

Sustainability Assessment of Rural Water Service Delivery Models: Findings of a Multi-County Review

Context and Objectives

Context and Rationale

The recently issued baseline for the Sustainable Development Goals (SDGs) states that 844 million people in 2015 remain without access to basic water services and 2.1 billion without safely managed drinking water, the large majority of those living in rural areas (WHO and UNICEF 2017). The reportedly low functionality rates of rural water supplies of between 60 to 70 percent show that access gains remain fragile and at risk (RWSN 2010). With the adoption of the SDGs, governments have committed to achieve universal and equitable access to safe and affordable drinking water for all by 2030. This means closing the urban-rural and equity gap and delivering higher levels of services, in terms of quality, accessibility, and reliability. The SDGs thus pose a triple challenge: to reach unserved, mostly rural population groups; to raise service levels; and to sustain existing and future services.

The issue of weak sustainability of rural service provision is not new and has received widespread

attention over the past decades. The Demand-Responsive Approach of the 1990s proved insufficient to address sustainability (World Bank 2012). Since the 2000s, more emphasis has been placed on postconstruction support, diversification, and professionalization of rural service providers, including the role of the private sector (Lockwood and Smits 2011). A new paradigm for rural water service delivery is emerging, recognizing wider governance systems, the enabling environment, political economy aspects, life cycle costs, and the crucial role of local institutions (Whaley and Cleaver 2017). Against this backdrop, a better understanding of the underlying factors for rural water sustainability becomes an imperative. This policy brief summarizes the key findings from a multi-country sustainability assessment of rural water service delivery models conducted in 2016-17.

Aims

This assessment used a case-study approach to identify good practices and challenges towards building sector capacity and strengthening sustainable service delivery models for rural areas. It does not focus on

the critical planning, design, and implementation phase of developing rural water supply facilities, but rather analyzes the long-term *ongoing* service delivery approach for rural water. The added value of this assessment lies in:

- The development of a comprehensive analytical framework to analyze and operationalize a more sustainable service delivery approach for rural water supply
- Documenting a rich set of cases and good practices informing the global body of sector knowledge
- Identifying a set of policy recommendations to improve the sustainability of services depending on sector development stage and rural service delivery context

Approach and Analytical Framework

Country Selection and Methodology

A diverse spectrum of 16 countries were selected based on socioeconomic development, wealth, regional representation and presence of World Bank operations: Bangladesh, Benin, Brazil (state of Ceará),

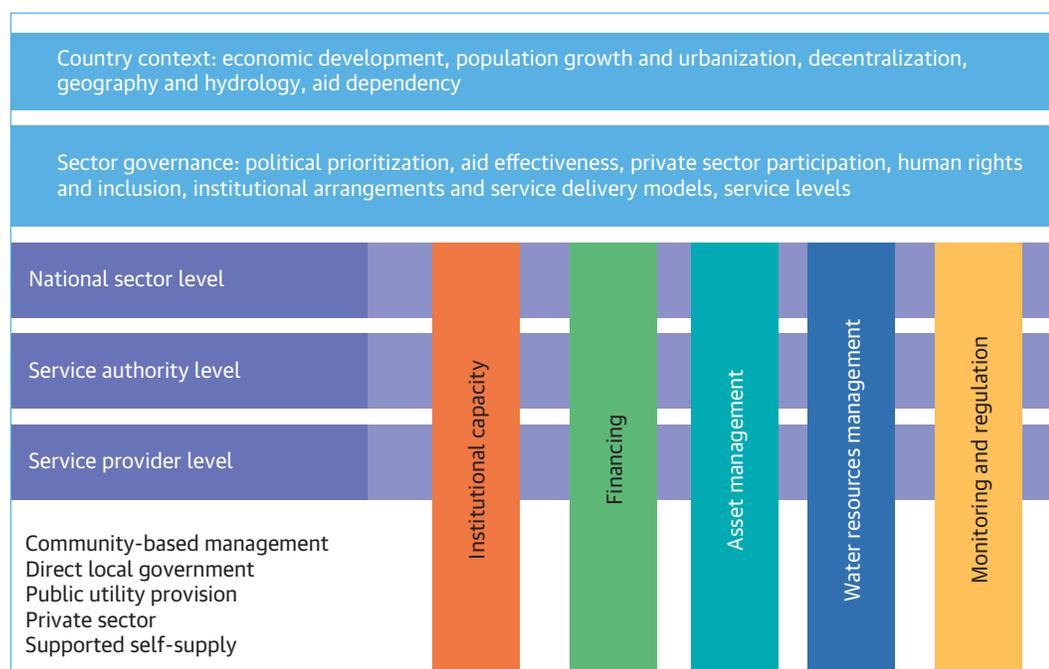
China (provinces of Zhejiang and Shaanxi), Ethiopia, Ghana, Haiti, India (states of Punjab and Uttarakhand), Indonesia, the Kyrgyz Republic, Morocco, Nepal, Nicaragua, the Philippines, Tanzania, and Vietnam. The countries cover a wide range of access levels to improved and piped water services.

The assessment is based on desk review using available secondary data and literature, and for nine out of the 16 countries, in-country qualitative data collection by local or international experts. Primary data collection at the level of water schemes was not part of the scope of the study.¹

Analytical Framework and the Building Blocks of Sustainability

The analytical framework is based on five building blocks, representing a set of optimum conditions for sustainability of rural water service provision: institutional capacity, financing, asset management, water resources management, and monitoring and regulatory oversight. The building blocks were identified from previous research, specifically the Sustainable Services at

FIGURE 1. Analytical Framework to Understand Sustainability of Rural Water



Scale project,² and validated through consultation with World Bank staff. The framework recognizes three institutional levels: national level (legislation, policy, and the establishment of national authorities), service authority level (authorities with responsibilities for delivering services, often local governments) and service provision level. At the service provider level, five main management models were distinguished: community-based management, direct local government provision, public utility, private sector provision, and supported self-supply³ (see figure 1). In this assessment, the term “service delivery model” refers to the management model and the full complement of national and local policies, capacities, regulations, and financing required to facilitate optimal service provision.

A Scoring Method to Assess Progress toward Sustainability

Each country’s progress in establishing the conditions for sustainable rural water services was assessed using a normative scoring, based on a set of questions pertaining

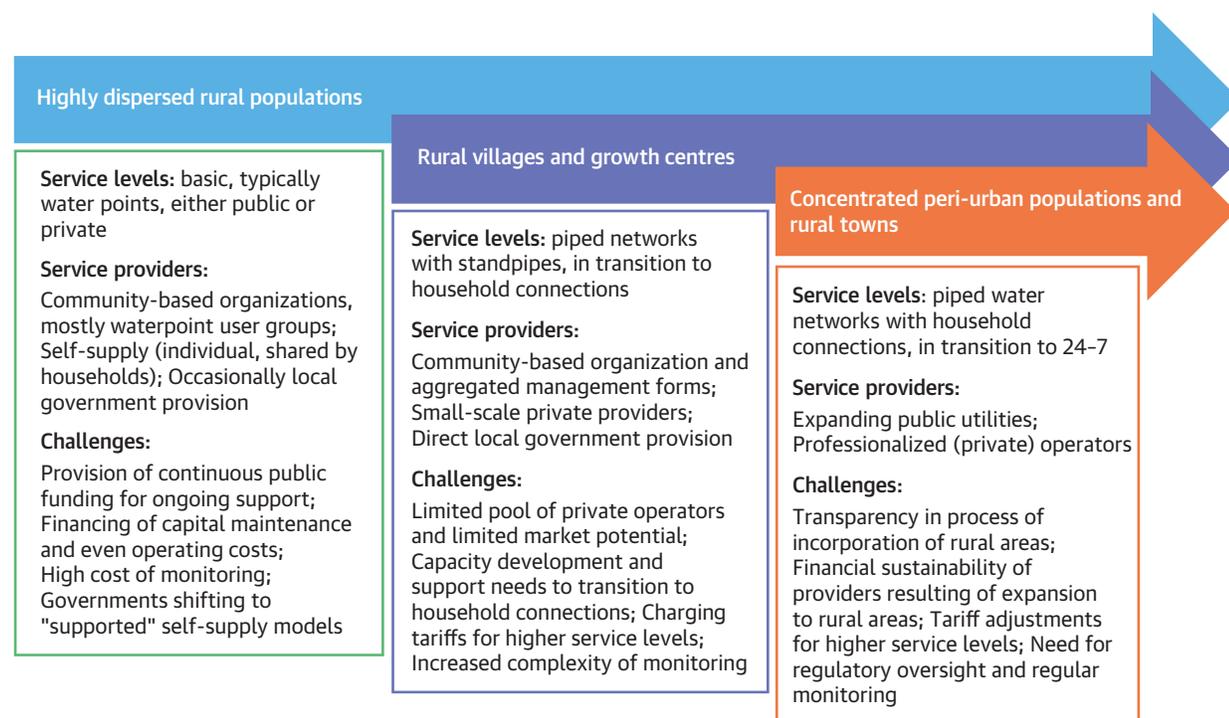
to the five building blocks. This scoring was done at two levels: at sector level and for each service delivery model in a country. This allows for an analysis across countries and service delivery models to determine common trends, strengths, and weaknesses. The scoring methodology, questions and evidence for each of the 16 countries is available in the main report (World Bank 2017) and the country working papers.⁴

Emerging Good Practices: Findings and Lessons

Diversification of Service Delivery Models in Rural Areas

While the community-based management model remains the dominant service delivery model, differentiation of service delivery models depending on local context was found, as illustrated in figure 2. Examples include urban utilities integrating peri-urban and denser rural areas in their service areas; aggregated management models for multiple rural centers;

FIGURE 2. Different Segments of Rural Water Service Delivery



and delegated management arrangements to the private sector in small towns and surrounding rural areas.

Good Practices for Each of the Building Blocks

Institutional Capacity

Progress on institutional capacity is found where rural water has become a development priority, translating into clear mandates for national institutions to plan and deliver services in consultation with local authorities. In several countries, national programs moved beyond infrastructure and now focus on supporting local governments in fulfilling their mandates. However, local governments often still need to make this shift by prioritizing postconstruction support and monitoring providers. Adequate institutional capacity is seen when service providers benefit from capacity building programs and can access ongoing support or assistance. Some countries have made service provider support a key component of rural water supply programs, such as in Indonesia, Benin, Brazil, India, and Tanzania. Services were typically provided by i) local governments, ii) federations or associations of service providers acting as technical assistance providers, or iii) higher-tier public entities or utilities.

Financing

In over half of the countries governments planned capital investments in rural water services based on sectorwide approaches, with investments co-financed through national and local tax revenues and development partner transfers. A common challenge remains to implement sustainable financing mechanisms for recurrent costs, capital maintenance, and capital replacement. Often rural tariff policies remain urban-biased and ill-defined without differentiation between operational, capital maintenance, and capital replacement costs and lack mechanisms for enforcement. Tariff guidelines that accurately define and allocate responsibility for financing different life cycle costs emerge as good examples to tackle low willingness-to-charge by local governments (for example, in Brazil). Other good practices for enhancing

financial sustainability were: i) realistic demand forecasts and flexible design standards, ii) investments in communications to transition to metered house connections, iii) expanded management models, including utility and private sector models, and iv) use of results-based financing to incentivize service delivery focus.

Asset Management

Asset management is a relatively new concept in the rural water sector. Half of the countries still need to address issues such as i) clarity around asset ownership, ii) first-time inventories and water point mapping exercises, and iii) clearly defining responsibilities for capital maintenance—minor versus major repairs—and responsibility for asset renewal. Asset management of small water schemes, managed by communities or local governments, is mostly absent. Better scores for asset management were found for urban and regional utilities, private sector models, or multi-village schemes with aggregated, professionalized management arrangements, such as in Benin, China, India, Morocco, Nicaragua, and Vietnam. Ghana developed a sound framework with i) clear asset ownership, ii) allocation of responsibilities for different asset maintenance categories, iii) financing mechanisms, and iv) asset management guidance documents and tools, but lacks operationalization. Some innovative financing mechanisms for capital maintenance of rural schemes were identified, sourced from tariff revenues and local taxes (China and Ghana).

Water Resources Management

Most countries have legal frameworks that prioritize resource allocation to domestic water supply. However, in only a few countries sub-basin or local water management bodies have rural drinking water interests well represented by rural service providers or service authorities. Good practices were found in India, Nicaragua, and Nepal, such as: i) aquifer recharge and management initiatives by drinking water entities, ii) integration of catchment protection and management in rural water programs, and (iii) local planning platforms across multiple water users (Nepal). Water safety programming and

vulnerability assessments were only found for urban utilities serving rural areas. Adapting such approaches to a rural context has proved to be challenging.

Monitoring and Regulatory Oversight

Monitoring is an area that witnessed significant progress in many countries, although wealthier countries have advanced more (China, Morocco, India, Philippines, and Nicaragua). Challenges persist in the proactive use of monitoring outputs to take remedial measures and improve programming. Good practices are nationwide (or statewide) systems that include indicators on scheme functionality and asset conditions, service levels, and scheme performance, with indicators revealing which communities have received and need support to prevent (further) scheme failure (for example, the Rural Water Supply and Sanitation Information System (SIASAR) in Nicaragua). Although most countries have defined service standards, regulatory oversight is still nascent in many countries, especially in terms of the development of and adherence to tariff guidelines. Emerging good practices include i) national service provider registries with light-handed regulation, ii) social accountability mechanisms at local level, iii) regulation by contract of

private providers, and iv) mandating oversight of rural providers to a dedicated agency.

Good Practices from the Service Delivery Models

Box 1 summarizes the key findings and lessons from the assessment of the various service delivery models in the study sample. Scores for service delivery models in the countries are available in the main report (World Bank 2017) and country working papers.

Recommendations and Policy Directions

Recommendations

To establish conditions for sustainability of rural water services, gradual but persistent interventions will be needed, depending on a country's appetite for reform and sector capacity. Figure 3 shows a ladder with three stages or levels of rural water sector development. It illustrates how incremental progress can be achieved from basic to intermediate, and from intermediate to an advanced stage of rural water sector development, in a given country.

This sector development trajectory needs to be put in the context of the changing landscape of rural service delivery, as countries will see different population

BOX 1. Lessons for Service Delivery Models

Community-based management model: Although community management is formally recognized in all countries, the majority of community organizations are neither legally established nor supported by service authorities. However, the model scored higher, especially on institutional capacity and financing, in cases where there is structural support. This would ideally include support for operations and maintenance, financial support on major repairs, and access to administrative and institutional assistance and training opportunities. Such models are found in various forms, but principally through aggregation or federation of service providers and professional supervision. Examples are the Uttarakhand Jal Sansthan, which is a designated state agency for backstopping of Water Supply and Sanitation Committees, as well as the three-tier support system in Ceará, where i) water supply associations carry out basic daily tasks, ii) activities that require economies of scale are carried out by federations, and iii) the state utility provides monitoring and supervision and takes care of new system development and major rehabilitation. Community organizations responsible for distribution only, with utilities responsible for bulk supply, score better on dimensions of sustainability (Morocco, Ghana).

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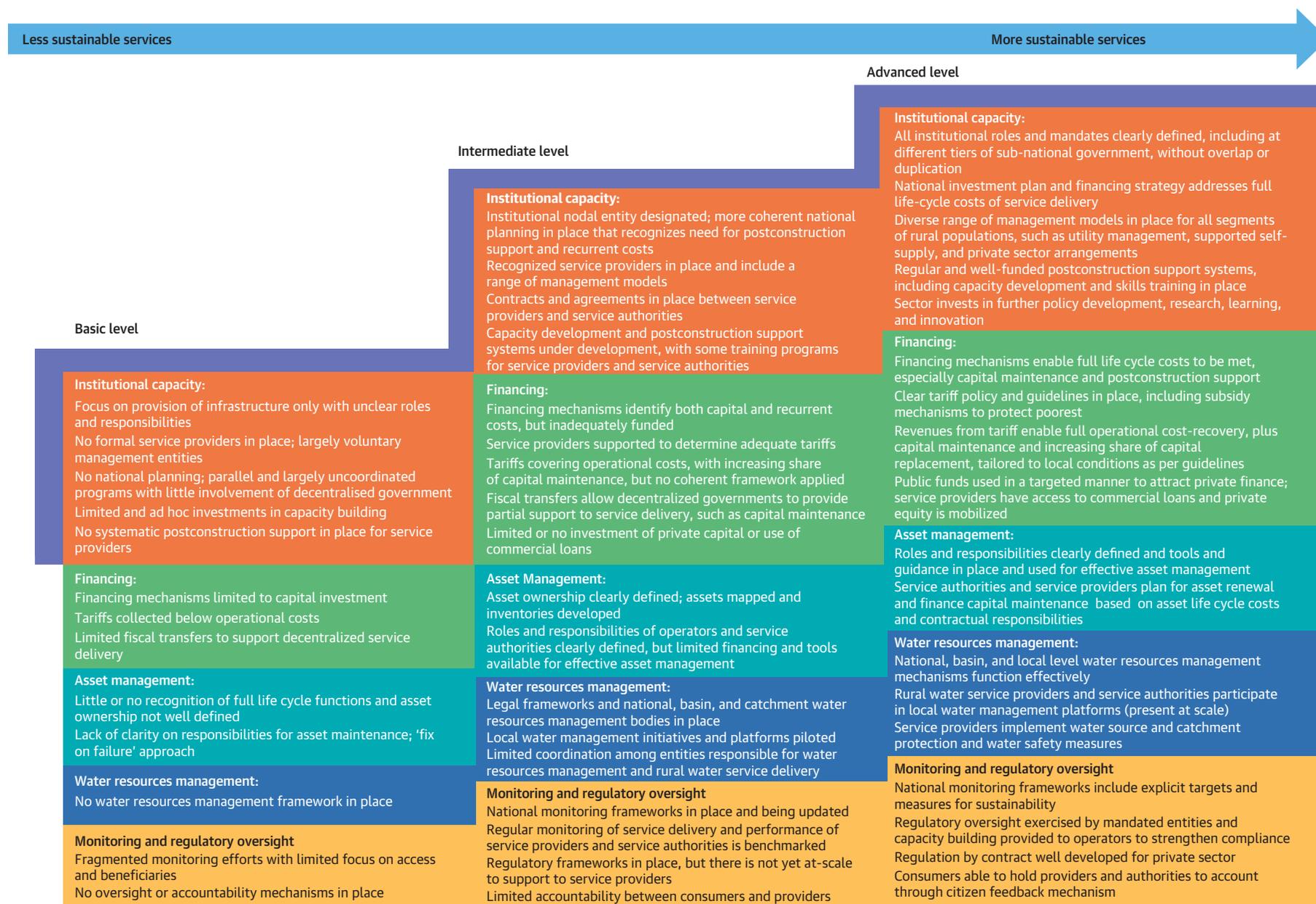
BOX 1. Lessons for Service Delivery Models (continued)

Direct local government provision: All variants of the local government provision model scored low and were particularly weak in terms of institutional capacity and financing. Water supply units within local government administrations are not corporatized entities and often fail to operate along commercial lines, without the possibility to ring-fence water operations from the general budget. In some countries, the model appears as an interim solution (Benin), while in others, more permanent arrangements are found for various reasons: i) no technical assistance to set up municipal enterprises or joint stock companies or ii) no clear guidance or regulations to delegate to private operators (for example, in Vietnam). Central governments can support direct government provision in several ways, such as with technical assistance for i) project preparation to ensure demand-responsiveness, ii) tariff guidance and ring-fencing budgets, or iii) legal support to transition to other management models.

Public utility provision: Public utility provision for rural water was found to exhibit the best conditions for sustainability, although it is present only in China, Morocco, and the Philippines, where rural villages are integrated into their service areas. Public utilities tend to show professional management of water assets, are staffed with more qualified personnel, have better financial capacity and access to funding, and are subject to monitoring and regulation. However, the rural water sector does not present attractive commercial revenue opportunities for such utilities. Obligatory service mandates for rural areas, combined with subsidies as incentives, are used to facilitate expansion. Integrating rural areas under public utilities' service areas comes with challenges, such as extending billing and collection services and monitoring to remote areas, and ensuring an adequate financial position of the utility.

Private sector provision: This model consistently scored well on financing, and to some extent on asset management and monitoring. Private sector participation was found through a range of contractual mechanisms, from build, operate and transfer (Bangladesh) to joint stock companies (Vietnam) and lease and concession contracts (Benin). In China, community enterprises commercially manage multi-village schemes. Private sector provision has also successfully mobilized private equity and commercial finance (Benin and Vietnam). Result-based subsidies have been used to leverage private investment. Successful experiences with private sector participation emerge from long-term development partner engagement in the sector to address upstream legal and policy gaps, support due diligence, provide transaction support and assistance to national and local governments, and build capacity of private operators. Private sector models still operate at a small scale or are scaling up, and critical gaps need to be addressed to realize their full potential.

Supported self-supply: Ethiopia is the only country with a supported self-supply program. In a few countries, supported self-supply is a *de facto* model, receiving limited support from national entities and service authorities (Vietnam, Brazil). This interest reflects the recognition that in dispersed settings, communal systems may not be feasible. In Bangladesh, where two-thirds of the rural population use individual supplies, there is no formalized support, despite the pressing need to improve water quality. In spite of efforts to promote supported self-supply as a formal model, there is a remarkable lack of documentation, which is critical to convince policy makers of the benefits of this model for remote and dispersed communities.

FIGURE 3. Basic, Intermediate, and Advanced Stage of Sector Development towards Sustainable Rural Water Services

segments develop at different paces, namely i) remote dispersed populations, ii) rural villages and growth centers, and iii) peri-urban and rural small towns. The biggest leap for many lower and lower-middle income country governments will be to respond to the demand for higher service levels from a growing middle class, and the transition to metered household connections. The country cases show that aggregation of rural service delivery can result in economies of scale, greater scope, and more professional provision, either through public utilities, private sector operators, or well-supported federated community-based providers. Future rural water policies must ensure that a wider range of rural providers will be more effectively supported and monitored.

With the adoption of the SDGs, adequate service delivery models for remote and dispersed rural populations need to be put in place. Without new approaches, there is a danger that remote and dispersed rural populations will be left with stagnating service levels, whilst denser agglomerations will benefit from professionalized service provision. While self-supply is a *de facto* model in all countries, governments would best adopt *supported* self-supply as a policy for remote and dispersed populations with a focus on improving water quality aspects.

What interventions to prioritize for which segment of the rural population will depend on the stage of rural water sector development in a country. Table 1 includes key interventions that country governments

TABLE 1. Overview of Key Interventions for Different Service Delivery Contexts

Stage of sector development	Highly dispersed rural hamlets	Rural villages and growth centers	Peri-urban and small towns
From basic to intermediate	<ul style="list-style-type: none"> • Allocate public funding for maintenance support • Develop policies for supported self-supply in well-defined areas • Develop monitoring system for functionality and density of access 	<ul style="list-style-type: none"> • Register and legally recognize service providers, with clear asset ownership • Professionalize service providers for transition to metering through postconstruction support • Promote regular tariff payments for higher level services and metering • Conduct asset inventories and build capacity of local governments on asset management • Develop financing policy and tariff guidelines 	<ul style="list-style-type: none"> • Define policies and targets for integration of peri-urban and rural areas under utility management • Support utilities in rural asset inventories, adjustment of business plans, and customer communication • Develop incentives and financing strategy to integrate peri-urban and rural towns • Optimize public-private partnerships (PPP) • Establish regulatory oversight with regular tariff adjustments • Develop technical assistance facilities
From intermediate to advanced	<ul style="list-style-type: none"> • Establish program for supported self-supply, including accreditation of suppliers, and targeted household subsidies • Allocate public funds for improving water quality and communications • Establish pooled support and financing mechanisms for major capital maintenance by local governments • Expand monitoring system for all providers 	<ul style="list-style-type: none"> • Initiate service provider performance benchmarking, linked to structured postconstruction support • Prepare local government annual maintenance and medium-term asset management plans and ring-fence budgets • Define regulatory oversight and introduce clustering for attractive PPP contracts • Introduce service contracts with service providers to strengthen oversight • Execute local water resources management initiatives 	<ul style="list-style-type: none"> • Improve customer orientation of service providers (small-town and larger utilities) • Implement business and performance improvement plans (financial, commercial, and technical issues) • Support service authorities in project preparation, tendering, and supervision of PPP contracts • Increase access to commercial financing • Scale-up use of targeted subsidies to leverage private financing • Mainstream water resources management and protection practices

could prioritize for each of the segments in order to transition from basic to intermediate and from intermediate to an advanced stage.

Future Policy Directions

Box 2 summarizes key policy directions that governments—with the support of development partners—are

encouraged to take to improve the sustainability of rural services. The underpinning message is that national governments need to continue to play a major role and cannot discharge state responsibilities for essential services to rural citizens, communities, and weakly funded, low-capacity local governments. National governments are required to step up their engagement in policy, financing, and technical support

BOX 2. Policy Priorities to Improve the Sustainability of Rural Service Provision

Institutional capacity

1. **Develop enabling policy and define institutional arrangements and functions for service authorities and rural service providers.** Specifically:
 - Assign functions for postconstruction support to and monitoring of rural service providers and technical support to local governments, in line with decentralization policy
 - Define clearly the roles and responsibilities of different tiers of sub-national government
 - Formalize (a wider range of) management models in policies and develop policies for integration of rural areas under service areas of existing utility companies
2. **Develop systems with sustainable funding flows for postconstruction support and technical assistance to rural service providers,** including:
 - Technical and financial support, especially with respect to major repairs of rural water assets
 - Management and institutional support to ensure that (community-based) service providers keep functioning
 - Monitoring mechanisms to ensure that postconstruction support is effectively delivered by designated technical assistance providers or local governments

Financing

3. **Adopt a financing policy and implement a tariff guideline for rural water that distinguishes the different life cycle cost elements of the full cost of service provision,** with:
 - Different segments (geography, management model) having a different level of cost recovery through tariffs—that is, the full costs are funded through a different mix of taxes, transfers, and tariffs
 - Identification of sources of funds and responsibility for major repairs, capital maintenance, and asset replacement, combined with earmarking mechanisms (for example, maintenance funds, earmarking taxes)
 - Social pricing for the most vulnerable groups to ensure affordability

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BOX 2. Policy Priorities to Improve the Sustainability of Rural Service Provision (continued)

Asset management

4. **Formalize asset ownership through legal frameworks and support service authorities—when assigned as asset holders—in the management of assets**, through:

- Asset inventories and asset condition assessments on a regular basis
- Capacity building measures using asset management tools, and the gradual introduction of medium-term asset management plans

Water resources management

5. **Strengthen representation of rural drinking water users' interests in catchment and local water management platforms, especially in water scarce areas**, through:

- Participation of service authorities and service providers in local water management bodies
- Programs to support service providers to engage in catchment protection and water safety planning

Monitoring and regulatory oversight

6. **Develop a comprehensive monitoring system for rural water services, and allocate resources for its operation and usage to inform planning and strengthen regulatory oversight**. Such a system would:

- Include a basic set of indicators to monitor service levels, functionality and water facility condition
- Be gradually expanded to monitor service provider performance and effectiveness of service authority or technical assistance providers
- Be used to strengthen regulatory oversight in terms of adherence to service level standards, compliance with drinking water, and tariff-setting in line with guidelines

domains to make a dent in the triple challenge of rural service provision: reach the unserved, raise service levels, and sustain existing and future services.

Notes

1. In parallel, the World Bank commissioned a study to better define metrics for rural water sustainability to inform sustainability monitoring under its operational engagement. Results will be published in 2018.
2. <http://www.ircwash.org/projects/triple-s>
3. “Self-supply” refers to situations where households, or small clusters of households, provide their own solutions to water supply. This study refers to “Supported self-supply” is used when the approach is formally recognized by the government and programs of structured support are in place to accelerate and improve service delivery under this model.
4. Country Working Papers are available upon request through AskWater@worldbank.org.

References

Lockwood, H., and S. Smits. 2011. *Supporting Rural Water Supply: Moving Towards a Service Delivery Approach*. Rugby, UK: Practical Action Publishing.

RWSN (Rural Water Supply Network). 2010. *Myths of the Rural Water Supply Sector*. St. Gallen, Switzerland: RWSN.

Whaley, L., and F. Cleaver. 2017. "Can 'Functionality' Save the Community Management Model of Rural Water Supply?" *Water Resources and Rural Development* 9: 56-66.

WHO (World Health Organization) and UNICEF (United Nations Children's Fund). 2017. *Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines*. Geneva: WHO and UNICEF.

World Bank. 2012. *Review of World Bank Support to the Rural Water Supply and Sanitation Sector in India (1911-2011)*. Washington, DC: World Bank.

—. 2017. *Sustainability Assessment of Rural Water Service Delivery Models: Findings of a Multi-Country Review*. Washington, DC; World Bank.



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