because of load shedding and water unavailability from the river source during its low-flow season. Under the Lima Water Rehabilitation and Management Project, a pilot effort to bring low-cost condominium networks to low-income, peri-urban areas fell much short of its targets and was eventually discontinued mainly because of insufficient social acceptance and lack of interest from the utility. More recently, the government of Peru sought support from the World Bank through Reimbursable Advisory Services to develop other nonconventional WSS solutions for peri-urban areas, showing a need for innovative water supply and distribution solutions, even in MICs.

WATER SUPPLY AND SANITATION IN SMALL TOWNS

Small towns between large urban areas and rural areas face several challenges. These include the relatively high unit costs of WSS provision without the economies of scale and cross-subsidies of larger urban utilities; their low water use and the resulting revenues; and high management capacity requirements that are often met locally in small town settings (Adank 2013). IEG's review shows that World Bank support for small towns was low when compared with support for larger cities and

rural areas. As shown in table 3.3, about 7 percent of WSS projects approved during FY2007–16 had significant sized small town components. Of the 17 WSS projects completed during FY2007–16, 65 percent had development outcome ratings of moderately satisfactory or better compared with the WSS portfolio’s overall average of 71 percent. A full list of projects is in appendix D.

Overall, the projects in Colombia, India, Moldova, Panama, and Senegal met or exceeded access targets by providing the planned level of WSS physical assets. However, projects in four other countries – Ecuador, Morocco, the Philippines, and Tanzania – fell short in providing WSS access for several reasons, including a government decision to roll back some activities, failure to conclude lease-and-operate contracts, insufficient demand for sanitation services, and misprocurement. World Bank projects in Moldova and Panama helped strengthen local government capacity for managing WSS services in small towns. Three projects in Moldova focused on service delivery in small towns and had positive results in improving water supply and unaccounted-for water rates and in exceeding targets for sanitation service delivery. The experience from Colombia’s Water Sector Reform Assistance Project suggests that consolidating smaller WSS operations that service poorer neighborhoods can foster economies of scale and cross-subsidization in achieving financial sustainability at the aggregate level. It also suggests that small municipalities with limited service coverage require large capital investments because of their lack of financial autonomy.

The risk factors for project development outcomes in small towns include lack of tariff reform, low capacity, and lack of finance for rehabilitation and asset expansion – all of which are common in other WSS projects, but are more prevalent in small town situations. An analysis from a Water and Sanitation Program (WSP) study corroborates this, finding that even if small town governments have the legislative mandate to operate a water utility, they often lack the capital and skills to do so (Ndaw 2015).

World Bank Group Focus on the Poor

An analysis of project appraisal documents for a sample of 60 World Bank WSS projects approved during FY2007–16 shows that a majority (79 percent) conducted social assessment and included beneficiary participation in design and implementation (World Bank 2017). The needs of disadvantaged groups were included less often in project design and targeting (up to 32 percent). However, the effort in tracking outcomes and impact on the poor was limited, making it difficult to determine results of the World Bank’s support for WSS access in rural and peri-urban areas, where most of the poor live (appendix F).

PROJECT KPIS TRACKING IMPACT ON THE POOR

IEG analyzed KPIS for 152 WSS projects that closed during FY2007–16 to assess the extent to which World Bank projects track poverty outcomes. The result shows that only 15 projects covering 13 countries had KPIS explicitly directed to outputs or outcomes for people classified as poor (appendix D lists all projects). Four of these projects – Brazil, China, the Lao People’s Democratic Republic, and the Philippines – did not collect data against the indicators at project completion. The KPIS in the remaining projects (one each in Argentina, Ghana, India, Nepal, Nicaragua, Nigeria, Panama, Paraguay, and Vietnam) showed moderately satisfactory or better performance, meaning 75 percent achieved target values (mainly providing access). Argentina’s Buenos Aires Sustainable Investment Development Adaptable Program Loan I measured the number of additional poor people who had water connections, access to sewerage service lines, and active sewerage connections. Nepal’s Rural Water Supply and Sanitation Project measured the parity with the caste and the ethnic profile of households in the project area that the system served, as measured by the percentage of beneficiaries from marginalized groups. Nicaragua’s Rural Water Supply and Sanitation Project tracked the percentage of indigenous and Afro-descendant communities benefiting from WSS investments. Vietnam’s Coastal Cities Environmental Sanitation Project had an indicator for the number of poor people who access and repay loans to improve household sanitation.

Among active projects approved during FY2007–16, only 15 projects in 15 countries had indicators tracking the impact on the poor, showing that the use of such indicators is not increasing.² The case seems strong for all projects to adopt tracking indicators that unambiguously capture the gains of WSS access investments for poor beneficiaries.

THE WATER SUPPLY, SANITATION, AND HYGIENE (WASH) POVERTY DIAGNOSTIC

The Water Supply, Sanitation, and Hygiene (WASH) Poverty Diagnostic (World Bank 2016b) is a flagship initiative led by the Water GP with the Poverty GP, and aimed at analyzing the linkages between poverty and WSS through an in-depth analysis of 18 countries – across six regions. The WASH Poverty Diagnostic is informing the Systematic Country Diagnostics, and generating ideas for current and pipeline projects in dialogue with client governments.

Support in Fragile and Conflict-Affected Situations

Fourteen World Bank WSS projects in fragile and conflict-affected situations (FCS) were completed and rated during FY2007–16: five in Afghanistan, two in Iraq, and one project each in Bosnia and Herzegovina, Burundi, Haiti, Lebanon, Sierra Leone,

and South Sudan (a full list of projects is in appendix D). Eight projects (57 percent) had development outcome ratings of moderately satisfactory or better, but the rating for risk to development outcome for these projects was significant or high, underscoring the difficulty of obtaining lasting results in fragile and conflict-affected situations (FCS). The positive results are attributable to World Bank engagement and dialogue with governments and to fielding multidisciplinary teams for project preparation and implementation. However, in all cases, the results face varying levels of risk from inadequate tariff reform and cost recovery and a lack of sustainable financing sources for operation and maintenance. Inadequate capacity and qualified staff turnover were issues in Afghanistan's cohort of five projects that addressed urban and rural WSS. Volatile security situations threaten to undermine gains in Afghanistan, Iraq, and South Sudan. After Haiti's Rural Water and Sanitation Project closed, political interference in tariff setting and poor financial discipline are perpetuating dependence on donor funding. In Burundi, a lack of cost-reflective tariffs is a risk in the continuation of the performance contract for the utility supported by the Multi-sectoral Water and Electricity Infrastructure Project.

Although FCS are a heterogeneous group of countries, they face several common challenges, such as loss of institutional and policy memory, lack of resources and organizational capacity, insufficient data for planning, and weak policy making. A recent study emphasizes the point that World Bank support should be sustained at both strategic and operational levels in FCS rather than pursuing binary humanitarian assistance (Mosello, Chambers, and Mason 2016).

Behavior Change in Beneficiaries for Health Impacts

Interventions for behavior change among beneficiaries must accompany the provision of improved water supply and sanitation to realize the expected health and human development impacts. Important areas for behavior change are handwashing with soap – especially before eating and after defecation, to reduce the risk of diarrheal diseases – and adopting improved sanitation facilities, particularly for those previously engaging in open defecation.

IEG's review of a sample of 72 World Bank Water GP WSS projects approved during FY2007–16 found that 14 projects included behavior change interventions for hygiene and sanitation. Overall, behavior change activities were generally small components of larger WSS infrastructure projects. Although the design and financing for behavioral change interventions were more robust in some projects than in others, this was largely not the case. Few WSS projects included interventions beyond resources – only nine projects addressed important social and psychological barriers for behavior change. Furthermore, the budget for behavior

change is unknown for most projects, and formative research and M&E were generally lacking.

IEG reviewed nine project-linked impact evaluations (listed in appendix G) relating to behavior change interventions in WSS to extract relevant lessons. In India and Indonesia, communities reaching open defecation-free status within two months of starting a campaign achieved markedly higher access gains and sustained open defecation-free behaviors more than communities that took a longer time initially. Local availability of affordable latrines for different income groups hastened achievement and sustainability. Community-based monitoring and manual data transfer to local government databases become burdensome, and cell phone-based systems need to replace them, as shown in Indonesia.

In Tanzania, wards (municipal units) receiving both handwashing and sanitation promotion were more likely to have cleaner latrines than wards without them. In Peru, a large-scale hygiene intervention that had a mass media component and a district-level community component did not fare as well as a more comprehensive intervention focused on engagements through community and school activities. Vietnam's experience showed that despite a large-scale campaign, handwashing with soap was low in three provinces; the campaign had no reported impact on health or productivity. The results from Peru and Vietnam suggest that behavior change campaigns need to address the tradeoff between large-scale coverage through mass media and intense engagement with beneficiaries.

Addressing Gender Issues in Water Supply and Sanitation

Gender issues in the WSS sector broadly cover underrepresentation in decision making at several levels (for example, lack of voice and participation in decision making on siting and WSS facilities management); persistence of women and girls' traditional water collection roles at the expense of their education or involvement in productive economic activities (essentially a workload issue); men accruing benefits disproportionately because of relative lack of emphasis on sanitation for women; and gender-based violence on women and schoolgirls who lack access to safe sanitation.

IEG's review of country assistance strategies and Country Partnership Frameworks for a sample of 37 countries shows that recognition of gender issues in WSS increased during 2000–16, with 28 instances of gender issues raised in the documents during 2000–12 and, 28 new instances during 2013–16. About 10 percent of closed projects (16 out of 152) tracked gender issues, and about 80 percent of the KPIs showing favorable performance. The gender-related indicators cover access

(number of beneficiaries and connections established), participation and leadership in community-driven development committees, empowerment (mostly through minimum participation rates), training in hygiene and behavioral change, and workload for fetching water. The most used KPI for gender access is the share of female beneficiaries, invariably reported as about 50 percent. This indicator alone might not convey much information unless supplemented consistently with more nuanced indicators such as those listed previously.

IEG noted favorable gender-related interventions in its case studies and field observations in India, Sri Lanka, and Zambia. In Lusaka and other townships in Zambia, women largely manage the water kiosks and sanitation facilities, and participants in focus groups expressed satisfaction with the services overall. IEG conducted a case study in Sri Lanka and noted systematic efforts in rural water supply programs to raise awareness and encourage women's participation in planning, implementing, and managing water supply facilities. In India's Uttarakhand Rural Water and Sanitation Project in India, women may take an active role in planning and managing the facilities constructed (appendix H).

Conclusions

The political narrative in most developing countries centers on the objective of promoting equitable access for the poor and disadvantaged. However, rising income levels and better-quality housing investments signal the need for a shift in policy dialogue focus from tracking the KPIs for equitable access to basic services to a broader set of performance outcomes that includes other attributes significant for the SDGs: adequacy, reliability, quality, and affordability of services. This qualitative change requires reconsidering several dimensions of WSS policies on how to promote financial viability and safeguard long-term environmental sustainability. It also requires reconsidering institutional design and leveraging partnerships for change.

¹ Global Delivery Initiative, 2015

² The 15 countries are Argentina, Ecuador, Ghana, India, Kenya, Lebanon, Morocco, Mozambique, Nicaragua, Niger, Nigeria, Paraguay, Senegal, Uzbekistan, and Vietnam. Project details are in appendix D.

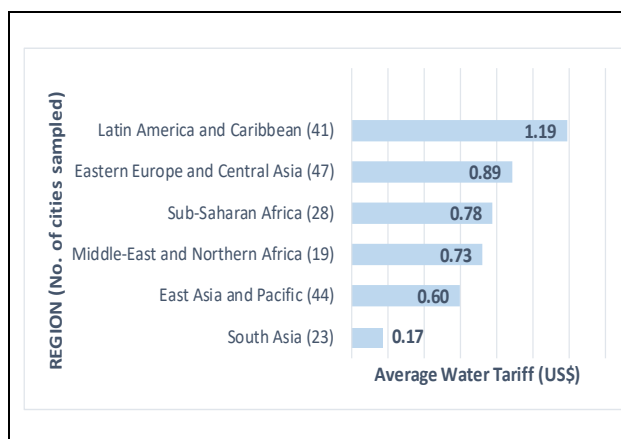
4. Financial Viability of Service Delivery

Highlights

- ❖ The World Bank's efforts to improve financial viability in the WSS sector, mainly through financial covenants, show a success rate between 23 percent and 56 percent. This is reflected in many water utilities' low ability to recover costs, which creates a culture of dependence on financial support from the government and donors.
- ❖ Most LICs and LMICs could not provide fiscal transfers to WSS service providers to bridge their financing gap, or they gave it low priority.
- ❖ Business-as-usual practices in LICs and LMICs regarding the financial viability of their WSS sectors will not allow them to significantly reduce the financing gap required to meet SDG 6.

The inability of service providers in many client countries to recover even operation and maintenance (O&M) costs is at the core of financial viability. The main reason for low cost recovery is the prevalence of tariff-setting procedures that do not fulfill objective criteria such as meeting O&M costs and certainly not the full costs of WSS service provisioning. Countries and Regions vary in their clarity on the roles that consumers, local governments, and national governments have in sharing the cost-recovery burden, but higher-middle-income countries generally have more clarity. In the South Asia Region, with its mix of LICs and LMICs, the average of water tariffs in 23 surveyed utilities was barely one-tenth of the average tariffs for Latin America and the Caribbean utilities included in the sample (figure 4.1). Overall, utilities in all Regions are largely unable to recover O&M costs (table 4.1).

Figure 4.1. Indicative and Comparative Average Water Tariffs, by Region



Source : Global Water Intelligence 2015.

^a Number of reporting utilities (#).

^b Share of utilities with cost recovery ratio <1 for Operations and Maintenance (%).

Note : SSA=Sub-Saharan Africa ; ECA=Europe and Central Asia ; LAC=Latin America and the Caribbean ; MNA=Middle East and North Africa ; SAR=South Asia.

Table 4.1. Utilities: Cost Recovery Ratios

Region	2010		2014	
	# ^a	% ^b	# ^a	% ^b
SSA	125	47	212	60
- China	42	57	0	-
- Other EAP	231	39	262	6
ECA	530	40	461	38
- Brazil	968	39	1145	40
- Other LAC	101	51	55	67
MNA	46	48	3	67
SAR	34	35	55	22

Source: <http://www.ib-net.org>.

This chapter examines the World Bank's performance in supporting client countries' efforts to improve the financial viability of WSS services. The analysis covers operational efficiency (nonrevenue water reduction, energy efficiency, and billing and collection) and cost recovery for O&M and capital investments through a combination of remunerative tariffs, government subsidies, and donor funding. IEG evaluated these in the context of bridging the financing gap to move toward the SDG 6 targets, which commit to providing potable, continuous WSS network services in most developing-country urban areas and small towns by 2030.

Financial Viability

Financial viability is seldom included in World Bank WSS projects' objective statements. Of 163 projects approved during FY2007–16, only seven projects stated financial viability as one of their project development objectives. However, World Bank projects addressed financial viability significantly through financial covenants. Of 152 projects completed and rated during FY2007–16, 53 projects used financial covenants to engage policy makers in client countries and as instruments to incentivize WSS agencies to improve financial performance. These projects were in 30 countries representing all World Bank Regions except for South Asia, which had projects in only Afghanistan and India. Almost all were MICs, except for Afghanistan and Niger.

The World Bank used financial covenants in 14 projects in China and four projects in Vietnam (appendix I lists all projects with financial covenants). Tariff adjustment and collection was the most common covenant, followed by O&M cost recovery and debt service coverage ratio.¹ The debt to asset (or debt to equity ratio) was the financial covenant used the least frequently.² Financial covenants' success rate ranges from 23 percent for the capital expenditure coverage ratio to 54 percent for the operating ratio.³ Overall, the success rate of financial covenants underscores many client countries' political unwillingness to use water tariffs as an economic instrument to improve the financial condition of WSS service providers (table 4.2).

The World Bank has traditionally included project components that support creating and strengthening regulatory functions to address water and sanitation pricing issues. More recently, the World Bank used general and sector-specific development policy loans to encourage and support policy reform and actions in client countries. However, a review of the World Bank's portfolio shows that the development policy loan instrument was not used significantly to reform the WSS sector. The Morocco Water Sector Policy Development Loan is one of a few exceptions. In this operation, the proposed tariff structure reform was not pursued by the government because of social unrest, and state budget support did not increase for wastewater collection

and treatment as planned. Another exception is Madagascar’s Programmatic Poverty Reduction Support Operation, in which the subsidy reallocation’s intended effect of the government increasing the budget allocation for sanitation in its FY2007–09 budget program did not occur.

Table 4.2. Financial Covenant Success Rates in Projects Completed FY2007–16

	Tariff Adjustment or Collection	O&M Cost Recovery	Debt Service Coverage Ratio	Operating Margin and Operating Ratio	Capital Expenditure Coverage Ratio	Liquidity Ratio	Debt to Asset or Equity Ratio
Projects with covenants	37	33	32	13	13	9	7
Projects fulfilling covenants (%)	51	33	38	54	23	56	43

Source: World Bank project documents; IEG analysis.

Note: O&M=operations and maintenance.

Financial Viability in Rural Water Supply and Sanitation

An important feature of World Bank–supported community-based rural WSS projects is that beneficiaries have a stake in the program; they contribute sweat equity or cash (or both) during the entire project cycle. The implicit assumption is that these contributions create incentives for community groups to manage the services sustainably. The level of a community’s financial contribution depends on the available technology choices and the technology chosen. In gravity-fed systems that have no energy costs, operating costs are usually substantially lower than in WSS systems that require pumping water from a bore well or a surface water source.⁴ Collecting cost recovery tariffs is usually easier in gravity-fed systems. As with urban utilities, sustaining the financial viability of even small rural WSS programs depends on the ability of community-based organizations to recover at least operating costs, including management of the operation’s technical and administrative aspects. IEG field visits, focus groups, and beneficiary discussions conducted in India, Indonesia, Peru, and Sri Lanka show a wide variation among rural WSS beneficiaries in appreciating the importance of maintaining financial viability as an instrument to sustain the delivery of adequate, reliable water services, and even less understanding on planning and adapting for changing user demand (Box 4.1).

Insights from focus group discussions also suggest that instilling a cost recovery culture in communities depends on several factors. These include local norms and conventions, but equally important is the need for local members to appreciate the importance of mobilizing financial resources from the community to support WSS infrastructure O&M to preserve the design life of the capital assets.

Box 4.1. Results of Beneficiary Discussions in Rural Sri Lanka and Peru

In Sri Lanka, IEG field visits and focus group discussions with beneficiaries in 10 geographically representative community-managed rural water supply programs found a strong payment culture and ability to recover costs at the current service levels. Four of these organizations generated a cash surplus that was set aside for future rehabilitation and upgrading needs. However, IEG found wide variation in the adequacy, reliability, and quality of water supplied, suggesting that many of the rural WSS programs could not upgrade the levels of service delivery required to achieve Sustainable Development Goal 6. Furthermore, the focus group discussions showed a need for greater financial assistance from the government for capital improvements because of growing populations in some areas and increasing aspirations for service standards.

In Peru, however, the conclusion from six IEG-led beneficiary focus groups in three geographical regions found that most community-managed rural programs faced low willingness to pay and chronic payment delinquency. Under these circumstances, community-based management of WSS systems follows a profile similar to that of many larger WSS utilities: inability to cover even basic operating costs, with adverse impacts on long-term service delivery.

Two lessons that emerge from IEG's analysis, supplemented by case studies on India, Indonesia, Peru, and Sri Lanka, are as follows:

- Substantial and sustained capacity building and support are required for effective technical, financial, and administrative management of village-level WSS organizations.
- A transition strategy is required that facilitates community-managed WSS systems' transition into more formalized, professionally managed utilities when the piped network exceeds a minimum scale, usually beyond 500 house connections.

World Bank Support for Operational Efficiency

Operational efficiency of service providers is a crucial element for ensuring their financial viability. Four KPIs capture operational efficiency: nonrevenue water reduction, staff productivity (staff per 1,000 connections), bill collection ratio, and energy efficiency. World Bank project KPIs (except for some countries in the Europe and Central Asia Region) did not pay significant attention to staff productivity and energy efficiency, even though excessive energy and labor costs are often the most

significant components of a utility's operating costs. Nine completed projects in eight countries tracked energy efficiency in utilities: seven countries from Europe and Central Asia (Armenia, Bosnia and Herzegovina, Moldova, the Russian Federation, Tajikistan, and Ukraine), and Zambia. Performance, measured as energy efficiency improvement (kilowatt-hours per cubic meter of water supplied) was moderately satisfactory or better in four of these countries and less than satisfactory in Tajikistan. Armenia and Moldova did not have data available at project completion. As shown in table 4.1, bill collection ratios were the subject of covenants in 37 completed projects, and only 51 percent of those met targets to a moderately satisfactory extent or better.

Nonrevenue water is water produced for consumption and lost before it reaches the customer. The amount of nonrevenue water is typically a percentage made up of both real and apparent losses and unbilled, authorized consumption. Real losses are water lost from leaks and water main failures, and apparent losses result from theft and metering inaccuracies. A World Bank study puts the global estimate of physical water losses at 32 billion cubic meters each year, half of which occur in developing countries. If the water losses in developing countries were halved, the saved water would be enough to supply about 90 million people (Kingdom, Liemberger, and Marin 2008).

The World Bank supported nonrevenue water reduction significantly with favorable results overall. Forty projects had measurable targets for nonrevenue water reduction across 29 countries covering all Regions except South Asia. Among the 34 projects with data available at project completion, 25 projects (73 percent) met their nonrevenue water reduction targets. No data were available at completion for the six remaining projects. A World Bank-financed project in Ho Chi Minh City used a nonrevenue water performance-based contract approach in part of the city and saved half of the water that was previously lost to leakage – 100,000 cubic meters per day (enough water to serve 500,000 people).

Fiscal Space for Water Supply and Sanitation

In countries where WSS utilities are unable to cover operating costs, the problem often passes to the sector or finance ministry to provide necessary support. However, government spending for WSS in many World Bank client countries receives a lower priority than other infrastructure services. For example, in 2014, only 10 out of a sample of 31 LICs and MICs met a benchmark of 1.5 percent of gross domestic product (GDP) set for WSS expenditure.⁵ During 2008–14, the average spending on water and sanitation stagnated at about 0.9 percent of GDP. These findings are similar to an earlier analysis for Sub-Saharan Africa that draws on

World Bank Public Expenditure Reviews for 2004–08. This analysis also notes that in Sub-Saharan Africa, an estimated 62 percent of total WSS expenditures were sourced through donor financing (Ginneken, Netterstrom, and Bennett 2011). Appendix J provides more details.

The situation is different in some LMICs where the political priority for WSS has been rising and helped by greater fiscal headroom, though the fiscal transfers are still inadequate to meet the growing WSS deficits. For example, public expenditures for WSS in Indonesia have increased through the years, but were still less than 1 percent of GDP. This level of spending was an estimated one-fifth of the requirements (World Bank 2012). In India, the central government launched several multibillion-dollar support programs for urban WSS, and rural and peri-urban sanitation, including wastewater inflows into the Ganga River.⁶

In countries dependent on commodity prices, the fiscal space varies with the boom-and-bust cycle in commodity prices. For example, the IEG case study for Nigeria notes that Nigerian states lack sufficient funds because of the recent oil price decline, which resulted in significant budget cuts. The governor of the Ekiti province decided not to fund the amount required to operate the generators needed to counter the power shortages and to run the water utility plant. Consequently, production availability reduced to 10 percent, which was even lower than the baseline capacity of 35 percent.

Conclusions

Low tariffs and insufficient government transfers for WSS in most LMICs and LICs have three consequences for financial viability of the service provider and institutional accountability in the sector. First, the subsidies and transfers in the sector are not sufficient or targeted to compensate service providers who show superior performance, and they have the perverse effect of benefiting property owners with house connections. Second, WSS public service providers have little incentive to manage their assets efficiently because they operate in a culture of receiving financial handouts. Third, the private sector is unlikely to show interest in providing financing or even operating WSS infrastructure where tariffs are not remunerative unless the government assumes the demand risk. Progressive deterioration of WSS service delivery is likely in this situation, and new sectoral investments will continue to fund deferred maintenance of existing assets rather than meeting the challenge of service expansion. Chapter 6, which focuses on institutional accountability for service delivery, examines these aspects in more detail.

¹ The debt service coverage ratio (also known as debt coverage ratio), is the ratio of cash available for debt servicing to interest, principal, and lease payments.

² Debt to total assets ratio is calculated by dividing a corporation's total liabilities by its total assets.

³ The operating ratio is a company's operating expenses as a percentage of revenue.

⁴ A gravity-fed supply (from a small upland river, stream, or spring, for example) impounded within a protected catchment uses the force of gravity to transport water by pipework to tapstands placed near homes.

⁵ Two components are the basis for this benchmark: the 2008 agreement at the eThekweni meeting of African Union ministers to spend 0.5 percent of gross domestic product (GDP) on sanitation and hygiene, and studies (including by the United Nations Development Programme) that suggest that meeting the water goal of the Millennium Development Goals requires 1 percent of GDP annually. (Government Watch 2015)

⁶ The multibillion-dollar support programs include the Jawaharlal Nehru Urban Renewal Mission, the Atal Mission for Renewal and Urban Transformation, Swachh Bharat (or Clean India mission), and the Namami Ganga Project.

5. Environmental Sustainability of Water Resources

Highlights

- ❖ Cross-sectoral issues are gaining greater significance as WSS absorbs larger shares of basin-level water resources affected by pollution from untreated wastewater and unregulated pollution.
- ❖ The World Bank supported client governments, mainly in middle-income countries, in addressing water pollution issues related to WSS and extreme water stress, with positive results.
- ❖ Little evidence is found of coordinated efforts within the World Bank or by client governments to address environmental and cross-sectoral issues relating to WSS service provision.

This chapter examines the World Bank' focus and support to client countries in addressing cross-sectoral issues between WSS, other water users, and the environmental sustainability of water resources.¹ These cross-sectoral issues are gaining greater significance as WSS absorbs larger shares of basin-level water resources and competes with agricultural and industrial users.

A WSP study shows that poor sanitation outcomes caused by self-provisioning has an opportunity cost of \$1.4 billion annually because of adverse environmental and health impacts (World Bank 2015). In China, a massive, two-decade investment program for wastewater collection and treatment resulted in the production of about 30 million tons of sludge annually (as much as produced in the EU), and its uncontrolled dumping resulted in soil pollution that affected agricultural productivity in the affected farmlands.² Cities like Adelaide and Melbourne in Australia and São Paulo in Brazil have already witnessed intense stress on their water supplies because of rainfall variability. Other cities in coastal areas, such as Bangkok, Ho Chi Minh City, Jakarta, and Kolkata (India) are projected to face severe flooding problems because of sea-level rise and frequent storm surges.

World Bank Focus on WSS-Related Cross-Sectoral Impacts

In the past decade, MICs became increasingly interested in addressing cross-sectoral issues affecting water supply sources by engaging the World Bank through investment loans or the Program for Results instrument, several with large outlays of more than \$400 million each. Typically, countries sought such engagements from the World Bank after the negative cross-sectoral effects of water quality and quantity dimensions reached crisis proportions and became politically important. A sample of such engagements reviewed fall into the following three broad categories:

- Water quality relating to pollution of regional and national water resources caused by municipal, industrial, and nonpoint pollution³ from agricultural runoff (Argentina, China, Egypt, India, and Mexico)
- Extreme water stress leading to unsustainable aquifer management (Brazil, Mexico, the Republic of Yemen, and Tunisia)⁴
- Responding to external drivers such as the EU Water Directives for Europe and Central Asia accession countries, and coastal zone pollution mitigation to protect tourism (Tunisia).

WATER QUALITY

Water quality concerns relate to the environmental and health damage caused by both the sourcing of raw water and the huge volumes of untreated wastewater, fecal sludge, and sludge generated in conurbations. The World Bank has assisted mainly MICs in their large efforts to clean up discharges that cause damage to large water bodies and ecosystems. Of 46 closed and rated projects that addressed wastewater treatment and disposal, 31 projects (67 percent) had moderately satisfactory or better performance for relevant KPIs. The projects that did not perform well fell short in institutional arrangements and support, connectivity to waste collections systems, solid waste management, or government commitment in one or more respects. In Vietnam's Ho Chi Minh City Environmental Sanitation Project, a major challenge that was addressed was the illegal dumping of solid waste in the sewers and canal because it threatened the adequate operation of the system and the drainage capacity of the basin. In China's Guangdong Pearl River Delta Urban Environment Project, several aspects were unclear at project completion, such as regulation and enforcement of hazardous waste production and disposal (including delivery of waste to the treatment facility), and operational responsibilities of facilities that cross jurisdictional boundaries. The project made only moderate progress toward the objective of regional planning in wastewater and waste management, showing that the authorities' commitment toward regional oversight and planning was weak. In Argentina's Water Sector Reform Project, the realization of the project's full benefits will depend on government ownership and commitment at the provincial and federal levels to making connections to new sewerage services possible for all households that are technically ready to connect, using appropriate, well-targeted, and coherent subsidy policies. Realizing the full benefits will also depend on a renewed commitment from provincial and federal government entities to support institutional strengthening in the sector.

These experiences provide lessons for large, ongoing projects (such as projects in Egypt, India, and Argentina) that attempt to improve water quality on a large scale. Egypt's Sustainable Rural Sanitation Service Improvement Program for Results Project (\$550 million) aims to improve water quality in the Nile Delta by ensuring

adequate wastewater flows from feeder rural communities to the proposed wastewater treatment plants. India's National River Basin Project (\$1 billion) aims to clean the Ganga River, which depends on securing adequate wastewater flows from municipalities that are predominantly served by on-site sanitation systems and open drains. The ongoing Matanza-Riachuelo Basin Sustainable Development Adaptable Lending Program (\$840 million) allocated \$619 million for upgrading municipal sanitation infrastructure components through improved wastewater management. The recent World Bank project experiences suggest that institutional and regulatory issues need prompt resolution to realize the intended benefits from large investments committed to physical assets for cleanup activities. For this to occur, it is crucial that improved regulatory practices sustain quality at water treatment plant intake points and treated wastewater at the discharge points.

Extreme Water Stress

Increasing water scarcity puts the spotlight on wastewater reuse, but facilitating a constructive and systematic dialogue between agencies responsible for irrigation (users) and WSS utilities becomes difficult to sustain without a well-established policy and regulatory framework. This is shown in experiences in World Bank development policy loans in Brazil and Mexico, as follows:

- The \$450 million Mexico Water Sector development policy loan addressed extreme water stress by taking specific actions to strengthen the institutional and regulatory frameworks required to establish an appropriate water governance framework. It also helped the government to mainstream adaptation policies by reforming financing mechanisms, strengthening institutional and regulatory frameworks, and instituting KPIs that enable monitoring of water quality and quantity trends in all of Mexico's river basins. Measures to improve aquifer recharge and to create incentives for sustainable treated wastewater reuse were two examples of promoting cross-sectoral benefits through the development policy loan instrument.
- Brazil's Pernambuco Development Policy Loan (World Bank 2013a) strengthened the Pernambuco State Water and Climate Agency's administration capacity, and achieved KPIs regarding water rights (one for groundwater and one for surface water), creation of a reservoir management committee for water basins, and establishment of a water user cadaster for several water basins that included municipal water users and irrigators.

In other projects, extreme water stress led clients to seek knowledge assistance from the World Bank Group. The Northern Tunis Wastewater Project attempted to address intersectoral conflicts by expanding investments in the treatment of city-

generated wastewater and by creating a circular economy market for treated wastewater in the agricultural sector.⁵ About 9,000 hectares of farmlands are now reusing the treated wastewater, but this achievement is still far short of the project targets because the cross-sectoral transaction costs of physically transferring treated wastewater to farmers through the agriculture ministry were much higher than anticipated during project preparation.

RESPONDING TO EXTERNAL DRIVERS

In the Europe and Central Asia Region, EU accession countries have been addressing water quality issues to comply with the European Water Directives, the Urban Waste Water Treatment Directive, and the Drinking Water Directive. These directives are all key external drivers for incorporating cross-sectoral dimensions in policy and project formulation. A notable development is the formulation of KPIs that track WSS performance and benchmark these against other EU countries. In Tunisia, protecting the tourism industry along the Mediterranean Sea is an external driver for wastewater collection, treatment, and disposal. IEG's case studies in MICs – India, Indonesia, Sri Lanka and Tunisia – covering World Bank interventions from 10 to 15 years ago, suggest that there has been little provision for a coordinated approach to cross-sectoral environmental impacts relating to WSS in client countries. More recently, the Global Solution Groups in the Water GP provides a basis for greater focus on cross-sectoral issues. It is too early to assess the Water GP's efforts to improve coordination with Global Solution Groups outside of the practice, for health, nutrition, governance, finance, and urban issues. The WSS Global Solutions Group has defined 10 pillars, three of which address specific subsector issues, including sanitation, rural water, and urban utilities. The other pillars address cross-cutting issues that affect all aspects of WSS service delivery: urbanization, financing, private sector participation, institutions, and climate change. Global knowledge is being made readily available to all World Bank Group staff through the AskWater facility.

Conclusions

IEG's review shows that cross-sectoral impacts caused by competing pressures from WSS and other users (notably agriculture and industry) have gained increased policy relevance in many World Bank Group client countries, for three interrelated reasons. First, self-provisioning of water by both poor and affluent consumers, combined with urban growth, has placed undue stress on groundwater quantity and quality. Second, Unregulated wastewater and sludge disposal has resulted in serious groundwater and surface water pollution, besides contaminating agricultural land. Third, Climate variations are giving rise to greater uncertainties in water availability. These problems require cross-sectoral efforts to develop

sustainable solutions that serve the needs of WSS and agricultural and industrial users.

¹ A parallel IEG study “Toward a Clean World for All - An IEG Evaluation of the World Bank Group’s Support to Pollution Management” (forthcoming 2017) assesses pollution management support more broadly.

² A national soil pollution survey conducted between 2005 and 2013 by China’s Ministry of Environmental Protection and the Ministry of Land and Resources found that 16 percent of China’s soil was polluted beyond acceptable standards, and 19.4 percent of China’s total arable land (65mn of 334 million acres) was badly contaminated by heavy metals, affecting the country’s overall strategy for food supply and safety (Goldman Sachs 2015)

³ Point source water pollution is emissions that enter water bodies from an easy-to-identify single source, such as a pipe from a factory or the outfall from a sewerage works. (<http://www.econport.org/content/handbook/Environmental/WaterPollution/Point-Source.html>). Nonpoint sources of pollution are often called diffuse pollution and refer to those inputs and impacts that occur across a wide area and are not easily attributed to a single source. (<http://www.epa.vic.gov.au/your-environment/water/protecting-victorias-waters/point-and-nonpoint-sources-of-water-pollution>)

⁴ Water stress occurs when the demand for water exceeds the available amount during a certain period or when poor quality restricts its use. Water stress causes deterioration of fresh water resources in quantity (aquifer overexploitation, dry rivers, and so on).

⁵ A circular economy as a broad concept is an alternative to a traditional linear economy (make, use, dispose) in which resources are kept in use for as long as possible, the maximum value is extracted from them while in use, and then products and materials are recovered and regenerated at the end of each service life.

6. Institutional Accountability

Highlights

- ❖ Four key determinants of sustainable WSS outcomes that are essential to achieve Sustainable Development Goal 6 are transparency in rules, accountability of organizations responsible for service delivery to consumers, active stakeholder participation, and leadership at the country and sector levels.

The following broad patterns are observed among different country income categories:

- ❖ UMICs have policy frameworks for accessing national financing sources, and specify the outcomes for which WSS service providers are accountable. These rules have resulted in professional WSS organizations that are responsive to consumer demand.
- ❖ LMICs have similar policy frameworks, but the performance standards for the outcomes for which WSS service providers are accountable are much lower. Consequently, WSS organizations exhibit a wide range of performance in responding to consumer demand.
- ❖ Low-income countries depend on donor funding for WSS capital investments, but they showed greater sectoral leadership and innovation in promoting domestic private sector participation to facilitate basic access to WSS services.
- ❖ Private sector participation in WSS has been mainly in UMICs, and in a few LMICs where sovereign guarantees to mitigate political and demand risks were available.

The World Bank Group’s support to client countries for improving WSS outcomes spans a variety of service delivery modes – public utility, community-based organizations, local government provision, and private sector participation. IEG analyzed a random sample of 60 World Bank Group WSS projects to identify the institutional factors and processes shaping the outcomes across different service delivery modes (World Bank, forthcoming). This chapter presents a framework to organize the evaluation findings, drawing also on country case studies and relevant literature. The focus is the World Bank Group’s support to client countries for improving institutional accountability to achieve service delivery outcomes (figure 6.1). Appendix K discusses the analytical framework for service delivery.

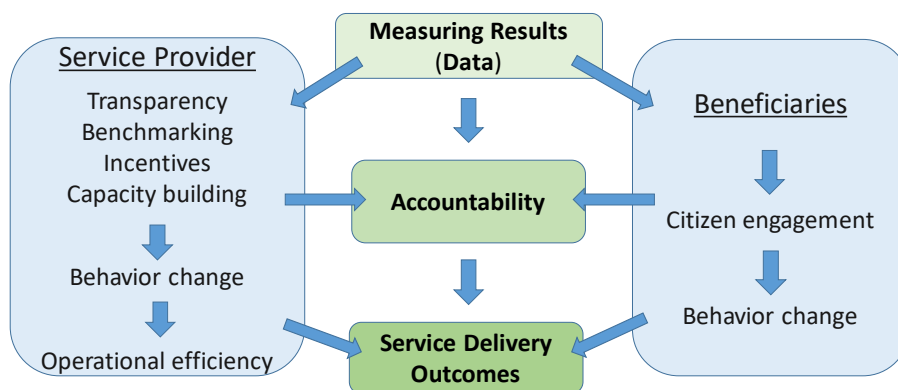
The framework recognizes that service provider performance and beneficiary engagement drive service delivery outcomes, as follows:

- Service providers: Service delivery outcomes depend on clear rules of engagement on cost recovery to deploy trunk and feeder investments through system operations. Equally important is the transparent flow of information on service benchmarks and performance to all WSS stakeholders (donors, investors, and consumers), along with the service providers’ organizational capacity to respond to consumer needs.

CHAPTER 6
INSTITUTIONAL ACCOUNTABILITY

- Beneficiaries: Citizen engagement is necessary to hold service providers accountable and improve communication between the utility and its customer base; for this, transparent and timely data on service delivery targets and performance are crucial.

Figure 6.1. Accountability for Service Delivery Outcomes



Furthermore, both the service provider and the beneficiary need behavior change. Without adequate economic regulatory oversight, the service provider may not have the incentive to stay focused on the customers – the literature calls this the agency problem.¹ Equally significant is the need for beneficiaries to accept that higher levels of services cost more to provide, and they need to pay for it. As discussed in chapter 3 in the section “Behavior Change in Beneficiaries for Health Impacts,” beneficiaries often need persuasion to adopt hygienic habits (especially regarding improved sanitation) to realize the full health and economic benefits of improved WSS services.

Overall, the World Bank Group project portfolio (chapter 2) and World Bank Group-supported outcomes for improving WSS access and service delivery (chapter 3) suggest identifiable patterns of institutional characteristics and accountability for service outcomes across country income categories. Table 6.1 summarizes these patterns.

UPPER-MIDDLE-INCOME COUNTRIES

Colombia stands out as an example of how a strong regulatory framework and transparent tariff and subsidy regimes can create the conditions for strong sector performance, signal the right incentives for performance and accountability, and attract private investment. The country built on the Domiciliary Public Services Law of 1994, which defined a clear path for the provision of public services to achieve four significant outcomes. It enabled expanded coverage in the sanitation subsector and in the country’s economically backward regions, achieved continuity in investment financing, facilitated decentralization and municipal autonomy in the

provision of services, and supported the professionalization of service providers (SSP 2010).

World Bank Support for Institutional Accountability for Service Outcomes

Table 6.1. Institutional Characteristics Affecting Accountability, by Country Income Category

Country Category	Access: Water supply; Sanitation	Institutional Characteristics Affecting Accountability	Priority Issues	World Bank Engagement: Current Emphasis
UMICs	high; high	<ul style="list-style-type: none"> • Transparent regulatory and remunerative tariff regimes • Targeted subsidies • Significant PPP • Modest to good service delivery data <ul style="list-style-type: none"> ○ High cost recovery ○ High operational efficiency 	<ul style="list-style-type: none"> • Severe environmental impacts • Unintended consequences (from improper sludge disposal, for example) • Last-mile targeting • Climate risks 	<ul style="list-style-type: none"> • Strong policy dialogue • Environmental cleanup • Targeted capacity building
LMICs	high; modest or low	<ul style="list-style-type: none"> • Weak regulatory and unremunerative tariff regimes • Poorly targeted subsidies • Low PPP interest • Poor service delivery data • Inadequate cost recovery • Poor operational efficiency 	<ul style="list-style-type: none"> • Institutional capacity • Severe environmental impacts • Rural and urban sanitation • Health impacts • Climate risks 	<ul style="list-style-type: none"> • Limited policy dialogue on tariffs and accountability • Environmental cleanup • Rural water supply and sanitation
LICs	modest; low	<ul style="list-style-type: none"> • Inequitable access for the poor • Poorly targeted subsidies • Domestic PPP in feeder markets • Poor service delivery data <ul style="list-style-type: none"> ○ Modest cost recovery ○ Poor operational efficiency 	<ul style="list-style-type: none"> • Sustained technical assistance • High environmental impacts • Neglect of small towns and rural WSS • Health impacts • Climate risks 	<ul style="list-style-type: none"> • Limited policy dialogue on tariffs and accountability • Urban water supply and sanitation

Note: LIC = low-income country; LMIC = low- and middle-income country; PPP = public-private partnership; UMIC = upper-middle-income country; WSS = water supply and sanitation.

In this context, the World Bank–supported Colombia Water and Sanitation Sector Support Project First APL facilitated contracts with private sector participation in the country’s Caribbean region (mostly in medium-size cities), resulting in 36 municipalities receiving service from private or mixed operators. The project supported service delivery on a national scale in 22 out of 32 Colombian *departamentos*, or provincial governments, and through the promotion of private sector participation. WSS utilities in 28 municipalities converted to corporations with private participation. By 2012, 95.6 percent of the urban population in communities with more than 2,500 residents were receiving water that meets quality guidelines (World Bank 2004).

CHAPTER 6 INSTITUTIONAL ACCOUNTABILITY

The Colombian WSS sector's financial situation has improved considerably since the early 2000s, and had a gradual increase in average tariffs toward the long-term average cost of providing services. The gap between the long-term average cost and the average tariff was reduced through a geographical cross-subsidization system and a complementary system of financial subsidies that the national government allocated to the municipalities, which they transferred as capital subsidies to the utilities.

The well-established regulatory and tariff regimes in Brazil and Morocco helped both countries leverage World Bank projects to improve performance and accountability for water use efficiency. Morocco's First Water Sector Development Policy Loan helped integrate the concept of accountability for service outcomes through demand responsiveness across the water resource management, irrigation, and WSS subsectors, including the stipulation of nonrevenue water reduction targets in urban water supply. Subsequently, the government increased public expenditure to support service coverage expansions and ensure financial viability of rural water supply and urban sanitation. Brazil's REAGUA project enabled SABESP, the state water company responsible for WSS services in São Paulo, to undertake an intensive campaign to reduce water losses and offer major economic incentives to those reducing consumption, reducing water production by 22 percent from 2014 to 2016. In parallel the Mananciais Project assisted SABESP in increasing water supply production by 5m³/s, allowing the company to maintain acceptable service standards in the face of severe drought.

LOW- AND MIDDLE-INCOME COUNTRIES

Unlike UMICs, most LMICs tend to be unwilling to use water tariffs as an economic instrument to align WSS institutions' incentives with consumers' service needs, often because of political considerations. Egypt, India, Indonesia, Nigeria, and Pakistan are examples of large LMICs with tariffs so low that utilities are unable to cover even operating costs. Under these circumstances, WSS utilities fail to meet minimum performance benchmarks in nonrevenue water, staff productivity, working ratios, and debt service coverage. Consequently, a large proportion of consumers resort to self-provisioning, which further erodes the utilities' ability to recover even operating costs. LMICs have used some available fiscal headroom to keep utilities running at basic levels of service. They have also had much weaker sectoral policy dialogue with the World Bank Group, but they engaged more for sanitation than water supply. India and Indonesia's experiences represent those of LMICs.

In urban India, WSS operational efficiency (measured by nonrevenue water) and service delivery parameters (adequacy and reliability) are far below international

standards (HPEC 2011). Only 160 of 8,000 towns have some sewer lines, and overall, only 13 percent of sewage is treated (Elledge and McClatchey 2013). Of the global population of 946 million practicing open defecation, as much as 60 percent or about 570 million, reside in India. In this context, fiscal transfers from the central government to state governments have yielded positive results from utilities in expanding feeder networks and providing more connections in some states, such as Gujarat, Kerala, Maharashtra, and Tamil Nadu (World Bank 2013). These results are attributable to better capacity endowment and stronger economies in those states, but higher accountability, transparency, and performance benchmarking also had a role. However, several other states have consistently displayed low performance because they use central government funding mainly to finance deferred maintenance and, therefore, are unable to finance the required levels of operation and maintenance.

In Indonesia (as in India), political accountability in the WSS sector was transferred to subnational institutions, which have not shown a willingness to undertake sectoral reforms that could potentially lead to demand-responsive institutions. Overall, the trend in household water supply coverage in urban areas has been a decreasing, and trends in rural areas are stagnant. Similar to India, substantial central government funding has not led to improvement in sectoral outcomes because local governments are reluctant to exercise their delegated powers on tariff setting. Most water utilities (known as PDAMs, or *perusahaan daerah air minum*) use these funds for deferred maintenance costs, with few exceptions.

LOW-INCOME COUNTRIES

LICs have significant domestic financing gaps and thus rely on donor financing. However, facing low WSS access coverage and limited fiscal headroom, several countries in this category have promoted domestic private sector participation, creating value chains for retail WSS. They have also engaged in active partnerships with civil society to deliver feeder options that respond to consumer preferences, including for sanitation. A recent study sponsored by the WSP confirms local leadership's role, supported by political endorsement at the national level. For example, many utility managers in Sub-Saharan Africa have undertaken institutional innovations to enhance the impacts of the feeder networks by partnering with domestic private providers to extend water WSS services to the urban poor (Heymans et al. 2016). Promoting better service to the poor through feeder markets often relies on a catalytic event, which creates space for reform by a political leader with the weight of authority to maintain continuity in reforms. In this context, investment support by the World Bank and development partners can enhance trunk capacity and enable innovations in feeder markets (such as regulated water vending, pay-and-use toilets, private O&M of community taps, and so on).

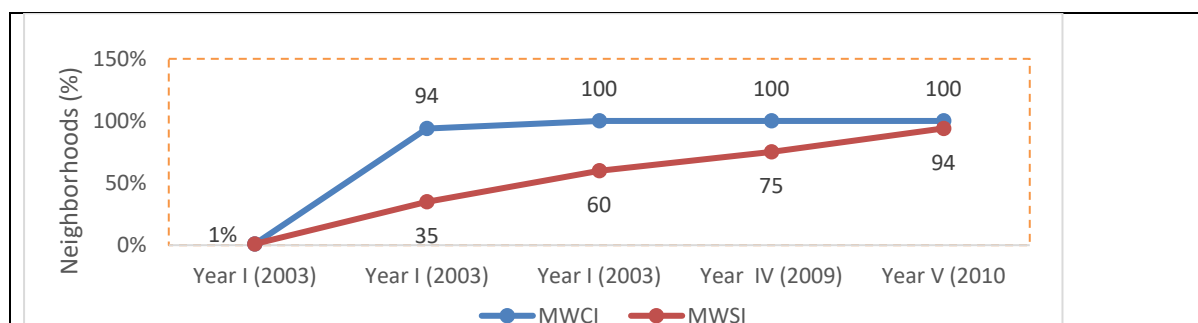
Private Sector Participation: Low- and Lower-Middle-Income Countries

IEG considered all World Bank projects that closed during FY2007–16 and found that 22 projects across all Regions except Europe and Central Asia had some private sector participation components. These components include private contractors for local utilities in urban areas (Albania, Colombia, Ethiopia, Nigeria, the Philippines, Rwanda, and St. Lucia), private water supply operators in rural areas (Malawi and Niger), feeder water services provision (Bangladesh, Brazil, Cambodia, and Chad), and sanitation services provision for emptying septic tanks in Vietnam (appendix D). Performance in establishing these arrangements was moderately satisfactory or better in 73 percent of the cases.

The relative lack of interest for private sector participation in the WSS sector in LICs and LMICs reflects widespread accountability concerns. Client countries also have shown no significant interest in seeking private sector involvement, despite efforts by the Water Global Practice with technical assistance funding from World Bank partnerships, the Public-Private Infrastructure Advisory Facility, Global Partnership on Output-Based Aid (GPOBA), and the WPP (discussed in chapter 7). The low level of IFC investments, particularly in LMICs, illustrates this lack of interest. However, LMICs have shown increasing interest in transport and energy public-private partnerships. On balance these IFC efforts, which have yielded positive results in the Philippines (Manila Water), China (Sound Global) and MENA (Metito) among others, have helped establish strong private companies and demonstrated to governments the role the private sector can play in improving access, customer service, environmental performance, and financial sustainability of the sector.

The experience with IFC advisory services provides some insight into the difficulties of structuring successful transactions involving private sector participation in the WSS sector in low-income and emerging markets. IFC's relatively low share of successful transactions confirms the difficulties of doing WSS business in emerging markets. Governments welcome the resources that private investors can bring, but the reality of providing a framework for sustainable operations is often quite difficult to operationalize, particularly in the presence of civil society and political groups' stiff resistance. These sustainable operations frameworks would include a regulatory framework that ringfences the tariff-setting process from political interference and clarifies the subsidies' targets.

Figure 6.2. Performance Trends of Water Public-Private Partnerships in Manila, the Philippines



Source: Philippine Assessment of Water Services.

Note: MWCI = Manila Water; MWSI = Maynilad Water.

The objective of many WSS concession contracts is to transfer the demand risk to the private operator, but this has met stiff political opposition in many countries because water pricing is a difficult political issue. However, from a performance perspective, the private sector has incentive to serve customers more effectively. Figure 6.2 illustrates the experience in the Philippines, where two concessionaires, Manila Water and Maynilad Water, have dramatically expanded piped water coverage throughout their concession area. The concessionaires have received positive customer feedback (monitored by the independent Philippines Assessment of Water Services): between 94 percent and 100 percent of respondents cited “very good” concessionaire performance in their coverage areas (figure 6.2).² However, it is noted that the number of concession contracts in World Bank client countries are limited.

Securing market finance for WSS is another, more ambitious objective found mainly in the UMICs. Brazil, Chile, China, Colombia, and Morocco experience financing inflows, but even in these countries the funding flows barely meet a fraction of investment needs. Global Water Intelligence estimates that annual private finance inflows in China are \$3 billion to \$4 billion compared with the multibillion-dollar municipal and WSS utility borrowings. Interest in WSS PPPs is also greater in middle-income countries with sufficient fiscal space to guarantee returns to investors (such as Saudi Arabia and the United Arab Emirates). A third objective is to attract expertise from private operators to introduce the latest technology through desalination plants, large wastewater and reuse systems, and the like. The private sector was often invited to build and operate wastewater treatment plants with cash flow guaranteed by either the municipal authority (China) or the central government (India).

DOMESTIC PRIVATE PROVIDERS

The past few years have seen considerable growth in informal private WSS providers’ role in feeder networks in several LMICs. A recent WSP study estimates a

substantial value of private investments in these systems – about \$20 million annually across all geographies – and they provide vital services to growing cities.

These market-responsive alternatives emerge whenever a water or sanitation service (or both) value chain becomes commercially viable for a local entrepreneur. Typically, such value chains are easier to establish for water supply than for sanitation. Households unable to connect to the water supply system are willing to pay for different levels of water services by, for example, either securing continuous water supply through an overhead tank that must be filled regularly or having water delivered to their homes. The market response has been a variety of localized solutions, typically water vendors ranging from expensive tanker trucks to human water carriers, bore well drillers, and so on. Similar opportunities arise in sanitation: in constructing pit latrines, septic tanks, cleaning the septic tanks, conveying fecal sludge away from the neighborhood, treating fecal sludge, and disposing of the by-products safely.

World Bank Support for Capacity Building in the Water Sector

Capacity building was included as a distinct component or subcomponent in 122 (75 percent) of the 163 Water Global Practice WSS projects approved during FY2007–16. The project documents generally indicate this activity as institutional strengthening of national and regional sector institutions and project management. Only half of all projects with capacity-building components had specific KPIs to assess the activities' results. These KPIs are invariably output indicators instead of outcomes. Typical KPIs are the numbers of persons and training days for utility management and staff trained in administrative, technical, and financial matters, or participants in knowledge exchange programs. IEG could not find any systematic link between capacity-building activities in World Bank projects and project outcomes. This area requires strong focus and attention because inadequate institutional capacity increases the risk to development outcomes of World Bank projects.

China provides an important illustration of leveraging World Bank engagement (supplemented by WPP and bilateral sources) to introduce policy reforms and project-level innovations to build professional competencies in their staff. In the past two decades, professionally trained WSS professionals have moved service levels in China to near-universal services in urban areas and substantial coverage in rural areas – levels that are typical of UMICs. Chinese policy makers have drawn on World Bank support to advance WSS sector innovations to address major continuing challenges in sustainable sludge disposal, enhancing WSS delivery capacity in the less-developed western provinces, and in reconsidering engineering design standards to cope with these challenges.

Promoting Service Provider Behavior Change

WSS service providers in client countries can benefit from orienting staff toward industrywide benchmarks. Incentive mechanisms – such as improved working conditions, competitive staff salaries, performance-linked bonuses, and better career prospects – can bring about such behavior change. The World Bank portfolio does not show any such systematic efforts, but IEG identified a few examples that are instructive and potentially replicable. For example, under Peru’s Lima Water Rehabilitation and Management Project, the utility Sedapal radically changed its corporate management approach and work culture, including adopting a new performance-based compensation and incentive system based on reaching results targets. Sedapal conducts financial performance benchmarking in the context of its credit rating, and a medium-term objective is public listing. IEG’s field-based project performance assessment confirmed a steady improvement in access coverage, basic service parameters, and operational and financial performance.

Another example is Phnom Penh’s Water Supply Authority, which established leak detection teams to find and fix leaks throughout the water supply distribution system. The most efficient teams receive monetary rewards – some up to 25 percent of a technician’s annual salary – based on comparing the ratio of leaks at the beginning of the year to the ratio at the end of the year. The utility reduced nonrevenue water from 70 percent to about 7 percent in the past two decades. Similar successes through management contracts in Karnataka state in India, and were also reported in and employing a private company a zone of Ho Chi Minh City in Vietnam, to reduce water losses using a performance-based contracting arrangement. In the latter, the results were impressive: leakage was reduced by about 50 percent with minimal network replacement.

Data for Accountability

As noted in chapter 2, only 22 percent of 152 completed and rated WSS projects had substantial or high ratings for M&E quality. Further, only 13 projects explicitly indicated that they would continue using the M&E framework after completion. This supports a general finding from the literature that World Bank Group client countries often discontinue using the M&E systems after project completion (Smits, Schouten 2016). M&E quality is a prime concern given the increased need for well-delineated performance metrics to implement and track efforts to achieve SDG 6 (appendix L). KPIs in World Bank project results frameworks measure access better than service attributes (adequacy, reliability, quality, and affordability). Similarly, data are generally lacking in WSS service delivery in World Bank client countries except for areas covered by well-run utilities. A recent analysis in the context of

developing countries states “For water, there are no data sources with global coverage on who has ‘sustainable access to safe drinking water’...UN statistics record whether households have drinking water sources piped on premises, but this does not necessarily mean the water is safe to drink or that there is a regular, reliable supply (Satterthwaite 2016).

Box 6.1. Initiatives for Monitoring & Evaluation in the WSS Sector

PAMSIMAS project in Indonesia: PAMSIMAS is a customized monitoring and evaluation system that uses smart technology and facilitates project and program management and investment planning for rural water supply and sanitation (WSS).

Rural Water and Sanitation Information System (SIASAR): SIASAR, a platform to monitor rural WSS in use in Bolivia, Colombia, Costa Rica, Dominican Republic, Honduras, Nicaragua, Panama, Paraguay, Peru, the Mexican State of Oaxaca, and the Brazilian State of Ceara, uses specialized apps for collecting data that supports decision making for policy formulation, planning, and resource allocation, ultimately, aiming to enhance the sustainability and quality of rural WSS services.

Program for Results in Vietnam: The task team partnered with the World Bank’s ICT unit to introduce mobile data collection and access to data in real time through an online database system complete with mapping functionality. The Vietnam government is considering extending this application across the country.

Field-Level Operations Watch (FLOW) in Liberia: FLOW, an open-source mapping software, allowed the mapping of more than 10,000 water points in less than six months in 2011, which is half the estimated time required for a paper-based survey.

The mWater platform in Benin: mWater, a service-oriented platform developed as a mobile-to-web monitoring system, eased access to financing for service providers by documenting historic data on technical and financial operations, facilitating the financing of investments by local commercial banks.

MajiVoice in Nairobi, Kenya: MajiVoice, a platform for improving communication between citizens and utilities, was tested successfully, enabling an efficient means of registering and resolving complaints.

Some World Bank projects designed M&E systems specifically to provide wider coverage and produce updated data on service attributes quickly (and, in some cases, on how well or poorly investments are leading to the desired outcomes). These M&E systems leverage sensor data, satellite data, geographic information systems, and cloud computing to enhance planning processes and ensure continuous citizen feedback (box 6.1).

Even with poor WSS service performance in many World Bank Group client country situations, public clamor for better services seems notably low or absent, which can be explained in part by the lack of beneficiary feedback systems in many of these countries. This lack of pressure from beneficiaries may be a significant factor in why government WSS spending remains at low levels. For example, in Indonesia, local

governments have the discretion to identify local development priorities. Budgetary allocations for WSS are low because of a lack of citizen feedback to local legislative bodies, likely because affordable alternatives are available for urban households. (bottled water and the relative ease of installing private wells, for example). Several factors are responsible for citizen apathy: low public awareness of what they are missing when their service quality standards are far below the industry benchmarks; lack of awareness of the long-term consequences of self-provisioning; and low expectations of public services in general.

Conclusion

Transparent rules to access funds for WSS improvements, ways to enhance professional career prospects, and ways for citizens to acquire and express their voice are all crucial for institutional accountability in the WSS sector. World Bank Group engagement with client countries through policy dialogue and investments emphasizes institution building in the project approval and strategy documents. This evaluation finds that higher-middle-income countries leveraged World Bank Group support for institution building most effectively by using the support to strengthen a robust policy and institutional base. World Bank engagement enabled these countries to achieve qualitative improvements in policies and project investments. Institution building successes are less visible in LMICs and LICs. In LICs, the extent (or lack) of private sector interest in either financing or managing WSS infrastructure is an indicator of how the policy and regulatory environments for conducting financially viable WSS operations are perceived. When tariffs are set below operating costs, WSS utilities suffer from weak governance, and without regulatory oversight, the private sector's interest in taking part in the WSS sector, including through PPPs, is low and is likely to remain so.

¹ The incentives of the principal (government) versus the agent (the water supply and sanitation utility employee) do not necessarily align with each other in meeting benchmarks for service delivery outcomes.

² The Philippine Assessment of Water Services disclosed this data through a publicly accessible website at http://ro.mwss.gov.ph/?page_id=66.

7. Knowledge Support and Convening Role

Highlights

- ❖ Knowledge support and related technical assistance has been channeled mainly through global partnerships—the Water and Sanitation Program (WSP), the Water Partnership Program, the Public-Private Infrastructure Advisory Facility (PPIAF), and the Global Partnership on Output-Based Aid (GPOBA). These partnerships directed a significant share of their efforts toward low-income countries (LICs) and Sub-Saharan Africa.
- ❖ The WSP had a strong role in supporting the scaling-up of rural WSS, behavior change for hygiene and sanitation, and engaging with fragile and conflict-affected situations (among other roles).
- ❖ GPOBA projects showed the efficacy of output-based aid in improving access to WSS services to the poor, but their scalability and sustainability is challenging, especially in low-income countries.
- ❖ PPIAF's upstream technical assistance showed some success in a sector with a low private sector role compared with other infrastructure sectors, such as transport and energy.
- ❖ The World Bank's convening role is limited compared with the breadth and depth of its lending and knowledge presence in client countries in all country income categories.

This chapter assesses the World Bank Group's knowledge support and convening role in the WSS sector. For knowledge support and related technical assistance, the World Bank Group focused on global partnerships—the WSP, the WPP, the Public-Private Infrastructure Advisory Facility (PPIAF), and GPOBA. Appendix M provides more detailed assessments of the programs' contributions. The World Bank's convening role is assessed based on feedback from World Bank staff and from donor counterparts and government officials in case study countries.

Knowledge Support

The WSP has been a major conduit for World Bank knowledge transfer in the WSS sector through its analytical work, knowledge products, learning events, and study tours in client countries, and it complemented WSS projects' capacity-building components in this respect. During the evaluation period (FY2007–16), the WSP worked through field staff in 37 countries, including 12 fragile states. It provided knowledge support that client governments and World Bank operations teams used in scaling up rural WSS, and it contributed to the evolution of large programs in India and Indonesia, which mainstreamed community-based, demand-driven approaches to rural WSS services. Feedback from interviews with Water Global Practice staff suggests that the WSP's output has been a significant learning source for them.

WSP's strengths have been its presence in the field and its flexibility for dealing with topics that are not amenable to regular World Bank operations, such as behavior

change among beneficiaries for adopting improved sanitation and hygienic habits. WSP also helped test innovative solutions for sanitation (India, Indonesia, Peru, and Zambia). In urban sanitation, WSP had a key role in developing and refining a strategic sanitation approach that incorporates the lessons from rural community-led total sanitation. WSP's early engagement in policy dialogue in fragile and conflict-affected situations paved the way for institutional reforms and for the entry of other development partners, as in the Democratic Republic of Congo, Haiti, Liberia, Papua New Guinea, and Sierra Leone.

The WPP, with a mandate to improve the quality and effectiveness of water service delivery, was another source of knowledge transfer and learning. It provided just-in-time support to World Bank projects for analytical work, project preparation, and implementation.

WSP committed 64 percent of its \$142 million outlay in the past four years to two of its core business areas: scaling up rural sanitation, and supporting poor-inclusive WSS sector reforms. The largest share of the program's support went to the Sub-Saharan Africa Region, followed by East Asia and Pacific and Latin America and the Caribbean. WPP operated on a far narrower scope than the WSP, supporting relatively smaller-scale activities and committing about 26 percent of its \$43 million outlay to WSS activities.

The WSP, WPP, and other smaller trust-funded programs merged into a unified partnership framework in January 2017, pooling donor funds into a single multi-donor trust fund. This umbrella partnership has a common results and reporting framework for improving both the use of noncore donor resources and the alignment with the Water GP's strategic priorities. As described in the internal partnership framework document, the integration is designed to mainstream and scale up the WSP's contributions and innovations in its operations.

Promoting Private Participation

PPIAF is concerned with promoting private participation in WSS and other infrastructure sectors. It provides upstream technical assistance for capacity building and for addressing the institutional and policy barriers to private sector participation. Its key outputs, directed toward project task team leaders and client governments, included studies on water tariffs, willingness to pay, and prefeasibility options. PPIAF committed \$19 million (14 percent of its funds) to WSS activities during FY2007-16. The largest share went to Sub-Saharan Africa, followed by Latin America and the Caribbean.

PPIAF grants were small and spread thinly, making it difficult to assess the program's broader impact on WSS. Some experiences highlight PPIAF's value added, such as in Rwanda, where it helped the government develop sector regulatory structures, and in Armenia, where it provided consistent, phased support for promoting private sector participation in WSS. There have also been significant efforts in Cambodia, India, Indonesia, Kenya, Peru, the Philippines, and Vietnam that have helped increase opportunities for the private sector in WSS.

Focusing on Affordable Access for the Poor

GPOBA's role is to design and implement pilots for facilitating the poor's access to WSS services through careful targeting and one-off subsidies to cover connection costs. The pilots test innovative ways to make access affordable for the poor, incentivize providers of access and service delivery, and identify and address key supply-side and demand-side barriers.

Of the 13 projects that GPOBA supported in the WSS sector during the evaluation period, seven achieved 95 percent of their final output targets for access or higher. For example, the government of Indonesia, with support from GPOBA and AusAid successfully implemented a large-scale HiBah (grant) program to mainstream an output-based funding mechanism in the WSS sector throughout the country. GPOBA's WSS pilots yielded favorable results overall, but the objective of scaling up proved difficult partly because of insufficient government commitment, and partly because a lack of bridging finance proved to be a major challenge

WSS is the second largest sector in GPOBA's portfolio (after the energy sector) and is 24 percent of the total subsidy portfolio. GPOBA awarded 17 recipient-executed grants during FY2007-16 totaling \$75.66 million to pilot output-based aid in the sector, with the largest share of projects focused on Sub-Saharan Africa.

The GPOBA-supported Kenya Microfinance for Community-Managed Water Project shows the scope for complementarity between various partnerships. In this effort, PPIAF's early technical assistance was helpful in developing GPOBA's pilot, and WSP helped facilitate access to financing for community-based water providers by blending output-based subsidies with commercial debt. GPOBA support helped scale up the project design further, and other development partners in Kenya replicated it.

The World Bank's Convening Role

Sustainable Development Goal 6 is leading to renewed efforts at the global level in the WSS sector. The World Bank Group is a major participant, along with the Joint Monitoring Programme for Water Supply and Sanitation (a joint program of the World Health Organization and the United Nations Children's Fund), which provides a source of global, regional, and national data on sustainable access to safe drinking water and basic sanitation.

The World Bank Group takes part in several global initiatives for developing a common vision and catalyzing collective action to improve water resource management and services related to water and sanitation. The United Nations and the World Bank convened the High-Level Panel on Water with the stated intention of providing the leadership required for championing a comprehensive, inclusive, and collaborative way of developing and managing water resources and improving services related to water and sanitation.¹ The World Bank is also a partner in the World Water Council (an international multi-stakeholder platform established in 1996) and Sanitation and Water for All (a global partnership working toward a common vision of sanitation, hygiene, and water for all) with wide mandates in the water sector, including WSS.^{2, 3}

At the country level, the World Bank's participation and leadership in donor coordination efforts in the sector is uneven. The Tanzania Water Sector Project (a sectorwide approach that closed in 2016) is an important example of the World Bank's leadership and convening role. In this project, the World Bank helped shape the sectorwide approach by assessing national capacity and systems for procurement, financial management, and safeguards. In Brazil, the latest client engagement survey (2016) indicated that the World Bank's dialogue with the water sector was the most among all sectors, showing influence far beyond the 2 percent share of the World Bank's lending in the country's water portfolio. The World Bank also provided some development partners with the confidence to provide much-needed pooled funding. In Sri Lanka, the World Bank was the focal point for a formal donor coordination mechanism for WSS until a more informal arrangement replaced it in 2014. In Tunisia, the World Bank is not yet an active participant in a donor initiative to enhance coordination and information exchange in the country. Development partners in Egypt found that the World Bank's approach to the Program for Results and the newly established project management unit structure does not align with other development partners' approaches, even though the World Bank is a large player in the country's WSS sector and other development partners envision it in a greater convening role. There are indications that this may be changing, with donors seeking to have their projects also managed by the project implementation unit for the Program for Results.

¹ Visit <https://sustainabledevelopment.un.org/HLPWater> for more information on the High Level Panel on Water.

² For more information, visit the World Water Council's website at <http://www.worldwatercouncil.org/index.php?id=1>.

³ Learn more about Sanitation and Water for All at <http://sanitationandwaterforall.org/about/>.

8. Conclusions and Recommendations

Conclusions

The vision of SDG 6 is universal and equitable provision of WSS services by 2030, and is the basis for the World Bank Group's future support to its client countries. The effort to achieve SDG 6 in client countries requires a large increase in the scale and speed needed to bridge current WSS access gaps and disparities and achieve the expected service delivery levels in adequacy, reliability, quality, and affordability.

About 71 percent of World Bank's WSS projects completed during FY2007-16 had moderately satisfactory or better outcomes. However, IEG rated the risk to achieving project development outcomes in 42 percent of those projects as significant or high. The main sources of risk are lack of financial sustainability of service provision and inadequate institutional capacity, especially in rural areas.

The scope and nature of past World Bank Group engagement in the WSS sector cannot be the only guide for future support, given the SDG 6 focus and the sector's growing financial, demographic, and environmental challenges.

Focusing on disparities in WSS access. World Bank lending volume is skewed toward MICs rather than LICs, which have the least access to improved WSS. By contrast, the World Bank has a robust knowledge presence in LICs mainly regarding tackling emerging WSS challenges, such as sustainable management of on-site sanitation and promoting domestic private WSS service providers. Addressing regional disparities in WSS access between and within large cities, small towns, and rural communities remains a challenge, particularly for LMICs and LICs in Asia and Africa, which experience significant population movement from rural communities to urban areas. The World Bank Group focuses less attention on sanitation in urban, peri-urban, and rural areas than it gives to water supply.

Evidence base for WSS service delivery. IEG's analysis of project objectives and key performance indicators from project results frameworks shows that the World Bank Group's programs and projects placed greater emphasis on tracking user access to WSS and enhancing bulk water supply, and less emphasis on measuring service quality delivery parameters. World Bank client countries do not track service delivery systematically and continuously in their WSS sectors (except for well-run utilities).

A lack of data on WSS service delivery outcomes is a serious bottleneck to making meaningful policy assessments of service provision, formulating performance

targets, designing incentives for improved performance, enforcing the accountability of service providers, and fostering citizen engagement and feedback.

Financial viability and tariff reform. The lack of willingness in many LMICs and LICs to use tariffs as an economic instrument to promote cost recovery and demand orientation is a key constraint to financial viability in client WSS sectors. Achieving SDG 6 requires fundamental tariff and regulatory reforms that enable service providers to achieve adequate cash flow from operating the WSS infrastructure. Without tariff reforms in LMICs and LICs, most households in these countries will not receive modern network services by 2030. Existing self-provisioning practices are becoming less and less sustainable as urban population density increases. The World Bank's upstream policy engagement is crucial for IFC and MIGA to play a collaborative and wider role in the sector.

Growing importance of cross-sectoral issues relating to WSS. Cross-sectoral impacts of poor solid waste and urban flood management received low attention in the design of wastewater and sanitation projects. The evaluation finds that regulatory drivers for safeguarding long-term environmental impacts of WSS-related activities are weak except in most upper-middle-income countries. Typically, actions to mitigate environmental and climate risks are delayed for future consideration. If environmental crises became political liabilities, World Bank engagement was invited through megaprojects. However, without addressing the underlying policy and institutional constraints, the efficacy of such interventions will likely be low. This highlights the importance of sequencing policy reforms together with physical investments.

Maintaining the edge on knowledge generation and sharing. The recent merger of the Water and Sanitation Program (WSP) with the Water Partnership Program (WPP), with operations under the new partnership framework, engages this expertise in the entire project cycle. Maintaining and enhancing the WSP's value added in the new arrangement is important, as is ensuring that the partnership framework's results framework tracks the new arrangement's contribution to project outcomes. World Bank and UN agencies share a convening role for SDG 6; in this role the World Bank is a recognized, important partner because of its knowledge and operational insights. The World Bank's convening role at the country level seems low and uneven and needs strengthening in line with the scale of its lending and knowledge presence in client countries.

Recommendations

Recommendation 1: Increase the World Bank Group’s diagnostic efforts for enhanced engagement on reducing disparities in WSS access between and within regions, countries, and urban and rural areas. This is especially relevant for LICs and LMICs of Sub-Saharan Africa, Asia, and Latin America, with a large concentration of the poor in several sub-regions, and peri-urban and rural areas. In particular, rural WSS schemes need increased and dedicated technical and management support.

Recommendation 2: Align the results frameworks and key performance indicators of World Bank projects with SDG 6 needs and increase support to client countries to build their evidence base for WSS access and service delivery. Results frameworks and KPIs of World Bank projects should track service delivery outcomes (adequacy, reliability, quality, and affordability), and the degree of access and services to the poor. The World Bank should support client countries’ efforts to set up systems to track WSS access and service delivery, drawing upon experience with harnessing information and communications technology for the purpose.

Recommendation 3: Engage intensely with client governments on WSS sector reforms to strengthen the financial viability of service providers and to create conditions for increased access to commercial finance, in keeping with the new Cascade Approach. This could be pursued by increasing the level of engagement with client governments for establishing legislation/regulation requiring consumers to pay tariffs that enable service providers to operate with greater financial autonomy. Customized WSS funding models could be created in consultation with country-level stakeholders to increase access to commercial finance, and to provide wider scope for IFC and MIGA engagement in the sector.

Recommendation 4: Increase cross-sectoral collaboration to address complex WSS-related challenges (such as municipal pollution, groundwater over-abstraction, and resilience to climate-induced events) in lending, technical assistance, and knowledge support. This could be achieved through increased coordination within units of the Water GP, with other concerned GPs (Social, Urban, Rural and Resilience; Environment and Natural Resources; and Health, Nutrition and Population) and the cross-cutting solution areas for Climate Change at the level of country strategy, and throughout the project cycle. In addition, the World Bank should increase engagement with client countries to create coordination, planning, and implementation mechanisms between relevant ministries and implementing agencies.

Recommendation 5: Enhance knowledge and learning in the WSS sector in client countries through effective partnerships and capacity-building. Maintain and enhance the World Bank's distinctive role in generating and sharing knowledge through analytical work – notably by the WSP and the WPP – and technical assistance and capacity building through investment projects with a clear link to project outcomes in their results frameworks.

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Appendix A. Sector and Country Strategies and Diagnostics

Evolution of the World Bank Group's Sector Strategy

1. The World Bank Group's strategy for water and sanitation has evolved with client needs and its own perceived role in global development. The core elements of this strategy over the past three decades are summarized below:

- **1980s:** The World Bank Group financed significant investments in water services infrastructure development, but realized that engineering-centric solutions were not adequate to address the environmental, social, and financial sustainability issues.
- **1990s:** The World Bank Group's focus shifted to sustainable management of water and sanitation services, and attention to private sector participation in the water sector increased. Furthermore, the World Bank's 1993 Water Resources Management Policy Paper highlighted the Dublin Principles of a demand-based approach based on what users wanted and were willing to pay for, and applying the subsidiarity principle of decentralizing water and sanitation responsibilities to the lowest appropriate level (World Bank 1994d). The Millennium Development Goals had been developed by 1995, and these reinforced the focus on increasing access to basic water and sanitation services and the importance of coordinated efforts with other development partners.
- **2000s:** The World Bank Group's approach recognized the need to balance infrastructure development for all water stakeholders with improving management of services. The 2003 Water Resources Strategy called for integrated water resources management and appropriate staffing for this effort (World Bank 2004). The strategy also highlighted the possible impacts of climate change on the sector. It stressed the need to innovate for water and sanitation service delivery and financing, and the need to improve the performance of utilities and user associations. IFC targeted water, wastewater, and sanitation as a strategic sector. In addition to direct investments, IFC pioneered subnational finance transactions and engaged in advisory work to structure public-private partnerships (PPPs) for water (citation). IFC's roadmap for FY2011-13 included water as an important cross-cutting theme with links to water, energy, food, and climate change (citation). IFC added water to its five strategic areas of focus and future growth in 2012 (citation). In the same year, informed by the 2030 Water

APPENDIX A.

SECTOR AND COUNTRY STRATEGIES AND DIAGNOSTICS

Resources Group, IFC launched its cross-sectoral Water Sector Business Plan covering demand and supplied side opportunities.¹

2. The World Bank Sustainable Infrastructure Action Plan (World Bank 2008) reinforced the principles from earlier policy documents, but with a greater recognition of the interrelations between the various water-related subsectors (irrigation, hydropower, and environmental services) with emphasis on targeting the poor and facilitating PPPs. The focus on outcomes included designing improved sectoral governance in the least-developed countries through the World Bank Group Governance and Anti-Corruption Implementation Plan, and improved results measurement of infrastructure services in all projects with World Bank Group engagement. IFC undertook to leverage private finance through investment and advisory operations and through innovative instruments in the water sector (for example, Infraventures and PPPs with public sector and municipal governments). As part of its infrastructure focus, MIGA guarantees supported PPPs and investments in subsovereign water and sanitation projects.

3. The larger context is now set by the Sustainable Development Goals and the recently concluded climate summit in Paris (COP 21). The World Bank Group's strategy seeks to align with the corporate twin goals: end extreme poverty by 2030 and build shared prosperity for the bottom 40 percent, while ensuring sustainability.

Strategies, Frameworks, and Diagnostics

4. IEG reviewed a sample of country assistance strategies (CASs) and Country Partnership Frameworks (CPFs) for 37 countries to determine the scope and scale in which water and sanitation issues are covered in each country. Tables A.1 and A.2 summarize the coverage of various water supply and sanitation (WSS) issues found in the analysis. Table A.3 lists the issues and strategies for a sample of four Systematic Country Diagnostics (SCDs).

Table A.1. Coverage of Water Supply Issues in Strategies and Frameworks

Country	Water Supply									
	Access		Adequacy		Quality		Reliability		Affordability	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Argentina	✓	✓	✓	✓	✓	✓				
Armenia	✓	✓			✓	✓	✓			
Azerbaijan	✓	✓	✓	✓	✓	✓	✓	✓		
Bangladesh	✓	✓	✓		✓	✓				
Benin	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Brazil	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Burkina Faso	✓	✓			✓	✓				
Cambodia ^a										
Chad	✓	✓	✓		✓		✓			
China	✓	✓	✓		✓	✓	✓			
Columbia	✓	✓	✓		✓	✓			✓	
Congo, Dem. Rep.	✓	✓			✓	✓				
Croatia										
Egypt, Arab Rep.	✓		✓	✓	✓	✓				
Ethiopia	✓	✓			✓	✓				
Ghana	✓	✓		✓	✓	✓	✓		✓	
Haiti	✓	✓	✓	✓	✓	✓				
India	✓	✓	✓	✓	✓					
Indonesia	✓	✓	✓		✓	✓			✓	
Kenya	✓	✓			✓	✓	✓	✓		
Liberia	✓				✓					
Mexico	✓	✓			✓	✓	✓	✓		
Morocco	✓	✓			✓	✓	✓	✓		
Mozambique	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Nicaragua	✓	✓	✓		✓	✓	✓			
Niger	✓	✓			✓	✓			✓	
Nigeria	✓	✓	✓		✓	✓	✓		✓	
Pakistan			✓	✓	✓	✓				
Peru	✓	✓	✓		✓	✓	✓		✓	
Senegal	✓	✓	✓	✓	✓	✓				
Sri Lanka	✓	✓	✓		✓	✓				
Tajikistan	✓	✓			✓	✓				
Tunisia	✓	✓	✓		✓	✓	✓			
Uzbekistan	✓	✓		✓	✓	✓	✓			
Vietnam	✓	✓	✓		✓	✓	✓			
Yemen, Rep.	✓	✓	✓		✓	✓	✓			
Zambia	✓	✓	✓	✓	✓	✓	✓			
Total	67	49	27	10	66	37	21	4	8	0

a. In Cambodia, the latest country assistance strategy was from 2005 and was deemed too old for review.

Note: "✓" Check mark indicates at least one occurrence

APPENDIX A.
SECTOR AND COUNTRY STRATEGIES AND DIAGNOSTICS

Table A.2. Coverage of Sanitation Issues in Strategies and Frameworks

Country	Sanitation									
	Access		Adequacy		Quality		Reliability		Affordability	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Argentina	✓	✓	✓	✓	✓	✓				
Armenia										
Azerbaijan	✓	✓	✓	✓	✓	✓				
Bangladesh	✓	✓	✓		✓	✓	✓	✓		
Benin	✓	✓	✓	✓	✓				✓	
Brazil	✓	✓	✓	✓	✓					
Burkina Faso	✓	✓								
Cambodia ^a										
Chad	✓	✓			✓		✓			
China		✓				✓				
Columbia	✓	✓	✓		✓				✓	
Congo, Dem. Rep.			✓	✓	✓					
Croatia										
Egypt, Arab Rep.	✓	✓	✓	✓		✓				
Ethiopia	✓	✓			✓	✓				
Ghana	✓	✓			✓	✓				
Haiti	✓	✓	✓		✓	✓				
India	✓	✓	✓	✓	✓					
Indonesia	✓	✓	✓	✓	✓					
Kenya	✓	✓	✓	✓	✓	✓	✓	✓		
Liberia	✓	✓			✓	✓		✓		
Mexico	✓	✓			✓	✓	✓	✓		
Morocco	✓	✓			✓	✓	✓	✓		
Mozambique	✓	✓	✓		✓	✓	✓			
Nicaragua	✓	✓	✓		✓	✓				
Niger	✓	✓			✓	✓				
Nigeria	✓	✓			✓				✓	
Pakistan										
Peru	✓	✓			✓	✓				
Senegal	✓	✓			✓	✓				
Sri Lanka	✓	✓	✓		✓	✓	✓	✓		
Tajikistan	✓	✓			✓	✓				
Tunisia	✓	✓			✓	✓				
Uzbekistan	✓				✓		✓			
Vietnam	✓	✓			✓	✓				
Yemen, Rep.	✓	✓			✓					
Zambia	✓	✓	✓	✓	✓	✓				
Total	57	29	12	6	47	17	3	1	3	0

a. In Cambodia, the latest country assistance strategy was from 2005 and was deemed too old for review.

Note: "✓" Check mark indicates at least one occurrence

Table A.3. Selected Systematic Country Diagnostics: WSS Issues and Strategies

SCD	Issues	Strategies
Tunisia	<p>Issues faced by Tunisia in the water sector, such as aging infrastructure, weak service delivery performance, and financing difficulties, are the direct consequence of weak governance. Governance of the water sector is characterized by strong responsibilities and centralization of decision making, and by institutional inertia, which is an impediment to reform. In addition, the political instability of the transition period has impaired the capacity to build a coherent strategy for the sector and has led, in the face of social demands, to a management in crisis mode.</p>	<p>The sector must reflect on how to involve the private sector and on the implications of this move for institutional and regulatory needs, as well as for administrative culture. Key priorities include an effective engagement of communities in the design and operation of rural water supply services to meet the pressing needs of a growing population (private household connections), coupled with a revision of the current water pricing policy (including subsidies) to increase the financial sustainability of utilities and pro-poor benefits.</p>
Mozambique	<p>High out-of-pocket costs further impede access to WASH services. Water tariffs among poor households in Mozambique are higher than in comparable countries, partly because of the 12 percent value added tax (VAT) applied to water. Mozambique has the third-highest VAT rate for water in Sub-Saharan Africa, behind only Rwanda and South Africa; Water supply and energy prices barely cover the marginal cost of production and are well below the average long-run cost needed to ensure that the operating and maintenance costs of essential infrastructure are met.</p>	<p>Increased investment in the WASH sector should focus on more densely populated centers, and in rural areas, policymakers should consider implementing a competitive funding mechanism for WASH resources. In major cities, an improved regulatory framework for urban sanitation is required. The political feasibility of addressing this constraint is rated as medium given that budgetary allocations to the WASH sector have not increased in real terms for several years.; Improving governance at the local level (including dispute-settlement mechanisms) through social accountability, than at the central level.</p>
Uzbekistan	<p>Households in poorer areas tend to pay more for basic services and experience productivity losses because of their low availability. Because many households with poor service conditions have to make their own arrangements for meeting their drinking water and sanitation needs, expenditure burdens for households outside of Tashkent are often higher than in the capital. In some cases, this is because of higher spending on irrigation of larger land plots in rural areas. This excludes productivity losses resulting from time spent collecting water and caring for children affected by waterborne diseases. (All water and sanitation: affordability and quality; outcomes: productivity and health).</p> <p>Utility payments mainly incurred by urban households (including expenditures on drinking water, hot water, central heating, gas, and electricity) are a significant share in total consumption expenditures. Although the top quintiles pay more in absolute terms for utility bills, the share of payments is larger for poorer households. (Outcomes: poverty focus; all water: affordability)</p>	<p>Improving water productivity would require the introduction of volumetric fees for water supply services in addition to investment in infrastructure; necessary reforms to improve accountability and water management.</p> <p>Despite the progress made to date, lack of transparency and limited accountability of public service providers to the people of Uzbekistan could diminish their credibility and lower trust in public institutions. For instance, nearly a quarter of the households connected to a piped water supply system surveyed as part of the PSIA claimed they had witnessed complains regarding the poor delivery of drinking water and sanitation services. Strengthening or establishing reliable mechanisms for citizens to provide feedback on the performance of public service providers, and ensuring that service providers are able to respond, are needed to enhance trust and achieve service outcomes. (All water and sanitation: quality and reliability)</p>

APPENDIX A.
SECTOR AND COUNTRY STRATEGIES AND DIAGNOSTICS

SCD	Issues	Strategies
Chad	<p>Electricity development is also hindered by a lack of options for reducing generation costs (for example, through connection to regional grids), as well as low population density (which limits the potential for economies of scale), a tariff structure that does not allow for full cost recovery, and inefficient revenue collection systems.</p> <p>The urban water sector suffers from similar governance and capacity issues, and substantial investment will be required to increase access to drinking water and sanitation.</p>	<p>Investment will be required to increase access to drinking water and sanitation. In 2012, 72 percent of the urban population had access to improved drinking water sources, most from public standpoints, while 49 percent had access to improved sanitation, including shared facilities. (Urban water: access and quality)</p>

References

IFC (International Finance Corporation). 2007. IFC Strategic Directions, FY08-10: Creating Opportunity.

— — —. 2010. IFC Road Map FY11-13

— — —. 2011. IFC Road Map FY12-14;

World Bank. 1994d.

— — —. 2004.

— — —. 2008.

¹The business plan covers water demand management and efficiency opportunities, including nonrevenue water reduction, innovative water- and energy-efficient technologies (such as low-energy desalination), and wastewater treatment and reuse, as well as supply-side opportunities such as distributed services and solid waste management.

Appendix B. IEG Water and Sanitation Evaluations

Table B.1. [Title]

Evaluation	Sector objectives	IEG study findings and recommendations	World Bank response
<p>1992 Water Supply and Sanitation Projects: The World Bank's Experience 1967–89</p>	<ul style="list-style-type: none"> • Help governments achieve least-cost solutions to infrastructure needs • Foster institution building • Help institutions achieve financial viability • Ensure a minimum supply of safe water to the poor. 	<ul style="list-style-type: none"> • The first objective was hardly met in the face of endemic project completion delays and with sanitation and environmental protection trailing water supply accomplishments. • The second objective rarely succeeded. The evaluation singled out lack of progress in improving operation and maintenance (O&M), in reducing unaccounted water and in improving the quality of utility management as three areas of shortcoming. • The third objective was also not met, partly because of rushed reforms and the need for more time than single World Bank operations can afford. • The fourth objective was poorly documented or not addressed at all. 	<ul style="list-style-type: none"> • Focus on promoting “efficient, sustainable service for all” where: • Efficiency was a proxy for least-cost policies, • Service for all for service for the poor. The chosen instrumentality for reaching the general targets was private sector participation, at times underpinned by regulatory reforms and a willingness to involve users in the selection and administration of the systems.
<p>2002 Bridging Troubles Waters: Assessing the World Bank's Water Resources Strategy Since 1993</p>		<ul style="list-style-type: none"> • The sector has not documented its effect on ensuring safe water and adequate sanitation to the poor. • The experience from sector regulation in developing countries is not properly evaluated. • The pricing policies in the sector are ambivalent between satisfying efficiency and financial performance and facilitating the consumption of the poor. • The long-term sustainability of private sector participation and its effect on meeting the needs of the poor are not shown. 	<p>The Management Action Record (MAR) was not available.</p>

APPENDIX B.
IEG WATER AND SANITATION EVALUATIONS

Evaluation	Sector objectives	IEG study findings and recommendations	World Bank response
2003 Efficient, Sustainable Service for All?	<ul style="list-style-type: none"> • Promote the provision of efficient, sustainable service for all • Design and finance projects that will meet demand at the least possible economic cost (efficiency) • Try to ensure that services will remain operational and produce economic benefits for the foreseeable future (sustainable) • The entire population, including the poor, will be served by the water supply and sanitation utilities (service for all). 	<ul style="list-style-type: none"> • Monitoring performance indicators and evaluation systems will be necessary to track the World Bank's progress in helping its member countries achieve the MDGs. • Regulation must move from prescription to implementation. The World Bank would do well to return to a policy of requiring either tariff regulation according to economic principles or explicit and covenanted tariffs as a condition of lending. • Ensuring that the MDGs are achieved will require translating them into implementable sector development strategies. • Private sector participation has shown promising results and remains an important tool to improve coverage and quality. • Operators require special incentives to serve the poor. 	The MAR was not available.
2010 Water and Development	<ul style="list-style-type: none"> • MDGs are the focal point for water and sanitation. • Emphasis on connecting water resource management and service delivery 	<ul style="list-style-type: none"> • Lack of clarity in approaches to cost recovery for water services • Sanitation received far less support than water services; there is a significant urban bias in moving toward MDGs. • Water quality: monitoring parameters is declining in more recent World Bank projects. • Donors and governments preference for capital-intensive works versus O&M; attention to economic analysis of projects is declining • Poor link between monitoring design, implementation, and corrective actions utilization • Insufficient attention in the World Bank's portfolio for issues of growing importance: coastal zone management, pollution control, and groundwater conservation 	<ul style="list-style-type: none"> •The Water Anchor will develop further core indicators for water projects. • Regions will scale up projects, building detailed information systems and benchmarking systems. • The Water Anchor and Water Sanitation Program will conduct an impact evaluation of sanitation and hygiene interventions at scale in achieving health and income outcomes. • As part of the development impact evaluation initiative and in collaboration with the Development Economics Department, the water sector will conduct further impact evaluations on health impacts of water and wastewater interventions. •Regions and the Water Anchor will examine financing of services

APPENDIX B.
IEG WATER AND SANITATION EVALUATIONS

Evaluation	Sector objectives	IEG study findings and recommendations	World Bank response
			<p>delivery as part of Public Expenditure Reviews and other country-specific economic and sector work.</p> <ul style="list-style-type: none"> • The Water Anchor and regions will conduct a study on lessons learned about government payment for water services. • Regions will continue to explore fees, tariffs, and other options (metering, water rights, and the like) for demand management in World Bank projects.

Appendix C. Evaluation Methodology

5. This appendix describes the evaluation’s design and the portfolio review methodologies. The design element focuses on the evaluative question and the detailed subquestions (table C.1). Table C.2 lists the evaluation components, and brief statement on limitations is included. The portfolio element details the key performance indicator methodology, including the list of parameters that IEG used in table C.3, and the approach used with the IFC portfolio.

Evaluation Design

EVALUATION QUESTIONS

Table C.1. Evaluative Questions

<p>Overarching question: How effective has the World Bank Group been in supporting client countries improve access to adequate, reliable and sustained water and sanitation services and going forward how well is it equipped to support the countries in moving toward sustained water and sanitation services for all with focus on the poor, in keeping with Sustainable Development Goal 6?</p>
<p>How targeted and relevant is the World Bank Group’s support for providing sustained water and sanitation services to client countries that are at different access levels, access urban, rural and peri-urban areas?</p>
<p>To what extent has the World Bank Group, through country partnership strategies and other means, considered issues related to sustainable water and sanitation services?</p>
<p>To what extent has the World Bank Group supported client countries in the (i) provision of access to adequate and reliable water and sanitation services (ii) securing financial viability of the water and sanitation sector institutions (iii) provision of affordable water and sanitation services through community participation, responding to consumer demand and willingness pay (iv) effecting behavior change among direct beneficiaries (v) ensuring environmental sustainability (vi) improving M&E systems for better planning and targeting of improvement of water and sanitation services</p>
<p>To what extent have World Bank Group operations in client countries been completed within the planned costs and time estimates?</p>
<p>To what extent and how effectively has the World Bank Group applied economic cost-benefit analysis in the design of water and sanitation projects and investments</p>
<p>How relevant and effective have global partnership programs been in contributing to the World Bank Group collaboration</p>
<p>To what extent has the World Bank Group supported coordination between the ministry responsible for water and sanitation services and other relevant ministries</p>
<p>To what extent has the World Bank group supported client countries in reducing the financing gap by leveraging and effectively deploying additional financial resources for improving water and sanitation services through PPP and donor coordination?</p>

To what extent has the World Bank Group—World Bank, IFC, and MIGA—collaborated in providing support to client countries for improved water and sanitation services?
To what extent has the World Bank Group employed human resource expertise appropriately to the needs of client countries?
To what extent has the World Bank Group mainstreamed environmental and social safeguards through its water and sanitation projects?

EVALUATION COMPONENTS

6. Table C.2 lists the different components that contributed to the evaluation.

Table C.2. Evaluation Components

Literature review and analysis	Review of research papers, reports, publications, and other economic sector work of the World Bank, UN organizations, other multilateral banks and academic journals
World Bank Group CAS/CPF and SCD analysis	A review of a representative sample of country assistance strategies and Country Partnership Frameworks published between FY 2000–16 for 37 countries, and four Systematic Country Diagnostics (appendix A)
Global partnership analysis	Review of the World Bank Group's global partnerships in WSS: Water and Sanitation Program, Water Partnership Program, Global Partnership on Output-Based Aid, and Public-Private Infrastructure Advisory Facility (appendix M)
Project and operations portfolio review	Portfolio review of all World Bank, IFC, and MIGA projects, services, and guarantees approved and closed or matured FY2007–16
Key performance indicators analysis	An analysis of all key performance indicators for World Bank WSS projects approved and closed FY2007–16
Key informant interviews	Semistructured interviews with task team leaders, staff, and management of the Water Global Practice, government officials, and beneficiaries in the field
Reconstruction of theory of change	An iterative process of reconstruction of the theory of change adapted to WSS activities of the World Bank Group
Case studies of World Bank's support to WSS sector in select countries and focus group discussions	<p>Includes both field-based case studies (Egypt, India, Indonesia, Nigeria, Sri Lanka, Tunisia, and Zambia) and desk-based case studies (Brazil, China, Colombia, Haiti, the Philippines, and Uganda). The Sri Lanka case study was conducted jointly with African Development Bank and Japan International Cooperation Agency. Overall, the case studies cover more than 55 percent of World Bank Group commitments for WSS during FY2007–16.</p> <p>The case study countries were selected purposefully based on the following criteria: breadth of World Bank, IFC, and MIGA lending and nonlending and guarantee support; WSS access levels; income level and country size; policy, regulatory, and institutional conditions; private sector participation levels; importance of urban and rural issues and relative emphasis on water supply versus sanitation; fragile and conflict-affected situations; and presence of impact evaluation.</p> <p>The case studies followed a standard template that included: country background; basic WSS parameters: coverage, urban-rural trends; policy and regulatory framework for WSS; institutional structure for service delivery and service delivery models; main issues and the evolution of WSS during the last</p>

APPENDIX C.
EVALUATION METHODOLOGY

	10–15 years; behavior change including culture of payment for services, hygiene; gender issues; World Bank involvement; and internal coordination.
Focus group discussions	Focus group discussions were conducted in Peru, Sri Lanka, and Zambia.
Field-based Project Performance Assessment Reports, FY2015–17	<p>Reports were completed in six countries:</p> <ul style="list-style-type: none"> • Colombia (Cartagena Water Supply, Sewerage, and Environmental Management Project; Water Sector Reform Assistance Project; Water and Sanitation Sector Support Project), • Ghana (Second Urban Environmental Sanitation and Second Phase of Small Towns Water and Sanitation Projects), • Peru (Lima Water Rehabilitation and Management Project and National Rural Water Supply and Sanitation Project), • Senegal (Supporting Access to On-site Sanitation Services through Output-Based Aid Scheme Project), • Uzbekistan (Water Supply, Sanitation and Health Project; and Bukhara and Samarkand Water Supply Project), and • Zambia (Water Sector Performance Improvement Project).

LIMITATIONS

7. IEG adopted purposive sampling for the country case studies to include countries of different size, geography, income groups (low-income and middle-income countries), and rural-urban, and therefore this is not representative of the total population of countries in which the World Bank is active. The portfolio of World Bank projects also included those not directly mapped to the Water Global Practice, but that had one or more sector codes associated with water supply and sanitation. Thus, direct attribution of commitments to water and sanitation activities was based on assumptions and approximation.

Portfolio Review

8. The portfolio review drew on the World Bank Group’s project documents, including project appraisal documents, Implementation Completion and Results Reports (ICRs), Implementation Completion and Results Report Reviews (ICRRs), and Project Performance Assessment Reports. It covered all World Bank Group projects, operations, and guarantees approved or completed between FY2000–16 addressing one or more of the following subsectors: public administration: water, sanitation, and flood protection; sanitation; water supply; wastewater collection and transportation; wastewater treatment and disposal; and general water, sanitation, and flood protection; This list included projects mapped to the Water Global Practice and to other Global Practices.

9. IEG based the performance analysis for IFC Investment and Advisory Services on project documents and information available through the Development Outcome Tracking System (DOTS) website. IEG also reviewed evaluative evidence from project-level evaluations of IFC investments and advisory services completed during the FY2007–16 period.

KEY PERFORMANCE INDICATORS ANALYSIS

10. World Bank classification and mapping: The analysis examined all key performance indicators (KPIs) listed in the results frameworks of World Bank projects in the portfolio approved and closed FY2007–16. IEG classified KPIs into outcome and output categories at different levels. Table C.3 lists the categories.

11. World Bank rating: After mapping the KPIs, IEG rated the KPIs reported in the ICRs for closed projects during FY2007-16 according to the following four-point scale: 4 = target achieved by 100 percent or above; 3 = target achieved by two-thirds; 2 = target achieved by one-third; and 1= target achievement below one-third. IEG assigned ratings when a baseline, a target, and an achieved target were available, or at least a target and the achieved value.

Table C.3. Performance Indicator Categories for Key Performance Indicator Analysis

Main attribute	Secondary attribute	Service delivery
Physical infrastructure and subsector	Water supply (urban, peri-urban, rural)	Access Adequacy
	Sanitation (urban, peri-urban, rural)	Reliability
	Wastewater and flood protection	Quality Reliability
Sector policy and reform		
Capacity building		
Behavior change		
Financial viability		

IFC PORTFOLIO

12. The IFC portfolio consisted of advisory services and investments (details for the sampling and the methodology used follow). For a more detailed analysis, see appendix E.

13. IFC Advisory Services sample: The sample of advisory projects included IFC’s advisory assignments in the Water Supply and Sanitation sector, approved

APPENDIX C.
EVALUATION METHODOLOGY

during the past decade (FY2007–16). The sample consists of 46 projects covering several subsectors, including treatment and delivery of potable water, wastewater, and sewage. These projects were implemented in several countries and regions and five projects were at a global level.

14. IFC investments sample: The sample of investment projects consisted of 58 projects in IFC's Water Supply and Sanitation sector worldwide, approved during FY2007-16. Like advisory projects, investment projects covered several subsectors, including treatment and delivery of potable water, wastewater, and sewage.

15. IFC Advisory Services methodology: Evaluation data for all projects was obtained through Advisory Services Approval documents, which set out the objectives of each advisory assignment, and Advisory Services Completion Reports, which provided IFC's own assessment of success or failure of the assignment based on the extent to which key objectives were realized, with additional detail being provided by intermediate supervision reports. IEG evaluated a few projects further through Evaluation Notes, which provided an additional perspective and details.

16. IFC Investments methodology: IEG based its evaluation of the projects on various sources, including project board papers, XPSRs (Expanded Project Supervision Report) and IEG Evaluative Notes (where available), DOTS (Development Outcome Tracking System) tracking documents and Credit Risk Rating (CRR) documents. Projects for which XPSRs and IEG Evaluative Notes were available were used as the primary rating basis. For all other projects, DOTS ratings supplemented with details on financial and economic performance provided in the periodic CRRs, were used. Because DOTS ratings were provided on an ongoing basis rather than at the end of the project, projects for which results were not considered conclusive could be rated "too early to tell," which to this extent reduced DOTS' usefulness as an evaluative tool for the water and sanitation evaluation. Considering IFC's developmental role of promoting and facilitating private sector investments in a sector through the success and demonstration effect of the projects it finances, the indicator for private sector development could be considered important and generally indicative of the project's overall success or failure.

Appendix D. Projects, Investments, and Guarantees, Approved FY2007-16

World Bank Group Projects

Table D.1. World Bank Group WSS Projects under Water Global Practice

Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P000306	Ouaga Water Supply	Burkina Faso	2001	2008	70.0	
P001409	Hiland Water IB	Lesotho	1998	2007	45.0	
P001921	Environmental Sewerage & Sanitation	Mauritius	1998	2007	9.3	
P003594	Gansu Hexi Corridor	China	1996	2007	15.0	
P003637	National Rural Water 3	China	1997	2007	65.8	
P004576	Water Districts Development	Philippines	1998	2007	48.3	PSP, NRW, PPP
P004845	Mekong Delta Water	Vietnam	1999	2008	5.1	
P005906	Rural Water Supply & Sanitation	Yemen, Rep.	2001	2011	13.0	BC
P006046	Water Sector Reform	Argentina	1999	2007	23.4	
P006449	Ceara Integrated Water Resources Management Project	Brazil	2000	2012	117.0	NRW
P008051	Lima Water Rehabilitation & Management Project	Peru	1995	2008	150.0	NRW
P008497	Municipal Wastewater	Hungary	2000	2009	31.3	
P008832	Municipal Water & Wastewater	Russian Federation	2001	2009	0.5	EE
P009121	Rural Water Supply and Sanitation	Uzbekistan	1998	2008	70.5	BC
P035707	Water Sector Investment	Tunisia	2000	2008	26.8	
P035786	Lviv Water and Wastewater Project	Ukraine	2001	2008	24.3	EE, NRW
P036414	Guangxi Urban Environment	China	1998	2008	81.9	
P036977	Rural Water Supply and Sanitation	Kyrgyz Republic	2002	2009	15.0	BC
P038395	Water Utility Improvement	Macedonia, FYR	2001	2007	25.8	
P038895	Federal Water Management	Brazil	1998	2010	104.9	
P039199	Prosaneer 2	Brazil	2000	2008	5.5	P
P039983	4th Rural Water Supply & Sanitation	Paraguay	1998	2007	36.0	P; PSP, PPP
P041442	Municipal Water and Wastewater	Albania	2003	2010	15.0	PSP, NRW, PPP

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PROJECTS, INVESTMENTS, AND GUARANTEES, APPROVED FY2007-16

Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P041528	Long Term Water Sector SIL	Senegal	2001	2009	125.0	
P043420	Water Sector Modernization 2	Brazil	1998	2009	133.5	PSP, PPP
P043444	Municipal Environmental Infrastructure	Croatia	1998	2008	36.3	NRW
P043933	Sichuan Urban Environment	China	1999	2007	135.3	
P044140	Cartagena Water Supply, Sewerage, and Environmental Management	Colombia	2000	2009	81.6	
P045182	Rural Water Supply & Sanitation SIL	Rwanda	2000	2008	20.0	PSP, PPP
P045910	Hebei Urban Environment	China	2000	2008	148.5	
P046045	Syr Darya Control & Northern Aral Sea Phase I Project	Kazakhstan	2001	2011	18.7	
P047345	Huai River Pollution Control	China	2001	2008	105.5	
P047762	Rural Water Supply	Tanzania	2002	2008	20.8	
P048521	Amman Water & Sanitation	Jordan	1999	2007	49.5	NRW
P049436	Chongqing Urban Environment	China	2000	2009	160.0	
P049618	Nairobi Water and Sewerage Institutional Restructuring	Kenya	2004	2008	15.0	NRW
P049621	Bukhara/Samarkand Water Supply	Uzbekistan	2002	2010	40.0	EE, NRW
P049924	Rural Water Supply & Sanitation	Ecuador	2001	2007	18.6	
P050653	Karnataka Rural Water Supply & Sanitation II	India	2002	2014	130.4	
P051553	3 Cities Sanitation	Vietnam	1999	2008	57.2	PSP, PPP
P051859	Liao River Basin	China	2001	2009	83.0	
P052037	HCMC Environmental Sanitation	Vietnam	2001	2012	154.7	
P052240	National Water 2	Mozambique	1999	2009	46.5	
P055454	Kerala Rural Water Supply & Sanitation	India	2001	2009	41.3	P
P056256	Urban Water SIL	Ghana	2005	2016	87.6	P
P056418	Water Sec Improvements APL	Lesotho	2005	2011	11.3	NRW
P057352	Rural Water IV	China	1999	2007	43.2	BC
P057602	Urban Water Supply & Sanitation APL	Yemen, Rep.	2003	2011	117.0	PSP, NRW, PPP
P057883	Dushanbe Water Supply	Tajikistan	2002	2011	17.0	EE, NRW
P057933	Tai Basin Urban Environment	China	2005	2010	61.0	
P058067	Second Community Water	Sri Lanka	2003	2011	27.9	
P058898	Rural Infrastructure Rehabilitation	Tajikistan	2000	2008	2.2	
P059073	Dar Water Supply & Sanitation	Tanzania	2003	2011	47.4	
P059931	Water Resources & Irrigation Sector Management Program	Indonesia	2003	2011	35.0	

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PROJECTS, INVESTMENTS, AND GUARANTEES, APPROVED FY2007-16

Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P061558	Water Sector SIL	Niger	2001	2011	46.6	PSP, NRW, PPP
P063383	OSE Modernization & Rehabilitation.	Uruguay	2000	2007	27.0	NRW
P063398	Municipal Water & Wastewater	Armenia	2004	2012	22.1	
P064573	3A-GEF Senegal River Basin	Africa	2004	2009	0.4	
P065256	National c	Peru	2003	2013	45.0	BC
P065416	Coastal Cities Pollution Control APL1	Croatia	2004	2010	42.8	
P065898	Vietnam Water Resources Assistance	Vietnam	2004	2013	23.7	
P065937	Water Sector Ref Assistance Project	Colombia	2002	2011	39.2	
P065973	Agricultural Development Project	Lao PDR	2001	2008	0.5	P
P069491	LGU Urban Water APL2	Philippines	2002	2009	28.2	P, PSP, PPP
P069946	Tehran Sewerage I	Iran, Islamic Rep.	2000	2008	137.8	PSP
P070058	Public Services Modernization TA	Uruguay	2001	2009	0.4	PSP, PPP
P070191	Shanghai Urban Environment APL1	China	2003	2010	146.0	
P070244	Water Sector Reform Technical Assistance	St. Lucia	2002	2009	1.6	PSP, PPP
P070252	3A-GEF Lake Chad Basin	Africa	2003	2009	0.7	
P071075	Urban Water Sector Reform 1 SIL	Nigeria	2004	2014	111.6	P, PSP, PPP
P071092	NWFP On-Farm Water Management	Pakistan	2001	2010	4.5	
P071191	Ahwaz & Shiraz Water Supply & Sanitation	Iran, Islamic Rep.	2004	2010	279.0	NRW,
P071259	Water Sector Performance Improv	Zambia	2007	2013	22.1	NRW,
P071285	Rural Water Supply & Sanitation	Nepal	2004	2013	24.0	BC, P
P071391	National Urban Water Sector Reform SIM 2	Nigeria	2006	2016	182.0	PSP, PPP
P072030	Urban Development SIL	Chad	2007	2015	7.5	PSP, PPP
P073311	Provincial & Peri-Urban Water	Cambodia	2003	2011	16.9	PSP, PPP
P073369	Mahar Rural Water Supply & Sanitation	India	2004	2010	99.6	BC
P073763	Water Supply Development.	Vietnam	2005	2013	112.6	NRW
P073977	Integrated Irrigation Improvement. & Management	Egypt, Arab Rep.	2005	2016	1.2	
P074042	Ba'albeck Water and Wastewater	Lebanon	2002	2012	39.6	NRW
P074469	Water Supply and Sanitation	Moldova	2003	2008	12.0	NRW

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PROJECTS, INVESTMENTS, AND GUARANTEES, APPROVED FY2007-16

Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P075728	Guangdong Pearl River Delta Urban Environment	China	2004	2012	112.6	
P075730	Hunan Urban Dev	China	2005	2013	123.8	
P076735	Water Supply & Sanitation SIL	Ethiopia	2004	2014	88.0	BC, PSP, PPP
P076884	Northern Cities Water Supply & Sanitation	Iran, Islamic Rep.	2005	2011	224.0	NRW
P077287	Red River Delta Rural Water Supply and Sanitation	Vietnam	2006	2013	42.2	P
P077752	Shandong Environment 2	China	2007	2014	132.3	NRW
P078310	Caixa Water	Brazil	2003	2008	75.0	
P078936	Emergency Irrigation Rehabilitation	Afghanistan	2004	2012	4.0	
P079661	Manila Sewerage 3	Philippines	2005	2012	64.0	
P081346	Liuzhou Environment Management	China	2005	2011	93.0	
P081348	Henan Towns Water	China	2006	2013	142.5	
P081776	Guangdong/Pearl river Delta 2	China	2007	2014	76.8	
P082128	Water Resources Management	Albania	2004	2010	3.0	
P082295	Coastal Cities Environmental Sanitation.	Vietnam	2007	2015	101.0	
P082373	Urban Environmental Sanitation 2	Ghana	2004	2013	52.7	
P082419	Water & Sanitation in Low-Income Communities.	Panama	2008	2015	26.9	BC, P
P082510	Karnataka Urban Water Supply Improvement Project	India	2004	2011	37.5	PSP, PPP
P082973	Water & Sanitation Sector Support APL1	Colombia	2005	2011	67.2	PSP, NRW, PPP
P083187	Uttarakhand Rural Water Supply and Sanitation Project	India	2007	2016	76.8	BC
P083353	Urban Infrastructure & Service Delivery	Bosnia and Herzegovina	2005	2011	15.0	NRW
P084002	Urban and Water Development SIL	Cameroon	2007	2016	67.2	
P084015	Small Towns Water Supply & Sanitation	Ghana	2005	2010	23.4	
P084035	Ferghana Valley Water Resources	Tajikistan	2006	2014	2.6	
P084608	Neretva/Trebinjica River Basin GEF	South Eastern Europe and Balkans	2008	2015	6.7	
P084632	Hydrology II	India	2005	2014	26.2	
P085112	Quality Protect (GEF)	Bosnia and Herzegovina	2005	2016	8.9	EE
P086505	Ningbo Water & Environment	China	2005	2011	130.0	
P086661	Water Supply Program Project	Bangladesh	2004	2011	34.0	PSP, PPP

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PROJECTS, INVESTMENTS, AND GUARANTEES, APPROVED FY2007-16

Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P086877	Rural Water Supply and Sanitation	Morocco	2006	2015	60.0	BC
P087154	Water Sector Support SIL	Tanzania	2007	2016	166.0	
P087203	Power & Water SIL	Sierra Leone	2005	2011	13.3	NRW
P087224	Han River Urban Environment	China	2008	2015	49.6	
P087641	Yerevan Water and Wastewater Services	Armenia	2005	2012	20.0	EE, NRW
P087711	Espirito Santo Water & Coastal Pollution	Brazil	2005	2012	32.4	NRW
P087860	Urban Water Sector	Afghanistan	2006	2014	29.2	PSP
P087910	Emergency. Water, Sanitation & Urban	Iraq	2005	2013	64.8	
P087912	Emergency Baghdad Water Supply	Iraq	2005	2013	46.8	
P088030	Water Sector Consolidation	Guyana	2006	2011	11.3	NRW
P088032	Buenos Aires Infrastructure APL1	Argentina	2005	2015	70.0	P
P088220	Urban Flood Prevention & Drainage APL1	Argentina	2005	2013	124.8	
P088252	Municipal Services Project	Romania	2007	2012	73.8	
P089011	Municipal APL1: Uberaba	Brazil	2007	2013	15.0	NRW
P089082	Manila Sewerage 3 GEF	Philippines	2007	2014	2.8	
P089839	Rural Water Supply and Sanitation	Haiti	2007	2012	4.4	PSP, PPP
P089929	State Integrated Water Resource Management	Brazil	2008	2015	22.3	NRW
P090376	Shanghai Agricultural and Non-point Pollution Reduction	China	2010	2015	1.0	
P090592	Punjab Rural Water Supply & Sanitation	India	2007	2015	97.0	
P090991	Urban Water Supply	Indonesia	2010	2015	23.6	NRW
P091038	Rural Water Supply and Sanitation	Afghanistan	2006	2010	5.0	BC, PSP
P091695	Modernization Water & Sanitation Sector TA	Mexico	2006	2010	19.0	NRW
P092162	Afghanistan Short-Term Urban Water Supply and Sanitation	Afghanistan	2005	2011	41.0	
P092618	Liaoning Medium Cities Infrastructure 2	China	2007	2015	141.9	NRW
P093461	Sustainable Tourism Development	Montenegro	2007	2010	8.9	
P093491	APL2 Urban Flood Prevention & Drainage	Argentina	2006	2015	49.0	
P093826	Senegal River Basin Multi-purpose Water Resources Development	Africa	2006	2013	29.7	
P093988	Dhaka Water Sup & San. Project	Bangladesh	2009	2016	149.0	
P094311	Integrated Sanitation & Sewerage Infrastructure	Egypt, Arab Republic	2008	2016	120.0	

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PROJECTS, INVESTMENTS, AND GUARANTEES, APPROVED FY2007-16

Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P094315	Sao Luis Enhancing Municipal Governance and Quality of Life	Brazil	2009	2016	26.4	
P094416	Water Supply Infrastructure Improvement	St. Lucia	2005	2009	7.1	
P094650	Emergency Water Supply	Iraq	2008	2016	104.0	
P095128	NTB-River Basin Water Resources Based Poverty Alleviation	Indonesia	2006	2011	5.1	
P095315	Western. Region Rural Water & Sanitation	China	2007	2013	22.5	BC, P
P095337	Urban Infrastructure	Ukraine	2008	2015	98.0	EE, NRW
P095555	Praguas II	Ecuador	2007	2009	33.6	BC
P095685	Water and Sanitation Program	Indonesia	2005	2010	6.0	
P095840	Water Sector DPL	Morocco	2007	2008	67.0	
P095847	Water Sector Investment II	Tunisia	2009	2015	15.9	
P096323	Tana & Beles Integrated Water Resources Development Project	Ethiopia	2008	2017	20.3	
P096336	Second National Water Development	Malawi	2007	2016	30.5	PSP, PPP
P096926	Jiangsu Water and Wastewater Project	China	2009	2016	130.0	NRW
P097974	Multisectoral Water & Electricity Infrastructure	Burundi	2008	2013	16.5	NRW
P098948	Inland Waters Project	Croatia	2007	2013	128.1	
P099811	Tunis West Sewerage	Tunisia	2007	2015	66.8	
P100397	Regional Potable Water Supply Systems	Morocco	2010	2016	175.0	
P100835	Rural Water Supply & Sanitation	South Sudan	2007	2011	15.0	
P101432	OSE Modernization	Uruguay	2007	2013	50.0	NRW
P101829	Xining Flood and Watershed Management	China	2009	2016	80.0	
P102478	Supporting Access to on-site sanitation services	Senegal	2008	2012	7.7	
P102527	Urban Water Supply and Sanitation Access Pilot	Morocco	2007	2012	7.0	
P102529	Jakarta Water	Indonesia	2008	2013	5.0	
P102732	Coastal Cities Pollution Control 2	Croatia	2009	2016	87.5	
P103639	Eastern Nile Planning Model	Africa	2010	2013	6.5	
P104566	Water Services & Institutional Support	Mozambique	2008	2016	9.6	PSP, PPP
P104662	Freetown Water Supply Rehabilitation	Sierra Leone	2007	2011	8.2	
P104945	Mozambique Water	Mozambique	2007	2014	6.0	
P105288	Buenos Aires Infrastructure	Argentina	2007	2014	145.8	P

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Project ID	Project name	Country	Approval FY	Closing FY	Net Commit. for WSS (\$, M)	Flags*
P106283	Rural Water Supply and Sanitation	Nicaragua	2008	2015	18.6	P
P106794	Cameroon Water	Cameroon	2008	2014	5.0	
P107037	Water Sector Support	Yemen, Rep.	2009	2017	59.4	PSP, PPP
P107612	National Water Supply & Sanitation	Moldova	2008	2014	11.9	NRW
P107666	Water Resources Management.	Peru	2010	2016	10.0	
P108174	Musseling-in on Pollution	China	2007	2009	0.2	
P108627	Nanning Urban Environment	China	2010	2016	100.0	
P109986	Water and Sanitation SIL (FY10)	Senegal	2010	2015	55.0	PSP
P110092	Greater Managua Water and Sanitation	Nicaragua	2009	2015	40.0	NRW
P110267	Rural Water Supply & Sanitation 2	Kyrgyz Republic	2009	2015	10.0	BC
P110616	Institutional Strengthening	Africa	2009	2013	24.0	
P111061	Water Supply and Sanitation	South Sudan	2010	2013	30.0	
P111330	Watershed Management	Africa	2009	2016	4.4	
P112097	Water Sector Capacity Building	Afghanistan	2009	2013	12.0	
P114936	Rural Water and Sanitation	Haiti	2009	2014	5.0	BC
P116318	Water Res. Planning and Management	Africa	2009	2013	11.2	
P116595	Joint Multipurpose Program	Africa	2010	2013	2.8	
P118405	Moldova Regional Development	Moldova	2009	2013	2.5	
P119805	Sanitation	Egypt, Arab Rep.	2010	2016	9.5	
P120134	Adaptation to Climate Change in the Water Sector	Mexico	2010	2013	378.0	PSP
P121195	Efficiency Improvement Program	Mexico	2011	2016	100.0	
P126487	Modernization of the National Meteorological Service for Improved Climate Adaptation	Mexico	2012	2018	84.2	
P126722	Municipal Water	Armenia	2012	2015	15.0	NRW

*The following indicate closed Water GP projects, approved and closed FY 2007-2016 with key performance indicators for salient issues: behavior change (BC), energy efficiency (EE), focus on the poor (P), nonrevenue water (NRW), private sector participation (PSP), public-private partnership (PPP). GPOBA = Global Partnership on Output-Based Aid.

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PROJECTS, INVESTMENTS, AND GUARANTEES, APPROVED FY2007-16

IFC Operations

Table D.2. IFC Investment Services

Proj. ID	Project	Country/Region	Approval FY	IFC Commitment (US\$M)
10491	AG Concessions	Brazil	2002	30
11232	MWC	Philippines	2003	31
11453	Thames Chile	Chile	2004	33
11519	AAA	Colombia	2003	18
11740	Aguas Panama	Panama	2003	6
20361	TMWC	Mexico	2003	3
21360	Modern Asia	East Asia	2004	15
22621	MWC II	Philippines	2004	45
22843	City of Joburg Financing	South Africa	2004	30
23966	Ramky Infrastructure Ltd.	India	2005	15
24192	Veolia	Middle East	2006	76
24363	Buffalo City	S. Africa	2006	6
24425	Hyflux	China	2006	25
24582	Chuvash Republic	Russia	2006	8
24714	Chennai Water	India	2006	25
25043	Metito	MENA	2008	31
25046	Beijing Sound	China	2007	10
25214	SinoSpring	China	2006	20
25321	MWC III	Philippines	2007	30
25577	Petstar	Mexico	2007	14
25633	Asia Environment	China	2008	15
26179	El Jadida RADEEJ	Morocco	2008	21
26512	Estre Ambiental	Brazil	2009	24
27215	Waterhealth IND	India	2009	15
27233	CASAN - Loan	Brazil	2011	24
27542	Ufa Vodokanal	Russia	2010	17
27774	InfraV-Sandandra	Madagascar	2009	3
27787	Foz do Brasil	Brazil	2009	50
27973	Veolia Voda	Eastern Europe	2010	140
28741	Sedapal	Peru	2010	64
28859	Epure BOT	China	2010	34
29016	DESO BRL Loan	Brazil	2011	11
29090	WaterHealth Inc	World	2010	5
29325	Metito II	Middle East	2010	20
29484	Chisinau City	Moldova	2011	10

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29690	Attero Recycling	India	2011	5
30225	InfraV-AK KhanWH	Bangladesh	2011	0
30502	United Water	China	2012	20
30718	Epure BOT2	China	2011	36
30859	Vishwa Infra	India	2011	3
31219	Khandwa BOT VUPL	India	2011	2
31704	InfraV-DloHaiti	Haiti	2012	1
31717	Aqualyng	China	2013	12
31781	CEI Water	China	2013	70
31792	AEGEA Saneamento	Brazil	2012	62
32004	OC Egypt	Egypt	2012	100
32078	Izsu Wastewater	Turkey	2013	36
32145	Metito III	Middle East	2013	50
32423	ESIP Organica	World	2013	4
32534	Epure Warrants	China	2012	25
32778	Moya	Indonesia	2013	9
32854	MWC IV	Philippines	2014	100
33239	AEGEA Equity	Turkey	2014	5
33670	MTI Environment	China	2014	4
33858	Moya Tangerang	Indonesia	2013	24
35266	CEI Water II	China	2015	35
35269	CWAG	China	2015	20
36080	Izsu Sewerage	Turkey	2015	12

Table D.3. IFC Advisory Services

Project ID	Project Name	Country	Approval FY
PPP Transaction Advisory			
P11312	Morocco Irrigation	Morocco	2001
P20225	Mauritius Water PPP	Mauritius	2002
P22695	Bangalore Water	India	2004
P25117	Pontal2	Brazil	2008
P25405	New Cairo Water	Egypt	2006
P26337	St. Lucia Water	St. Lucia	2008
P27812	APUFIDC UrbanSWM	India	2008
P28044	Chtouka Desal	Morocco	2010
P28082	Maldives PPP - Solid Waste Management	Maldives	2009
P29108	KSW Solid Waste	Rep of Kosovo	2010
P29292	Clark Bulk Water	Philippines	2010
P552647	New Cairo Waste	Egypt	2007

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P560987	Uganda SSIP Water	Uganda	2007
P562747	PPP Program	Yemen	2008
P564609	ISWM - Serbia	Serbia	2011
P584528	Nat. Water Framewrk	India	2011
P585927	Benin WSP	Benin	2014
P586447	Umbulan Water	Indonesia (East Java)	2011
P587127	Orissa SWM	India (Behrampur)	2011
P588148	West Bank SW	West Bank and Gaza	2011
P599053	Albania SW	Albania	2013
P599200	Samoa SWM PPP	Samoa	2012
P599396	Mexico DF SW PPP	Mexico	2013
P599406	Moz Water PPP2	Mozambique	2013
P600172	Tunisia ONAS	Tunisia	2014
P600610	Belgrade W2E PPP	Serbia	2014
Research/Policy Analysis			
P29603	Berane SW	Montenegro	2010
P521702	CTI Water Health International (WHI)	Global	2007
P553226	PetstarTA (Scoping Study)	Mexico	2007
P561387	Sandandrano Water Project	Madagascar	2008
P568587	Global Cleaner Prod Facility	Global	2011
P573907	SSAWA	Kenya	2010
P582307	India E-waste	India	2012
P590467	Lesotho Waste	Lesotho	2012
P599621	WRG Country Proj	Global (India, Mexico, Mongolia, South Africa)	2013
Advice on project structuring			
P23972	Saudi Desal	Saudi Arabia	2004
P24151	BOT Center Water	Philippines	2005
P25032	Bulgaria Water	Bulgaria	2006
P534546	Rndabt Playpumps	Mozambique	2008
P554907	SRsp Petstar AS - Social Responsibility Program	Mexico	2008
P564807	ISWM - Albania	Albania	2008
P568687	Water Economics	Global	2009
P577049	WRG 2.0	Global	2010
Capacity Building			
P593767	Russia REF	Russia	2012

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P599987	BSWM Cap Bldg	India (Behrampur, Orissa)	2015
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Table D.4. MIGA Guarantees

Fiscal Year	Project Name	Guarantee Holder and Country	Country	Gross Exposure (\$M)	Project Status
2007	Deqing Darco Water Project	Darco Environmental Pte., Ltd (Singapore)	China	7.56	Cancelled
2007	Zhenjiang Water Project	Golden State Water Group Corporation (Cayman Islands)	China	2.33	Cancelled
2009	Chongqing Water Project	Suez Environnement SAS (France)	China	72.2	Cancelled
2009	Deqing Darco Water Project	Darco Environmental Pte., Ltd (Singapore)	China	3.1	Cancelled
2010	Caofeidian Seawater Desalination Project	Aqualyng Holding AS (Norway)	China	7.5	Cancelled
2012	Hebei Wastewater Treatment Project	Standard Chartered Bank (Singapore)	China	57	Cancelled
2013	Ghana Seawater Desalination Project	Abengoa Water Investments Ghana, BV (Netherland); Daye Water Investment (Ghana), BV (Netherland); Standard Bank (South Africa)	Ghana	179.2	Active
2013	AS Samra Wastewater Treatment Project	Suez Environnement SA (France); Infilco Degremont, Inc. (USA); Morganti Group, Inc.(USA)	Jordan	13.1	Active
2016	Cangzhou Seawater Desalination Project	Aqualyng Global Pte., Ltd	China	9.9	Active

Appendix E. IFC Advisory Services and Investments

17. IFC's activities in the water and sanitation sector include both Advisory Services and Investment Operations.

Advisory Services

18. Advisory Services aims at facilitating private sector participation through a variety of public-private partnership (PPP) modes (privatizations, concessions, affermage contracts, and so on).

19. Guiding principles: IFC is a provider of last resort, therefore IFC largely accepts advisory assignments only on a sole-source basis (that is, it will not compete with other providers). To avoid conflict of interest, advisory and investment services operate independently, IFC may finance the winning bidder of a PPP bid for which it is the transaction advisor, but no ex ante selection is permitted.

20. Objectives: The objective of IFC advisory projects is to facilitate market transformation through advice to governments on regulatory and enabling environment changes needed to promote private sector participation in sustainable projects in the sector. Transformation could come through assisting governments in structuring successful transactions to privatize existing water and sanitation utilities through various possible modalities, ultimately bringing in new investor capital and international expertise.

21. Advisory portfolio: This portfolio consists of 45 projects in the water and sanitation sector approved during FY2007-16, including delivery of potable water, wastewater and sewage treatment and management, and solid waste management. Projects were distributed across several countries, most notably six projects in India, three each in Mexico, Morocco, and Albania, and five worldwide. In more than half (56 percent) of the projects, IFC's role was as PPP transactions adviser, evaluating strategic options and managing the bidding process on behalf of client governments. Twenty percent of projects involved providing advice to governments on PPP structuring or transaction privatization, and the balance on nonproject-specific research and policy analysis or capacity-building advice to sector institutions.

22. **Success or failure:** Based on the objectives of the advisory transactions as evaluated in Advisory Services Completion Reports, less than half (22 of the 46

advisory projects) reported successful outcomes, seven of which were only partially successful.

23. Projects involving PPP transaction advisory: Only seven of 27 projects (27 percent) had fully satisfactory outcomes, and three had partially satisfactory outcomes. The key reasons are political or social opposition from interest groups, or the client government had a change in interest or commitment.

24. Of other groups, only projects involving research or policy analysis had a success rate higher than 50 percent (five of nine projects were fully successful, and seven of nine were fully or partially successful). Four of eight projects involving PPP structuring advice were either fully or partially successful (one project was not rated).

25. Sustainability and poverty focus: A majority of projects (37 of 46) had the potential to attain financial and operational sustainability, but only 10 (22 percent) actually achieved satisfactory outcomes. For example, the Maldives PPP Solid Waste Management Project (2009) involved the successful award of a PPP concession in which IFC had a market transformation role by developing environmental performance standards, providing finance to the successful bidder, and successfully attracting foreign financing and international expertise to the sector. Another example is the Clark Bulk Water project in the Philippines, which similarly involved the successful award of a PPP concession in which IFC mobilized \$115 million in private investment while negotiating a new tariff regime to ensure financial viability for the sector. Relatively few projects (11 of 46, or 24 percent) had a strong poverty focus. These projects were in poorer countries, with potential to provide expanded coverage of water supply, sewerage, or solid waste disposal to poorer areas, especially urban slums.

26. The advisory projects had a relatively low poverty focus because the majority was in relatively higher-income countries. This was most likely because IFC had less leverage with client governments than the World Bank, and therefore middle-income countries would be perceived as more stable and reliable clients than low-income countries. Even so, many assignments had to be terminated early because of changes in government and popular sentiment against the private sector. Examples include the Bulgaria Water Project (2006), the Kosovo Solid Waste Project (2010) the Chtouka Desalination Project in Morocco (2010), and the Bangalore Water Project in India (2004), all of which stalled after completion of the first phase of work for these reasons.

Key Lessons

27. The relatively low success rate of advisory operations highlights the challenges of structuring successful transactions involving the private sector in the water and sanitation sector in emerging markets. Resistance to raising tariffs or providing subsidies often impedes the achievement of sustainability. Progress usually requires cultivating a broad-based political constituency for reform, an area in which IFC has less comparative advantage than the World Bank.

28. However, it is notable that advisory services are an important instrument in helping create an enabling regulatory framework in countries that seek to expand private sector participation. In some cases (Manila Water, for example), advisory assignments led to IFC participation in the PPP transaction that followed. Successful project-structuring advice has created a successful basis for enhanced private sector participation in the sector (for example, the Lesotho Waste Management Project and the New Cairo Waste Project).

Investment Operations

29. IFC's investment operations in private sector projects take the form of equity, debt participation, or both. Debt participation can be solely on IFC's account (an A loan) or can include syndicated loans in which IFC remains the lender of record and mobilizes participation by other lenders under its B loan umbrella. IFC participation in the water and sanitation sector also included use of risk sharing facilities, including local currency partial risk guarantees.

30. Objectives: Like its advisory projects, IFC's investment operations aim to promote market transformation in client countries toward enhancing private capital's role in the water and sanitation sector from providing EPC (engineering, procurement, and construction) services to actual investment and operation of utilities. IFC's investment operations in the sector are different from the World Bank's in one important way. Clients are private companies (not governments), which are often the first entrants to a sector that is newly opening to private participation. Although the performance of individual projects would contribute to the achievement of physical or coverage targets for water and sanitation services, their success or failure would largely have to be judged in on their ability to stimulate new private investments by providing a demonstration effect of successful operation, which would help ease investors' perception of risk.

31. Investment portfolio: IFC's investment portfolio in the water, sanitation, and solid waste sector consists of 58 projects worldwide. The portfolio is heavily concentrated in four countries: 13 projects in China, seven in Brazil, six in India, and

four in the Philippines. Four projects are in the Middle East and North Africa Region. This concentration is broadly consistent with global PPIAF investment data for the sector, which shows that for the FY2007-15 period, the top two countries were Brazil (46 percent of the total investment) and China (14 percent).

32. Nine projects in the portfolio did not actually disburse and were either canceled or prepaid by the investor (which in many cases obtained less expensive alternative finance). Two more projects were on hold pending some external developments. This reduces the overall size of the effective portfolio to about 47 projects, thus reducing its potential global impact on the sector. It is also noteworthy that several projects represented follow-on stages to an original investment. For example, the four projects in the Philippines (Manila Water Co: I, II, III, and IV) all involved the same investor, as did Metito I, II, and III in Middle East and North Africa; and Epure BOT, Epure BOT2 and Epure Warrants in China (all associated with Beijing Sound). This concentration of investments is consistent with the strategic directions pursued by IFC in response to the sector and environment in which it had to operate. Given that investors perceived the water and sanitation sector as constituting relatively high risk in emerging markets, IFC's strategy appeared to be twofold. It would try to work as much as possible with local investors in markets where governments had accepted the need for greater private participation and had taken initial steps toward providing a welcoming regulatory environment. Furthermore, IFC would assist those investors in going through successive value-added stages to an original investment to help them strengthen their presence in the sector through phasing.

33. **Success or failure:** IEG rated the projects' success or failure based on the project development outcomes, reflected mostly in its rating for private sector development (demonstration effect and replicability). On this basis, 16 of the population of 58 projects were rated successful or highly successful and six projects were mostly successful (meaning some project objectives, such as financial returns were fulfilled while others, such as demonstration effect, were not). Of the 58 projects, therefore, 22 projects were rated mostly successful or better. FC provided the ratings mostly through the DOTS framework and supplemented in a few cases by XPSRs and IEG evaluative notes. Nine projects were rated mostly unsuccessful and six projects were highly unsuccessful. Ten projects were rated "too early to tell" or were not rated, and two projects were on hold because of some exogenous factors, such as political turmoil (such as InfraV-Sandandra in Madagascar).

34. **Poverty focus:** Few projects had poverty focus as an explicit objective. Nine projects incorporated elements that indicated a focus on expanding service to poorer segments of the population in rural or urban slum areas. These included CWAG,

APPENDIX E.
IFC ADVISORY SERVICES AND INVESTMENTS

Beijing Sound, Epure BOT in China, InfraV-Sandandra in Madagascar, Sedapal in Peru, Petstar in Mexico, Aguas Panama in Panama, AAA in Colombia, and AEGEA in Brazil. However, actual achievement was poor because not all these projects actually performed satisfactorily.

35. Sustainability: Sustainability was not an explicit consideration in the design of most projects. However, because most projects were expected to achieve IFC's threshold rate of 20 percent Expected Return on Invested Capital (EROIC), the assumption is that all projects rated as successful could be considered sustainable in principle.

Key Lessons

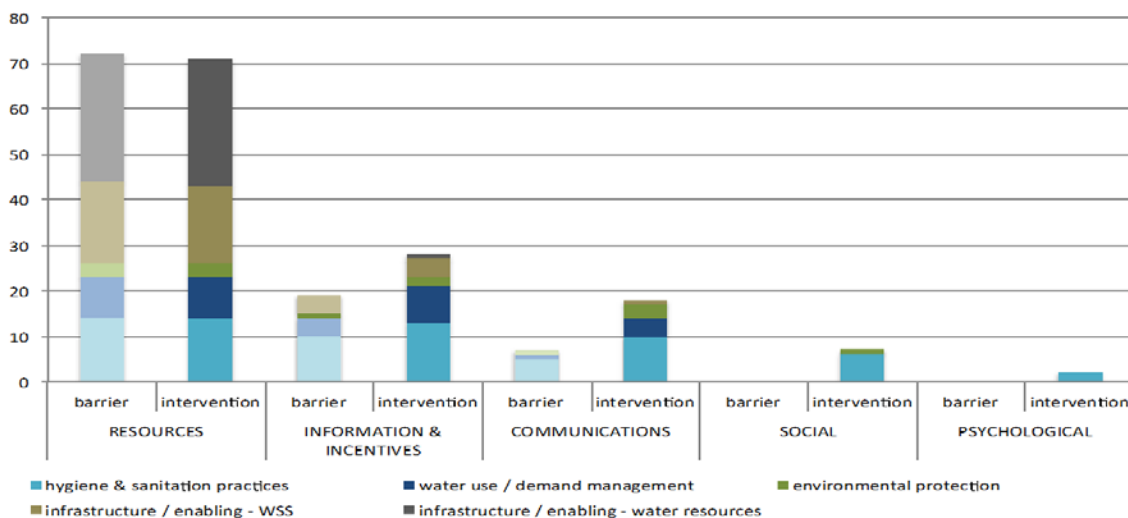
36. As for advisory projects, the relatively small size and low success rate of IFC's investment operations in the water, sanitation, and solid waste sector reflects the inherent difficulties of doing business in a sector that the public sector has long dominated and in which the private sector has made relatively few inroads in emerging markets. Progress will require governments to accept the need for investment finance from private investors and for society to recognize the need for tariffs and subsidies that will ensure the financial viability of operations in the sector. Given the reluctance of international investors to enter a sector they consider inherently risky, IFC's approach of working with local investors is appropriate, though the process of identifying potential investors and structuring transactions in the sector that prove to be successful regarding outcomes remains a major challenge.

Appendix F. Analytical Framework for Behavior Change

1. IEG conducted a review of 72 Water Supply and Sanitation (WSS) projects to explore the extent to which information on behavior change is available in project documents, analyze how behavior change is operationalized, and assess the quality of information provided in documents.

2. The review found limited evidence of targeted behavior change in WSS projects. The majority of projects focused on the supply side, providing people with access to water supply, sewerage, drainage or wastewater treatment infrastructure, or with coverage under water resources management interventions (for example, flood protection and pollution control). Project development objectives primarily sought to increase access to or improve the quality of WSS infrastructure and services (or both), or strengthen institutional capacity.¹ One-third of the projects included behavior change interventions through its components, with hygiene and sanitation practices (increasing handwashing and reducing open defecation, for example) as the most commonly identified behaviors, followed by water use efficiency (such as decreasing water use through drip irrigation), and environmental protection (reducing improper waste disposal, for example).

Figure F.1. Barriers and Interventions, by Category



1.

3. Although the interventions were similar to the barriers identified, both focused heavily on resources (figure F.1). All projects identified resource constraints, only one project included resources interventions, and more than half (43) included

APPENDIX F.
ANALYTICAL FRAMEWORK FOR BEHAVIOR CHANGE

only resource-based interventions.² After resources, the most common barriers and interventions were information and incentives (such as financial incentives to use less water and knowledge of hygiene practices), followed by communications. Although none of the projects mentioned social or psychological issues as barriers, seven projects developed social activities, and two projects developed psychological activities.³

4. Regarding communications and information interventions, project documents cite numerous types of activities, but provide little content on their design and implementation.⁴ Although most projects identify the desired behavioral changes (for example, water conservation and handwashing) and some specify the delivery mechanisms (such as training events, radio, TV, leaflets, text messaging, films, and interpersonal communications), many others do not.⁵ Furthermore, most projects reviewed did not provide information on the specific target audiences for behavior change activities (school children and caregivers, for example) within the project's larger target area, and they did not provide details on the messages to be delivered. Many projects simply stated, for instance, that they would conduct hygiene promotion activities, information campaigns on the importance of paying water bills, door-to-door campaigns, or demonstrations of water management practices, but provided little additional information.

5. Eleven projects included financial incentives or cost-savings interventions. Three projects developed cost-savings activities, including subsidies for household water and sewerage connections and for latrines, along with the electrification of potable water sources and irrigation to reduce energy and maintenance costs. Additional interventions with financial incentives included providing access to finance for household connections, improving water tariff collection through meter installation and use, and revising tariff levels to promote households' willingness to pay for services.

6. However, limited diagnostic work was conducted to determine factors that would contribute to behavioral changes. Of the 20 projects that identified barriers other than resources, just seven conducted diagnostic work, such as household surveys, communications need assessments, and knowledge, attitudes and practices studies. For example, one project conducted a behavior communications survey to inform the development of its hygiene promotion program, and another included formative research on the practices, knowledge, attitudes, beliefs, and perceptions of the target population. In another project, men said they do not mix children's feces with adults' feces because this might lead the child to be less successful in adulthood, but girls believed that infant's feces had medical uses, such as treatment of warts and ear infections. Some adults reportedly defecate in their houses,

particularly in the winter or at night, because latrines are constructed far from the house because of their odor.

7. There was also little monitoring of behavior change activities, and many areas need improvement, such as the lack of data and absence of outcome indicators. Of the 26 projects with behavioral interventions, 22 included behavior-related output or outcome indicators, or both.⁶ However, only four of these had behavioral outcome indicators with results reported in an ICRR.⁷ Of these, one had one outcome indicator with a baseline and target, and it also met its target—this project tracked the “percentage of *gram panchayats* (village clusters) and habitations declared open defecation free” with a target of 30 percent and achievement of 43 percent. Of the other three projects, two were successful in changing behaviors (improved hygiene practices by two-thirds of children and reduced water consumption by 3 to 6 percent), but they did not have targets to measure against, and one was unsuccessful in achieving its targets because of a lack of funds that resulted in significant scaling back of its hygiene promotion activities.⁸ This restructuring was unfortunate, particularly because it had such a robust design for its communications activities. These activities included behavior change communications and social marketing activities based on a behavior communications survey conducted during preparation and focused on specific behaviors (handwashing with soap, safe drinking water, building and using latrines, safe disposal of children’s feces, and clean yards and villages) and identified specific target groups (caregivers of children under age 13, household decision makers, and schoolchildren). However, because of the restructuring, the initial behavior change campaign was not followed up to reinforce hygiene messages, thus increasing the risk of students not retaining proper practices for handwashing with soap in schools.

8. Overall, behavior change activities were generally designed as small components of larger WSS infrastructure projects. Although some projects were more robust than others in their design and financing for behavioral change interventions, this was largely not the case. Few WSS projects included interventions beyond resources, with only nine projects addressing important social and psychological barriers for behavior change. Furthermore, the budget for behavior change is unknown for most projects, and both formative research and monitoring and evaluation were generally lacking.

¹ Behavioral changes were identified in three project development objectives that aimed to improve hygiene, sanitation, and water-related practices, and promote water resource conservation and protect the environment.

² This project focused on providing subsidies (financial incentives) for the construction of sanitation facilities.

³ Social approaches included community mobilization, interpersonal communication, and partnerships with social groups such as community-based organizations and college student groups to disseminate messages. Psychological interventions included considering user preferences for sanitation facilities (make things attractive), and studying the placement of chlorination stations near water tankers.

⁴ Twenty-four projects have information interventions, of which nine also provide financial incentives. One project included both and one had only incentives.

⁵ Four of 18 projects with communications interventions specified delivery mechanisms, as did five of 24 for information interventions.

⁶ The portfolio reviewed included 43 resources-only projects and 26 projects with behavioral interventions. It also included three projects coded under both resources and information and incentives, but these did not aim to change behaviors.

⁷ Of these 22 projects, 12 did not yet have an ICRR, three that did were missing data on these indicators, two reported only on outputs (such as people trained) and not outcomes (adoption of handwashing, for example), and one included only indicators on access to services.

⁸ Achievement of handwashing with soap was 24 percent of the target in communities and 16 percent of the target in schools, according to the ICRR.

Appendix G. Impact Evaluations and Systematic Reviews

Table G.1. World Bank Impact Evaluations

Country	Project name	FY	Project ID
Completed			
Central Asia	Program Review of the Central Asia Energy Water Development Program	2016	P155607
India	Impact Evaluation of Scaling Up Rural Sanitation Behavior Change Project in India	2014	P129999
Indonesia	Impact Evaluation of Scaling Up Rural Sanitation Behavior Change Project in Indonesia	2013	P129997
Peru	Impact Evaluation of Scaling Up Handwashing Behavior Change Project in Peru	2013	P129922
Senegal	Impact Evaluation of Scaling Up Handwashing Behavior Change Project in Senegal	2015	P130000
Tanzania	Impact Evaluation of Scaling-up Handwashing and Rural Sanitation behavior project in Tanzania	2015	P129998
Uganda	Uganda Water Connections for the Poor Impact Evaluation	2012	P110442
Uganda	Impact evaluation in Uganda WSS Sec	2013	P117129
Vietnam	Impact Evaluation of Scaling Up Handwashing Behavior Change Project in Vietnam	2013	P129944
Vietnam	Vietnam Results-Based Rural Water Supply and Sanitation Under the National Target Program: Impact Evaluation	2016	P150746
Ongoing			
Bangladesh	Low-cost, in-line chlorination system	2017	P144219
Ghana	Sustainable Land and Water Management Project	2018	P155244
India	Punjab - IE on Rural WSS	2017	P150578
India	IE India - Incentivizing sanitation uptake and sustainable usage through micro health insurance	2018	P133787
India	Improving Citizen Access to Basic Services	2019	P157516
Kenya	Harnessing Plastic Latrines to save lives for BOP consumers - Impact Evaluation	2017	P152697
Kenya	Impact evaluation of water and sewerage interventions in an informal settlement in Nairobi	2018	P144115
Kenya	Impact Evaluation of Kenya Water Security and Climate Resilience Project	2022	P145556
Nicaragua	NI TF Sustainable Rural Water Supply and Sanitation Sector Project Impact Assessment	2019	P150059
Philippines	Integrating Sanitation Programming in the Pantawid Pamilya Program in the Philippines	2020	P150579

APPENDIX G.

IMPACT EVALUATIONS AND SYSTEMATIC REVIEWS

Tanzania	Building a Supportive Environment for Operation and Maintenance in the Tanzanian Rural Water Supply Subsector	2020	P156274
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External Systematic Reviews

1. The study team collated findings from systematic reviews conducted in the Water Supply and Sanitation sector in the past 10 years.¹ These systematic reviews suggest links with health, hygiene, education, and gender issues as privacy and safety. Each systematic review drew on many impact evaluations. Table G.2 lists the references to the systematic reviews and their main messages.

Table G.2. Systematic Reviews

Year	Systematic review title	Impact evaluations (no.)
2007	Interventions to improve water quality for preventing diarrhea: systematic review and meta-analysis. http://www.bmj.com/content/334/7597/782	33
Interventions to improve water quality are generally effective for preventing diarrhea in all ages and in under-fives. Significant heterogeneity among the trials suggests that the level of effectiveness may depend on a variety of conditions that research to date cannot fully explain.		
2009	Effectiveness and sustainability of water, sanitation, and hygiene interventions in combating diarrhea. http://www.tandfonline.com/doi/abs/10.1080/19439340903141175	35
The analysis suggests that sanitation hardware interventions are highly effective in reducing diarrhea morbidity. Furthermore, many trials document the effectiveness of water treatment interventions, but studies conducted over longer periods tend to show smaller effectiveness and evidence suggests compliance rates and therefore impact may fall markedly over time.		
2010	Effects of sewage on diarrhea and enteric infections: a systematic review and meta-analysis. http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(10)70123-7/fulltext	25
Findings: Pooled estimates show that sewerage systems typically reduce diarrhea incidence by about 30 percent or perhaps by as much as 60 percent when starting sanitation conditions are very poor. Studies with objective outcome measures showed even stronger pooled effect than studies that assessed diarrhea incidence with interviews, while sensitivity analysis indicated that the effect remains even if strong residual confounding is assumed.		
2010	Water, sanitation, and hygiene for the prevention of diarrhea. https://academic.oup.com/ije/article/39/suppl_1/i193/703351/	38
The striking effect of handwashing with soap is consistent across various study designs and pathogens, though it depends on access to water. The effect of water treatment appears similarly large, but is not found in a few blinded studies, suggesting that it may be partly due to the placebo effect. There is little rigorous evidence for the health benefit of sanitation. Diarrhea risk reductions of 48, 17, and 36 percent are proposed, associated respectively with handwashing with soap, improved water quality, and excreta disposal because the estimates of effect for the List model. Most of the evidence is of poor quality.		
2012	Water and Sanitation in Schools: A Systematic Review of the Health and Educational Outcomes. https://www.ncbi.nlm.nih.gov/pubmed/23066396	41
The studies provide evidence for an increase in water intake with increased provision of water and increased access to water facilities. Articles also report an increase in absenteeism from schools in developing countries during menses because of inadequate sanitation facilities. Lastly, there is a reported decrease in		

diarrheal and gastrointestinal diseases with increased access to adequate sanitation facilities in schools. Ensuring ready access to safe drinking water and hygienic toilets that offer privacy to users has great potential to benefit children's health.		
2015	What factors affect sustained adoption of safe water, hygiene and sanitation technologies? A systematic review of literature. http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3475	44
Evidence from this analysis suggests that the most influential program factors associated with sustained adoption include frequent, personal contact with a health promoter over time. Personal follow-up in conjunction with ongoing communication and support through mass media advertisements or group meetings may further contribute to sustained adoption. Perceived susceptibility and severity of disease and perceived benefits and barriers are common psychosocial factors identified as influences on sustained adoption. Cost is an important factor regardless of the technology. Factors like durability, rate of water flow, and maintenance are key to ensuring that technologies withstand frequent use for a long time.		

¹ A systematic review is a high-level overview of primary research on a focused question that identifies, selects, synthesizes, and appraises all high-quality research evidence relevant to that question.

Appendix H. Gender Issues in the WSS Sector

1. Gender issues have become more integrated in the World Bank's operations since its first gender strategy was formulated in 2001.¹ The World Bank recognizes that addressing gender issues is a corporate priority to meet development challenges.² However, gender integration at the strategic level does not always translate into project-level design features.³ This is attributable to a lack of results frameworks and weak monitoring and accountability mechanisms. The *Results and Performance of the World Bank Group 2015* (RAP) reinforced these findings.⁴ It concluding that quality of gender integration remains uneven, and monitoring and evaluation (M&E) frameworks of operations and country strategies do not adequately measure and report on gender results.

2. The World Bank seeks to mitigate gender imbalances and to mainstream gender through its activities.^{5,6} Water and sanitation have a multidimensional role in economic development and poverty reduction, and addressing the constraints that women and girls face in accessing and managing water and sanitation services is essential for achieving the World Bank's twin goals. In the water and sanitation sector, gender imbalances or main gender issues can be categorized differently.⁷ However, the main issues broadly fall under the following:

- Underrepresentation in decision making at many levels (community development)
- Persistence of traditional roles of water collection at the expense of education or other economic activities (essentially a workload issue)
- Disproportionate benefits accrued to men over women because of the capital-intensive nature of water and sanitation development and management (empowerment and participation)
- Specificities of sanitation needs (managing menstruation and protection against gender-based violence)
- Persistence of traditional beliefs (linked to menstruation or origin of diseases).

3. Findings from analyses of country assistance strategies (CASs) and Country Partnership Frameworks (CPF): These issues are corroborated by the CAS and CPF analysis, in which 37 countries were analyzed covering 82 CAS and CPF reports since FY2000. The analysis identified 56 instances (34 in water, 22 in sanitation, nonexclusive) in which gender was either recognized as a water and sanitation sector-specific issue, or because of specific gender-related water and sanitation strategies or interventions (18 issue identifications for water, 16 detailed

interventions or strategies; and 10 issue identifications for sanitation, 12 detailed interventions or strategies). Between FY2000–16, the instances tend to increase over time: 12 in the period FY2000–04 included, four in FY2005–08 included, 12 in FY2009–12 included, and 28 in the remaining documents, published on or before FY2016 – a startling jump suggesting gender is more widely acknowledged today as a way to tackle development issues in the water and sanitation sector than it was in the past. Examples include the 2013 Democratic Republic of Congo CAS stating, “Women and young girls, traditional water carriers are thus prevented from doing income-generating work or attending school because the majority of their day is often spent walking miles for their families’ daily water needs. Because they travel such great distances from their villages on a daily basis, women and girls also are at an increased risk of violent attacks,” or the 2013 Zambia CAS that states, “The SNDP [Sixth National Development Plan]⁸ explicitly underlines the prioritization of women’s empowerment and gender mainstreaming in the development process. Specific areas of intervention include: ...water and sanitation”.

4. Findings from key performance indicator (KPI) analysis: The study also examined all KPIs for World Bank projects approved and closed FY2007–16. Each indicator was classified according to one or more parameters, including gender pertaining to either water, sanitation, or both, and rated when possible.^{9,10} The prevalence of KPIs directly addressing gender is higher in the water supply than in the sanitation sector (72 and 47, respectively), and indicators pertaining to sanitation perform slightly, but not significantly, better in their rate of achievement (81 percent versus 79 percent, respectively, for an achievement rate above 66 percent). The analysis highlighted that improvement in gender-specific KPIs would require a clearer definition of beneficiaries versus users, as well as better tracking and measurement of outputs and outcomes in the KPIs.

5. Despite a World Bank Group discourse emphasizing and promoting systematic inclusion of gender, fewer than 10 percent of the projects assessed directly address this issue through ratable KPIs. Of the 95 indicators rated positively (above 66 percent achievement rate), variations between regions and between which aspect of gender the indicator seeks to address are stark. Types of gender-related indicators include access (such as number of beneficiaries, number of connections established, and so on); participation and leadership in community-driven development committees; empowerment (mostly through minimum participation rates); participation (beneficiaries who feels their needs were addressed); training, and workload-related indicators. Access indicators are by far the most prevalent type (49) and Africa is the region with most indicators (30). It is notable that the Africa Region has few indicators targeting dimensions of gender other than access (28). Access indicators tend to consist of a measure of female beneficiaries, often

APPENDIX H.
GENDER ISSUES IN THE WSS SECTOR

fulfilling a mechanical requirement and merely complying with corporate score cards.

6. A few examples of good practices (indicators that specifically address one of the main gender issues in the sector) are also noteworthy, such as the relative prevalence of indicators measuring participation and leadership in community-driven development committees (percent of *gram panchayats* with more than 33 percent of leadership positions in all village committees held by women), as well as empowerment indicators (empowerment of the poor, especially women, has 29 and 12 indicators, respectively), though empowerment is not always properly measured.¹¹ These good practice examples¹² in the portfolio are very few, and this fact highlights missed opportunities in addressing gender more meaningfully, such as through disaggregating productivity and other outcomes, and behavioral indicators such as open defecation, hand washing, and demand-side management (such as adoption of new metering and other new technologies).¹³

Region and type	AFR	EAP	ECA	LAC	MNA	SAR	TOTAL
Access	28	4	4	4	7	2	49
Com. Dev.	2	7	1	10	1	8	29
Empowerment	0	6	2	2	0	2	12
Participation	0	1	0	0	0	0	1
Training	0	1	0	0	0	1	2
Workload	0		2	0	0	0	2
TOTAL	30	19	9	16	8	13	95

Note: EAP = East Asia and Pacific [Region]; ECA = Europe and Central Asia [Region]; LAC = Latin America and the Caribbean [Region]; MNA = Middle East and North Africa [Region]; SAR = South Asia [Region].

7. Case studies highlights: The evaluation's country case studies further highlighted the variety of responses and dearth of comprehensive gender mainstreaming in the water and sanitation sector. For example, in Egypt and Tunisia, gender imbalances and the need to address such issues were only indirectly acknowledged, if at all, and merged with other concerns such as education. Nigeria was one step ahead in addressing gender as a key development issue, which acknowledged that the level of gender mainstreaming differed between water supply and sanitation services, laying a foundation for the subsequent discussion that included deepening gender mainstreaming, and also insuring it was consistent across the Water Supply and Sanitation sectors. Alternatively, the Zambia case study focused on women's successful management of the water supply and sanitation facilities.¹⁴ Most noteworthy was in Peru, where focus group discussions were held according to gender, thus enabling the specificities of sanitation needs to come to the forefront, as well as the imbalances in workload and other traditional roles.¹⁵ Another noteworthy example is from the joint JICA-ADB-World Bank case study of

Sri Lanka, which notes that the country has acknowledged the need for raising awareness and encouraging community participation (especially by women) in planning programs, and is making systematic efforts in this regard, duly assisted by technical and training support.¹⁶

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- — —. World Bank. 2016. Peru - Lima Water Rehabilitation and Management Project and National Rural Water Supply and Sanitation Project. Washington, DC: World Bank Group.

¹ Integrating Gender into the World Bank's Work: Strategy for Action, World bank Group, 2001

² The World Bank Group Gender Strategy (FY16-23): Gender Equality, Poverty Reduction, and Inclusive Growth, IEG, 2015

³ 2010 IEG Gender Evaluation Management Action Record 2013

⁴ Results and Performance of the World Bank Group 2015, An Independent Evaluation, IEG 2016

⁵ According to the UN Economic and Social Council (1997), mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies, or programs in all areas and at all levels. It is a strategy for making the concerns and experiences of women and men an integral dimension of the design, implementation, and monitoring and evaluation of policies and programs in all political, economic, and social spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.

⁶ One such activity is IEG's introduction of flags, specifically the gender flag, which highlights inclusion of gender in project design, existence and absence of disaggregated indicators, and discussion of gender-specific issues; these conditions are too rarely met. Since IEG's introduction of flags in its ICRRs, 57 projects in the Water Global Practice were examined, 43 of which are included in the portfolio; only one received a gender flag, P110267. IEG will increase the pace of mainstreaming gender internally through gender flags; though promising, it is too early to determine the success of this intervention.

⁷ Such as in Toolkit for Mainstreaming Gender in Water Operations, World Bank Group, 2016, pp 5-7.

⁸ Sixth National Development Plan

⁹ For this KPI exercise, gender indicators included mention of women (any available disaggregated numbers), as well as of other groups such as young children affected by the project.

¹⁰ See key performance indicator (KPI) methodology Appendix C. For gender: 57 projects rated; 119 indicators rated, of which 72 are in water, 47 are in sanitation, and 95 rated positively.

¹¹ Independent Evaluation Group. 2017. *Women's Empowerment in Rural Community-Driven Development Projects*. World Bank, Washington, DC.

¹² Toolkit for Mainstreaming Gender in Water Operations, World Bank Group, 2016, p. 55

¹³ This could possibly be disaggregated in terms of whether a man or women is head of the household; it could then lead to a conclusion on gender and willingness or ability to pay bills.

¹⁴ Independent Evaluation Group (IEG). 2016. *Zambia: Water Sector Performance Improvement Project*. Washington, D. C. : World Bank Group.

¹⁵ World Bank. 2016. *Peru - Lima Water Rehabilitation and Management Project and National Rural Water Supply and Sanitation Project*. Washington, D. C. : World Bank Group.

¹⁶ Unpublished. Field Data Collection Report. *Lessons from the Role and Contribution of Development Partners: World Bank Group, Asian Development Bank, and Japan International Cooperation Agency in the Water and Sanitation Sector in Sri Lanka a Joint Case Study*. Washington, D. C. : World Bank Group.

Appendix I. Financial Covenants in Water Supply and Sanitation Projects

Table I.1. Occurrence^a of Financial Covenants in Water Supply and Sanitation Projects, Completed FY2007-2016.

Project ID	Country	CAPEX Coverage Ratio	Debt service Coverage Ratio	O&M Coverage	Tariff adjustment / collection	Liquidity Ratio	Debt to Asset or Equity Ratio	Operating Margin/ Operating Ratio	Profitability
P008051	Peru	x	x						
P057352	China	x	x	x	x				
P043444	Croatia			x				x	
P004845	Vietnam			x	x				
P006046	Argentina		x		x	x	x		
P043933	China	x	x	x	x				
P052240	Mozambique	x	x						
P049436	China			x	x				
P058898	Tajikistan			x					
P063383	Uruguay					x	x	x	
P069946	Iran, Islamic Rep.				x				
P035786	Ukraine				x			x	
P041528	Senegal			x	x				
P047345	China	x	x	x	x				
P051859	China	x	x	x	x				
P061558	Niger				x				
P049621	Uzbekistan		x	x	x				
P057883	Tajikistan			x	x				
P041442	Albania				x	x			
P059073	Tanzania	x		x					
P070191	China	x		x	x				
P073311	Cambodia		x					x	
P074469	Moldova							x	
P082510	India				x				
P049618	Kenya		x						x
P063398	Armenia		x						
P065416	Croatia		x					x	

APPENDIX I.
FINANCIAL COVENANTS IN WATER SUPPLY AND SANITATION PROJECTS

Project ID	Country	CAPEX Coverage Ratio	Debt service Coverage Ratio	O&M Coverage	Tariff adjustment / collection	Liquidity Ratio	Debt to Asset or Equity Ratio	Operating Margin/ Operating Ratio	Profitability
P071191	Iran, Islamic Rep.					x			
P075728	China		x	x	x				
P056418	Lesotho		x		x				
P057933	China		x	x	x				
P073763	Vietnam				x	x			
P081346	China		x	x	x			x	
P083353	Bosnia and Herzegovina			x				x	
P086505	China		x	x	x		x	x	
P088032	Argentina			x					
P077287	Vietnam			x	x				
P087860	Afghanistan			x	x				
P071259	Zambia			x					
P081776	China		x	x	x		x		
P088252	Romania				x				
P095315	China			x	x				
P098948	Croatia			x	x			x	
P099811	Tunisia			x	x	x		x	
P052037	Vietnam	x	x	x	x				
P008832	Russian Federation		x	x	x	x			
P044140	Colombia		x		x		x		

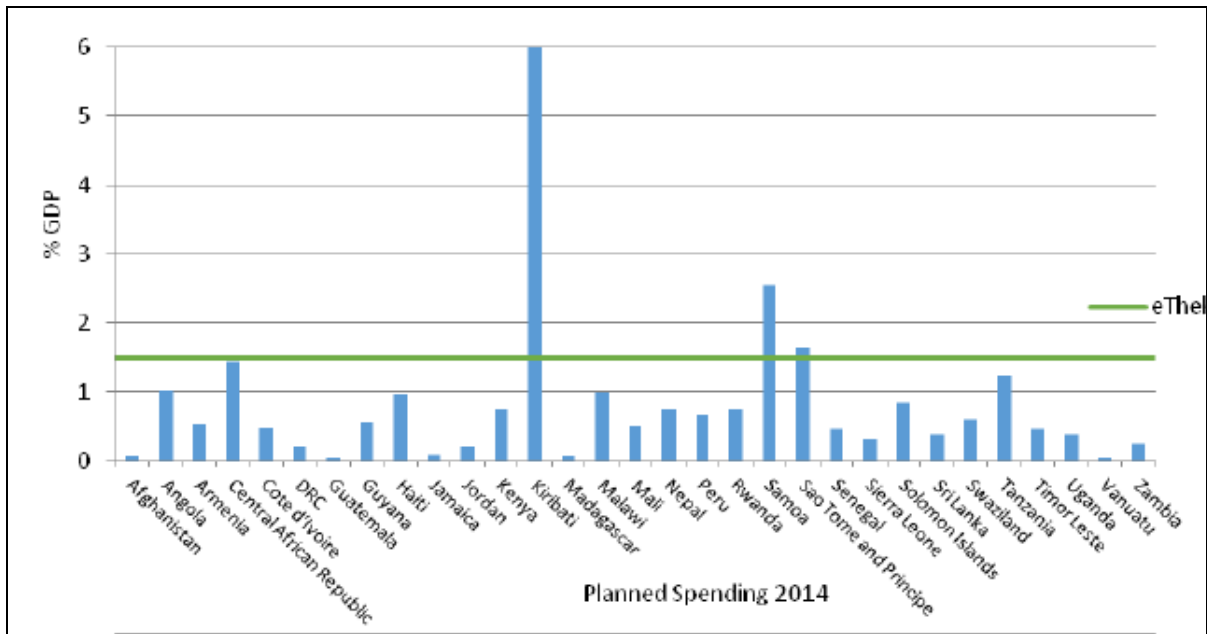
Note: O&M = operation and maintenance.

^a 'x' denotes at least one occurrence; blank cell denotes no occurrence

Appendix J. Public Expenditure Reviews

1. An excerpt from a 2015 report prepared by Government Spending Watch characterizes government spending in developing countries on water supply and sanitation (WSS) as follows: “GSW [Government Spending Watch] tracks spending on water and sanitation, using a target of 1.5 percent of GDP [gross domestic product]. This is based on two components: the agreement in 2008 at the eThekweni meeting of AU ministers to spend 0.5 percent of GDP on sanitation and hygiene; and studies, including by UNDP [United Nations Development Programme], which have suggested that meeting the MDG [Millennium Development Goal] for water requires 1 percent of GDP annually.”
2. In 2014, only three of 31 countries (Kiribati, Samoa, and São Tomé and Príncipe), or fewer than 10 percent, met this target. In 2013, an additional four countries met the target: Angola, Niger, Timor Leste, and the Solomon Islands. Although the Central African Republic came very close at 1.4 percent in 2014 (because of a huge increase in donor projects that might not be sustainable in the long term), 20 other countries are spending much less than 0.5 percent of GDP – the amount needed for sanitation alone – on all aspects of WSS. The average level of spending across all countries is just above 1 percent, not anywhere near the levels necessary for getting the sanitation MDG on track (figure J.1) (Government Spending Watch 2015)
3. A World Bank Study assessed WSS expenditure of Sub-Saharan African countries based available Public Expenditure Reviews for the period 2004–08 (Ginneken, Netterstrom, and Bennett 2011). According to this study, government spending on WSS averaged 0.39 percent of GDP (\$1.71 per person) in rural-and-urban countries and 0.26 percent (\$1.21 per person) in rural-only countries below the 1 percent benchmark suggested by the 2006 Human Development Report. (UNDP 2006). Even though there was an observed upward trend in public expenditures for the sector both absolutely and as a share of GDP per capita, annual expenditure on WSS is extremely volatile, which obstructs efficient budgeting. Many of the countries in the sample were highly donor dependent, with an average 61.9 percent of total WSS expenditures coming from donor financing. On average, 2 percent of total government spending went toward the WSS sector.

Figure J.1. WSS Spending as Percentage of Gross Domestic Product



Source: Government Spending Watch 2015.

Appendix K. Analytical Framework for Service Delivery

Applying the IEG Service Delivery Framework to the WSS Sector

1. A review of 60 Water Supply and Sanitation (WSS) projects was conducted, based on an evaluation service delivery framework developed by IEG (figure K.1). Its objective is to enable future benchmarking on the extent to which information on service delivery is contained in project appraisal documents, and how appraisal documents described and operationalized service delivery is.¹

Table K.1. Framework for Evaluating Service Delivery Project Design

✓ Enabling Conditions	✓ Inputs	✓ Implementation	✓ Outputs and Outcomes
<ul style="list-style-type: none"> ✓ Policy development or regulatory / legal change ✓ Capacity development (procurement, data systems, budgeting, public financial management, and M&E) ✓ Supply chain ✓ Contextual conditions (cultural attitudes, political patronage, and ethnic tensions) 	<ul style="list-style-type: none"> ✓ Funding (for capital and O&M) Is there cost recovery or subsidy mechanism? ✓ Human capital (service providers and managers, and challenges they may encounter, such as cultural barriers or geographic availability) ✓ Service delivery design <ul style="list-style-type: none"> • Identify beneficiaries • Conduct beneficiary needs analysis and social assessment • Establish service standards • Develop a service monitoring system 	<p><i>Service Delivery Model:</i> Who is contracted?</p> <ul style="list-style-type: none"> • Central or decentral government provision and contracting • Public-private partnership • Private sector provision • Community provision <p>What is each group's role (finance, maintain, operate, monitor, regulate)?</p> <p>What type of model was used (results- or performance-based, output-based), and why?</p> <p>Were there provider accountability mechanisms (complaint resolution or report cards)</p> <p>Were there beneficiary feedback mechanisms?</p>	<p>Were outputs tracked in relation to service provider performance?</p> <p>Which service outcomes were tracked? What were the outcome indicators and how were they disaggregated?</p>

2. The review found that although nearly all projects reference policy and capacity development as necessary enabling conditions, few mention the development of supply chains or contextual conditions beyond sector challenges that might impinge on effective water services. Most projects (95 percent) reference upstream engagement for policy, regulatory, or institutional development, such as industrial pollution compliance or development of leases for private sector participation. Almost all projects (97 percent) mentioned capacity building, predominantly for policy makers and central or local ministries, and for water utilities and local water user associations or irrigation committees. Capacity building

APPENDIX K.
ANALYTICAL FRAMEWORK FOR SERVICE DELIVERY

typically focused on integrated water resources management, conservation, pollution, local participation, or institutional reform. However, few projects were designed to support improving supply chains (7 percent), such as developing markets for spare parts or training local masons and technicians. Furthermore, all documents discussed WSS sector challenges (for example, water shortages, infrastructure challenges, inadequate maintenance).

3. Project documents also cite a range of service inputs with a strong focus on financial capital, but discussion of service standards and evidence of inadequate service monitoring systems was limited. Nearly all project documents discussed financial capital (97 percent), including investments in operation and maintenance (87 percent) and cost recovery (85 percent). Most projects addressed this through increased collection of tariffs and user fees, and increased efficiency of utility operations, such as decreased leakages. For service delivery design, although more than two-thirds of the projects (78 percent) included a social or participation assessment of beneficiaries needs and preferences (or both), only about half of the projects developed a service monitoring system (53 percent) and less than half discussed service standards (35 percent). Social assessments often consisted of mapping access to services and willingness-to-pay, while beneficiary participation assessments found in projects with demand-driven approaches surveyed beneficiaries about their preferences (for example, the location of a standpipe or on-site sanitation facility). For projects that mentioned targeting specific disadvantaged groups (32 percent), social assessments often included specific information on their needs and preferences to support appropriate project design and planning (73 percent).^{2,3} However, the design of service monitoring systems was limited, and even among the projects that included these systems, most were designed only to monitor environmental aspects (such as industrial discharge, groundwater, floods or hydrology), though some were established for monitoring water use and quality. The final element of service delivery design this review analyzed was on establishing service standards, which was discussed by less than half of the projects. Of those that mentioned standards, examples of areas covered include water quality, flood control, and discharge standards.

4. For project implementation, documents described various types of service delivery models, including performance-based contracts and community-driven approaches. Although all projects highlight the role of the government as the policy maker, planner, and regulator of WSS services, documents cite several different entities with roles and responsibilities for carrying out front-line service delivery (operations, metering, tariff collection, and maintenance, for example). Nearly two-thirds of front-line service delivery is provided by a public utility or autonomous state-owned enterprise (63 percent), though fewer projects mention service

provision by decentralized government units (25 percent) and local-level water user groups or irrigation management associations (23 percent). Furthermore, some projects included an element of private sector participation (23 percent), almost all in the form of O&M.

5. However, based on this review, it appears that a gap remains in establishing accountability and feedback mechanisms. More than half of the projects in the sample included some form of accountability or feedback mechanism or both (58 percent), with 25 percent including explicit accountability mechanisms (such as contracts between utilities and government with agreed-on service standards and performance targets) and 23 percent including implicit mechanisms (such as naming local water associations accountable to local communities for the services they provide). However, given that most appraisal documents identified lack of accountability as a delivery constraint (73 percent), more operations could have included a mechanism to improve accountability.

6. Although most projects tracked service delivery outcomes along with outputs on access to services, operations rarely included indicators on affordability, and they did not monitor outcomes disaggregated by vulnerable groups. Output indicators on access (population covered by sewerage services, for example) and financial and operational sustainability (such as increased level of cost recovery for O&M) were tracked most often in the sample (80 percent and 65 percent, respectively). Outcome indicators monitored by projects focused on improvements experienced by beneficiaries in the quality and reliability of services (25 percent and 32 percent, respectively), and on improvements in performance by service providers, such as increased tariff collection rates or increased volume of wastewater treated. However, only 15 percent of projects disaggregated these outcomes by vulnerable groups and only 3 percent included indicators on the affordability of services provided (for example, household monthly expenditure on services as a share of household income).

¹ One limitation is that appraisal documents may not explicitly address or adequately discuss every aspect of the framework (for example, elements that are already being supported or implemented by the government). Although the lack of any individual aspect does not imply that nothing has been done, at a minimum it raises questions about the adequacy of the planning document.

² Sixteen projects mentioned targeting the poor, two targeted ethnic minority groups, and one targeted women.

³ Fourteen of the 19 projects that targeted disadvantaged groups included social or needs assessments.

Appendix L. Monitoring and Evaluation for WSS Sector: World Bank Projects and Global Experience

Monitoring and Evaluation in the Sector

1. The Joint Monitoring Programme (JMP), a global monitoring agency established by the World Health Organization (WHO) and UNICEF, provides regular estimates of progress toward the Millennium Development Goals (MDGs) targets with a focus on outcomes. Other key global monitoring agencies include the UN Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS), and the World Bank's International Benchmarking Network for Water and Sanitation (IBNET), whose global database provides information on water utilities (box L.1). The establishment of these global monitoring frameworks is a step toward creating more coherence in the overall monitoring and evaluation (M&E) landscape (Smits, Schouten 2016). The Integrated Monitoring Initiative (GEMI) was established in 2014 to become the coherent monitoring framework in the water, sanitation, and hygiene (WASH) sector at a global level.¹ Complementing the JMP and GLAAS initiatives, among others, its focus is to integrate and expand existing monitoring efforts on wastewater treatment and water quality, water use and use-efficiency, integrated water resources management, and water-related ecosystems to track progress toward SDG 6.²

Box L.1. The International Benchmarking Network for Water and Sanitation Utilities

The International Benchmarking Network for Water and Sanitation Utilities (IBNET) is the largest database for water and sanitation utilities performance data. The initiative, supported by the World Bank, provides access to comparative information to help promote best practices among water supply and sanitation providers worldwide. Utility managers and employees can identify areas for improvement, adopt realistic targets, and convince authorities of the need for change. IBNET is also an accountability tool in a sector that offers limited scope for competition. Regulators can ensure that customers get value and providers have incentives to perform. Furthermore, customers themselves can exercise their voice in an informed way. However, benchmarking must start as a local initiative because only local ownership can ensure sustainability over time.

Source: www.ib-net.org.

ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY

2. Innovations in information and communication technology (ICT) have significantly lowered the costs and time needed for data collection (Smits, Schouten 2016).³ In the Water Supply and Sanitation (WSS) sector, ICT has played an increasingly important role in monitoring and evaluation (M&E) with the use of mobile telecommunications, Internet-based cloud services, and smartphones (Smits 2015). The Rural Water and Sanitation Information System (SIASAR), a platform to monitor rural WSS in use in Bolivia, Colombia, Costa Rica, Dominican Republic, Honduras, Nicaragua, Panama, Paraguay, Peru, the Mexican State of Oaxaca, and the Brazilian State of Ceara, uses a specialized apps for data collection and generating information that supports decision-making for policy formulation, planning, and resource allocation, ultimately, aiming to enhance the sustainability and quality of rural WSS services (box L.2). The SIASAR initiative is a key component of seven existing World Bank WASH projects, in Brazil, Colombia, Honduras, Nicaragua, Panama and Paraguay in response to their demands for systematic and reliable information.

3. Other countries, such as Liberia and Timor Leste, have used ICT on a sectorwide basis for WSS monitoring. In Liberia, with support from the World Bank's Water and Sanitation Program (WSP) and UNICEF, mobile technology was used to map all the rural and urban water points and create the nation's first comprehensive inventory of water point assets. Similarly, in Timor Leste, mobile technology was used by government staff to feed data from village, district, and subdistrict levels into the Water and Sanitation Information System (SIBS), the national monitoring tool (Smits, Schouten 2016).

Box L.2. The Rural Water and Sanitation Information System

The Rural Water and Sanitation Information System initiative (SIASAR) is a key component of two existing World Bank water, sanitation, and hygiene projects in Panama and Nicaragua in response to their demands for systematic and reliable information. The tool is designed to conduct data collection and analysis, generate performance indicators aggregated at several geographic levels, and produce rankings and summary reports detailing the performance of communities, infrastructure systems, service providers, and technical assistance providers. In addition to being a data management system, it provides the analysis required to facilitate consultation among stakeholders and service as a knowledge exchange platform. Although it is targeted mostly to water policy makers and practitioners, it addresses the needs of a range of stakeholders to ultimately improve access, quality, and sustainability of rural water and sanitation services.

Source: Pena, Michaud, and Biau 2013.

4. On a smaller scale, countries such as India and Kenya have used innovative ways to collect data with advancements in ICT. In the twin cities of Hubli-Dharwad in India, a real-time data and messaging system developed by Next Drop (a for-profit social enterprise) uses text messaging to connect water users to the service. Water users receive real-time information on the timing of water delivery, delays, pipe damages, and so on, which saves them time needed to collect water, and they can also submit complaints to the water board. In Kenya, two ICT-based innovations have helped improve the quality of services provided. MajiVoice, financed by the World Bank, is an accountability software that allows consumers to easily submit and track complaints, query bills, and receive updates on their mobile phones. Additionally, utility staff have task-management software to more efficiently process complaints. Smart Handpumps, an initiative led by the University of Oxford, aims to track real-time monitoring of handpump downtime by installing a GSM transmitter inside the pump handles that automatically sends data on handpump usage by text messages. Decline in usage signals the need for repair and maintenance (Welle et al 2015)

Improving National and Global Monitoring and Evaluation

5. At a global strategic level, the World Bank together with the UN recently convened a High Level Panel on Water (HLPW) committed to achieving Sustainable Development Goal 6 (SDG 6). The action plan issued by the panel highlights the need for good water data which can be achieved by stakeholders working toward defining a more integrated and standardized set of core water accounts and indicators (HLPW, Action Plan). The establishment of IBNET (box L.2), is another example of the World Bank's contribution to the global M&E landscape.

6. The World Bank's contribution has not been extensive regarding assistance to countries in developing or strengthening national level WSS M&E systems. The WSP, in its FY11-15 business plan, prioritized national-level performance monitoring in some of the countries in Africa, including Benin, Burkina Faso, Ethiopia, Rwanda, and Senegal (WSP Business Plan, FY11-15). Furthermore, WSP was also responsible for the MAPAS (Monitoring Country Progress in Water and Sanitation) initiative to strengthen regional M&E systems in Latin America.

7. However, only one out of the 152 sample World Bank projects in water supply and sanitation included a development objective related to enhancing capacity to carry out sectorwide M&E.⁴ In Nepal's Second Rural Water Supply and Sanitation Project, one of the components was dedicated to improving rural Water Supply and Sanitation sector institutional performance. The Implementation Completion and Results Report notes that the M&E unit for the sector was

established within the Ministry of Physical Planning and Works, and the sectorwide M&E system, including the Management Information System and Decision Support Systems, were made operational. However, IEG's recent evaluation of the project notes that efforts were not sustained.

PROJECT LEVEL

8. Despite efforts by countries to establish national-level monitoring frameworks, many development partners continue to use M&E frameworks that are relevant only to their specific projects and driven by their accountability to taxpayers and institutional donors (Smits 2015). Project-level monitoring tends to be discontinued once the project comes to a close. This is also evident in the World Bank's projects. Only 13 of the 152 sample project completion reports indicated the use of the M&E framework after project completion. A majority of the project M&E systems were used only to report on the progress of the specific project.

9. The World Bank's Water Supply and Sanitation projects, in general, were not highly rated in M&E quality. Of the 152 sample projects, 22 percent had favorable ratings (high or substantial) for overall M&E quality, and 78 percent of the projects had inadequate ratings (modest or negligible).

10. At the design stage, projects with favorable M&E quality ratings identified appropriate input, output, and outcome indicators in their results framework, which were quantifiable and measurable. Baseline data and target values were available. Furthermore, data collection methodologies and roles and responsibilities of M&E implementers were articulated. During implementation, these projects ensured data were collected and reported regularly, appropriate information systems were in place to store data, and independent audits of data quality were conducted. Because of strong M&E design and utilization, these projects could use M&E data to manage the project and make course corrections when needed. In some cases, M&E data were beyond the project to help in preparation of other projects and programs in the sector.

References

- Pena, L., D. Michaud, and J. Biau. 2013. "The SIASAR Initiative: An Information System for More Sustainable Rural Water and Sanitation Services." WPP (Water Partnership Program) Briefing Note 4, February 2013, World Bank, Washington, DC.

¹GEMI is an interagency initiative composed of the United Nations Environment Programme (UNEP), the United Nations Human Settlements Programme (UN-Habitat), the United Nations Children's Fund (UNICEF), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific, and Cultural

Organization (UNESCO), the World Health Organization (WHO), and the World Meteorological Organization (WMO); all operating under the UN-Water umbrella.

² More details in (<http://www.unwater.org/gemi/gemi-background-and-objectives/en/>)

³ Information and communication technology (ICT), as defined in the World Bank ICT Glossary, consists of the hardware, software, networks, and media for collecting, storing, processing, transmitting, and presenting information (voice, data, text, and images), along with related services.

⁴ Analysis of the World Bank Group's water supply and sanitation monitoring and evaluation included a review of 152 sample projects that closed as of FY16 and were reviewed by IEG.

Appendix M. World Bank Global Partnerships in the WSS Sector

IEG Partnership Review of the Water and Sanitation Program

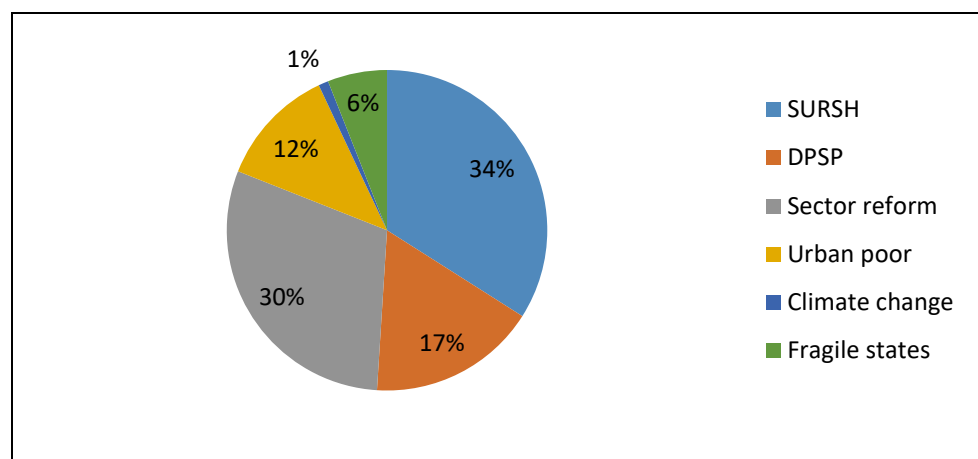
BACKGROUND

1. The Water and Sanitation Program (WSP), established in 1978, is a global partnership program aimed to support poor people in obtaining affordable, safe, and sustainable access to water and sanitation services. WSP provides in-kind technical assistance and capacity building, and leverages knowledge and partnerships through its network of technical staff in 38 countries worldwide.
2. WSP's results framework of FY11–15 aims to ensure that the “use of improved water and sanitation services and hygiene practices by poor people increased.” This overall goal is a composite of the following six business areas:
 - Scaling up rural sanitation and hygiene (SURSH)
 - Creating sustainable services through domestic private sector participation (SS-DPSP)
 - Targeting the urban poor and improving services in small towns
 - Supporting poor-inclusive water supply and sanitation (WSS) sector reform
 - Mitigating and adapting water and sanitation service delivery to climate change impacts
 - Delivering WSS services in fragile states.
3. WSP conducts activities at global, regional, and country levels. Its regional and country activities provide three categories of support (global outputs): (i) strengthening policy and regulatory frameworks, (ii) strengthening WSS delivery organizations' capacity at the national, regional, and local levels to design, deliver, and track improvements in WSS for poor people, and (iii) strengthening the voice of low-income beneficiaries in exercising choices in services demanded, providing equitable access and changing established behaviors. As such, WSP's areas of activities closely mirror the analytical and advisory roles played by World Bank sector operations. At the global level, the program supports cutting-edge knowledge work in the sector, documents innovative approaches in WSS, and facilitates wider knowledge sharing.
4. The program's contribution to knowledge generation in the sector is significant. About one-third (358) of the total World Bank Group's Water Global Practice's knowledge products in WSS supporting the current lending portfolio in

(working papers, policy research working papers, publications, and strategy papers), were produced by the WSP (figure F.2). The subjects of these documents were most frequently in the South Asia region, followed by East Asia and Pacific. There were also more than 200 multiregional or nonlocation-specific products.

5. Overall, the program has spent more than \$142 million in the sector in the last four years, with 64 percent of this support going to two of its core business areas: Scaling Up Rural Sanitation and Hygiene (SURSH) and supporting poor-inclusive water and sanitation sector reforms (figure M.1). The largest share of the program’s support goes to the Africa Region, followed by South Asia and East Asia and Pacific, and Latin America and the Caribbean. The program has no presence in the Europe and Central Asia Region.

Figure M.1. Water and Sanitation Program Disbursements, FY2011–15



Source: Water and Sanitation Program Business Plan FY11–15.

Note: DPSP = Monitoring Country Progress in Water and Sanitation; SURSH = Scaling up rural sanitation and hygiene.

The program merged into the Water Global Practice’s partnership framework in January 2017, together with some other, relatively smaller trust funds.

RELEVANCE OF THE WATER AND SANITATION PROGRAM

6. WSP’s global objectives are consistent with SDG 6: “Ensure availability and sustainable management of water and sanitation for all.” Its six business areas are well aligned with the global and regional challenges in the sector.

7. An external evaluation (2016) of WSP found that its activities have been relevant to the goals, strategies, and policies of national and subnational governments in the countries in which they worked. At the country level, WSP teams had the flexibility to work with their government counterparts to identify which among the six areas were most relevant to national and subnational priorities

and needs, and to design individual activities that reflected country-specific circumstances.

8. As a program housed in the World Bank Group, WSP activities are aligned with World Bank operations. Its substantial country presence enables greater informal access to national policy makers and local service delivery organizations. WSP also has greater operational flexibility to support local coalitions for change on WSS topics that, in the past, were either ignored or difficult to implement through standard World Bank operational engagements.

9. The program was central to building capacity in the World Bank water sector. It was a training ground for many senior staff in the Water practice, and its relevance remains high. The program is highly valued by its partners, donors, and client countries for the technical expertise it provides globally and at the country level, as well as the program’s important convening role in many countries.

10. WSS topics are described in figure M.2. Engagements build capacity in communities and local service institutions to provide sustainable WSS services through knowledge generation, knowledge sharing, and cocreating learning solutions.

Figure M.2. Water and Sanitation Engagement Areas

Value Chain Activities	PUBLIC & COMMUNITY			PRIVATE		
	State	Local Govt & Institutions	Community Organizations	Social Enterprises	Inclusive Businesses	Foundations & CSR
Policies	✓	✓	✗	✗	✗	✗
Demand Diagnostics	✗	✓	✓	✓	✓	✗
Social Mobilization	✗	✓	✓	✓	✗	✗
Product Innovation	✗	✗	✓	✓	✓	✓
Funding	✓	✗	✗	✗	✗	✓
Product Marketing	✗	✗	✓	✓	✓	✓
Sourcing	✗	✓	✓	✓	✓	✗
Installation	✗	✓	✓	✓	✓	✗
Operation & Maintenance	✗	✓	✓	✓	✗	✗

Source: Sitaramachandra Machiraju 2016

Note: value added through WSP support is indicated by the boxes with check marks

WATER AND SANITATION PROGRAM EFFECTIVENESS

11. WSP’s recent external evaluation found that the program’s results were uneven across the business areas, with the strongest performance SURSH, DPSP, and fragile and conflict-affected situations (FCS).

Rural Water Supply and Sanitation

12. Among its six business areas, WSP was most successful in rural water supply and sanitation. The development and application of innovative approaches, such as behavior change communication and sanitation marketing, were particularly important contributions and key to its success.

13. Rural sanitation is the WSP's longest standing engagement and contributed to the evolution of very large programs in countries like India and Indonesia, which mainstreamed demand-driven approaches to rural WSS provisioning. The basic thrust of WSP engagement was to convince both policy makers and communities to develop customized models that allowed local, community-based organizations (Village Water and Sanitation Committees, or VWSCs), village-level institutions (such as panchayats, barangays, and kelurahan/desas) to take part in key decisions regarding service levels, financing, and operation and maintenance (O&M) of constructed water supply infrastructure (Government of India 2012).

Urban Sanitation

14. WSP has had a key leadership role in developing and refining a strategic sanitation approach that incorporates the lessons from rural Community-Led Total Sanitation (CLTS). WSP has been instrumental in documenting innovative approaches and what works in urban sanitation. The key elements of these experiences have been well articulated in the Indonesia Sector Sanitation Development Program that WSP supported between 2005 and 2010. This program worked at multiple levels of government, with many stakeholders ranging from government officials to communities, to develop city-level sanitation plans through a participative process.

15. Onsite versus offsite investments in sanitation: The conclusion from this and other WSP-sponsored studies in Africa is that in cities where very small proportions of water supply (less than 20 percent) are collected and conveyed through piped sewerage systems because the capex investments are unaffordable, the more practical solution is to improve the functioning of the on-site systems in collection, conveyance, and treatment.

16. Fecal sludge management insights: If onsite sanitation is the default option for most of these cities, the extent to which fecal sludge is managed sustainably is an indicator of the state of urban sanitation. For example, if barely any fecal sludge is collected and treated, despite 80 to 90 percent of households investing in on-site solutions, the septage is likely to reach aquifers and other water bodies, thus leading to environmental health risks.

17.

Activities to Promote Public-Private Partnerships

18. WSP also made an important contribution in domestic private sector participation, in which the program focused on strengthening service provider and public capacity, strengthening local sanitation markets, and introducing performance-based contracts with public and private service providers. The external evaluation found that in this area, the program's key challenge remains scaling the innovative and plausible models for privatization that the program helped to design and pilot. In general, scaling up worked mainly through informing public, donor, or nongovernmental organization investments rather than through self-reliant, cost-covering, and sustainable models, including public-private partnerships. The program's strong alignment with World Bank operations significantly helped the scale-up, especially in the rural sanitation and hygiene area.

19. Africa had notable successes through a series of studies and technical assistance programs that encouraged local public-private partnerships (PPPs). For example, rural water supply service delivery in Rwanda improved significantly when management transitioned from community management to PPP contracts in as many as 235 piped rural water supply facilities (through 65 PPP contracts).¹ In the Philippines, WSP conducted a review of eight WSS PPP transactions and concluded that although not all had a pro-poor focus, targeting the poor could be designed into the contract if political will exists at the local-government level.² In Bangladesh, WSP support enabled local entrepreneurs to market improved toilets costing between \$20 and \$250 to rural households without sanitary facilities. This was made possible by linking persons who received training in toilet construction with microfinance institutions that could provide bridging finance.³

Water and Sanitation Program Support in Fragile States

20. Countries that are recovering from governance failures and civil war face major challenges in reestablishing basic services. In these environments, WSP provides support through technical assistance and policy support, usually in close collaboration with World Bank operational teams. Although relatively limited, WSP has made important contributions to engaging in FCS countries. In Papua New Guinea, WSP staff supported a World Bank mission aimed at engaging the government in establishing professionally run water utilities. In Liberia and Sierra Leone, water utilities were supported in their efforts to restart commercial operations. In the Democratic Republic of Congo, Haiti, Liberia, and Papua New Guinea, WSP supported the development of national WSS strategies. Donors noted

the critical role of the program for engagement in Papua New Guinea and Somalia, which would not have happened without WSP's prior engagement.

Water and Sanitation Program Support to Pro-Poor Policy Reforms

21. Although many structural changes in WSS service delivery are taking place throughout the developing world, country sector policies are often slow to respond to the changed market structure. For example, WSP support to rural WSS was successful in persuading large countries like India and Indonesia to adopt a paradigm different from the standard utility model when service needs to be delivered to small, geographically scattered rural communities. However, when these communities begin demanding higher levels of service, multivillage programs become necessary to optimize water resource use and mitigate transactions costs of dealing with several community-based organizations. Few water utility organizations are responsive to customers, making such a transition difficult to initiate.

22. A few prominent examples from WSP's regional engagement in South Asia, East Asia, and Africa illustrate the extent to which WSP could influence the policy environment and policy reforms. In India, an Advisory Note drafted by WSP for India's Ministry of Urban Development summarizes good practices in economic regulation of water utilities. Another companion output emphasized the importance of benchmarking utility performance and using citizen feedback to enhance accountability of service providers to service users. A series of six state-level service delivery assessments further evaluated how far state-level WSS institutions can meet the capital expenditure and operating expenditure gaps as a part of the organizational mandate.⁴

23. In the case study countries, IEG observed some follow-up policy actions to WSP-financed sanitation studies. In Indonesia, the National Directives on Sanitation reflect the key recommendations of the WSP engagement.⁵ In India, WSP research on sanitation facilitated the articulation of the National Urban Sanitation Policy. WSP supported the Ministry of Urban Development to establish a system of benchmarking urban sanitation performance through a ratings system.⁶ Although ratings help identify the best performers, they do little to motivate cities at the bottom of the rankings to improve their performance.

WATER AND SANITATION PROGRAM'S FUTURE ROLE AND RELEVANCE

24. The Water Global Practice has incorporated the WSP, the WPP, and several other trust-funded programs one partnership framework in January 2017, pooling donor funds into a single multidonor trust fund. The Water Global Practice's new

partnership framework pledges to spend \$200 million in support in the 2017–21 period to analytical work, technical assistance, and building capacity. The establishment of an umbrella partnership with common results and reporting framework is expected to improve the use of noncore donor resources and to align with strategic priorities of the Water Global Practice. As described in the new partnership framework, the integration would also help mainstream WSP's many innovations and scaling up, an area that the program's recent external evaluation (2016) considered a weakness.

25. However, WSP has been more than a World Bank–managed trust fund because it is a well-established global partnership program with a multistakeholder governing body, its own staff (100 field staff working in 37 countries, including 12 fragile states) and a well-recognized brand name. The consequences of its merger need to be strategically mitigated at many different levels, starting from carefully managing the expectations of stakeholders and WSP staff to redistribution of resources from water and sanitation to the five priority areas of the Water Global Practice. Some program stakeholders have expressed concerns that the mainstreaming of WSP into operations may risk losing the program's key value added, such as its ability to innovate and maintain a policy dialogue, without operational pressure.

26. Although the new partnership arrangement commits to use the funds from the multidonor trust fund for technical assistance and analytical activities only, its results framework is not sufficiently clear on how to account for the distinct contribution of the partnership framework activities at the outcome level. Equally important is to periodically assess how well the distinct role the WSP has had in low-income countries (LICs) and FCSs in the broader context of the World Bank Group's support to WSS is covered with the new partnership approach.

KEY FINDINGS AND LESSONS

27. The review of WSP confirms the findings of several evaluations of WSP about the broad-based nature of support the program provides that led to many innovations in WSS policy and project design. Specific detailed analyses that have led to WSS policy innovations include:

- Operationalizing the concept of demand orientation in rural WSS services,
- Supporting large programs aimed at eliminating unsafe practices, such as open defecation,
- Understanding the sanitation value chain, notably through sustainable fecal sludge management,

- Facilitating the growth of domestic private providers of water and sanitation services, and
- Designing targeted programs aimed at improving access to the urban poor for higher quality water and sanitation services.

28. WSP work programs have helped to:

- Highlight the challenges of instituting behavioral change among the poor,
- Develop new models of public-private partnerships, notably by encouraging domestic private providers of water services,
- Analyze the challenges and opportunities of improving on-site sanitation management in urban centers, and
- Facilitate some fragile states to rebuild their WSS institutions.

Partnership Review of Public-Private Infrastructure Advisory Facility Support

BACKGROUND

29. The Public-Private Infrastructure Advisory Facility (PPIAF), is a multisector multidonor facility established in 1999 with an objective to support and catalyze the private sector participation in the markets of emerging countries.⁷ The program provides technical assistance to create enabling environments for the private sector to provide basic infrastructure services in those countries. PPIAF also has a specific program for the subnational authorities, the Sub-National Technical Assistance Program (SNTA), which helps subnational authorities access market-based financing (without sovereign guarantees) through financing creditworthiness improvement and credit ratings.

30. PPIAF's work program during the 2011–13 period was built around three strategic pillars – universal access, climate change, and urbanization – with four cross-cutting themes: subnational technical assistance, fragile states, regional integration, and capacity building. PPIAF adopted a more programmatic approach starting in 2015. While continuing its traditional support through grants, it identified several priority areas: access to finance, creditworthiness, energy efficiency, PPP institution building, and regional integration.

31. Water supply and sanitation received about 14 percent of PPIAF's total support during FY2007–16.⁸ In this period, PPIAF and SNTA financed 113 water and sanitation projects globally with a total approved funding of \$19 million and an

average grant size of \$170,834. The largest share of PPIAF’s support in the sector is in the Africa Region, followed by Latin America and the Caribbean.

32. Most of PPIAF’s support in the sector is for developing infrastructure development strategies, capacity building, and policy, regulatory, and institutional reforms (table F.2). The nature of PPIAF’s support varies across the regions. Africa, Middle East and North Africa, East Asia and Pacific, and Europe and Central Asia mostly benefited from upstream technical assistance. The activities in South Asia focus more on capacity building and in Latin America and the Caribbean, the focus is on financing.

RELEVANCE OF PPIAF SUPPORT

33. PPIAF’s upstream support to PPPs through focusing on institutional and policy issues and related capacity building is highly relevant to the World Bank’s strategy of providing sustainable service delivery through greater private sector participation. IEG’s recent evaluation of the World Bank Group’s support to PPPs found that the World Bank provided most of the upstream support on policy and institutional issues, complemented by PPIAF and the former World Bank Institute.⁹ In WSS, PPIAF activities were carried out at different times – some aim to complement an IDA project, most help to start institutional reforms to improve the governance of the sector or help fill the gaps to allow advancing the reforms and facilitating PPP transactions (table M.1).

Table M.1. Public-Private Infrastructure Advisory Facility Activities, FY07–16

PPIAF’s Nature of Activity		Number of Activities	Approved Amount (\$)	Share of WSS Projects (%)	Share of WSS Funding (%)
General	Infrastructure development strategies	36	6,411,158	32	33
	Capacity building	16	2,649,140	14	14
	Policy, regulatory and institutional reforms	14	2,418,276	12	13
	Pioneering transactions	10	1,402,170	9	7
	Emerging best practices	11	1,513,128	10	8
	Consensus building	6	876,889	5	5
SNTA	Financing	8	1,181,719	7	6
	Specific performance improvement	9	1,920,500	8	10
	Credit Rating	3	931,300	3	5
	Total	113	19,304,280	100	100

Source: Public-Private Infrastructure Advisory Facility database, IEG calculations.

Note: PPIAF = Public-Private Infrastructure Advisory Facility; WSS = Water Supply and Sanitation.

EFFECTIVENESS AND UTILIZATION OF PPIAF-SUPPORTED ACTIVITIES

34. Overall, PPIAF activities reviewed by IEG contributed to an expansion of WSS infrastructure services over time, improved the quality of water service delivery through greater private service participation, and helped improve the sector's governance.
35. PPIAF has a good activity tracking system, but it has some weaknesses as a monitoring tool. PPIAF's outputs are well documented in its internal database. The output and outcome indicators in the PPIAF M&E system are straightforward and non-sector-specific and can capture the key results of its technical assistance across the sectors. However, the completion reports rarely provide information on the progress of outcomes and do not provide an adequate basis for evaluating the outcomes of completed projects. Furthermore, almost all of the activities initially discussed their possible implications on affordability for the poor, accessibility for vulnerable groups, or environment protection, and the completion reports rarely reported on those issues.
36. The intended beneficiaries found PPIAF's upstream technical assistance in WSS useful. Clients effectively used its key outputs, such as tariff studies and pre-feasibility studies. Some reports, such as willingness-to-pay studies, were in particularly high demand and well utilized. For example, its willingness-to-pay studies based on household surveys in Armenia, Malawi, Mozambique, and Senegal helped governments get started with tariff changes, improve city master plans, and develop realistic performance targets for PPP contracts in the sector.
37. Although most activities informed the supported projects and authorities, less than half of the upstream technical assistance activities reviewed fully achieved their intended outcomes. Overall, the evidence about longer-term outcome achievements and follow-up actions was limited because of lack of information and proper tracking.
38. The reasons for lower achievement of intended outcomes were often beyond PPIAF's control. PPIAF's upstream advice often recommended radical changes in the policies and institutions and the decision to take those policy options and recommendations, which ultimately depend on governments and external factors beyond PPIAF's control. Furthermore, PPIAF's upstream support to bring in PPPs was often part of the World Bank Group's water sector reforms, which show low success in achieving their objectives because of their complexity.
39. Compared with upstream technical assistance, more downstream advice directed to supporting pioneering transaction and building capacity to carry out

such transactions were more likely to succeed in achieving their objectives. A small sample of transaction advice activities (such as during PPP contract negotiation, feasibility studies, bidding documents, and model contracts) were more successful in achieving their intended outcomes because of their narrower scope and their feeding of larger projects.

KEY FINDINGS AND LESSONS LEARNED

40. Despite being more challenging, PPIAF's upstream technical assistance aimed to address institutional and policy barriers to private sector participation in the WSS is an important niche filled by the program. It is an area in which the program complements the World Bank Group's own efforts. The program's capacity-building efforts throughout the PPP cycle is another area where PPIAF's support is crucial. As reiterated in the PPIAF's external evaluation, without such upstream interventions, it is difficult for more downstream interventions, such as consensus building, capacity building, and pioneering transactions, to gain traction.¹⁰

41. Ensuring strong government ownership was crucial for the successful uptake of PPIAF's upstream technical assistance. In many instances, PPIAF's outputs were partially taken or abandoned because of changes in the country's political economy, the government's decision to not go with the suggested options or, in a few cases, the client's lack of capacity to take the work forward (in this case, the client asked for further support). More targeted consultations with stakeholders and building local capacity and experience with PPPs would help improve ownership by the client government.

42. PPIAF activities helped create synergies and foster collaboration with other development partners in the field. This allowed the program to improve the uptake and follow-up of its upstream technical support and to help the World Bank Group extend its reach in the sector reforms. In some cases, the program successfully built on the partners' initiatives in the sector, but in others, PPIAF's support was catalytic in bringing bilateral partners and the private sector to less attractive areas, such as sanitation.

43. Although PPIAF's grants are too small to have clearly attributable impact in the field, careful sequencing of its technical assistance leads to better outcomes. IEG found the benefits of phasing and sequencing of PPIAF grants in Armenia and in Rwanda, which was the second largest recipient of PPIAF's funds in this period.

44. Balancing a strategic approach in identifying activities for support, with addressing demand-driven activities is crucial for improving the relevance of PPIAF's design. Strengthening its M&E system can help improve the feedback

loop – identify lessons, inform necessary changes, and allow more strategic allocation of resources.

Partnership Review of Global Output-Based Aid Program Sector Portfolio

BACKGROUND

45. The Global Partnership on Output-Based Aid (GPOBA) is a global partnership program established in 2006 that aims to fund, design, demonstrate, and document output-based approaches (OBA) to improve the delivery of basic services to the poor in developing countries (box M.2).

Box M.2. Output-Based Aid

Output-based aid is one of the forms of results-based financing. Output-based approaches are a strategy for applying public money, through performance-based contracts, to subsidize the cost of delivering basic services and target these on the poor. It involves the delegation of service delivery to an operating entity, under arrangements that tie the disbursement of funding to prespecified services or outputs that are delivered.

Source: GPOBA Operating Principles, May 2015.

46. GPOBA aims to facilitate learning on the potential contribution of OBA approaches to the delivery of basic services by supporting the design, implementation, and evaluation of a program of individual pilot OBA programs; facilitating the identification and dissemination of knowledge on issues relating to the role and application of OBA; and contributing to the financing of output-based payments for services under OBA programs.

47. Water supply and sanitation is the second largest sector in GPOBA’s portfolio, comprising 24 percent of the total subsidy portfolio (table M.2). In the period of FY2007–16, GPOBA awarded 17 recipient-executed grants in the amount of \$75.66 million to pilot OBA in the WSS sector, mostly covering water connections. The portfolio focuses on provision of basic services to the poor, with 65 percent of funding (11 of 17 projects) allocated to IDA countries. The largest share of projects is in Sub-Saharan Africa, which received 61 percent of the total funding in WSS, followed by East Asia and Pacific with 16 percent. GPOBA provided some technical assistance that aimed to support project design and document and disseminate lessons from the application of the OBA approach in the sector.

Table M.2. Global Partnership on Output-Based Aid Sector Portfolio, FY2007–15

Region	Amount (\$, millions)	Share (%)
Africa	45.8	61
East Asia and Pacific	12.3	16
Latin America and the Caribbean	4.6	6

Middle East and North Africa	7.0	9
South Asia	5.9	8
Total	75.6	100

Source: GPOBA annual reports.

48. The majority of the projects (10) are in water supply. Recently, after its objective to bring OBA approaches to less-tested areas, the program developed seven projects in water and sanitation. GPOBA's WSS pilots were implemented in urban, peri-urban, and rural areas by public and private operators, PPPs, nongovernmental organizations, and community organizations.

PORTFOLIO RELEVANCE

49. With its focus on improving the delivery of basic services to the poor and delivering for results in low income countries, GPOBA's water supply and sanitation work is highly relevant to the World Bank Group's twin goals.

EFFECTIVENESS OF GPOBA SUPPORT IN THE SECTOR

50. Overall, of 13 closed subsidy projects in the Water Supply and Sanitation sector, seven achieved 95 percent or more of their final output targets. About half of those targets were revised at some point during implementation, often in response to a change in the subsidy program or eligibility requirements, or to adjust to new reality in the field.

51. The level of success of GPOBA-funded projects depends to a large extent on how well the devised OBA approach addresses some of the key barriers to access to water supply and sanitation on both the supply side and the demand side. Some preconditions are recognized as necessary for effective application of results-based financing in the water sector: willingness to work with results-based financing, risk transfer, access to finance, enabling legal and regulatory frameworks, and capacity and competencies to implement and monitor such projects.¹¹

52. On the demand side, the low demand for access to water and sanitation in poor households is due to high upfront connection costs and unaffordable tariffs. The GPOBA program addresses this issue by offering targeted subsidies to the poor. In sanitation, low demand is often due to high connection costs and low levels of awareness among the poor of the benefits of improved sanitation. On the supply side, especially in low-income countries, most water utilities have low cost recovery. The tariffs are low and do not cover O&M costs. The providers are unable or unwilling to finance capital investments to extend piped networks or even provide on-site services. GPOBA's OBA program creates additional financial incentives for public utility companies or private entities extending their services to the poor.

53. Targeting mechanisms in WSS projects might be reaching the poor in general, but the output-based programs also struggle in addressing some difficult issues, such as affordability of the services for the very poor or coverage of informal settlements. Geographic targeting combined with income level is the most frequently used method to identify the targeted poor population in GPOBA WSS projects. To be cost-effective, targeting tends to favor densely populated communities, thus geographic targeting used by the program is the most efficient. However, that might be diluting its focus on the poor. Successful inclusion of informal peri-urban areas goes beyond the OBA program and requires strong support from the client government and partnership with local communities. There are currently no broadly applicable approaches to addressing issues of affordability or financing of outlays for water connections and services for poor households that are consistent with financial sustainability.¹²

54. The design of OBA programs aimed to extend service delivery through output-based aid in low-income countries with poor access to finances would have benefited from more flexibility. This is especially crucial for FCS.¹³ Many of the subsidy programs applied in the OBA pilots had to be revised during implementation, often because of overestimation of the financial risk shouldered by the service provider, how beneficiaries were identified, and how willingness to pay was assessed, or because of negative externalities.

55. Lack of bridge financing and limited access to finance is still an obstacle to the success of OBA in the water sector. Often the adjustments to mitigate the problem of bridge financing were made during implementation, with mixed success.¹⁴ A diverse range of strategies may be needed to help deal with this issue.¹⁵ Ensuring access to finance can improve a project's chance of success and prospects for its sustainability. The assessment of 18 results-based financing WASH projects (including eight GPOBA projects) showed that bridge finance adds complexity (and therefore increases costs and risks) and can make projects harder to scale up.¹⁶ These mechanisms go beyond the OBA programs and increase the transaction costs in designing and implementing these projects. However, conducted in close partnership with other partners in the field, these mechanisms can help exploit the full potential of OBA programs.

Links with World Bank Group Operations and Other Partners

56. GPOBA's water supply and sanitation projects are linked to the World Bank Group operations and often complement the World Bank's support in water supply and sanitation by extending services to poor segments of population. However, in some cases, GPOBA's grant-based projects were perceived as transitional and thus were not a high priority. There is a need to plan and engage sufficient technical

assistance to ensure technical capacity and resources to manage and implement output-based aid projects. In some cases, there is a need to strengthen the capacity of the implementing agencies, service providers, and independent verification agents to meet the M&E needs of OBA design.

SUSTAINABILITY AND SCALABILITY

57. Sustainability and scalability of the service provision of OBA pilots in water and sanitation is challenging, especially in low-income countries. In all the OBA projects in WSS, service providers committed to provide services from three to six months after project completion. However, the evidence of longer-term sustainability of the benefits generated with the support of the OBA program is scarce. The limited available evidence suggests that achieving scale is more likely when projects are developed with strong local ownership, and when results-based financing is mainstreamed into sector funding arrangements.¹⁷

KEY FINDINGS AND LESSONS LEARNED

58. GPOBA's targeting mechanisms in WSS might be reaching the poor in general, but the output-based schemes also struggle in addressing issues such as affordability of the services for the very poor, or coverage of informal settlements. The design of OBA programs would have benefited from more flexibility. This is particularly important for projects aimed to extend service delivery through output-based aid in low-income countries with poor access to finances and in FCS. Lack of working capital and limited access to finance is an obstacle to the success of OBA projects in the water sector.

59. GPOBA's water supply and sanitation projects are closely linked with World Bank operations and often complement the World Bank's own support of the sector. However, such overreliance in many cases resulted in inadequate attention to the OBA project itself. Planning and engaging sufficient technical assistance to ensure technical capacity and resources to manage and implement output-based aid projects would help mitigate this problem. Sustainability and scalability of the service provision of OBA pilots in water and sanitation is challenging, especially in low-income countries. Creating different programs to help with bridge financing notably improved the sustainability prospects. However, those programs added complexity, extra costs, and risks, and thus can be harder to replicate on a larger scale.

Water Partnership Program

60. The Water Partnership Program is a World Bank–managed multidonor trust fund established in 2009 and currently supported by five donors.¹⁸ The program is managed by the Water Global Practice. The goal of WPP is to enhance the World Bank’s efforts in reducing poverty through two overarching objectives: sponsorship and mainstreaming of pragmatic and principled approaches for water resources management and development, and improvement of the quality and effectiveness of water service delivery.

61. This is a World Bank-executed program providing technical assistance in the water sector to support analytical work, project preparation and implementation across all water subsectors, especially focusing on water resource management, cross-sectoral work and partly WSS.

62. The program’s support is provided through individual activities coordinated through one global and six regional windows. The program provision of just-in-time support to World Bank projects enables World Bank teams working with fixed budgets to provide new, innovative, and timely support to clients that otherwise would not have the resources to deal with emerging challenges. The program supports knowledge generation and learning through its global window.

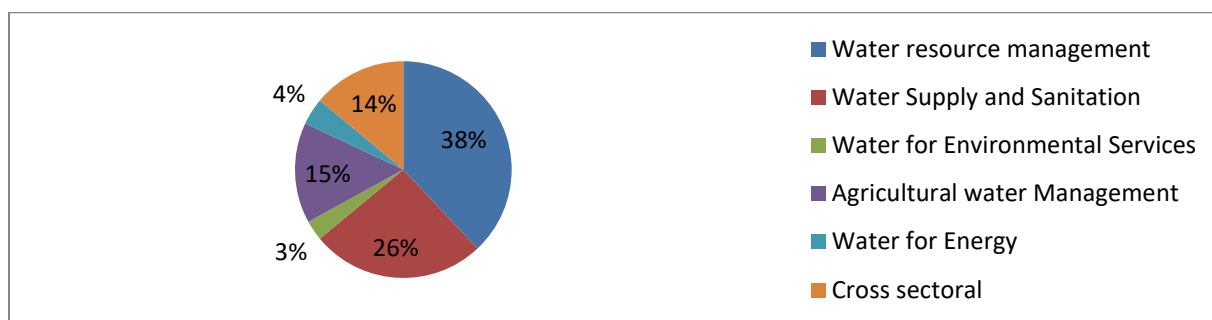
63. The WPP provided support in two phases: \$23 million the first phase of support (2009–12), and donor contributions of \$40 million in the second phase (2012–16). In its second phase, the WPP evolved from single-country interventions on either WSS or water resource management to more integrated interventions. The World Bank and donors identified new global initiatives as priority areas for funding, including disaster risk management, remote sensing, cold weather sanitation, and results-based financing in water (WPP Strategic Action Plan, 2012–2016). The multidonor trust fund also aimed to foster links with other partnerships programs besides the WSP (GPOBA and PPIAF, for example) to improve internal World Bank coordination with other trust funds and programs in the sector.

64. WPP, together with the WSP, is now part of the Water Global Practice’s partnership framework. This integration with Global Practice activities is geared to improve the use of WPP funds. This expectation is set out in the WPP’s Annual report (2015) which notes that Knowledge produced and lessons learned in the implementation of WPP activities feed back into the design of operations and the strengthening of global partnerships, creating a virtuous cycle of improvement in outcomes with each iteration. By integrating the WPP at the core of the WSP, successes are more easily scaled up or replicated globally.” (WSP 2015).

65. Since its inception and until 2015, the program committed about \$43 million for more than 300 activities. Of this, 41 percent went to global activities, including

support to analytical work, the Water Expert team, and dissemination of knowledge products. Activities related to water supply and sanitation were 26 percent of WPP funding and mostly supported activities in Africa and South Asia, where the access gap is the largest (figure M.3). These include project preparation and supervision support to about 100 World Bank investment projects in WSS and knowledge work.

Figure M.3. Water Partnership Program Funding Across Subsectors, 2009–15



Source: Water Partnership Program annual reports; World Bank Trust Funds database.

The program supported several knowledge reports in WSS covering a wide range of cross-cutting themes related to the water and sanitation sector.

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APPENDIX M.

WORLD BANK GLOBAL PARTNERSHIPS IN THE WSS SECTOR

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¹ http://water.worldbank.org/sites/water.worldbank.org/files/publication/WSP_Rwanda-PPP-Short-Paper-RWSN_FINAL.pdf

² Beyond one-size-fits-all; Lessons learned from eight water utility public-private partnerships in the Philippines August 2014

³ “Making Sanitation Marketing Work The Bangladesh Story page 3 in <https://www.wsp.org/sites/wsp.org/files/publications/WSP-Sanitation-Marketing-Bangladesh-Story.pdf>

⁴ UWSS Regulation – Draft Advisory Note (2010), Report No: ACS18249; Republic of India Service Level Benchmarking, Citizen Voice and Performance Improvement Strategies in Urban Water

Supply and Sanitation Project Synthesis Report (2016), Service Delivery Assessments, reviewed were the assessments for Bihar and Odisha states.

⁵ Presentation on Indonesia National Policy on Sanitation Development by Ir. Wahanuddin of BAPPENAS in Bangkok 2014. . See <http://www.unescap.org/sites/default/files/11-National%20policy%20on%20sanitation%20development%20in%20Indonesia.pdf>

⁶ See rating of national urban sanitation policy cities, questions frequently asked published by the Ministry of Urban Development and WSP.

⁷ The Public-Private Infrastructure Advisory Facility program charter is available at <http://www.ppiaf.org>

⁸ In the FY2007–16 period, PPIAF received \$194 million in donor contributions, of which \$141 million was disbursed for activities.

⁹ IEG 2013.

¹⁰ Cambridge Economic Policy Associates Ltd, Public-Private Infrastructure Advisory Facility 2012-2013 Evaluation, June 2013.

¹¹ Rodriguez, Diego J. ;Suardi, Mario A. ;Ham, Marcel;Mimmi, Luisa M. ;Goksu, Amanda J. . 2014. Applying results-based financing in water investments. Water partnership program (WPP), Water papers. Washington, DC: World Bank Group.

¹² Syi, 2014, p 68

¹³ Since 2016, the Global Partnership on Output-Based Aid (GPOBA) has made some changes in its operating principles to allow results-based financing approaches (other than output-based approaches) in its subsidy projects (W3).

¹⁴ Implementation Completion and Results Report on Senegal Supporting Access to on-site sanitation services through output-based aid scheme, June 2012.

¹⁵ A GPOBA study described several ways to deal with this issue. (World Bank 2010b) However, this doesn't seem to be taken forward systematically. -Based Aid by Geeta Kumar, Ira Lieberman, and Yogita Mumssen. October 2010.

¹⁶ Castalia, *Review of Results-based Financing Schemes in WASH: report to Bill and Melinda Gates Foundation*, January 2015.

¹⁷ Castalia Report 2015. p. ix.

¹⁸ The donors are Austria, Denmark, the Netherlands, Norway, Switzerland, and the United Kingdom.