



Discussion document: December 2023

# Opportunities to advance water safety through regulation of rural water services

## Rural drinking water safety: The situation

Providing drinking water that is free from contamination is critical to deliver the intended health benefits of water services. However, drinking water safety is the criterion that is most limiting progress towards SDG 6.1. While access to improved water supply systems has been steadily increasing globally, the proportion of improved systems that are providing water free from contamination decreased in the last two years from 78% in 2020 to 73% in 2022.<sup>1</sup> Drinking water safety in rural areas lags behind that in urban areas, with only 62% of the rural population having access to water that was free from contamination in 2022, compared to 81% of their urban counterparts.<sup>2</sup> Small water systems that are prevalent in rural areas do not reliably provide access to safe drinking water, with faecal contamination common in protected wells and boreholes in many countries.<sup>2</sup> Additionally, chemical contamination is increasingly understood to be a concern in many areas.<sup>3</sup>

Regulation of drinking water quality is typically considered a more advanced area of water services regulation, compared to economic or service quality regulation.<sup>4</sup> However, regulations are poorly differentiated to address the challenges experienced in water service delivery in rural areas, which are characterised by small water systems. Long travel distances, low recovery of user fees, and unreliable supply chains have limited rural water sustainability, particularly in Sub-Saharan Africa. Historical project-based funding in many rural areas has focused on delivery of boreholes and small improved water systems, where water safety costs may be included in the implementation phase but with limited ongoing water safety management. Developing and implementing regulations in this context has to consider the low level of resources available, both financial and capacity, and the baseline performance of the water systems.

Globally, there is increasing interest in and development of regulations for water services. There are many different regulatory models used for water services in different contexts, ranging from regulation by independent agencies to regulation by contract, ministerial regulation or self-regulation by utilities. Across Africa, a recent review of water and sanitation services regulation identified that most progress has been made in developing standards and guidelines and empowering regulatory actors with sanctioning powers.<sup>5</sup> There has been much less progress on regulatory incentives. The focus of water services regulation in Africa has been on large piped systems, generally in urban areas, with only 9% of the 54 countries regulating point water sources<sup>7</sup>.

Small drinking water systems, including small piped water systems, present particular challenges for regulation. The existing level of service is often below national target levels, with unsafe water quality as well as poor reliability being key concerns. Financial viability of existing service providers is limited, requiring financial investments to make changes. Access to laboratories for testing water quality may not be readily available. The visibility of the health impacts from poor water quality is low due to limited health surveillance and the localised nature of the risks, making individual outbreaks likely to be small in scale.

Research undertaken through science-practitioner partnerships as part of the REACH programme has demonstrated affordable and effective models for advancing drinking water safety in rural areas, through professional service provision models,<sup>6</sup> fit-for-purpose labs,<sup>7</sup> and water treatment options.<sup>8</sup> Collaboration with Uptime and partner professional water service providers is developing a results-based funding approach to provide financial incentives for delivering safe water services in rural areas.<sup>3</sup> Recognising that these developments in rural water management structures, monitoring, treatment, and financing create opportunities to advance regulation, this discussion document consolidates learnings from a range of contexts to reflect on rural water regulation prospects and challenges. This document has been co-produced through discussions between government, regulators, service providers and researchers.

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## Lessons from rural drinking water regulation

Across experiences in rural drinking water provision, management and regulation from Bangladesh, Kenya, England and Wales, and more, the following key aspects were identified to advance regulation for rural drinking water services:

### Regulatory models must reflect that water service provision is changing.

Shifts in demographics and investment priorities are likely to see increasing development of piped water systems, including small systems, replacing non-networked systems with implications for service provider arrangements and water safety. Emerging water quality threats, due to improved scientific understanding and climate change will continue to provide new priorities for water safety management. To stay relevant, regulations will need flexibility to adapt to these changes, which may occur rapidly. For example,

- In Bangladesh, discussion of water supply regulation must grapple with uncertainty around setting realistic expectations for the maintenance of service standards through climate shocks, such as the cyclone events that cause widespread damage in the coastal zone.
- England and Wales have seen large increases in domestic rainwater harvesting to supplement water availability as concerns about water scarcity rise. Yet, the integration of domestic rainwater harvesting systems is not effectively addressed in the regulation from 2016, so there is a need to adapt regulation to the changing domestic water arrangements.

Proliferation of professional service providers who manage small water systems for reliability and quality<sup>9</sup> offers opportunities to advance rural water safety, through local water safety management activities and creation of data and knowledge resources. These local-level advancements have potential to feed into national-level strategy and tracking of water safety.



## Flooding following intense rainfall in rural Bangladesh.

### Scaling regulation to rural systems requires differentiated approaches.

Water services regulation has predominantly focussed on large urban utilities, so institutions have developed to deliver in-depth regulation of a limited number of large entities. For example, in Kenya, the national Water Services Regulatory Board (Wasreb) regulates 91 large-scale utilities, but has identified that there are around 10,000 small-scale water providers that are currently outside of the regulatory structure.<sup>10</sup> In England, the Drinking Water Inspectorate (DWI) regulates 23 large-scale water companies, and identifies around 35,000 small-scale private water supplies of which the DWI does not have direct oversight. The vast difference in the number of entities requiring regulation, as well as the size and capacity of the entities being regulated, requires different approaches.

### Working with devolved regulatory entities

For rural areas, an intermediary may be used to act as regulator. In England and Wales, local government authorities have responsibilities to regulate private water supplies.

They prefer to adopt a supportive approach in working with small entities to encourage improvements in water service provision. In Kenya, Wasreb is exploring models that might include larger water service providers assuming responsibility for small-scale providers in their area or, alternatively, county governments supporting the establishment of new independent entities dedicated to rural water oversight at county-level.<sup>11</sup> These county-level entities are intended to support information management and help build local capacity for safer drinking water. In establishing these arrangements, it is important to consider what information is available to the national regulator, and how a devolved regulator is held to account by the national regulator as well as by water users and suppliers.

### Strengthening data systems

Effective regulation requires sound data as a basis for decision making. While emerging approaches such as utilities / large-scale service providers assuming responsibility for small operators are gaining popularity, the potential gap in accountability between the small operators and the regulator is a key challenge.<sup>12</sup>

Designing data systems that support a range of types of service providers will be crucial to strengthening accountability, regardless of the level of service provided.

### Regulation needs to incentivise improvement in water safety.

Water safety planning is increasingly part of national policies and frameworks, encouraging water service providers to adopt continuous improvement approaches and prioritise actions based on assessment of risks to users. Regulators of utilities may adopt approaches that audit water safety plans. For rural water services, the challenges of scale outlined above may limit the utility of this approach, but the low service levels that many systems will be operating at will require support to build the capacity of managers and motivate improvements in service. Furthermore, regulatory approaches will need to account for the increasingly difficult conditions that extreme weather events pose for reliable delivery of safe drinking water.

Continuous improvement among water service providers is important to build climate resilience and adapt to changing conditions. Process benchmarking with provision of case studies sharing best practice or problem solving, rather than league tables, has been one method used to share learning and incentivise improvements.

Examples:

- In South Africa, the Blue Drop Certification Programme is an incentive-based regulation approach that is aligned with continuous improvement in water safety planning.
- In England and Wales, the DWI facilitates the development and sharing of best practice case studies to encourage and guide managers of small-scale private supplies in water safety planning.

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### Mechanic working on leakage repair for a small piped scheme in rural Kenya.



Photo by Cliff Nyaga

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## Effective implementation requires building shared value

Implementing regulation across a large number of small providers requires developing an approach with shared benefits, and communicating that to water service providers and to water users. This requires robust engagement with service providers and users.

### Value for service providers

Service providers may be operating with small margins on their financial viability due to working in a particularly complex, resource-constrained environment. Regulation has the potential to increase costs without a parallel increase in users' ability and/or willingness to pay. This can increase the rural water financing gap and is unsustainable without contribution from additional funding streams. Perceptions of punitive regulation or unachievable targets can increase concerns of reputational risk amongst water service providers. However, regulation may also confer legitimacy to work in communities, potentially facilitating faster establishment of service contracts and supporting increased tariff collection. Recognising and addressing the concerns of service providers and devolved regulatory entities will be essential to widen the engagement of the private and third sectors in water service delivery.

### Value for water users

As regulators expand the scope of their mandate to include rural water supplies, a key consideration is engagement with rural water users. Regulation generally requires being accountable to, and acting as 'referee' among three constituencies: policy-makers, service providers, and water users.<sup>13</sup> In order for accountability mechanisms to work, water users in previously unregulated rural areas will need to be aware of the roles and responsibilities of the regulator and service providers. They must have clarity on the levels of service they can expect and the channels for remedial action. Reporting water quality results to water users is a sensitive process,<sup>14</sup> but it is an important part of robust engagement with water users to build trust and appreciation for the water safety management activities undertaken by water service providers.<sup>15</sup>

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## Main take-away messages

- Rural water services are characterised by small water systems with constrained financial resources and human capacity, and with a poor history of safe drinking water delivery.
- Developments in rural water management structures, monitoring, treatment, and financing are creating opportunities to advance rural water safety management.
- Supportive regulatory approaches are needed to build capacity and encourage iterative improvements towards the delivery of safe drinking water, including advancing water safety planning under increasingly variable conditions driven by climate change.
- Sharing knowledge of the variety of successful regulatory approaches and best practice examples can help support government to develop and strengthen regulatory approaches that address the challenges of rural water regulation.
- Initial discussion between government, regulators, service providers and researchers, drawing particularly on experiences in Bangladesh, Kenya, England and Wales highlight four principles:
  1. Regulatory models must reflect that water service provision is changing
  2. Scaling regulation to rural systems requires differentiated approaches
  3. Regulation needs to incentivise improvement in water safety
  4. Effective implementation requires building shared value

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